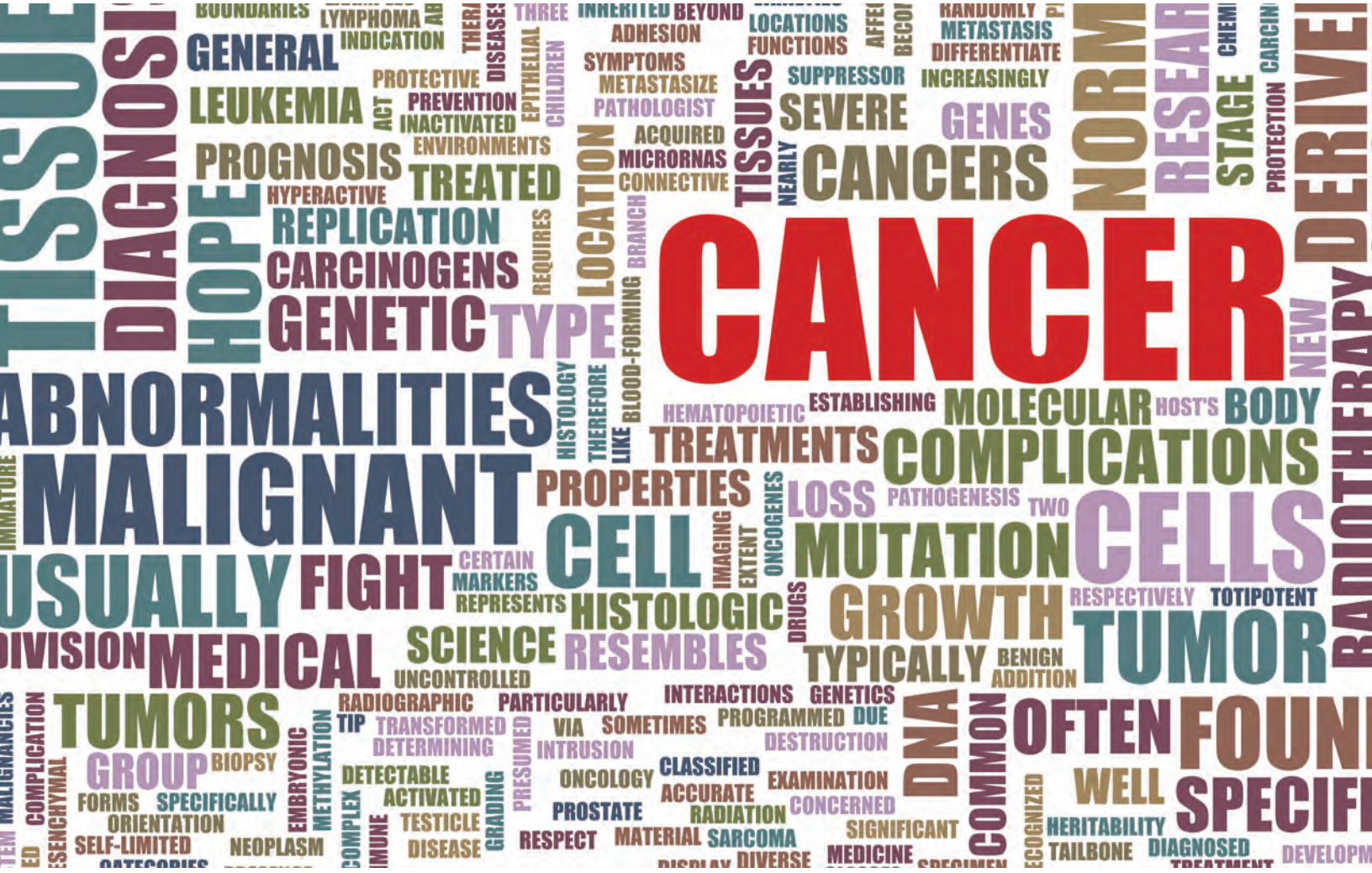
Apollo LIFE

2012 - 2013

The Oncology Issue

For nearly three decades now, Apollo Cancer Institutes have been making hope a real thing. By providing a multi-modal approach to treatment, world-class radiotherapy platforms, leading Oncologists, and active patient support groups. These international best practices are giving patients the right to hope, and to look forward to a life beyond cancer. **Apollo Cancer Institutes:** Chennai - Ph: 91-44-6060 1066, New Delhi - Ph: 91-11-6060 1066, Ahmedabad - Ph: 91-79-6060 1066 / 76988 15028, Bengaluru - Ph: 91-80-6060 1066, Hyderabad - Ph: 91-40-6060 1066, Kolkata - Ph: 91-33-6060 1066, Madurai - Ph: 91-452-258 0892. **www.hopeisreal.in**



All About Oncology

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Expert Contributors

Dr P Vijay Anand Reddy
Senior Consultant,
Professor and Head
Director, Apollo Cancer Hospital
Hyderabad

Dr Puneet Gupta
Oncologist
Indraprastha Apollo Hospitals
New Delhi

Dr Ganesha Dev Vashista
Senior Consultant
Medical Oncology
Apollo Hospitals
Bangalore

Dr B K M Reddy
Chief Radiation Oncologist
Apollo Hospitals
Bangalore

Dr Sanjay Chandrasekhar
Senior Consultant Radiation Oncologist
Apollo Speciality Hospital
Chennai

Dr Umanath K Nayak
Consultant Head and Neck Oncologist
Apollo Cancer Hospital
Hyderabad

Dr Sajal Kakkar
Consultant Radiation Oncologist
Apollo Cancer Hospital
Hyderabad

Dr Sandip Duarah
Consultant
Head and Neck Oncosurgery
Apollo Cancer Hospital
Hyderabad

Dr Niteen B More
Consultant Radiation Oncologist
Apollo Cancer Hospital
Hyderabad

Dr Suchanda Goswami
Consultant Clinical Oncologist
Apollo Gleneagles Cancer Hospital
Kolkata

Dr G Amarnath
Sr Consultant Radiation Oncologist
Apollo Speciality Hospitals
Madurai

Dr Mrs Ramesh Sarin
Sr Consultant Surgical Oncology
Indraprastha Apollo Hospitals
New Delhi

Dr Srinivas Juluri
Consultant Surgical Oncologist
Apollo Cancer Hospital
Hyderabad

Dr Shaikat Gupta
HOD, Surgical Oncology
Apollo Gleneagles Cancer Hospital
Kolkata

Dr T P S Bhandari
Senior Surgical Oncologist
Apollo Hospitals
Hyderabad

Dr Ranjan Mohapatra
Senior Consultant
Medical Oncology
Apollo Speciality Hospitals
Chennai

Dr P Vinitha Reddy
Consultant Radiation Oncologist
Apollo Cancer Hospital
Hyderabad

Dr Anil Kamath
Regional Operations Head
Senior Consultant
Apollo Dental Centres
Hyderabad

Dr Meher Kotanam
Consultant Medical Oncologist
Apollo Cancer Hospitals
Hyderabad

Dr Janos Stumpf
Advisor, Oncology and
Cyberknife Services
Apollo Speciality Hospitals
Chennai

Dr Mahadev Potharaju
Senior Consultant Radiation Oncologist
Apollo Speciality Hospitals
Chennai

Dr A V S Suresh
Consultant Medical Oncologist and Hematologist
Apollo Cancer Hospital
Hyderabad

Dr S V S S Prasad
Senior Consultant
Medical and Pediatric Oncologist
Apollo Cancer Hospital
Hyderabad

Dr Harsh Dua
Senior Consultant
Medical Oncology
Indraprastha Apollo Hospitals
New Delhi

Dr Raja T
Senior Consultant Medical Oncologist
Apollo Hospitals
Chennai

Dr R Ramu
Registrar, Dept. of Medical Oncology
Apollo Speciality Hospitals
Chennai

Dr Rakesh Chopra
Senior Consultant
Indraprastha Apollo Hospitals
New Delhi

Dr Debnarayan Dutta
Consultant Radiation Oncologist
Apollo Speciality Hospitals
Chennai

Dr Chanchal Goswami
Senior Consultant
Medical Oncology
Apollo Gleneagles Cancer Hospitals
Kolkata

Dr Srinivas C Gummaraju
Senior Consultant
Apollo Health City
Hyderabad

Dr Kausik Bhattacharya
Consultant Radiation Oncologist
Apollo Cancer Hospital
Hyderabad

Mr L K Adhikari
Mr India (Seven times)
Senior Consultant
Apollo Wellness
Hyderabad

Dr. Srikanth Pasala
Senior Physiotherapist
Apollo Life
Hyderabad

Dr Arundhati Chakraborty
Consultant Oncologist
HOD Radiation Oncology
Apollo Gleneagles Cancer Hospital
Kolkata

Dr Harita Shyam
Clinical Nutritionist
HOD, Dept. of Dietetics
Apollo Health City
Hyderabad

Sunita Pant Bansal
Senior Consultant Nutritionist
Apollo Life

Apollo LIFE

EDITOR-IN-CHIEF
Preetha Reddy

PUBLISHER & EXECUTIVE EDITOR
Upasna Kamineni

VICE PRESIDENT
Anushpala Kamineni

BRAND CONSULTANT
Aparna Roddam

MEDIA HEAD
Shivaangi Sharma

EDITORIAL ADVISORS
Sunita Pant Bansal
Dr Srinidhi Chidambaram

ASST EDITOR
Shonreichon Sareo

ART DIRECTOR
Shibu Palathumpattu

GRAPHIC DESIGNER
Gopi Krishna

EDITORIAL COORDINATOR
Denise Kavala

MARKETING
Shailaja Vardhan

EDITORIAL & MARKETING ADDRESS
Apollo Life Magazine
Lifetime WellnessRx International Limited
5th Floor, Life Science Building, Apollo Health City
Jubilee Hills,Hyderabad-500033, Andhra Pradesh, India
Ph: +91- 40 23553450,FAX:+91- 40 23553676

FEEDBACK & ENQUIRIES
editor_apollolife@apollohospitals.com

Printed at Kalajyothi Process Pvt. Ltd., 1-1-60/5, RTC X Roads Hyderabad – 500 020 and published at H.No. 10-3-316/A, Masab Tank, Hyderabad.

Published by: Apollo Life Wellness for complete health

Editor's Note

Dear Readers,

As you hold this issue in your hands, we are already into the second month of 2012.

The 4th day of this month marks World Cancer Day, which is about a concerted effort to involve everyone in a global war against cancer. And it is a fight that demands your support, because almost 43 per cent of all cancers can be prevented by just being conscious, and living a life of moderation. As the World Health Organization states, early detection of cancer greatly increases the chances for successful treatment, and the two major components of early detection are Education to promote early diagnosis and Screening.

Cancer is a condition caused by the abnormal growth of cells in the body, and these malignant cells can affect almost any tissue or organ. Today, this unseen enemy is responsible for causing more than 7.6 million deaths each year. Over 12.7 million people are diagnosed with the disease, with 8 lakh new cancer cases in India alone. It is so rampant that I'm sure all of us know of someone who has been affected with cancer, or even had a loved one suffering from it.

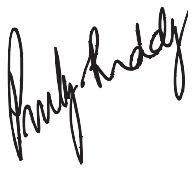
When dealing with such a complex theme, we trusted no one but the experts to help us in putting together this issue. We thank Dr P Vijay Anand Reddy, Director of Apollo Cancer Hospitals, Hyderabad, who guided us in visualising and developing this special issue.

Cancer care in India has moved to the next frontier. The Apollo Cancer Institutes are among the premier institutes for cancer care in the world. A comprehensive approach to oncology, the best of medical staff and continuous investments in the latest know-how and equipment have led to this speciality centre emerging as the seat of learning and cutting edge cancer treatment.

This exclusive edition on cancer care covers various topics ranging from simple preventive measures to rare types of cancers, from technological advancements in treating the disease, to diet and exercise tips. As it is said, "Cancer is a word, not a sentence". With this issue, we wish to reaffirm our pledge to fight harder in the battle against the adversary called cancer.

February is also when we celebrate Valentine's Day, the day of love, so please do share this issue with others. If you care about someone, make sure they know about cancer and undergo a cancer screening. And most importantly, take care of yourself.

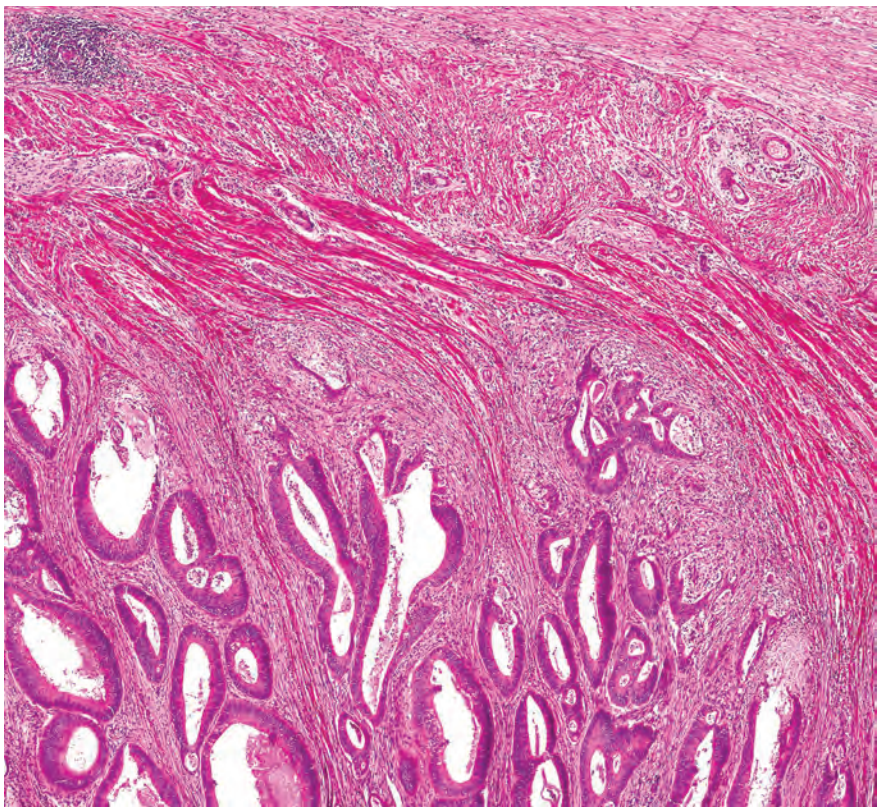
Wishing you a vibrant and healthy 2012!



Preetha Reddy
Managing Director
Apollo Hospitals & Editor-in-Chief, Apollo Life

An Introduction To Cancer

Dr P Vijay Anand Reddy provides a brief insight into cancer, the condition that affects more than 8,00,000 Indians every year



Cancer is a group of conditions where the body cells begin to grow and reproduce in an uncontrolled manner. These cells can then invade and destroy healthy tissues. The cells become cancerous or malignant because of DNA damage. This damage can be inherited, or can be caused by mistakes happening while normal cell is reproducing, or by an environmental stimulus like tobacco.

Cancer cells may travel to other parts of the body, where they begin to grow and form new tumours. This is known as metastasis. It happens when cells get into the blood stream or lymph vessels.

How common is cancer?

Approximately 8,00,000 new cancer cases are diagnosed in India every year. Recent times have seen an increase in cancer incidence in our country. The incidence of cancer and cancer types are influenced by many factors such as age, sex, race, local environmental factors, diet and genetics. In males, lung followed by oral cavity and throat cancers are the most common, while cervical and breast cancers are the most common types of cancer diagnosed in females in India.

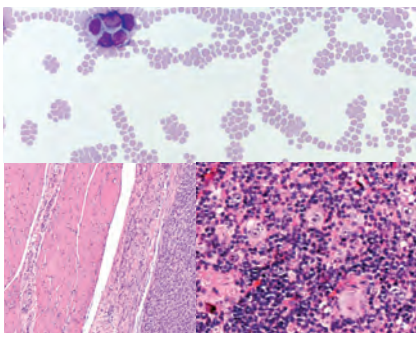
Types of cancer

There are over 200 types of cancer, but most fit into the following categories:

Carcinoma: Cancer that begins in the skin or in tissues that line or cover internal organs.

Sarcoma: Cancer that begins in bone, cartilage, fat, muscles or other connective tissue.

Leukaemia: Cancer that starts in blood forming tissue such as bone marrow.



Lymphoma and myeloma: Cancers that begin in the cells of the immune system.

CAUTION

It is important to be aware of unexplained changes to your body.

Changes in bowel habits - Diarrhoea or constipation for no obvious reasons.

A sore that doesn't heal.

Unusual bleeding or discharge - Unexplained blood in urine, stool, between periods, in vomit and cough.

Thickening or lump - Consult a doctor if you notice a lump anywhere in your body.

Indigestion or difficulty in swallowing

Obvious change in a wart or a mole.

Nagging cough / breathlessness / hoarseness - If you have had a cough or breathlessness for more than two weeks, or if you had blood in your phlegm.

What to do if you have worrying symptoms

Consult your doctor. He will ask simple questions, examine you and may ask for some tests.

If he/she suspects cancer, then he would refer you to an oncologist.

How to reduce your risk of developing cancer

STOP smoking or tobacco use in any form.

Take regular physical exercise of 30-40 minutes per day.

Eat less calories and low fat diet.

Eat plenty of fruits and vegetables, and less of non-vegetarian food.

Protect your skin from sun and avoid over exposure.

Treatment of cancer

Cancer management is a team work which involves:

Surgery It refers to the total removal of tumour, and not necessarily the entire organ.

Radiotherapy It uses X-rays to destroy cancer cells. It is very safe and has fewer side effects.

Chemotherapy It uses drugs to destroy cancer cells and includes chemotherapy, targeted therapy and immunotherapy.

Cancer at a glance

Cancer is the uncontrolled growth of cells anywhere in the body.

Cancer is preventable by undertaking simple lifestyle changes.

Low calorie, low fat diet, plenty of fruits and vegetables, regular physical activity, and no tobacco and alcohol use reduce the risk of cancer.

In case of unexplained weight loss, skin changes, changes in bowel habits, unusual bleeding, voice change, and lumps, please see a doctor.

Cancer screening is required at regular intervals after the age of 40 to diagnose cancer early.

Definitive diagnosis is made by examining; and biopsy or cytology if there is any suspicion.

Cancer is curable. Today with new radiation techniques, several chemo and targeted drugs, and improved surgical techniques, most of the cancers are not only curable but you are assured of a good quality life.

The objective of this article is to introduce the reader to general aspects of cancers. This article is followed by detailed information on specific cancer types, their prognosis, treatment and other cancer related issues.

Is Prevention From Cancer Possible?

Dr Puneet Gupta gives us the good news that 60 per cent of cancers are preventable if we take safety measures and follow a healthy lifestyle

The answer is a very favourable 'Yes'. One can surely be cancer safe and smart. It is all due to the advent of modern science, and especially the invention of the microscope. When seen under the lens, scientists observed that cancer does not happen overnight but follows a lot of physical, biochemical and genetic insults over a long period of five to ten years. Thus, after ten years or so of negligence, the so called pre-cancer changes to cancer. In these formative years, there are various scientific ways that we can use to protect ourselves from cancer, detect it at the root level and get rid of it at the pre-cancer level itself.

Another encouraging aspect scientists found out about cancer prevention was that majority of cancer types found around the world are amenable to prevention. However we cannot rely only on modern tools and tests for all types; in fact till today the best prevention for lung cancer is stopping usage of tobacco in any form. There are about 100 to 300 humans that have cancer for every one lac of humans worldwide. Thus a total of about 111 lac or eleven million new people will be diagnosed with cancer this year alone, and there are about 30 lac or three million old cancer survivors. India alone will contribute 11 lac new cases of cancer.

How to prevent cancer?

Luckily, 60 per cent (not all) of these cancers are preventable. Modern science has produced effective procedures beside physical examination by a doctor and/or self as well as microscopic examination for prevention of the following important human cancers and pre-cancer sites:

Fluorescent light examination, avoiding tobacco especially in combination with alcohol, avoiding sharp teeth, avoiding HPV virus infections, proper oral hygiene, regular dental checks every six months, taking vitamin A, for head and neck cancer prevention.

Mammography, blood tests for specific cancer genes, hormonal therapy tablets, weight control, MRI breast, regular breast health checks at least once every two years, for breast cancer prevention.

Colonoscopy, stool test, barium enema test, blood tests for specific cancer gene testing, high fibre diet, avoiding smoked meat and salted stored fish, pickles, avoiding red meat and replacing it with white meat like fish and chicken, avoiding beer and instead taking red wine, weight control, for colon cancer prevention.

Three shots of anti-virus vaccination in muscles of arm, virus testing and cell testing by latest liquid wet method instead

of old dry slide method, avoiding tobacco, colposcopy biopsy, cryotherapy, for cervix/ uterine cancer prevention.

Blood test for tumour marker PSA, trucut biopsy, ultrasound, for prostate cancer prevention.

Gastroscopy, H. pylori bacterial testing and medicines, for gastric cancer prevention.

Ultrasound of neck, blood tests for specific cancer genes, early childhood surgery of thyroid, for medullary thyroid cancer prevention.

Ultrasound of testes, repositioning of undescended testes outside abdomen, for testicular cancer prevention.

Removal of penile skin prepuces, for prevention of penile cancer in males and cervix cancer in females.

Ultrasound of abdomen, blood for specific cancer gene testing, for ovary cancer prevention.

Avoid noon or excessive sun exposure, cosmic and machine radiation exposure, use sun screens, full-covered clothing, direct long term heat and use of kangri etc. in long winters, for skin cancer prevention.

Get gall bladder and urinary bladder stones removed to avoid physical insult and cancer in later years.

Eye testing fundoscopy, blood cancer for specific gene testing, for eye cancer prevention.

Virus HTLV 1 testing in mother's milk and counseling against infected mother's milk feeding to avoid virus related lymphoma and blood cancer prevention in children.

CT scan of thorax for heavy tobacco smokers, avoiding tobacco, for lung cancer prevention.

Hepatitis B vaccination, avoiding rice and maize infected with aflatoxin fungus, for liver cancer prevention.

Some dos and don'ts for prevention of cancer:

Go for necessary lifestyle changes such as incorporating a diet rich in fruits and vegetables, regular exercise and saying an absolute NO to tobacco.

Undergo regular health checkups and

keep your weight, sugar, fat and blood pressure under control.

Preferably have health insurance. 95 per cent of cancer happens in families where no family member has ever had cancer before, so it is wrong to feel safe if no one in your family has had cancer. Everyone must adopt cancer safe procedures.

Don't depend upon modern tests alone like endoscopies, X-rays, ultrasound, MRI, and blood tests only.

Don't use vitamins for antismoking effects on lungs as they in fact have shown to increase cancer risks.

Don't use presumptive self-medication for more than four weeks for any body problem and consider a test for cancer.

Don't wait for well-advertised warning signs of cancer, and don't avoid preventive procedures waiting for cancer signs to develop.

Why Me? Causes Of Cancer

Most of the risk factors of cancer are related to lifestyle and can be avoided, explains Dr Ganesha Dev Vashista

Very few things happen in life, which are as overwhelming and as devastating as the diagnosis of cancer. The very first question invariably asked by the patient is, "Why me? What did I do to deserve this?"

Every year, more than 1 million people are diagnosed of cancer in India, and there are around 3 million cancer survivors at any given point in time.

There are several risk factors associated with the development of cancer. If a person has got one or more of these risk factors, his likelihood of developing cancer is more than the person without them. However, cancer is a result of a complex interaction between the individual and the environment he lives in. Having a risk factor doesn't mean that the person will surely develop cancer, and many patients of cancer do not have any known risk factors.

Most of the risk factors are lifestyle related and can be reduced by adapting to a healthier lifestyle. Risk factors that cannot be changed are age, sex and a family history of cancer.

Risk factors

Advancing age: Cancer is more common in individuals of more than 50-55 years of age. However it can affect any age group, including infants.

Tobacco use: Tobacco use is the single largest preventable cause of cancer and cancer related death. 40 per cent of all cancers and more than 85 per cent of lung cancers are tobacco related. Tobacco is also a major cause of cancers of the mouth, voice box, food pipe, stomach, kidney, pancreas, bladder and leukemia. Non-smokers exposed to environmental

tobacco smoke are at an increased risk of cancer. Smokeless tobacco like chewing, snuff, etc., cause cancer of the mouth and oesophagus. Quitting smoking reduces the risk of cancer.

Ionizing radiation / UV radiation: This can increase the risk of cancer. Electromagnetic radiation used in mobile phones is possibly carcinogenic. It is advisable to reduce its usage, or use hands free and speaker options.

Chemical carcinogens: People who are exposed to certain chemicals like benzene, asbestos, vinyl chloride, etc., in the workplace, are at a higher risk of cancer.

Viruses and bacteria: Certain viral and bacterial infections can increase cancer risk.

Human papillomaviruses (HPVs): HPV infection is the main cause of cervical cancer. It may also be a risk factor for other types of cancers.

Hepatitis B and Hepatitis C viruses: Liver cancer can develop after many years of infection with hepatitis B or hepatitis C.

Human immunodeficiency virus (HIV): HIV is the virus that causes AIDS. People who have HIV infection are at a greater risk of cancer, such as lymphoma and a rare cancer called Kaposi sarcoma.

Helicobacter pylori: This bacterium can cause stomach ulcers. It can also cause stomach cancer and lymphoma in the stomach lining.

Prevention of these viral infections is the best way to prevent associated cancers. Practice of safe sex, screening of blood for contamination, use of vaccines (against hepatitis B virus and human papillomavirus) can prevent these cancers.

Hormones: Prolonged use of hormone replacement therapy in post-menopausal women can lead to increased risk of breast cancer.

Family history of cancer: History of cancer in first degree relatives (parents, brother, sister) increases the risk of cancer in an individual. Breast cancer susceptibility gene mutations (BRCA1 and BRCA2) can lead to very high (60-80 per cent) risk of developing breast cancer or ovarian cancer in the affected individual and can also run in families. The features that suggest familial cancer are:

- Cancer at an early age
- Two or more relatives with the same cancer
- Multiple cancers in the same individual

Alcohol: Long term alcohol consumption may increase risk of cancers of mouth, throat, oesophagus, liver and breast. Smoking along with alcohol further increases the risk.

Poor diet, lack of physical activity, being overweight: These factors may increase the risk of cancers of colon, uterus, prostate and breast. A healthy diet high in fibre, vitamins, minerals, exercise, and optimal body weight help in reducing the risk.

Many of these risk factors can be avoided. If you think you have an increased risk of getting cancer, discuss with your doctor for reducing the risk. For a risk factor that cannot be changed, he might suggest an aggressive surveillance and screening for early detection and cure.

Early Detection Of Cancer

Detection of cancer at an early stage can minimise pain and facilitate treatment, advises Dr B K M Reddy

Early detection of cancer is crucial for successful treatment and avoidance of pain. It is particularly pertinent for cancers of the breast, cervix, colorectal, prostate, mouth, pharynx, oesophagus and stomach. Screening through examinations and tests or other methods is a plausible way to determine an unrecognized disease or defect.

Early signs of cancer

- Lumps
- Sores that fail to heal
- Abnormal bleeding
- Persistent indigestion
- Chronic hoarseness

Guidelines for early detection of cancer

The following cancer screening guidelines are for those people who are at average risk for cancer and don't have any specific symptoms. A different screening schedule should be followed by people who are at increased risk for certain cancers, such as starting at an earlier age or being screened more often. Those people with symptoms that indicate cancer need to see their doctor immediately.

Cancer-related check-up

For people aged 20 or older having periodic health exams, a cancer related check-up should include health counselling, and depending on a person's age and gender, might include exams for cancers of the thyroid, oral cavity, pharynx, larynx, skin, lymph nodes, testes, and ovaries.

Recommended guidelines for certain specific sites

Cancer Site	Population	Test for procedure	Frequency
Breast	Women above 20 years	Breast Self-Examination (BSE)	Monthly, starting at age 20
		Clinical Breast Examination (CBE)	Every 3 years for ages 20-39 Annually for those above 40 years
		Mammography	Annually starting at age 40
	Women at high risk of more than 20%	MRI and Mammography	Annually
Colorectal	Men and women above 50 years	FOBT* or FIT^ and flexible sigmoidoscopy (FSIG)	Annual FOBT (or FIT) and FSIG every 5 years starting at age 50
		Colonoscopy	Every 10 years, starting at age 50
		Computed tomography colonography	Every 5 years, starting at age 50
Prostate	Men above 50 years Life expectancy above 10 years	Digital Rectal Examination (DRE) and Prostate-Specific Antigen test (PSA)	Annually
Cervix	Women above 18 years	Papanicolaou (Pap) test once in 3 years	Annually for the first 3 years, and later once in 3 years
Oesophagus & Stomach	Age above 50 years	Oesophago - Gastro Duodenoscopy	Annually

FOBT* - Guaiac-based Fecal Occult Blood Test FIT ^ - Fecal Immunochemical Test

Mammography screening

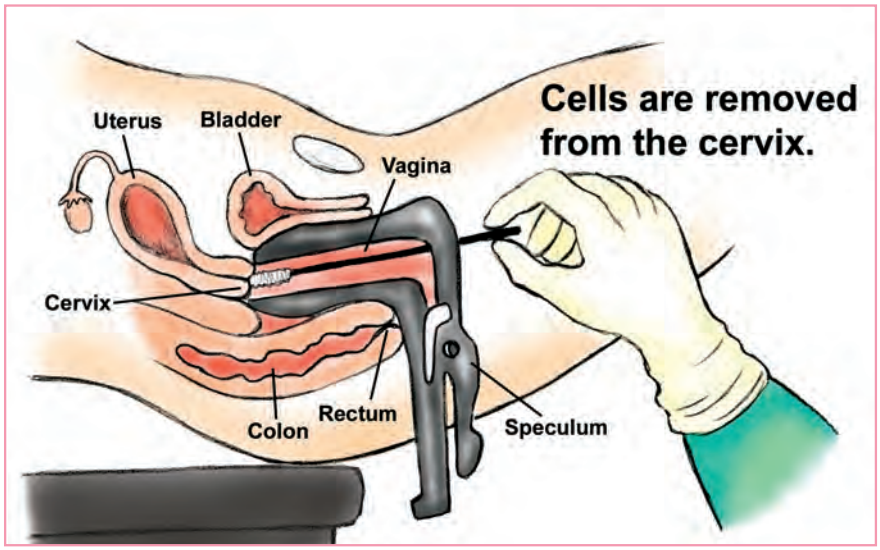
It is the only screening method that has proven to be effective, reducing breast cancer mortality by 20 to 30 per cent in women over 50 years old, when the screening coverage is over 70 per cent.

Breast Self-Examination (BSE)

Even though there is no proof of the results of screening through Breast Self-Examination (BSE), it enables women to be more aware and responsible for their own health. It is essential for women to know how their breasts are like in a normal state, and to quickly detect and report any changes to their doctor.

Screening for cervical cancer

It is intended to identify precancerous changes before they turn into cancer. In case of any abnormalities found on screening, there should be follow-up, diagnosis and possibly treatment, in order to prevent the development of cancer or to treat cancer at an early stage.



The Pap smear (cytology) is the only test that has been used in large populations and has been instrumental in reducing cervical cancer incidence and mortality.

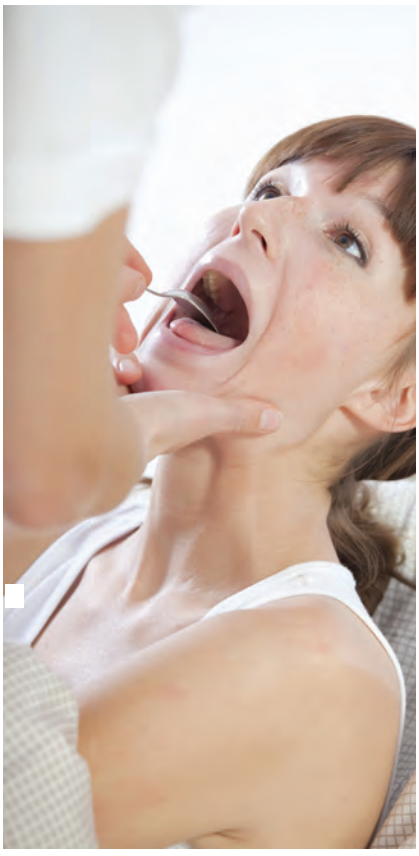
It is recommended that women should start screening for cervical cancer before they are 21 years of age, or about 3 years after they begin having vaginal intercourse.

Screening for oral cancer

The oral cavity can be easily examined by non-medical personnel for lesions which are signs of carcinoma. These lesions may regress if use of tobacco is abstained.

Periodic encounters with clinicians, either for acute care or checkups, offer the potential for health counselling, cancer screening, and case finding. It will also benefit greatly to learn about self-examination techniques, and signs and symptoms of cancer.

Information about how change in lifestyle such as avoiding smoking, maintaining a good diet, and being physically active



can help is pertinent. The general periodic health examination provides a good opportunity to address examinations and counselling that could lead to the prevention and early detection of cancer.

For nearly three decades now, Apollo Cancer Institutes have been making hope a real thing. By providing a multi-modal approach to treatment, world-class radiotherapy platforms, leading Oncologists, and active patient support groups. These international best practices are giving patients the right to hope, and to look forward to a life beyond cancer. **Apollo Cancer Institutes:** Chennai - Ph: 91-44-6060 1066, New Delhi - Ph: 91-11-6060 1066, Ahmedabad - Ph: 91-79-6060 1066 / 76988 15028, Bengaluru - Ph: 91-80-6060 1066, Hyderabad - Ph: 91-40-6060 1066, Kolkata - Ph: 91-33-6060 1066, Madurai - Ph: 91-452-258 0892. **www.hopeisreal.in**

Screening: Why, When And Whom?

Dr Sanjay Chandrasekhar sheds light on the need and various methods of cancer screening, and how it can save lives if carried out in time

A few simple lifestyle changes can help us keep off cancer. Research has found smoking to be the biggest lifestyle contributor to one's risk of developing cancer. It has been linked to causing lung, bladder, kidney, pancreatic and cervical cancer.

The major risk factors include tobacco, lack of fruits and vegetables, obesity, occupation, infections, radiation, lack of physical exercise, alcohol, excessive sun exposure and sunbeds, lack of breast feeding, hormones, red meat, lack of fibre and too much salt. Drinking alcohol is a key factor in causing breast cancer, liver cancer and cancer of the oesophagus.

Cancer is not decided by fate like many people think, but rather it is evident that things we mostly have the power to change cause around 40 per cent of all cancers.

Awareness and early cancer detection

The fear of cancer often arises out of ignorance and misconceptions, rather than any reality. A major problem in India regarding the control of cancer is ignorance about lifestyle and societal practices that causes 70 per cent of its occurrence. The highest incidence of cancers for men occurs in the head and

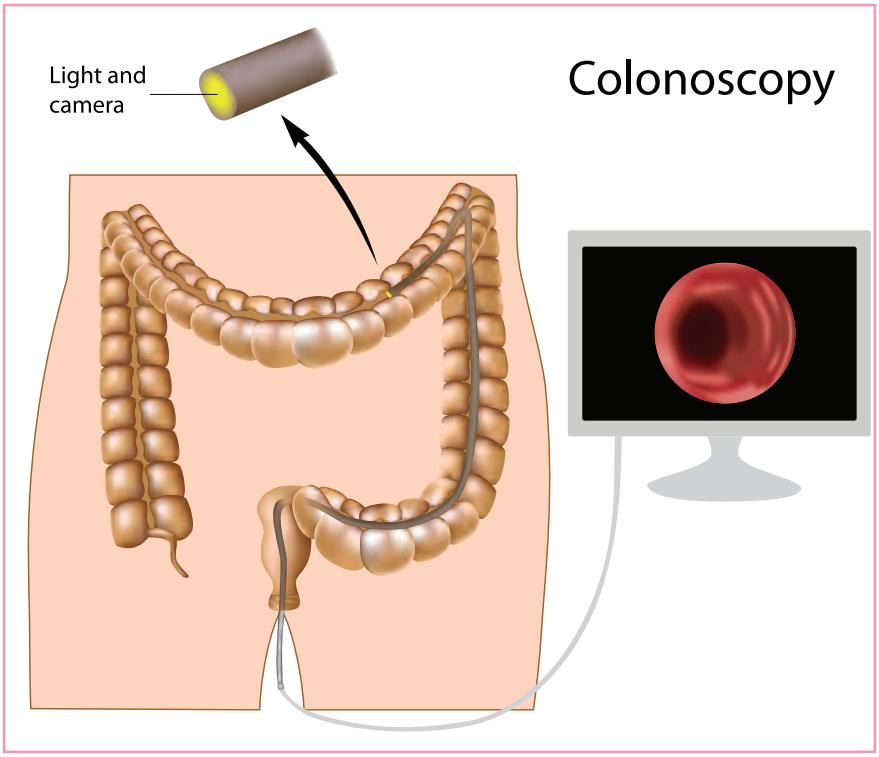
neck regions, and in the cervix and breast for women. If detected at an early stage, many of these cancers are preventable and curable.

The need is for a patient-friendly, non-invasive screening mechanism that would be effective enough to detect cancer early, yet be undaunting so that people would feel comfortable about coming in and being tested.

For instance, oral cancers seen in the form of white patches (leucoplakia), red patches (erythroplakia), black patches (melanoplakia), submucous fibrosis and difficulty in fully opening the mouth, can be easily detected during an oral examination.

What is cancer screening?

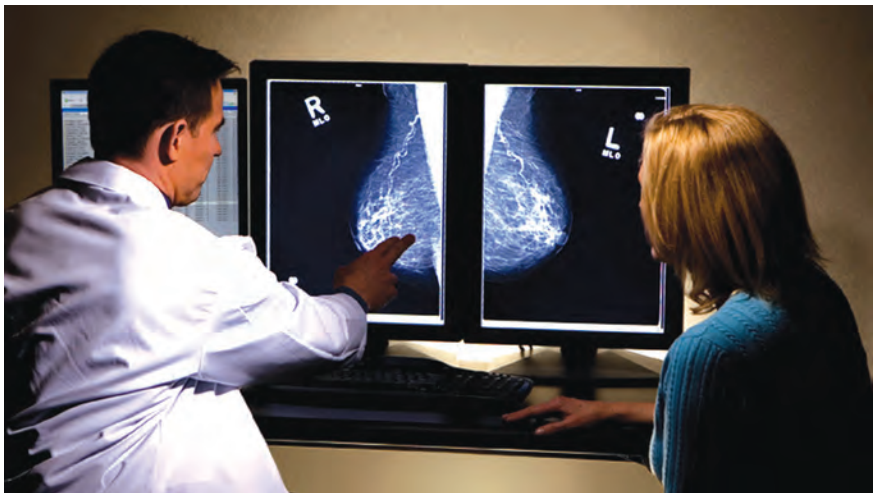
Screening is checking for cancer (or for conditions that may lead to cancer) in people who have no symptoms, as some types of cancers can be detected before they cause symptoms. It can help doctors find and treat some types of cancers early, as treatment is more effective when the disease is found early. However, it is not possible to have screening for all types of cancers and some tests are specifically targeted for people with genetic risks.



What is a mammogram?

A mammogram is an X-ray picture of the breast. Screening mammograms can be used to check for breast cancer in women who have no signs or symptoms of the disease. They usually involve two X-ray pictures, or images of each breast, which make it possible to detect tumours that cannot be felt. Screening mammograms can also find microcalcifications (tiny deposits of calcium) that are often indicators of breast cancer.

Diagnostic mammograms can be used to check for breast cancer after symptoms of the disease such as a lump or other signs have been found. Pain, skin thickening, nipple discharge, or changes in breast size or shape are alarm signals for breast cancer, though they could also indicate benign conditions.



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What are the benefits of screening mammograms?

Screening mammography can help detect breast cancer early, and thus treatment can be started earlier in the course of disease, possibly before it has spread.

What factors increase a woman's risk of breast cancer?

The strongest risk factor for breast cancer is age and the older a woman gets, the higher the risk of her developing this disease. This, however, does not mean that the risk of cancer is the same for all women in a given age group. Some risk factors are:

- Personal history of breast cancer
- Family history of breast cancer
- Genetic alterations
- Breast density
- Long term use of menopausal hormone therapy
- Radiation therapy
- Alcohol intake
- Body weight
- Level of physical activity

What is the best method of detecting breast cancer as early as possible?

The most effective ways to detect breast cancer early are getting a high-quality screening mammogram, and having a clinical breast exam done by a health care provider on a regular basis.

A breast self exam (BSE) is carried out by checking one's own breasts for lumps or other unusual changes. It cannot replace regular screening mammograms or clinical breast exams, and is not specially recommended for breast cancer screening, yet many women choose to examine their own breasts.

What is a Pap test?

The Pap test is a simple and routine way to find cell changes caused by HPV, which become cervical cancer. The doctor or nurse will collect a few cells from your cervix to send to a medical lab for testing. You can get the Pap test done at your doctor's office, clinic, or community health centre.

Why should I have a Pap test?

Sometimes cells in a woman's cervix begin to change and look abnormal. These abnormal cells may not be cancer yet, but may become cancer if not treated. Having Pap tests regularly gives you the best chance of finding cell changes or cervical cancer early, when they are easy to treat.

When should I have a Pap test?

It is recommended that the first Pap test should be done about three years after the first time one has sex, or when reaching the age of 21 (whichever comes first). A Pap test should be carried out every one to three years, together with an HPV test if one is over 30 years. It may be discontinued after the age of 65, if recommended by your doctor.

Screening and testing to detect colon and rectal cancers

Screening methods to find colon or rectal changes that may lead to cancer include laboratory tests such as fecal occult blood tests (FOB) and imaging tests such as sigmoidoscopy and colonoscopy. The latter two tests can find precancerous polyps, which can be removed during the test, and may find cancer early when it is most treatable.

Computerized tomographic colonography (virtual colonoscopy) is comparable to standard colonoscopy. It uses a long, flexible tube with a camera to view the lining of the colon. It could serve as an initial screening exam for colorectal cancer because of its ability to accurately detect cancer and precancerous polyps.

Screening oneself for cancer thus helps in earlier detection of the disease, thereby making treatment easier and also increasing the chances for a complete cure.

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Cancer Is Curable

Two-thirds of the cancers diagnosed these days are curable. The preservation of organ and function is possible, and is the standard of care now, elucidates Dr P Vijay Anand Reddy

Is cancer curable? This is a common question asked. Yes, cancer is curable! These days more than two-third of cancers are curable if treated adequately. The rest one-third are not curable because of late diagnosis and advanced stage of disease. So, we need to be worried about late diagnosis of cancer and not cancer per se. Most of the cancers are almost curable if they are diagnosed in the early stage. Patients can not only get cured of cancer, but also get away with minimal treatment and less morbid procedures.

It is very important that we should go for regular screening tests at regular intervals to diagnose cancer early.

Quality of life apart from quantity of life

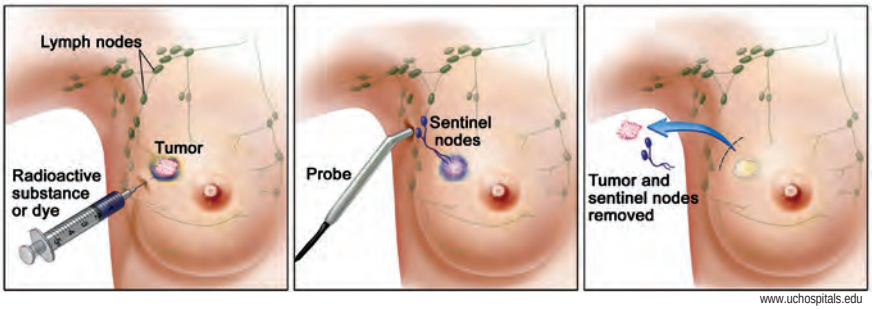
As more and more cancers are getting cured, we need to look at the quality of life too. Curing cancer at any cost is not accepted casually in recent times. More than ever before, a premium is being placed on return to a productive and useful lifestyle after cancer treatment. The concept of organ and function preservation has been in the forefront of modern cancer care. The preservation of organ and function is now the standard of care in numerous malignancies including breast, larynx, rectum, anal canal, bladder, sarcomas of limb and many more, wherever possible. To be generally adopted, organ conservation approaches must have a likelihood of eradicating the tumour, have a low risk of recurrence and not compromise on organ form and function.

Let's consider a few examples where organ preservation strategies have really made a difference in the patient's quality of life:

Throat cancers (larynx and pharynx): Traditionally, the treatment of laryngeal

cancers involved total laryngectomy (removal of voice box) and radiotherapy either used alone or in combination. This radical surgery amounts to loss of speech, compromise in respiration and swallowing functions. The significant technological advancements in radiation delivery, availability of effective chemotherapy drugs, and voice rehabilitation have shifted the focus to 'organ preservation'. The co-administration of chemotherapy and radiotherapy in properly selected patients has provided reasonable tumour control rates, organ preservation and maintenance of quality of life of the patients.

Breast cancer: Mastectomy i.e. complete removal of breast and adjacent tissues has been the traditional standard surgery for patients diagnosed with breast cancer. This procedure not only leads to restriction of movements of the arm, but has a profound impact on the patient's psyche. The loss of breast has a significant bearing on quality of life of breast cancer patients. With better understanding of tumour behaviour and technological advancements, mastectomy has been replaced by breast conservation surgery, where only the tumour bearing area and a rim of adjacent normal tissue is removed with acceptable cosmesis. This technique has shown equivalent tumour control rates and is now a widely accepted modality in the treatment of breast cancer.



www.uchospitals.edu

Bladder cancer: Cystectomy i.e. removal of the urinary bladder with an artificial passage of urine through the abdominal wall is the standard treatment for muscle-invading bladder cancers. The advancements in radiation planning and delivery techniques, availability of effective and less toxic chemotherapy drugs, have led to the development of bladder preserving approaches in carefully selected patients.

Rectal cancer: Strong considerations are given to the functional outcomes while deciding the treatment protocol for rectal cancers. The restoration of bowel functions and anal continence are the issues on which importance is placed. In recent times, the use of pre-operative chemo-radiation protocols have led to the downstaging of tumour, improved resectability and preservation of anal sphincter, and this has had a significant impact on a patient's quality of life.

Anal cancer: The traditional approach in the management of anal cancers involved loss of anal sphincter and permanent bag on abdominal wall for passage of stools. In the last three decades, chemo-radiation has become the standard of care with preservation of anal sphincter and obviating the need of permanent stoma.

Soft tissue/bone sarcoma of limbs: The traditional approach of amputation in these cancers dealt a significant blow to the patient's quality of life. With the advancement and refinement of surgical techniques, rehabilitation services and effective chemotherapy drugs, limb preservation protocols are commonly practised.

Multi-disciplinary collaborative approaches with knowledge and respect for the benefits and shortcomings of individual treatment modalities have led to the development of organ and function preservation protocols. Further efforts are being made in the endeavour to improve quality of life of cancer patients and provide acceptable cure rates.

Types of Cancer

ALL CANCERS

SARCOMA

LEUKAEMIA

KIDNEY

PANCREATIC

COLORECTAL

BRAIN

LYMPHOMA

CERVICAL

STOMACH

BREAST

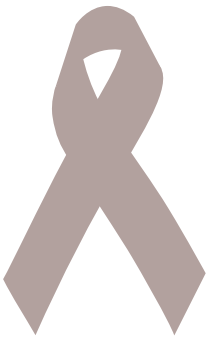
OVARIAN

COLON

PROSTATE

APPENDIX

TESTICULAR



LUNG

CHILDHOOD

Oral Cancer

Tobacco-chewing is responsible for the extremely high incidence of head and neck cancers in India, reveals Dr Umanath Nayak

Tobacco and Cancer

Over a third of all cancers are related to the use of tobacco. Tobacco-related cancers constitute a major proportion of the so-called 'preventable cancers'- cancers related to dietary habits and lifestyle. Both epidemiological and experimental studies have clearly shown that chronic exposure to tobacco in any form induces changes in the cells that lead to the development of cancer.
Smokers have a higher risk of lung and throat cancers, while those who chew tobacco run an increased risk of cancers of the mouth, throat and food passage. The brunt of the effect of tobacco is borne by the lungs in smokers and by the oral cavity in tobacco chewers. The extent of the carcinogenesis of tobacco can be gauged by the fact that even the metabolites of tobacco, which are filtered by the kidneys and accumulate in the urinary bladder, result in an increased incidence of kidney and bladder cancers in smokers.

It is the rampant habit of tobacco-chewing which is responsible for the extremely high incidence of head and neck cancers in India (over a third of all cancers).

The craze for tobacco chewing in India

In India, tobacco chewing is not just a habit; it is a religion! It is no surprise, therefore, that the country has one of the highest incidences of oral cancer in the world and has the dubious distinction of being referred to as 'the oral cancer capital' of the world. Tobacco is generally consumed as a constituent of the betel leaf, locally known as pan. Pan has traditionally been in use since generations by both men and women, young and old. It is even customary to serve pan during marriage functions and festivals.

In recent times, tobacco has become

commercially available in convenient, ready-to-use, attractive packs in forms such as gutka (a powdered mixture of tobacco and areca nut), khaini, mishri, snuff (which is inhaled through the nose) and pan masala (a mixture of areca nut and lime paste, which may or may not contain additional tobacco).

The ugly side-effects

Areca nut by itself has been shown by many scientific studies to be the cause of oral sub-mucous fibrosis, a condition characterized by stiffening of the inner mucosal lining of the cheek and other parts of the oral cavity due to the deposition of fibrous tissue. This restricts the extent to which the mouth can open and in severe cases, can result in a total inability to open the mouth. Though not cancer per se, this is an extremely debilitating condition by itself and very difficult to treat.

Oral sub-mucous fibrosis is also pre-cancerous and a significant proportion of people with this condition ultimately succumb to oral cancer. This condition is increasingly being seen among students and young adults who, attracted by the stylish packaging and marketing of pan masala products, start using them at an early age and get addicted. The absence of tobacco engenders the erroneous belief that these products are safe to consume, with disastrous consequences. It is estimated that there are over 20 million adolescents in the age group of 15–20 years, who are addicted to some form of tobacco or pan masala in India.

Battling tobacco consumption in India

The Indian government has only recently woken up to the reality of the health hazards of these chewable tobacco products. While restrictions on smoking in public places and a ban on the advertisement of all tobacco products have been in existence since 2003, they have done precious little to curb the evil of tobacco-chewing. Subsequent to 2003, a modest reduction in the sale of cigarettes and other smoking products was negated by a significant increase in the sale and consumption of chewable tobacco.

A pictorial warning depicting oral cancer on all tobacco products (including chewable) was to replace the existing warnings from June 2010 onwards. However pressure from the strong tobacco lobby has put this on hold as of now. The present warnings enforced from 31 May 2009 show an X-ray picture of a cancer stricken lung which is considered too soft to have any real impact.

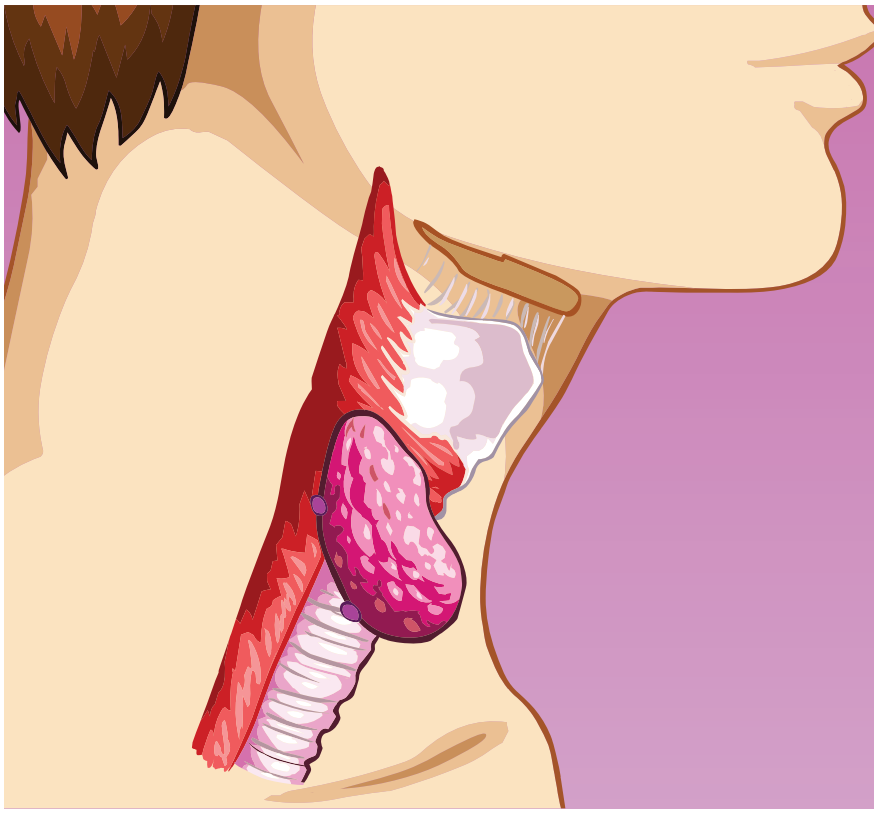
Pictorial warnings have significantly reduced the consumption of tobacco products in countries such as Brazil and Mauritius, and thus brought down the incidence of oral and lung cancers there. Many countries of the European Union, Canada, Singapore, and others have also adopted pictorial warnings with encouraging results.

Hopefully, the Indian government will be able to resist pressures from vested interests to enact this legislation and curb the menace of tobacco-chewing, which has reached epidemic proportions in our country. Whether this rule, once enforced, will also apply to those pan masala products that do not contain tobacco is unclear. These products are equally dangerous and are consumed by a segment of the population that is largely clueless about their catastrophic effects. Maybe only public interest litigation on the lines of what happened in the United States during the eighties in connection with smoking, can ultimately result in any significant impact on the evils of tobacco-chewing in our country.

(Excerpted from the book: "Enduring Cancer – Stories of Hope")

Throat Cancer

Throat cancer forms in tissues of the pharynx and larynx, and are the third most common cancers diagnosed in Indian males, says Dr Sajal Kakkar



Throat cancer is cancer that forms in tissues of the pharynx (the hollow tube inside the neck that starts behind the nose and ends at the top of the windpipe) and larynx (voice box). Larynx and pharynx cancers are the third most common cancers diagnosed in Indian males after lung and oral cavity cancer. More than 60,000 cases are diagnosed every year with throat cancer.

Risk factors

Tobacco is by far the most common cause of throat cancer. Both smoking and 'smokeless' tobacco (tobacco chewing) increases the risk of throat cancer. Heavy alcohol use and diet low in fruits or vegetables are the other factors associated with the development of throat cancer.

When to see a doctor

A sore throat that doesn't go away, pain or difficulty in swallowing, hoarseness or change in voice quality, ear pain, a lump in the neck are the common symptoms of throat cancer. These symptoms may be caused by other less serious conditions. But, it is important to check with your doctor for any of these.

Diagnostic tests

In making a diagnosis of throat cancer, your doctor will start by recording your medical history, asking about any symptoms you may be experiencing and conducting a thorough physical examination. Your doctor may also recommend some tests like endoscopy (to see the inside of throat), CT scan or PET scan (for additional information regarding the spread to adjacent areas, staging of disease), and cytology or biopsy (removal of tissue to confirm the diagnosis).

How is throat cancer treated?

Throat cancer patients are best treated by a multi-disciplinary team of specialists that includes a surgical oncologist, radiation oncologist, medical oncologist, dieticians, speech and physical therapists. The treatment plan for an individual patient

depends on a number of factors including the site of disease, stage of the disease, the person's age and general health. The patient and doctor should consider and discuss each treatment option carefully.

Surgery: It may involve removal of a part of the throat and voice box. In these cases, the ability to speak, swallow or breathe may be affected. Surgery is usually reserved for advanced cases.

Radiation therapy: This treatment involves the use of high energy X-rays to kill cancer cells. Traditionally it was used as an adjunct after the surgery in throat cancers. With better understanding of tumour biology and behaviour, technological advancement in radiation planning and delivery, radiation alone (in early cases) or combined with chemotherapy has become the new standard of care since the past decade. Radiation therapy not only provides good tumour control rates but also helps in preservation of organ form and function i.e. speech and swallowing.

Chemotherapy: This treatment uses drugs to kill cancer cells. The co-administration of chemo-radiotherapy has provided a credible alternative of organ preservation to throat cancer patients. Chemotherapy not only kills cancer cells throughout the body, but also enhances

the action of radiation.

Targeted therapy: This treatment includes drugs that act at molecular level to destroy or inhibit cancer cell growth. Unlike chemotherapy they have fewer side-effects.

Regular follow-up care is very essential after treatment of throat cancer, to make sure that the cancer has not returned. The medical check-up could include neck or throat examination. From time to time the doctor may perform blood tests, CT or PET scans.

Quitting smoking and alcohol not only lowers the risk of throat cancer, but also reduces the chances of developing new secondary cancers in already treated patients.

Eye Cancer

Retinoblastoma - They Live and See...

Retinoblastoma is caused by a mutation in a gene controlling cell division, and generally affects children under the age of six. Dr P Vijay Anand Reddy elaborates on the cancer of the retina

Retinoblastoma is a cancer of the inner part of the eye known as the retina. The retina normally acts like a film of a camera that captures images and helps us to see. Retinoblastoma is caused by a mutation in a gene controlling cell division, causing cells to grow out of control and become cancerous. In a little over half of the cases, this mutation develops in a child whose family has never had eye cancer. Other times the mutation is present in several family members. If the mutation runs in the family, there is a 50 per cent chance that an affected person's children will also have the mutation. They will therefore have a high risk of developing retinoblastoma themselves. The cancer generally affects children under the age of six. It is most commonly diagnosed in children aged one to two years.

Signs and tests

The doctor will perform a complete physical exam, including an eye examination that is done after giving anaesthesia. Besides this, sonography (ultrasound scan) of the eye and a computed tomography (CT) scan or a magnetic resonance imaging (MRI) scan may be required.

Few facts about retinoblastoma

Retinoblastoma is an eye cancer that can occur in any child. It is the most common eye cancer in children.

There are 5000 new cases every year in the world, and 1500-2000 new cases in India.

See the doctor in case of white shiny glitter in the centre of the eye, squint, poor vision, or red eye.

Local therapy, chemotherapy, and radiotherapy can successfully treat the child and save the child's vision, eye and life!

Treatment

The goals of treatment are to:

Salvage life

Salvage the eye

Salvage vision

Treatment options depend upon the size and location of the tumour.

Small tumours may be treated by Transpupillary Thermotherapy (TTT) or Cryotherapy. The challenge here is to

Symptoms

One or both eyes may be affected.

Common features of retinoblastoma	
A white glow in the eye is often seen in photographs taken with a flash (Leucocoria)	56 %
Crossed eyes	20 %
Red painful eye	7 %
Poor vision	5 %
No symptoms	3 %
Swelling around eye (Orbital cellulitis)	3 %
Dilatation of pupil (Mydriasis)	2 %
Differing iris color in the affected eye (Heterochromia iridis)	1 %
Blood in eye (Hyphema)	1 %

Retinoblastoma, a tumour of the retina

minimize the scarring and provide optimum vision.

For large tumours, Chemoreduction (chemotherapy combined with focal treatment options like TTT) forms the mainstay of treatment. The aim here is to try and salvage the eye, and if possible the vision.

Radiation may be used for recurrent tumours and tumours that have spread out of the eye, in conjunction with chemotherapy. Radiotherapy may be given via external route or by placing radioactive plaques on the eye known as plaque brachytherapy.

The eye may need to be removed (a procedure called enucleation) if the tumour does not respond to other treatments. In some cases, it may be the first treatment.

However, with the present day treatment modalities, there are several options available to salvage the eye, like high-dose chemotherapy, which is monitored by a radiation oncologist, periocular chemotherapy administered by an experienced ocular oncologist and external beam radiotherapy.

Restoration of vision and cure is possible!

If the cancer has not spread beyond the eye, cure and vision restoration are achievable with the advancements in treatment options available nowadays.

If the cancer has spread beyond the eye, but within the orbit, the cure is around 70 per cent, and if the tumour spread is beyond the orbit into the brain and elsewhere, the cure is lower.

What are the survival rates for retinoblastoma?

Nearly 95 % of children with retinoblastoma are cured.

Both preservation of eye and vision is possible if detected early.

When retinoblastoma spreads beyond the eye, a child usually has a very poor outcome.

Early detection of retinoblastoma is extremely important or the disease can be fatal.

For nearly three decades now, Apollo Cancer Institutes have been making hope a real thing. By providing a multi-modal approach to treatment, world-class radiotherapy platforms, leading Oncologists, and active patient support groups. These international best practices are giving patients the right to hope, and to look forward to a life beyond cancer. **Apollo Cancer Institutes:** Chennai - Ph: 91-44-6060 1066, New Delhi - Ph: 91-11-6060 1066, Ahmedabad - Ph: 91-79-6060 1066 / 76988 15028, Bengaluru - Ph: 91-80-6060 1066, Hyderabad - Ph: 91-40-6060 1066, Kolkata - Ph: 91-33-6060 1066, Madurai - Ph: 91-452-258 0892. **www.hopeisreal.in**

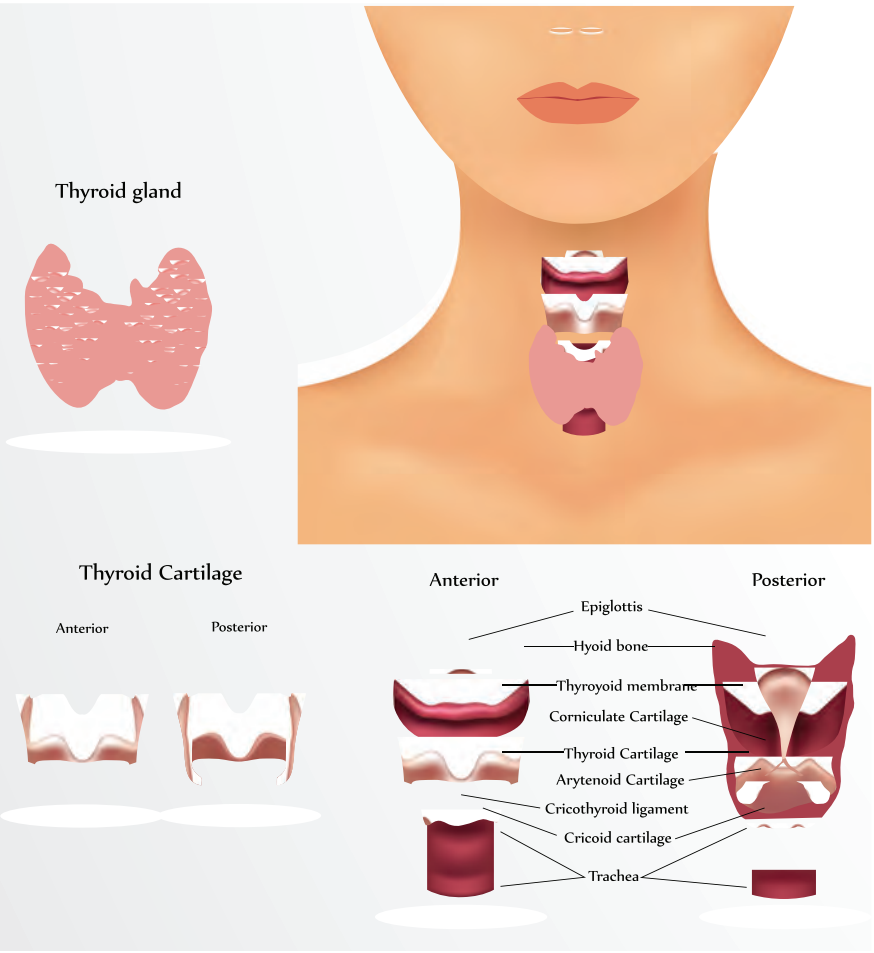
Thyroid Cancer

Did you know that thyroid cancer is more common in women? Dr Sandip Duarah examines this cancer which accounts for more than 90 per cent of all endocrine malignancies

Thyroid malignancy is the most common endocrine malignancy. Thyroid cancer accounts for more than 90 per cent of all endocrine malignancies, but represents only about one per cent of all human cancers. The worldwide incidence of thyroid cancer is approximately 1,40,000. The excellent long-term survival rates seen in patients who have thyroid cancer is reflected in the relatively small number of disease-specific deaths attributable to thyroid cancer compared with other malignancies.

Recently, in some regions of the world the incidence of thyroid cancer has been increasing. However, evidence supports that the increase in incidence appears to be due to improved detection rather than an increase in the true occurrence, and may reflect differences in access to healthcare. Unlike most head and neck tumours, thyroid cancer is more common in women and often follows a protracted natural history.

Thyroid nodules, which are a common problem, are prevalent in five per cent of women and one per cent of men in iodine sufficient parts of the world. The clinical importance of thyroid nodules rests with the need to exclude thyroid cancer, which occurs in five to 15 per cent of the population, depending on age, sex, radiation exposure history, family history, and other factors.



Types of thyroid cancers

Thyroid cancers encompass varied histologies ranging from indolent to aggressive. They may be classified into:

Differentiated carcinomas, such as papillary carcinoma, follicular carcinoma and Hurthle cell carcinoma account for 90 per cent of the thyroid cancers diagnosed.

Medullary cancer arising from the parafollicular cells account for three per cent.

Anaplastic (undifferentiated) carcinoma.

Symptoms

Although it can be seen at any age, the median age at diagnosis is close to 45 years of age. Most patients have an asymptomatic painless mass in the thyroid.

Clinical features that should raise the pretest probability of malignancy are:

Rapid growth

Suspicious criteria by ultrasonographic examination

Vocal cord paralysis

Family history of thyroid cancer

Prior history of radiation exposure during childhood

Hard fixed nodule

Palpable cervical lymphadenopathy

Evaluation

Fine-needle aspiration (FNAC) has the highest sensitivity and specificity for identification of malignant thyroid nodules. Thyroid function tests are almost uniformly normal. Even though FNAC is highly sensitive and specific, follicular thyroid cancers can't be diagnosed by FNAC.

A surgical biopsy or a hemithyroid specimen is required for a confirmatory diagnosis.

Ultrasound evaluation or CT scan imaging is required to document the extent of the primary disease and to exclude any nodal involvement in the neck.

Treatment

Thyroidectomy: For differentiated thyroid cancer of more than one cm, total (near total) thyroidectomy is the preferred operation.

Lymph node dissection is carried out only for patients who have known lymph node metastases detected on preoperative staging or intraoperatively.

Role of radioactive iodine: Radioactive iodine (RAI) ablation is carried out one to four weeks after surgery in most papillary thyroid cancers greater than one cm.

Role of external beam irradiation in initial therapy: External Beam Radiation Therapy (EBRT) is most often used for unresectable tumours that do not concentrate RAI, or for older patients above 45 years who have evidence of gross extrathyroidal extension of the tumour into surrounding structures that are likely to have microscopic or small volume macroscopic disease that is not amenable to RAI therapy.

Role of chemotherapy is usually palliative in the treatment of thyroid cancers.

Monitoring for recurrent/persistent disease is carried out with six-monthly thyroglobulin (Tg) estimation and ultrasonography

Medullary thyroid cancers are an aggressive variety with high propensity for nodal involvement, and hence the treatment involves total thyroidectomy with lymph node dissection.

External beam radiotherapy is advocated for treating surgically unresectable residual or recurrent disease.

Adjuvant irradiation is recommended for extrathyroidal disease, extensive nodal involvement, or extracapsular spread.

Post treatment monitoring for recurrent disease is done with serum calcitonin estimation.

Treatment results for anaplastic carcinoma are discouraging. Despite the employment of various aggressive treatment strategies that consist of surgery, radiation therapy, chemotherapy, or combinations of the three, almost all patients with this disease die a cancer-related death. The median survival of anaplastic thyroid cancer is two to six months, and only a few patients have survived for more than 12 months. Hence the goal of treatment is usually palliative.

Brain Tumours

Common symptoms like headaches, vomiting, loss of orientation, etc. could indicate the presence of a brain tumour, cautions Dr Niteen More

What are brain tumours?

A brain tumour is an abnormal growth of cells within the brain. It arises from glial cells of the brain, lymphatic tissues, nerves and meninges. Benign brain tumours grow slowly but they can compress adjacent parts of the brain. Malignant tumours grow rapidly and they invade adjacent structures of the brain. Brain tumours are graded according to the nature of cell growth. Grade I and II tumours are grouped as low-grade, whereas grade III and IV are grouped as high-grade tumours. Prognosis is better in low-grade or benign tumours.

The following types of brain tumours are seen commonly:

In children: Juvenile pilocytic astrocytoma, craniopharyngioma, medulloblastoma, brainstem glioma and germ cell tumours.

In adults: Astrocytoma, oligodendroglioma, ependymoma, meningioma, vestibular schwannoma and lymphoma. Cancers from other parts of the body can also spread to brain.

What are the common symptoms of brain tumours?

Headaches, usually in the morning

Vomiting

Convulsions or seizures

Weakness in limbs

Loss of balance while walking

Altered speech or vision

Altered behaviour

Loss of orientation

Memory lapses

How are brain tumours diagnosed?

Imaging: CT scan or MRI scan of brain is commonly performed.

Biopsy: A piece of tumour is removed for examination by open surgery or in stereotactic fashion using rigid frame to fix skull and localizing tumour under guidance of CT scan or MRI.

How are brain tumours treated?

Brain tumours are treated by surgery, radiation therapy or chemotherapy, or a combination of these. The choice of treatment depends upon the age of the patient, type of tumour, its location, size and grade.

Surgery: Maximum safe resection of the tumour or at least a biopsy is the standard goal of surgery.

Radiation therapy: Radiation kills tumour cells with high energy X-rays, gamma rays or protons. It is usually started after surgery and given over 5-6 weeks.

Chemotherapy: Chemotherapy is the use of drugs to kill cancer cells. It is given orally or through veins. It is given concomitantly with radiation therapy in high-grade tumours. It is also given in recurrent brain tumours after failure of initial treatment.

What are the advances in radiation therapy of brain tumours?

3-Dimensional Conformal Radiation Therapy (3D-CRT) and Intensity-Modulated Radiation Therapy (IMRT): CT scan and MRI are used to delineate the tumour and computers are used for radiation planning. Only the tumour and the high-risk region surrounding the tumour is radiated, avoiding radiation to the normal structures in the brain.

Stereotactic Radio-surgery (SRS) and Stereotactic Radiotherapy (SRT): Highly precise immobilization and image guidance system is used for treatment of selected brain tumours. High dose of radiation is delivered only to the tumour with very minimal spillage of dose to the rest of the sensitive brain structures. Stereotactic radiotherapy is preferred in children. Stereotactic radio-surgery delivering high-dose of radiation in single or a very few sessions is performed in adults with tumours such as metastatic residual glioma, meningioma and schwannoma. Novalis-Tx and Cyberknife are advanced machines to deliver such high-precision therapy.

High-definition Rapid Arc: This is the latest software advancement in radiation planning technology. Radiation is delivered in continuous fashion moving the machine head and its small components simultaneously around the patient's head targeting the tumour by infinite small radiation beams. Radiation treatment with such a technique is highly precise and fast. This is preferred in children and elderly patients who cannot lie on treatment couches for long periods.

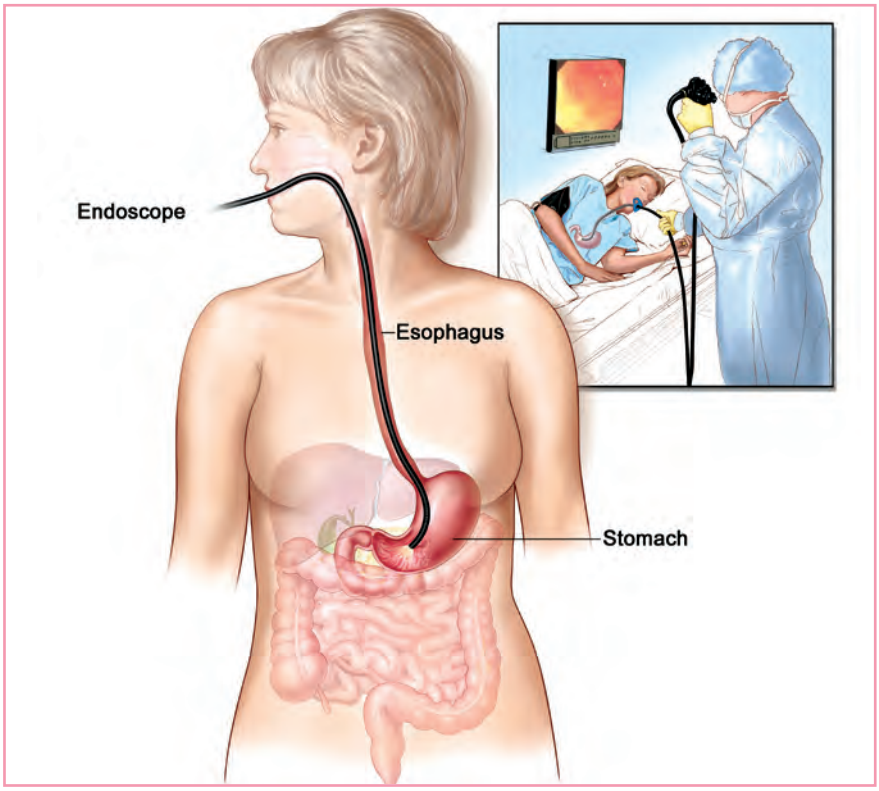
Proton beam therapy: Proton therapy avoids spillage of radiation dose to the surrounding brain. It is preferred in children as well as in patients with recurrent tumours who have received radiation therapy earlier.

Cancer Of Oesophagus

Though India has a relatively low incidence, cancer of the oesophagus is prone to strike those who smoke and drink heavily, warns Dr Suchanda Goswami

Digestive system in human body starts from mouth or oral cavity and ends in anus. In between are the various parts of pharynx, oesophagus, stomach, small intestine, large intestine and rectum. Oesophagus is a muscular tube connecting pharynx to stomach. Its length varies from 23 to 30 cm and it is divided into upper third, middle third and lower third for the convenience of clinicians to modify treatment.

The preponderance of the cancer of the oesophagus is very high in some parts of the globe like North China, South America, Western Europe, South Africa, Japan and USSR. India has a relatively low incidence.



Risk factors

A few risk factors are associated with oesophageal cancer. It is very often found in people of low socio economical status. The correlation between this factor and cancer is unknown. People who drink alcohol moderately or heavily (more than 35 drinks per week) suffer from this type of cancer more. Smokers are also prone to develop oesophageal cancer. Low intake of fruits and vegetables is associated with oesophageal and colon cancer.

Symptoms

The most common complaint is difficulty in swallowing which often becomes painful. The onset is gradual with difficulty in swallowing solid food, which when ignored progresses to liquid food too. A man came to my clinic with a history of eight months of swallowing difficulty which he did not reveal to his family members fearing that his daily alcohol intake will be stopped. Ultimately when he developed severe vomiting and gross weight loss, his wife forcibly got all the tests done and it was found that he had incurable cancer of oesophagus.

Hematemesis or blood vomiting occurs during the later stage of the disease. Sometimes the wall of the oesophagus gets eroded and a passage is created between the oesophagus and trachea or the wind pipe. This leads to cough while eating since the food passes into the trachea which in turn leads to lung infection.

Diagnosis

Swallowing difficulty and weight loss are highly indicative of cancer of oesophagus. 80 per cent of the oesophageal tumours are malignant. Anybody with these complaints should be tested with an endoscopy followed by biopsy if any ulceration or growth is visualized. Endoscopy is a simple procedure wherein a tube-like structure, fibre optic in nature is introduced through the mouth and negotiated through oesophagus into the stomach. This can guide us regarding the site, extent and nature of the disease, and tissue for biopsy can be obtained.

CT scan of chest and abdomen determines the spread of the disease beyond oesophagus to the surrounding structures or distant organs like liver and lymph glands in chest and abdomen. Intraluminal oesophageal ultrasound examination (EUS) can pick up lymph nodes surrounding oesophagus and a fair idea of the depth of cancer in the wall can be obtained.

Barium swallow (a thin solution of barium sulphate is given to the patient to swallow and X- rays are taken) is a very informative investigation, which is losing out to endoscopy as it is more informative.

Tips to prepare for your appointment with the doctor:

Be aware of any pre-appointment restrictions. When you make the appointment, ask if there's anything you need to do in advance, such as restrict your diet.

Write down any symptoms you're experiencing, including any that may seem unrelated to the reason for which you scheduled the appointment.

Write down key personal information, including any major stresses or recent life changes.

Make a list of all medications, vitamins or supplements you're taking.

Consider taking a family member or friend along. Someone who accompanies you may remember something that you missed or forgot.

Write down questions to ask your doctor.

Types of carcinoma

There are commonly two types of carcinomas, namely squamous carcinoma and adenocarcinoma. Squamous carcinoma occurs in upper and middle third, and adenocarcinoma is mostly limited to lower third.

Oesophageal carcinomas are usually diagnosed late since obstructive features like swallowing difficulty occur when a part of the oesophagus is blocked by a big tumour which has already become advanced.

Treatment

The treatment, like all other malignancies, comprises of surgery, chemotherapy and radiotherapy. Early disease can be treated well with surgery which is followed up with chemotherapy or radiotherapy, or both, depending upon the final histopathology report. This mode of treatment gives the best result.

Other stages of disease are treated with a combination of chemotherapy and radiotherapy. Newer techniques of radiotherapy and novel chemotherapeutic agents have improved the outcome with fewer side effects.

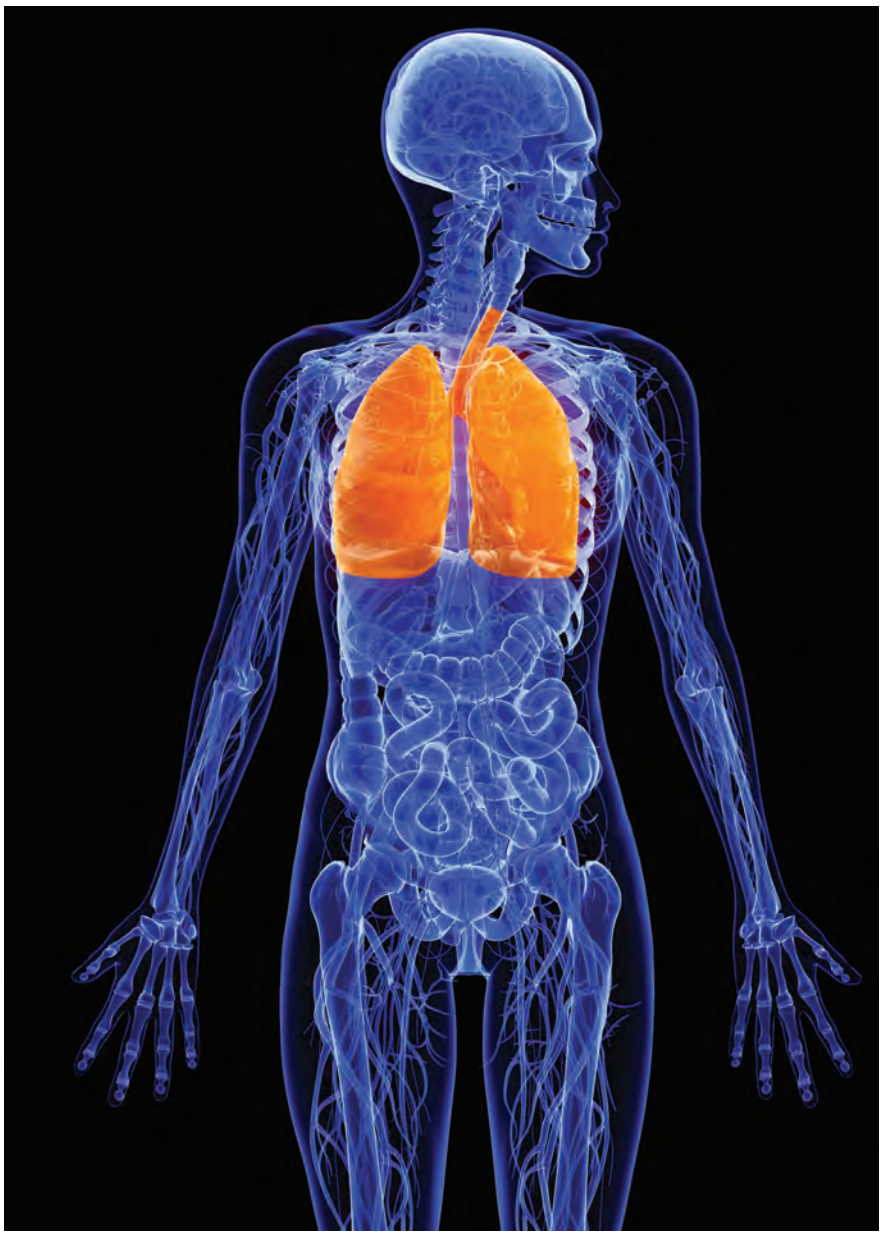
A healthy lifestyle and prompt attention to any early symptom enables us to win over this dreadful disease.

Cancer Of The Lung

Dr G Amarnath draws our attention towards lung cancer, an important public health problem. Are you aware that it is the leading cause of cancer death in the world?

The high incidence of lung cancer and the poor survival rate make lung cancer a very important public health problem, and the leading cause of cancer death in the world. Most patients have locally advanced lung cancer at the time of diagnosis.

As per the Madras Metropolitan Tumour Registry (MMTR) Chennai, in 2006-2008, cancer of the lung was the most common among males, and was ranked among the top ten in females. It constituted 10.9 per cent and 3.3 per cent of all cancers among males and females respectively. The peak incidence occurred in the age group of 65-69 years among both sexes.



Risk factors

Cigarette smoking is the single highest cause of the lung cancer epidemic

Other contributing factors are asbestos, arsenic, chromium, nickel, and radon in the work environment

Other environmental factors such as passive smoking and air pollution

Molecular changes that commonly occur in lung cancer are mutations of tumour suppressor genes p16, p53, and H, K, N-ras family of oncogenes

Studies have shown that individuals with a higher dietary intake of fruits or

vegetables have a lower risk of lung cancer

Types

Lung cancers are classified into:

Non-Small Cell Carcinoma (NSCLC) that includes squamous cell carcinoma, adenocarcinoma, large cell carcinoma and their subtypes (80 per cent)

Small Cell Carcinoma (SCLC) (20 per cent)

There are other rare types of lung cancers that can occur apart from these

Prognostics

Well differentiated squamous cell carcinomas and non mucinous bronchiloalveolar carcinomas have favourable prognosis.

Poor prognostic factors include: higher tumour size and extent, regional nodal involvement, absence or presence of distant metastasis, weight loss of more than 10 per cent, age less than 40 years, tumour size more than 3 cm, lymphovascular invasion, and mutation of the tumour suppressor gene p53.

Spread

Spread can occur along bronchus into lung parenchyma, to mediastinum or pleura causing pleural effusion. Diaphragm and chest wall involvement are not uncommon. 50 per cent have nodal metastasis at resection. Distant spread commonly involves adrenals to 50 per cent, liver to 30 per cent, apart from brain, bone opposite lung, pericardium and kidneys.

Common symptoms

Cough, weight loss, chest pain, shortness of breath, blood in the sputum, superior vena cava syndrome, ulnar nerve and Horner's syndrome (Pancoast tumour) are common symptoms of lung cancer.

Screening for lung cancer

At present, screening for early detection of lung cancer is not recommended, probably because of the failure of early studies to demonstrate any mortality reduction from lung cancer evaluation based on sputum cytology and/or chest radiography. With the introduction of helical computerised tomography, a new imaging modality that can detect nodules as small as a few millimetres, the potential benefits of lung cancer screening is being re-examined.

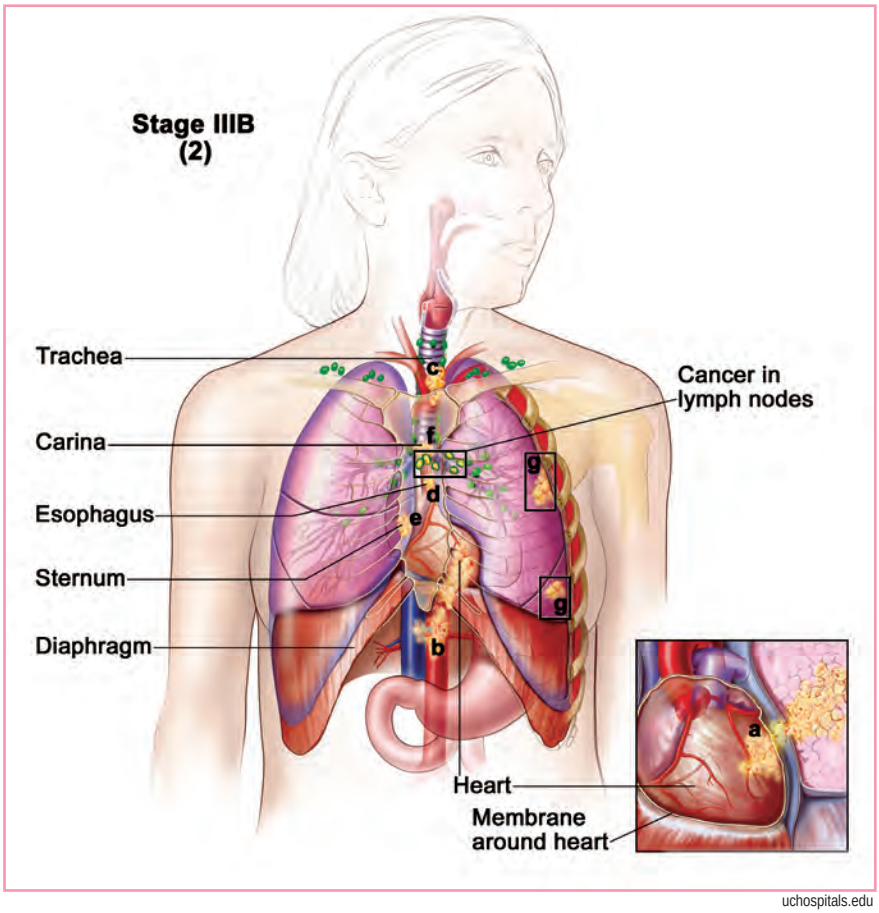
Imaging in lung cancer

Chest radiography remains the basic modality for the detection of lung cancer.

Computerised tomography (CT) provides information about the primary lesion, thoracic lymph nodes, pleura, chest wall and upper abdomen. It is the standard imaging modality for staging lung cancer.

Magnetic resonance imaging (MRI) appears to be superior to CT in detecting mediastinal, chest wall tumour invasion into the pericardium, heart and great vessels, brachial plexus, vertebral body and spinal canal.

Positron emission tomography (PET) is



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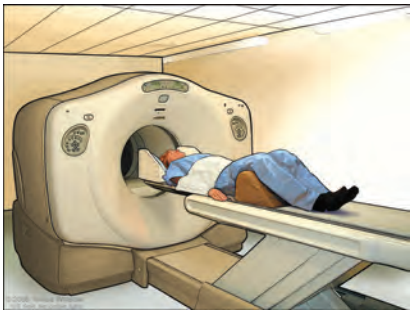
a molecular imaging modality that detects metabolic changes in tumour cells. PET improves the rate of detection of the extent of primary tumour, draining nodes and distant metastases thereby improving the staging accuracy in patients with NSCLC that can have a significant impact on clinical management.

Other diagnostic modalities

Clinical and radiological findings should guide the diagnostic approach, depending on the size and location of the tumour, the presence of metastatic disease, and the clinical status of the patient. Diagnostic and staging work is taken up concomitantly.



Sputum cytology, flexible bronchoscopy for biopsies, brushings and washings, CT guided transthoracic needle aspiration, oesophageal endoscopic ultrasound guided fine needle aspiration/trucut biopsy of the mediastinal nodes, anterior mediastinoscopy to assess lymph nodes, are the aids used to establish the histopathological diagnosis. Distant metastatic sites need to be documented with microscopic diagnosis.

Management

Surgery is the preferred modality of primary management for resectable NSCLC.

Based on initial stage and postoperative histopathological report, patients will be planned for adjuvant radiation therapy with or without chemotherapy, or chemotherapy with or without radiation therapy.

For medically inoperable and unresectable tumours chemoradiation therapy is the preferred line of management.

With the rapid technological explosion in diagnostic imaging and radiation delivery techniques, radiation oncologists are now able to deliver external beam radiation therapy with high precision using Image Guided Intensity Modulated Radiation Therapy (IG IMRT), Stereotactic Body Radiosurgewith real time positional management respiratory gating system delivering significantly higher doses to the tumour and minimum dose to the surrounding normal lung and other critical structures like the opposite lung, heart, spinal cord, oesophagus, and breast, resulting in increased cure rates and lesser side effects respectively.

Radiation along with chemotherapy has a role in palliation of symptoms due to recurrent, advancing and metastatic cancer.

Newer targeted therapy compounds have resulted in progression-free and overall survival advantage in NSCLC.

For SCLC, chemoradiation therapy is the preferred choice of treatment, except in T1-2 N0 M0 where surgery followed by chemotherapy is the standard of care.

The by and large outcome for patients with lung cancer may not be gratifying at present. But with improved surgical techniques, newer anti-cancer drugs, and modern radiation therapy delivery techniques, we are able to confer superior progression-free and overall survival period ensuring a good quality of life for our patients.

The Apollo Future Check

A comprehensive health check for people too busy with their present to worry about their future. Specially put together as an imperative for today's top decision-makers, this screening pack will assess your unique healthcare needs, highlights the risks you face, and guide you with necessary preventive action.

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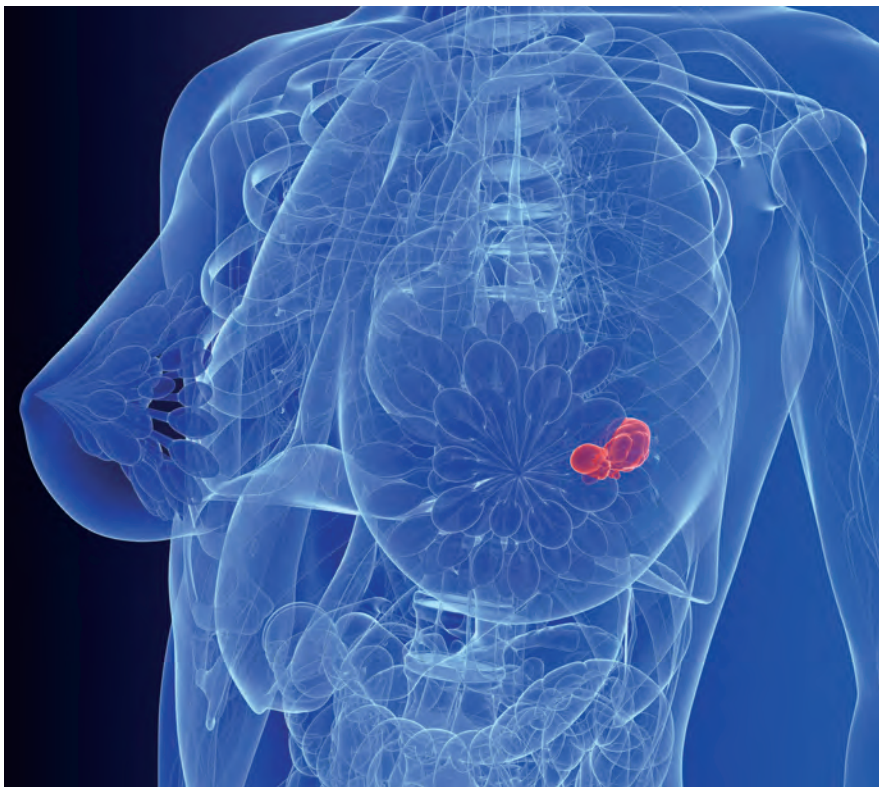
Early Detection Of Breast Cancer

Invest Fifteen Minutes for High Returns - Dr Mrs Ramesh Sarin stresses on the importance of how spending fifteen minutes of examination can help in the detection of breast cancer, the most common cancer in women in urban India

Early detection of breast cancer has a lot of benefits. Firstly, it simplifies surgical and other treatment modalities. The fifteen minutes you spend periodically to examine your own breasts is one of the three valuable means of early detection of breast cancer. Cancer of the breast is by far the most common cancer in women in urban India. For this reason it deserves your attention and periodic investment of fifteen minutes.



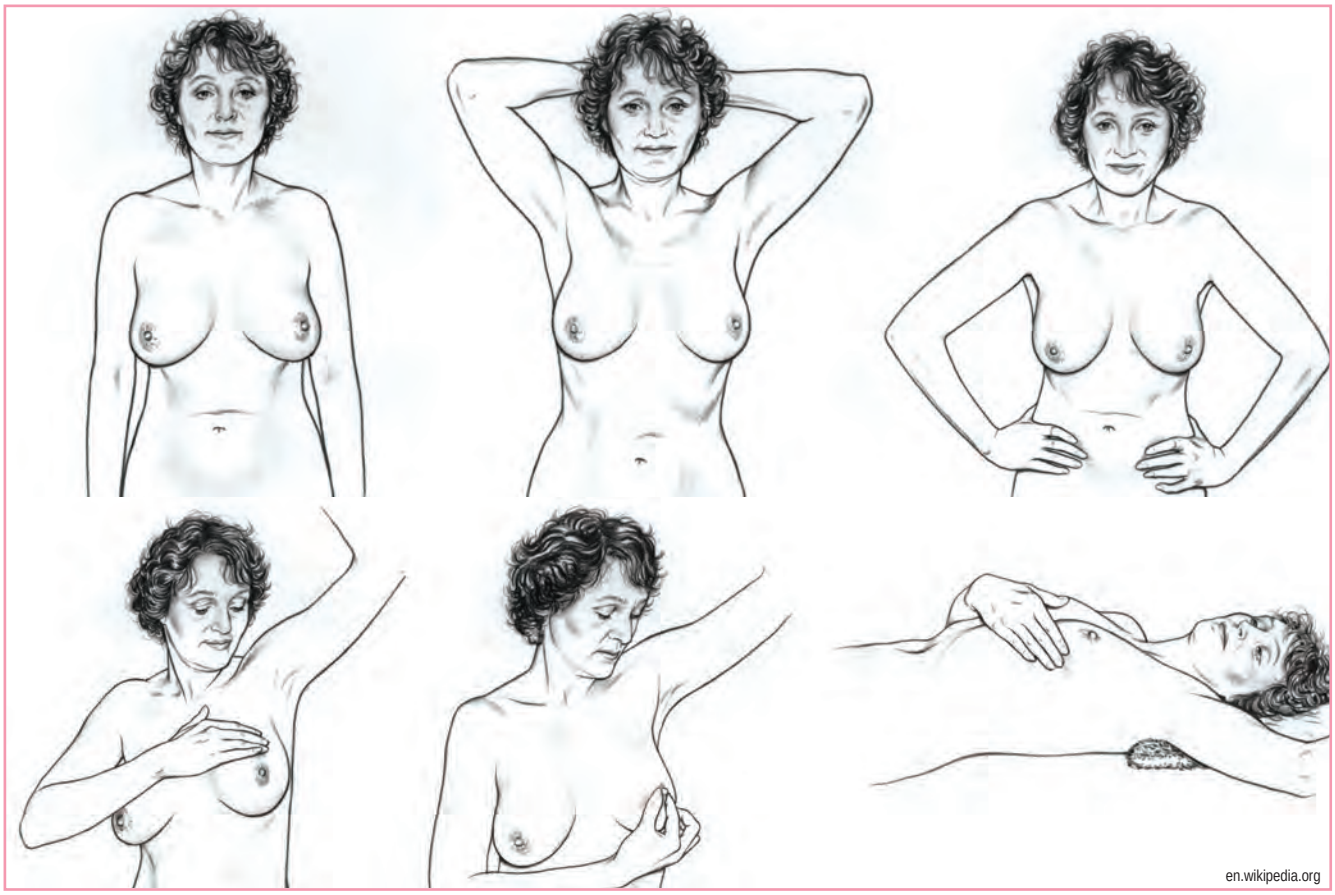
Management of early breast cancer

There have been two recent surgical advances that have passed on the benefits of early detection to the patient herself. At Indraprastha Apollo Hospital, the practice of these advances has reduced the duration of hospital stay, and done away with mutilating effects of total breast removal and removal of glands from the armpit without compromising on the cure rate.

Breast Conservation Surgery (BCS): In this, the tumour is removed with a safe margin of normal breast tissue (lumpectomy). This preserves most of the breast and leaves minimal or no deformity. Any tumour of the breast upto 4 cm in size is amenable to BCS. The smaller excisions do not require breast reconstruction by plastic surgery. Lumpectomy with breast conservation is a precise procedure and requires an expert surgeon to perform it.

Sentinel Lymph Node Dissection (SLND): This requires a precise location, identification, dissection and examination of the first node (sentinel node) in the chain of armpit lymph nodes, to which the breast cancer spreads. If no tumour is detected in the sentinel node, it dispenses with the need of dissection of the entire chain of lymph nodes in the armpit, a procedure that causes some disability of the shoulder and swelling of the arm.

The benefits of early detection extend beyond minimising surgery. If the biological markers of your tumour are favourable, you can avoid chemotherapy. Chemotherapy has side effects like nausea, vomiting and unavoidable hair loss, and is also expensive.



Measures for early detection

Improved screening techniques have been one of the major causes of the high cure rates achieved. There are three screening techniques that are crucial to the detection of breast cancer at an early stage. These are:

Periodic Breast Self-Examination (BSE) over the age of 20 years: The international guidelines vary, and we in India consider breast self-examination as a vital tool in the early detection of breast cancer. The most common presentation of breast cancer is a lump in the breast. Breast Self-Examination (BSE), as the name suggests, is examination of one's own breasts. This involves detecting lumps, changes in skin or nipple, and the presence of nipple discharge.

This is easy to learn and should be regularly practised once a month, a week after the menstrual cycle ends. It is recommended that you seek medical advice if any changes are detected. BSE can be carried out in the calm ambience of one's home at one's convenience.

Annual mammography after the age of 50 years (start earlier if there are major risk factors): Mammography is a specialized X-ray of the breast, which can differentiate between normal tissue, cancerous tissue and other non-cancerous growth. Young women less than 40 years have dense breasts because of functioning ovaries and hence mammography can miss cancerous growth. Yearly mammography has been shown to reduce breast cancer mortality by 30 per cent. The current recommendation is for women over 50 years to undergo a yearly screening mammogram. Women between 40 and 50 years with risk factors should consult a doctor. Low dose mammography carried out under supervision of your doctor carries no risk of radiation hazard.

Annual Clinical Breast Examination (CBE): Clinical breast examination is a breast examination performed by an experienced breast specialist. This should be done annually after the age of 30 years. Sometimes, clinical breast examination can pick up cancers missed by mammography or by breast self-examination.

Warning signs of breast cancer

The appearance of any of the following sings requires that you consult a breast specialist immediately.

Any new lump or change in texture of the breast.

If nipple discharge is from both the breasts and is clear in colour (serous), then it is not likely to indicate cancer. Bloody discharge, especially if unilateral, from a single duct and spontaneous (i.e. appears without pressure) needs to be further evaluated.

Remember an investment of fifteen minutes every month on BSE can

Prevent late detection

Make treatment easier for you and your family

Avoid the physical and emotional trauma of losing your breast

Save you from expensive treatment of late-stage breast cancer

Save your LIFE

These are worthwhile dividends!

A sore or a wound confined to the nipple/breast which is not healing for a number of days or weeks should be evaluated for Paget's disease (a form of breast cancer).

To summarise, women themselves play an important role in the early diagnosis of this disease by periodically examining their breasts. BSE, annual mammography, and CBE by a breast specialist should be a part of every adult woman's routine, just like other healthy lifestyle choices.

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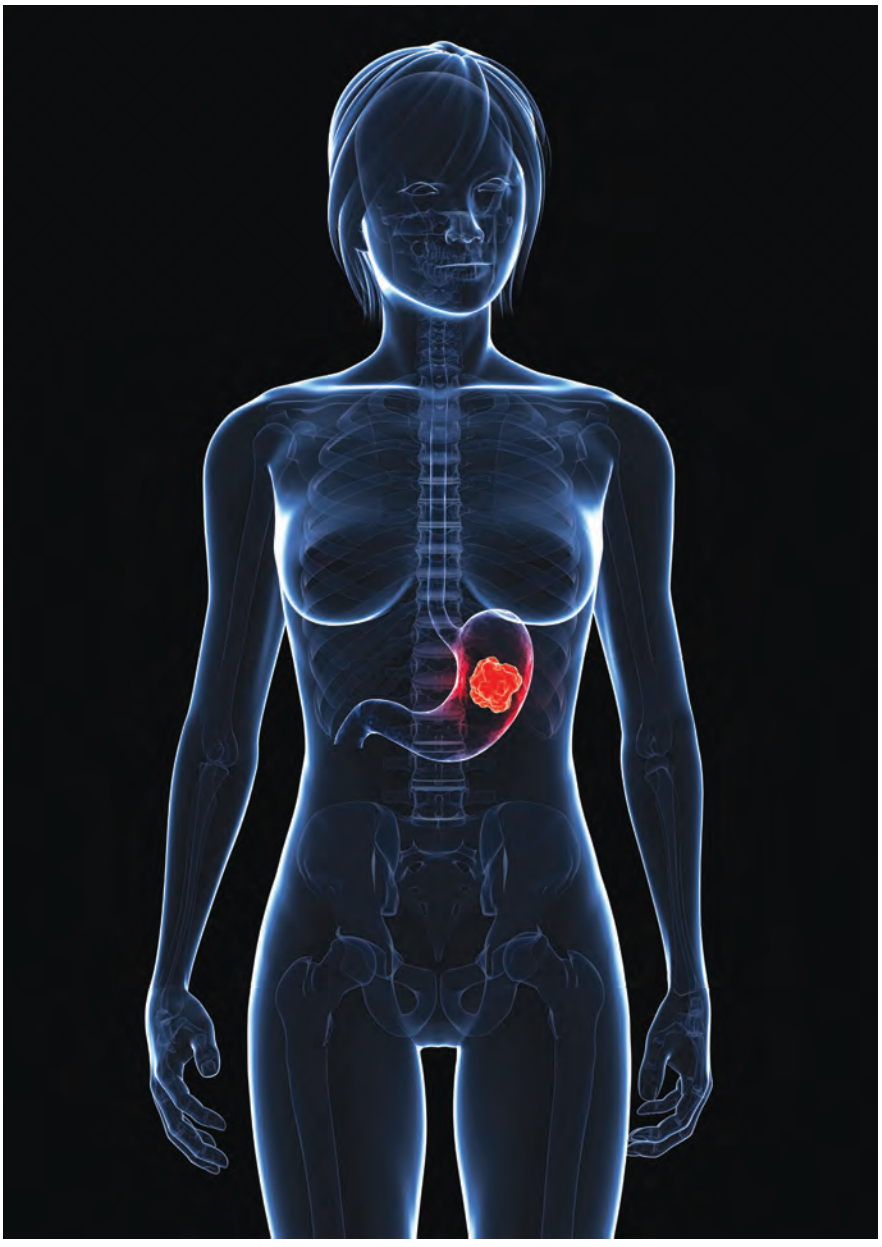
Stomach Cancer FAQs

Is it genetic or caused by risk factors? Is subtotal or proximal gastrectomy the preferred modality? Dr Srinivas Juluri addresses these queries and more on stomach cancer



Stomach cancer is more rampant than most people think. The following are some frequently asked questions about stomach cancer symptoms, causes and treatments.

How common is stomach cancer?

Stomach cancer is the fifth most common cancer among men and seventh among women in India. It is the second most common cause of cancer death globally, with nearly 8,00,000 cases each year. Overall the incidence of gastric cancer in India is less compared to the worldwide incidence.

Who is most vulnerable to stomach cancer?

It is most common in older people, with maximum number of cases occurring in men and women over 70 years. Few cases occur below 40 years. Topography also affects the incidence of stomach cancer. Stomach cancer in south Indian males has been reported to be more common and occurring a decade before their north Indian counterparts. The highest incidence in India is found in north-eastern India (Mizoram).

What causes stomach cancer?

The food we eat plays a major role in stomach cancer. The number of cases has dropped over the last fifty years, and a probable reason is that refrigeration of food has become common and people eat less pickled, smoked, salted, and cured foods.

What are the risk factors?

Diet: Eating a diet high in preserved foods is attributed with higher rates of stomach cancer

Gender: Men are twice as likely to be affected by stomach cancer as women

Other diseases: It affects people with pernicious anaemia or achlorhydria (chronic atrophic gastritis)

History of an adenomatous gastric polyp larger than 2 cm

Infections: Helicobacter pylori, a bacterium that causes 85 per cent of stomach ulcers, is also associated with a much higher risk of stomach cancer

Smoking and alcohol consumption

Intake of pulses, fresh fruits and vegetables help to protect us from stomach cancer.

What are the types?

Intestinal stomach cancer, more common amongst older patients and patients from 'high-risk' groups.

Diffuse stomach cancer, found more frequently in women and people with blood group A. This type is more difficult to treat.

Is stomach cancer genetic?

A few cases of stomach cancer (about one in ten) appear to run in the family. Genetic testing is not yet possible, as it is not known which genes are involved.

What are the symptoms?

There are often no symptoms or merely a stomach ache in the early stages. As it becomes more advanced, it can cause:

Excessive belching

General decline in health

Loss of appetite

Nausea and vomiting

Abdominal fullness or pain

Dark stools

Difficulty in swallowing, especially if it increases over time

Premature abdominal fullness after meals

Vomiting blood

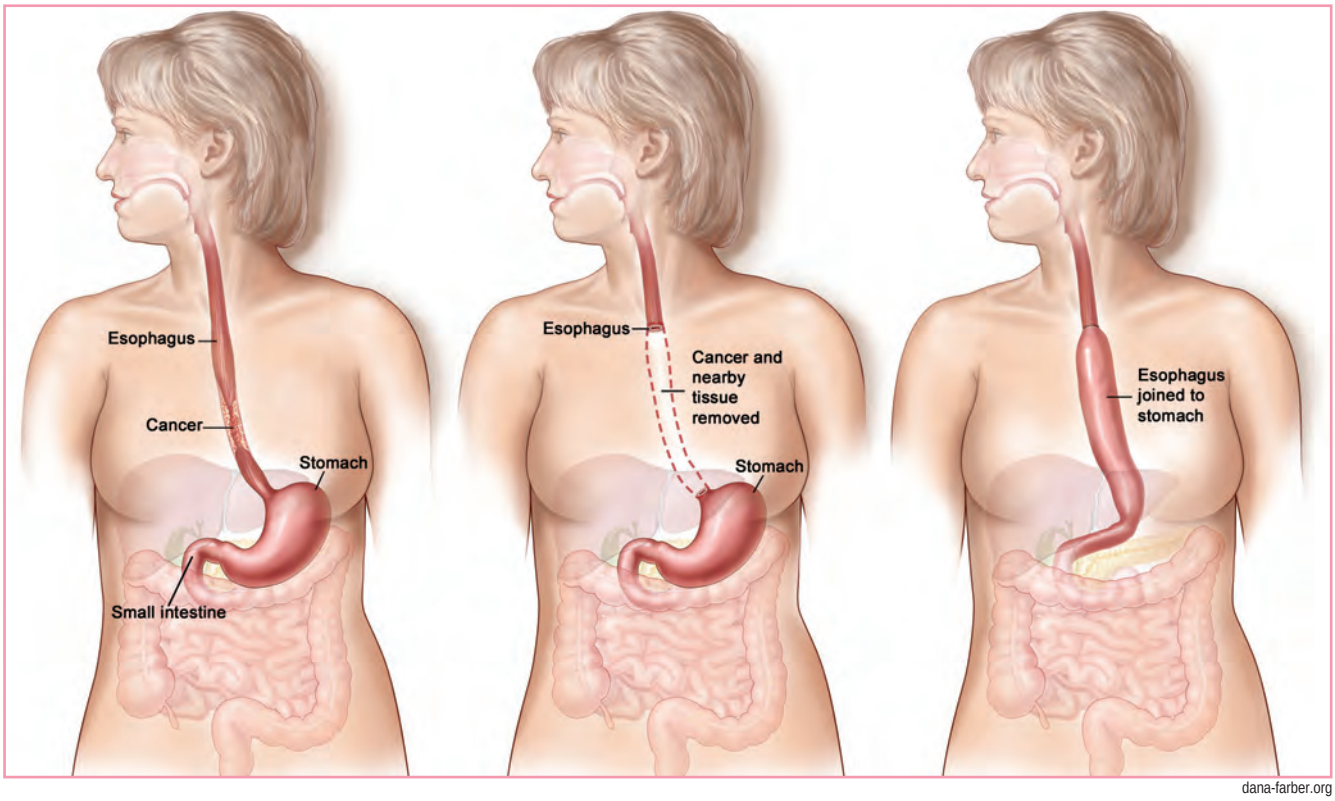
Weight loss (unintentional)

Food poisoning, stomach ulcers and several other conditions also cause many of these symptoms, as a result of which stomach cancers are not diagnosed until they are quite advanced.

How is it diagnosed?

Normally, a procedure called endoscopy, with biopsy, is used. The patient is sedated and a thin fibre-optic tube is passed down the throat. The inside of the stomach is lit up and photographed, and thus any growths can be spotted relatively easily. Sometimes, more sophisticated endoscopes are used with which a small sample (biopsy) of the stomach lining is taken, or even an ultrasound scan from the inside of the stomach (EUS).

In some cases, a barium meal or a



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contrast CT-SCAN or a PET CT-SCAN is used in addition to endoscopy.

Complete blood count (CBC) to check for anemia and stool test to check for blood in the stools may also help.

What is the treatment?

Surgery to remove the stomach (gastrectomy) is the only treatment that can cure the condition. Chemotherapy and radiation therapy after surgery may improve the chance of a cure, and can improve symptoms and may prolong survival in cases where surgery is not possible. This, however, is not likely to cure the cancer.

A surgical bypass procedure can relieve symptoms in some patients. Chemotherapy is also used to shrink the tumour before surgery, to make it easier to be removed.

What surgery is done for stomach cancer?

Surgery is the mainstay for the treatment of stomach cancer.

Endoscopic resection, in which the surgeon removes the tumour and a safe margin of stomach tissue endoscopically.

Subtotal gastrectomy is the preferred modality in distal cancers and total or proximal gastrectomy is preferred in proximal cancers.

How effective are the treatments?

The outlook varies depending on the location and stage of the tumour. Tumours in the lower stomach are cured more often than those in the upper stomach. The chances of a cure are affected by how far the tumour invades the stomach wall and whether lymph nodes are involved when the patient is diagnosed.

A cure is not possible when the tumour has spread outside the stomach, and treatment is designed to improve symptoms.

The success rate is much higher in places such as Japan where there are national screening programmes, as the cancers are usually diagnosed early. Over 50 per cent of patients are treated successfully in Japan as of result of this.

How can we prevent stomach cancer?

The following may help reduce your risk of gastric cancer:

Avoid smoking

Eat a healthy, balanced diet rich in fruits and vegetables

Avoid pickled and salted foods

Treat reflux disease with medication, if present

An early endoscopy, if symptoms are not relieved with medication

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Pancreatic Cancer

Problems in early detection and treatment failures render pancreatic cancer a gloomy prognosis, alerts Dr Shaikat Gupta

Pancreatic cancer is one of the worst cancers which affect the human body. It is difficult to detect early, and treatment failures are common. During the year 2010 in the United States, 43,140 people were diagnosed with this disease, of which approximately 36,800 will die. So it is easy to acknowledge the gloomy prognosis associated with this disease.

The pancreas

The pancreas is a long leaf shaped organ, almost resembling a flattened obelisk. The broad end is called the head, the tapering point called the tail and the intervening part called the neck and body. It lies transversely in front of the spine in the abdomen. The head end is situated on the right side and the tail on the left, touching the spleen. The common bile duct runs through the head, on its way from the liver to the intestines. The pancreas produces a plethora of digestive enzymes which are secreted into the gut. In addition, it produces the hormone insulin, the lack of which causes diabetes mellitus.

The most common cancer that arises in the pancreas is the adenocarcinoma, which carries the worst prognosis.

The main risk factors are smoking, excessive alcohol consumption, obesity and diabetes mellitus. There is also a

strong relation to chronic pancreatitis and a family history of cancer.

Hence this cancer can be guarded against by lifestyle modifications, such as cessation of smoking, change in drinking habits, regular exercise and a healthy lifestyle.

Signs and symptoms

The initial signs and symptoms of this disease are very nonspecific and emulate everyday troubles like indigestion and acidity. However, cancer of the pancreatic head announces itself comparatively early by blocking the common bile duct and thus causing jaundice, which is initially painless. Hence any painless jaundice should be immediately investigated with an abdominal ultrasound. Cancer of the other parts of the pancreas do not cause jaundice and are consequently diagnosed even later. They usually cause severe abdominal pain spreading to the back, weight loss, vomiting and onset diabetes.

Diagnosis

Diagnosis is done by imaging, such as CT scan, MRI, CT guided fine needle biopsy (FNAC) and a blood test to detect a specific protein called CA 19.9, the level of which is elevated in pancreatic cancer. It is not always possible to do pre-operative biopsy or FNAC successfully, and it frequently happens that the surgeon decides to operate on clinical and radiological suspicion alone. During the operation, a frozen section biopsy is used to confirm the disease.

Treatment

Upon diagnosis, the fate of the affected person hinges on whether the cancer is limited to the pancreas and, if so, whether it can be surgically removed. Like most other solid cancers, surgery is the keystone to the treatment of this cancer.

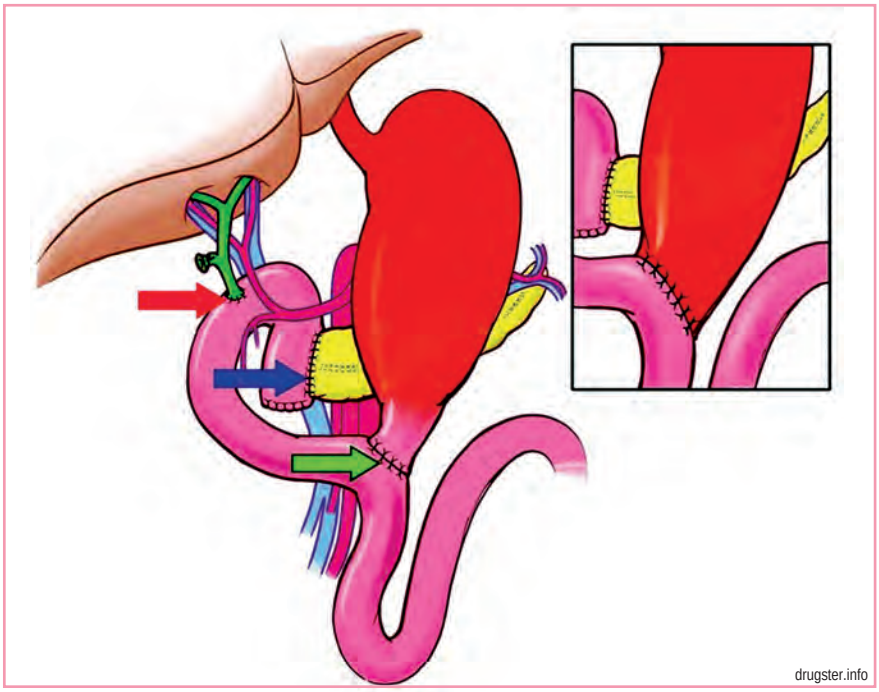
If the cancer has spread to other distant organs such as the liver, it is in the incurable stage and the average survival of these patients is 6 to 9 months from diagnosis. Anticancer chemotherapy drugs can be used to ameliorate the painful symptoms, but it does not increase survival at this stage.

If the cancerous tumour is not limited to the pancreas but has extended to involve surrounding vital structures, then it is inoperable, which means it cannot be surgically removed. These patients are treated with a combination of chemotherapy and radiotherapy, which

can give an extended survival of 42 to 60 weeks.

If the tumour is limited to the pancreas and is operable, then surgery carries the best chance of cure. The operation varies according to where the tumour is located. If it is in the head of the pancreas, then the surgery is called a Whipple procedure (pancreaticoduodenectomy). This is a long and complicated surgery carrying significant chance of post-operative complications and even death, up to 5 per cent. If successful, it carries a 5 year survival rate of 20 per cent, which means that 20 per cent of patients are likely to live more than 5 years. The average survival of these patients is 19 months. If the tumour is in the mid-part or body of pancreas, it is rarely operable, but sometimes a total pancreatectomy or removal of whole pancreas can be done. For cancers in the tail of the pancreas, a distal pancreatectomy operation with removal of the spleen is done.

Of all the patients diagnosed with pancreatic cancer, 80 per cent are inoperable at diagnosis. Surgery is also not a guarantee of cure. Thus it is apparent that treatment options for this disease are limited, even when detected relatively early. Research is ongoing to find better options. As of now, it appears that prevention is better than cure, and therein lies the importance of a healthy lifestyle.



Pancreatic cancer is one of the deadliest cancers:

Pancreatic cancer has the highest mortality rate of all the major cancers: 94% of patients die within five years of diagnosis and only 6% survive more than five years. 75% of patients with pancreatic cancer die within the first year of diagnosis.

Unlike many other cancers, the survival rate for the disease has not improved substantially in nearly 40 years. Since 1975, the five-year survival rate for pancreatic cancer has improved only from 3% to 6%. In fact, pancreatic cancer is the only one of the top 10 cancer killers that still has a five-year survival rate in the single digits.

The number of new pancreatic cancer cases and the number of deaths caused by the disease are increasing. In fact, the expected number of new pancreatic cancer cases is projected to increase by 55% between the years 2010 and 2030.

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Colorectal Cancer A Silent Killer

Fond of red meat cooked by barbequed or grilled methods? Better hold back on it to avoid colorectal cancer, cautions Dr T P S Bhandari

Though colorectal cancers are common in developed countries, the incidence is low in India, and intriguingly, the incidence is twice the rate in the rural group as compared to the urban population. Colorectal cancers rank third in frequency in men and second in women. They are the fourth leading cause of cancer mortality.

Etiology

The basis of colorectal cancer is the genetic change in the epithelial cells of mucosa. This is brought about by certain mutagens present in diets rich in red meat, especially those cooked by barbeque or grilled methods, and also diets rich in fat content.

Genetic risk factors

Some colorectal cancers occur on account of an inherent genetic defect, giving rise to two basic categories:

- Familial polyposis syndromes
- Hereditary non polyposis cancer

Signs and symptoms

- Bleeding per rectum
- Altered bowel habits (i.e., frequent constipation)

Anaemia

Abdominal pain and distension

Vomiting

Weight loss and fatigue

Evaluation

Through clinical examination and history, an oncologist pinpoints the diagnosis aided by:

Fecal occult blood test

Colonoscopy and biopsy

CT scan, PET-CT scan (used to stage the disease)

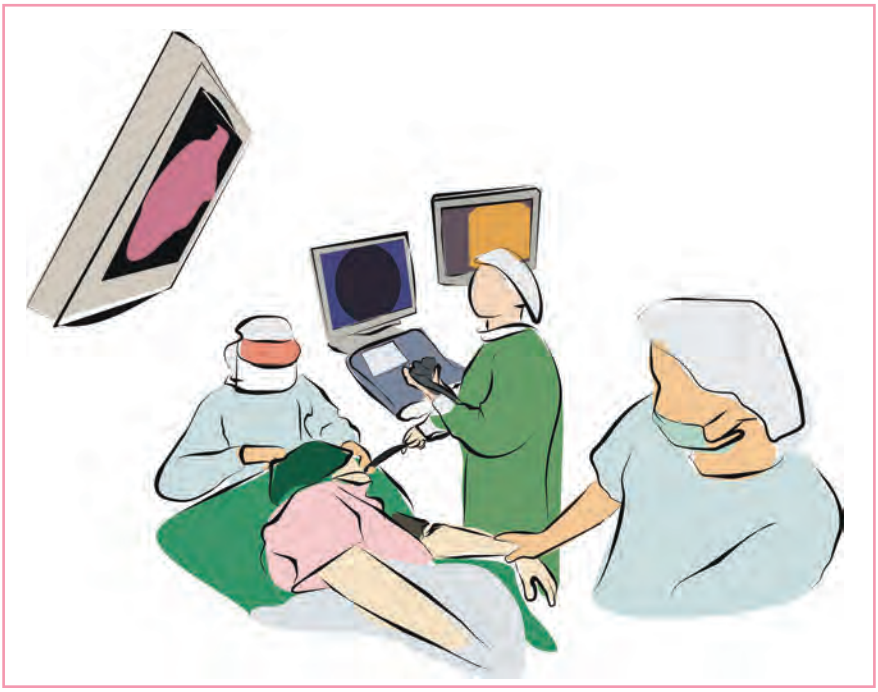
Management

Localized colorectal cancers are managed by upfront surgery followed by chemo-radiation if required. However, advanced cancers may require chemo-radiation to downstage the disease followed by surgery.

Surgical procedures typically individualized by site of colorectal cancers are:

Hemicolectomy

Proctocolectomy, where the diseased portion of the bowel along with its lymphatic drainage is removed and intestinal continuity restored by anastomosing the cut ends by sutures or staplers.



Rectal cancer

The surgical procedures for the rectum are far more intricate and for long have been dreaded because of the predominance of ablative procedures like abdominoperineal resections, which are associated with a permanent colostomy (i.e. a stoma on the surface on the abdomen through which all fecal contents are evacuated).

Sphincter saving procedures

These are designed to restore intestinal continuity after resection of the diseased segment so that the natural pathway is restored and patients do not need a colostomy. The procedures are:

Anterior resection

Low anterior resection of rectum (upto 5cm from anal verge)

Ultra low anterior resection (upto 2cm from anal verge)

Using these procedures, 90 per cent of rectal cancers can be treated and a colostomy is avoided. These procedures are facilitated by the use of staplers in some cases. Depending on the pathology

report of the resected tumour, the exact stage and extent of the disease is known, and additional treatment in the form of radiotherapy and chemotherapy according to the stage is initiated.

Prognosis

As a thumb rule, all node negative cancers carry a greater than 60 per cent five year survival rate on an overall basis. In the early stages of the disease, more than 90 per cent cure rate can be achieved. Node positive cancers have less than 40 per cent five year survival rate.

Even though the cure rates are good, colorectal cancers are the fourth leading cause of mortality. Therefore primary prevention is even more important than early diagnosis.

The following factors help to prevent colorectal cancer:

High fibre diet (WHO recommendation – at least 25gm/day)

Low fat diet

Avoidance of red meat, barbequed/ grilled meat.

Low alcohol intake

Avoidance of tobacco

Lifestyle changes - Increased aerobic exercises like running and jogging reduce obesity and the risk of colorectal cancers

Secondary screening

It involves identification of high-risk populations:

Age group of below 45 years

Inherited colorectal cancer families

Inflammatory bowel diseases (Ulcerative colitis, Crohn's disease)

Screening of the groups for colorectal cancer needs to be carried out so that the disease can be detected at an early stage, and hence the cure rates can also be improved. Individuals above 45 years of age are recommended to undergo:

Fecal occult blood testing yearly

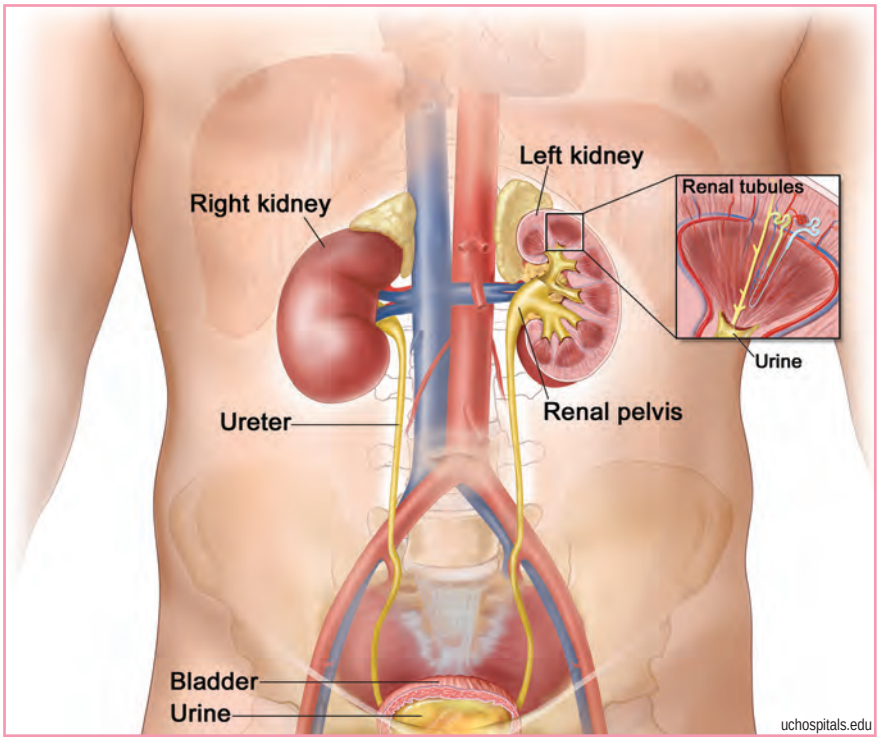
Colonoscopy once in three years

Ultrasound abdomen once in three years

The incidence of colorectal cancer can be significantly reduced by dietary and lifestyle changes. Screening leading to early detection of cancer will lead to higher cure rates and reduce mortality.

Kidney Cancer

Even though kidney cancer is a slow growing cancer in majority of cases, it behaves aggressively in some patients, says Dr Ranjan Kumar Mohapatra



Kidney cancer comprises of three per cent of all cancers. The most common subtype is renal cell carcinoma. It is more commonly seen in USA than India. It is a slow growing cancer in majority of cases, but it behaves aggressively in some patients.

Causes

The cause of kidney cancer is still unclear.

However it is associated with certain environmental risk factors like smoking, exposure to cadmium, asbestos etc.

It is seen to have hereditary/ genetic predisposition.

It is more common in males, in older people between the ages of 60 and 70, and in individuals with lack of exercise and obesity.

Symptoms

Clinical symptoms are mostly related to primary tumour i.e. haematuria (blood in urine), flank pain, and mass in abdomen.

Some patients have weight loss, unexplained fever, and features of hypercalcaemia (high calcium level in blood).

In advanced stage disease patients may complain of pain in the bones, backache due to bone metastasis, cough/ breathing difficulty because of lung spread.

Rarely, symptoms may include headache, vomiting, paralysis/fits, and brain metastasis. Anaemia and fatigue may be symptoms in some cases.

Diagnosis

Patients of kidney cancer need a complete staging work up to plan the line of management. Quite often it is a multidisciplinary approach which gives best results for an individual patient. It needs good physical examination along with complete blood tests like haemogram, blood chemistry, radiological imaging like ultrasound, CT scan, and MRI scan. Histological diagnosis is to be confirmed by FNAC/trucut biopsy.

Management

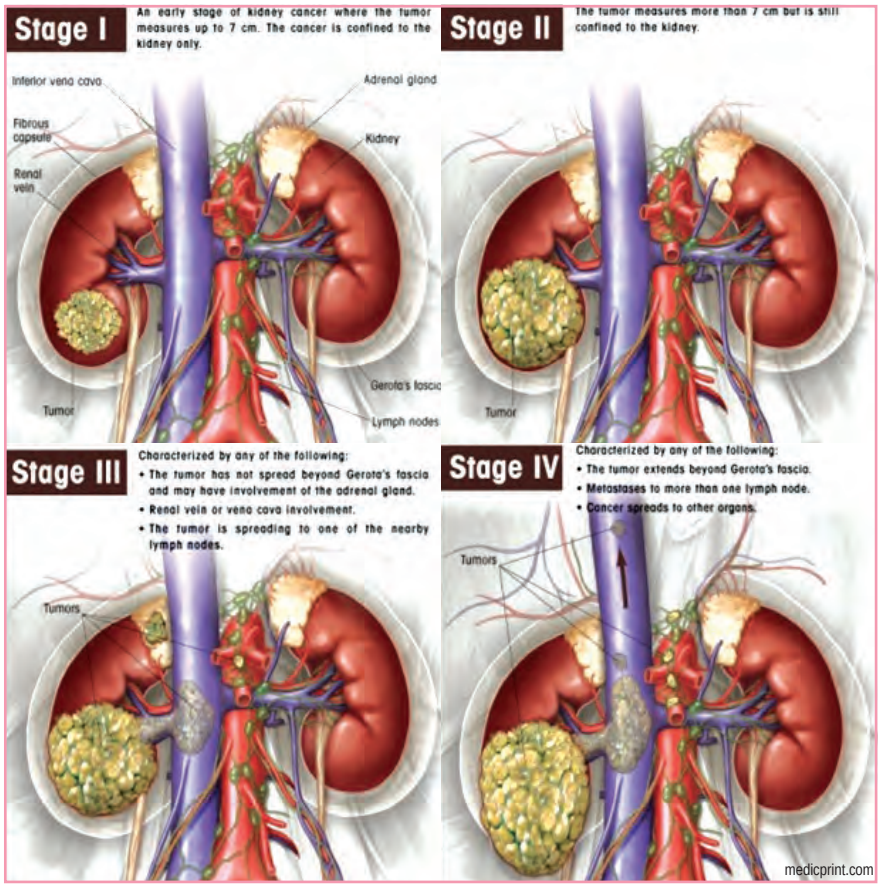
Management of renal cell carcinoma has been revolutionised in recent times

especially in advanced stage/recurrent RCC.

In the early stage (localised kidney tumour, not spread to distant organs in the body), it is managed better with radical surgery, which is curative in majority of patients.

Radiation is one more modality of treatment that is advised in a very selective group of patients.

Kidney cancer (RCC) is considered as one of the radio resistant and chemoresistant cancers with very poor response. However till 1990, for advanced stage RCC, biologic therapy/immunotherapy (like Interferon/ Interleukin-2) along with chemotherapy had been used for a long time with limited benefit.



Latest in treatment

With advanced research in molecular oncology, there is a better understanding of cancer cell growth and its related growth factors/receptor interactions.

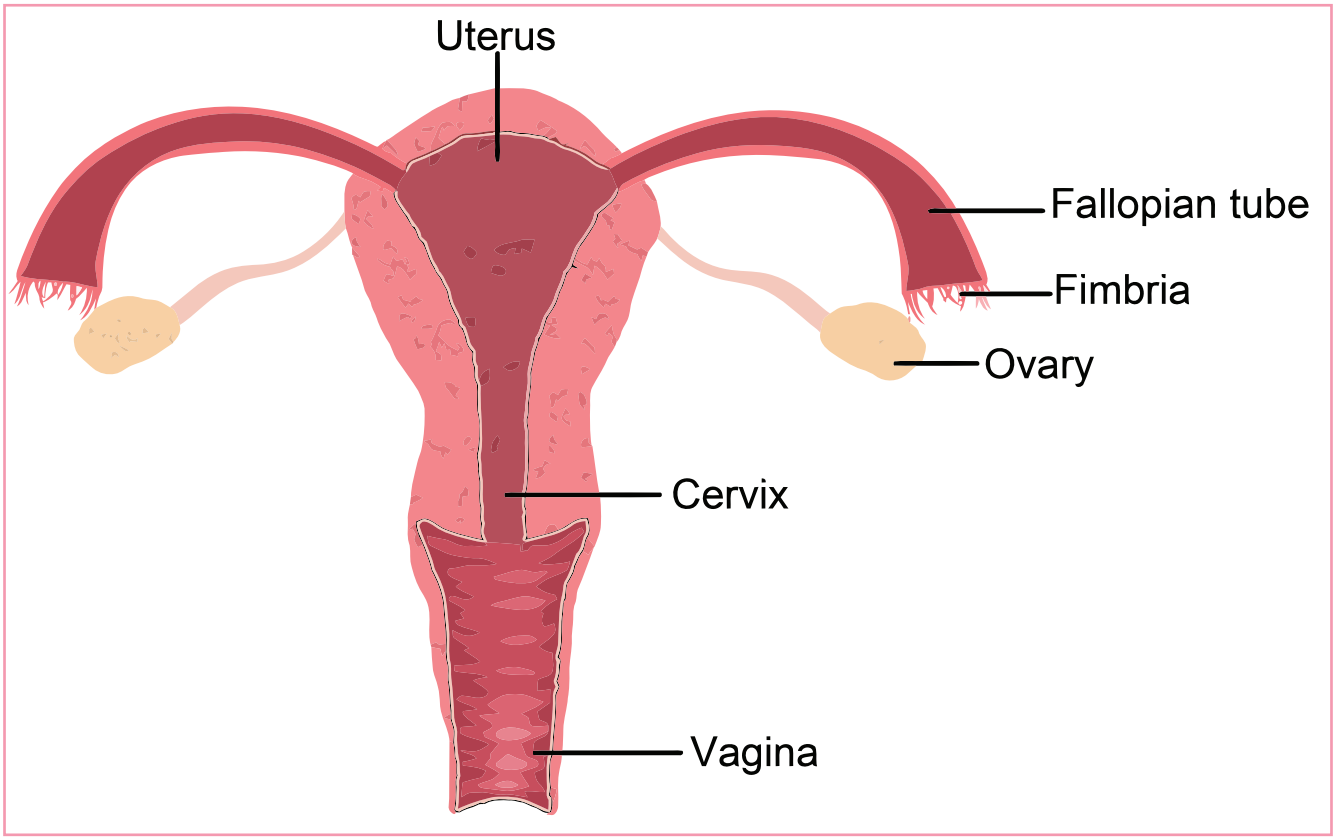
An important enzyme called tyrosine kinase and Epidermal Growth Factor Receptor (EGFR) are very much involved in cancer cell proliferation. Kidney cancer also expresses vascular endothelial growth factors (VEGF), which play a crucial role in cancer metastasis.

Recently targeted therapies like dual kinase inhibitors (Sutent, Nexavar) have shown promising results in advanced cancer, improving survival. VEGF inhibitors like Bevacizumab (Avastin) have been tried with better response and survival. Newer novel agents like m-TOR inhibitor have also shown promising results after Sutent/Nexavar failures.

With all these newer targeted therapies patients are living much longer than before. Basic scientists have changed a physician's approach to a difficult disease like kidney cancer. Newer targeted drugs seem to be more effective with acceptable side effects and better survival rates.

Cervical Cancer

The main cause of cervical cancer is HPV (Human Papilloma Virus), a common virus that spreads through sexual intercourse, explains Dr Vinitha Reddy



Cervical cancer originates in the cervix, the lower part of the uterus (womb) and opens into the vagina. It arises from the cells present on the surface of the cervix.

Causes

Cervical cancer stands as the third most common type of cancer in women. The main cause is HPV (Human Papilloma Virus), a common virus that spreads through sexual intercourse.

Risk factors

- Having premature sex
- Having more than one sexual partner
- Poor socioeconomic status
- Weakened immune system

Symptoms

- Vaginal bleeding after menopause
- Foul-smelling vaginal discharge
- Bleeding after intercourse
- Heavy menstrual or intermenstrual bleeding

Symptoms of advanced cervical cancer

Low backache

Pain in the pelvis

Exhaustion

Excretion of urine or feces through the vagina

Single swollen leg

Loss of appetite

Weight loss

Investigations

Screening tests

For pre-cancer and cancer, Pap smear screens are effective, though not for final diagnosis.

Colposcopy is carried out if abnormal changes are discovered. In this procedure, pieces of tissue are surgically removed (biopsy) and sent to a laboratory for examination under magnification.

Diagnosis tests

Endocervical curettage (ECC) is used to examine the opening of the cervix

Cone biopsy

Punch biopsy from cervical growth

Staging tests

Chest X-ray

CT scan or MRI

Cystoscopy

Intravenous Pyelogram (IVP)

Treatment plan

The treatment of cervical cancer depends on:

Stage

Size and shape of the tumour

The woman's desire to have children in the future

The woman's age and general health

Treatment of early cervical cancers

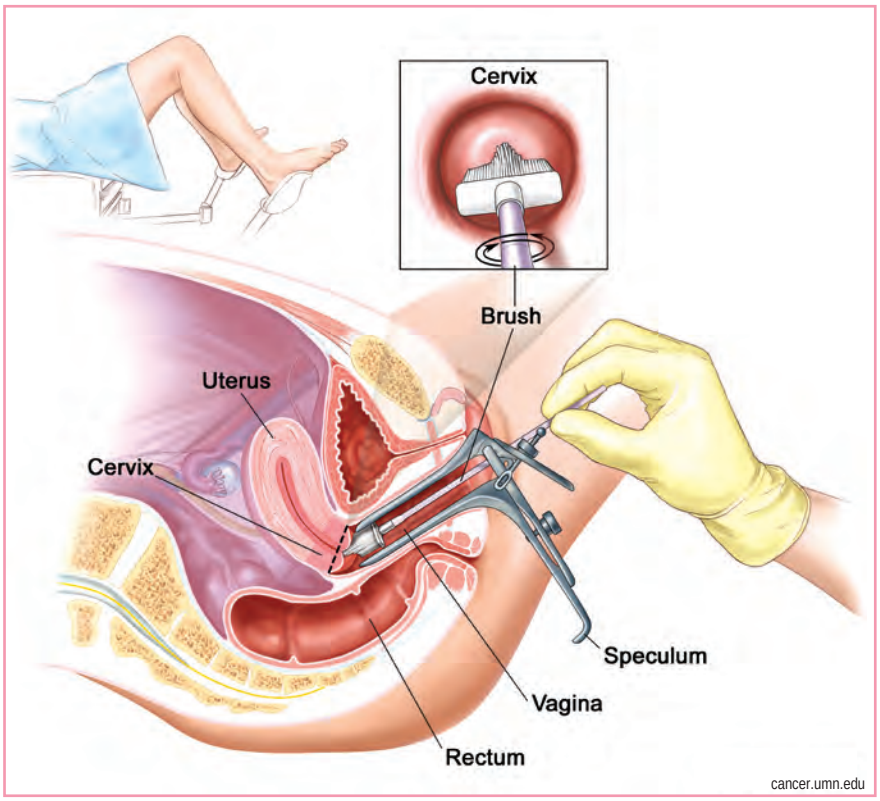
To ensure that a woman can bear children in the future, removing the pre-cancerous or cancerous tissue without removing the uterus or harming the cervix, can cure early cervical cancer.

Pre-cancerous conditions are curable when followed up and administered proper treatment.

92 per cent of women with cervical cancer have a five-year survival rate.

Treatment of advanced cervical cancers

Radical hysterectomy: The uterus and much of the surrounding tissues are removed, including lymph nodes and the



upper part of the vagina.

Radiation therapy: It is used in cases where the cancer has spread beyond the pelvis, or cancer that has returned.

Radiation therapy is of two types:

External radiation therapy is like an X-ray and delivers radiation from a large machine onto the part of the body where the cancer is located.

Internal radiation therapy or brachytherapy entails placing a device filled with radioactive material inside the woman's vagina.

Intensity Modulated Radiation Therapy (IMRT) and Image Guided Radiotherapy (IGRT) help deliver radiation to the tumour and adjacent tissues sparing nearby normal structures like urinary bladder, rectum and intestines and thus preventing

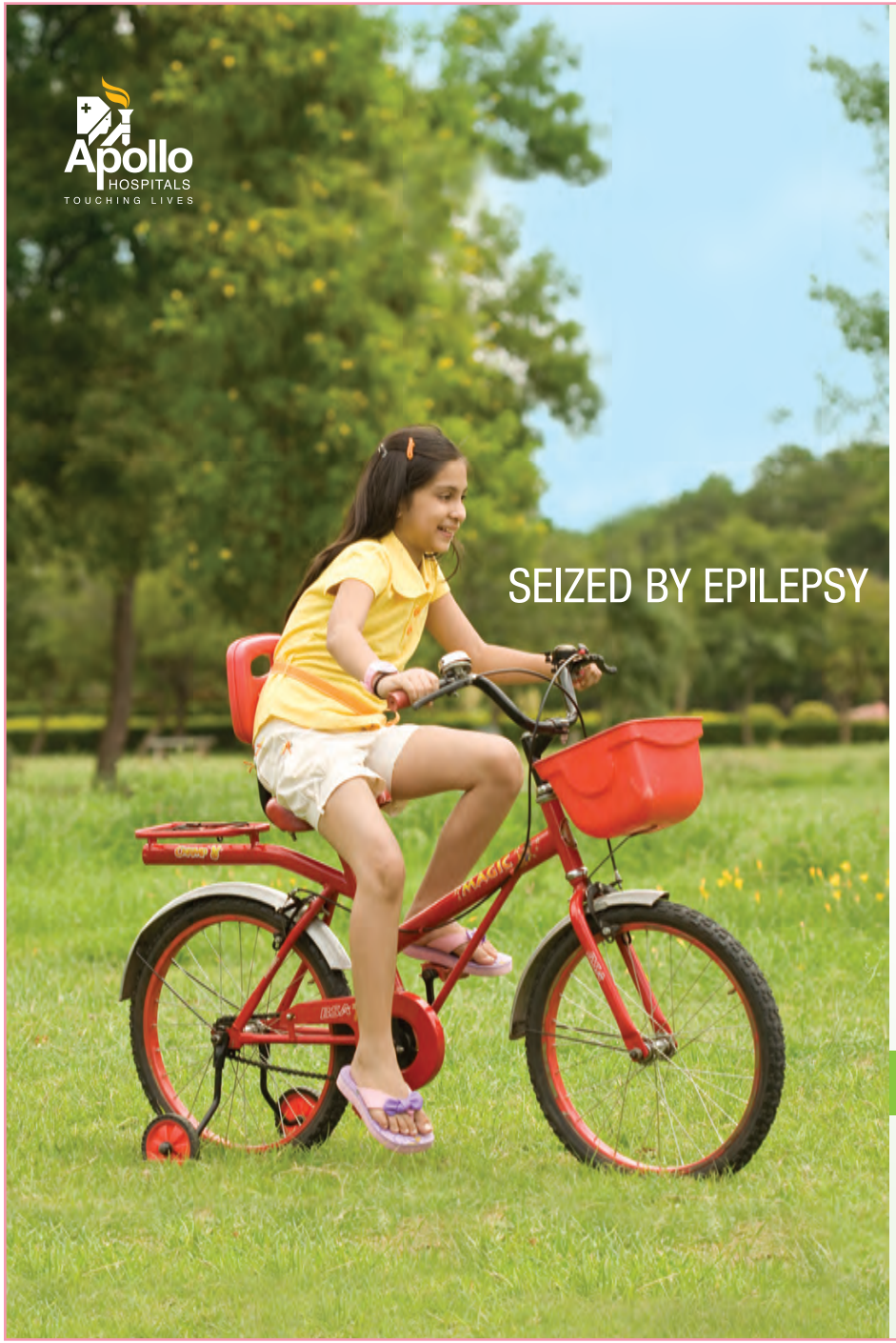
long term complications.

Chemotherapy uses drugs such as carboplatin, paclitaxel, 5-FU and cisplatin to destroy cervical cancer. It is generally used along with radiation to sensitize the tumour. Radiation and chemotherapy may be used before or after surgery.

Prevention

In 2006, the U.S. Food and Drug Administration approved Gardasil as a vaccine to prevent cervical cancer.

Regular Pap smears are useful in detecting pre-cancerous changes, which can be cured before they turn into cervical cancer. A woman should undergo annual pelvic examinations, including a Pap smear when she becomes sexually active, or by the age of 20, whichever is earlier.



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-Rajiv

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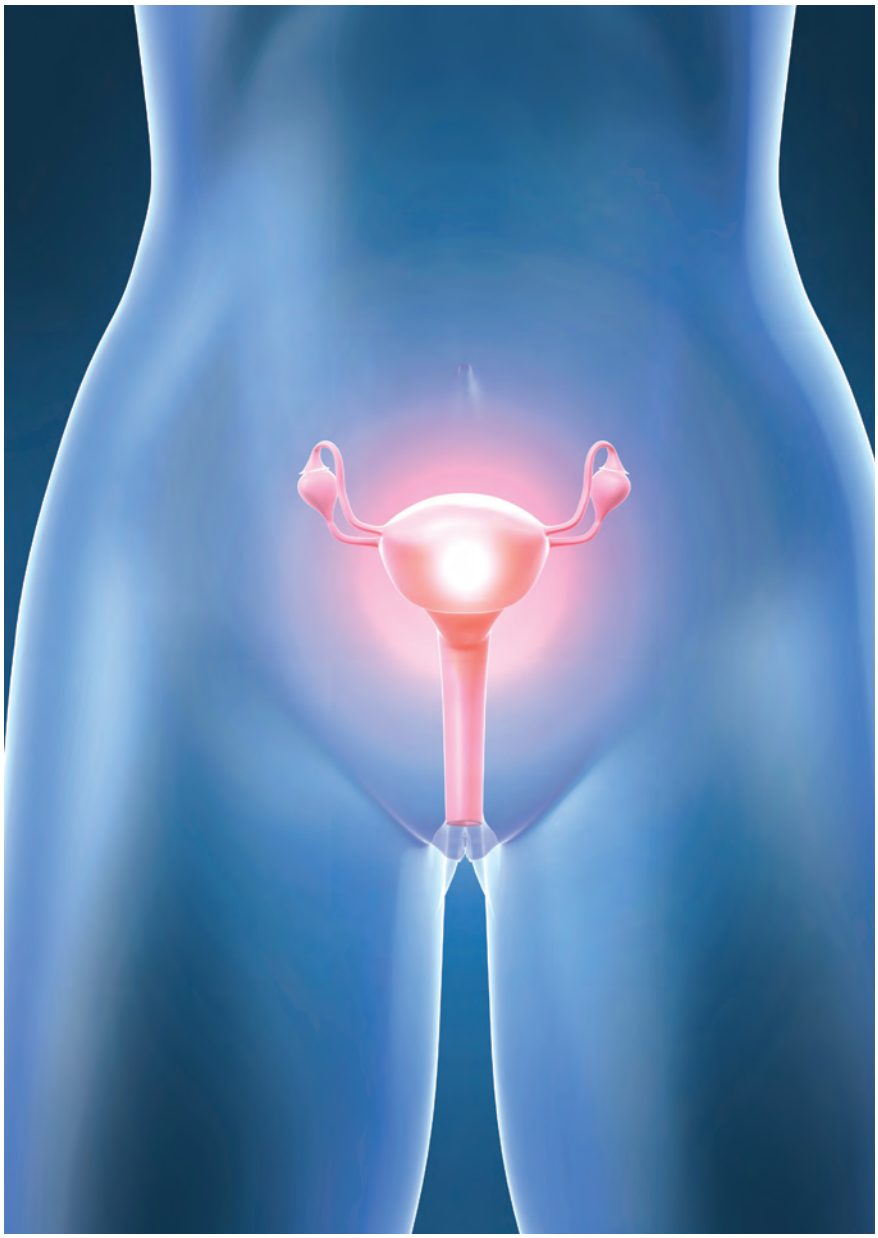
Endometrial Cancer

There are many causes for post-menopausal bleeding, but Dr Anil Kamat warns that it is most likely an indicator of endometrial cancer

The warning signs

50-year-old Mrs. Rao was surprised when she noticed bleeding from her vaginal area. Her periods had stopped about 2 years ago. She had mild spotting on two earlier occasions, which she had assumed would stop on its own, but when this did not happen she finally decided to visit her gynaecologist.

Post-menopausal bleeding is a common problem accounting for about five per cent of the OPD attendances to the gynaecologist. Any bleeding 12 months after menopause at normally expected age is considered as abnormal. Though there are many causes for post-menopausal bleeding, it would be safer to assume it to be due to cancer until proven otherwise.



What is endometrial cancer?

Endometrium is the innermost lining of the uterus (womb). This lining increases in size when the hormone estrogen in the body increases, and reduces when the hormone progesterone increases. It plays an important role in implantation of the embryo after fertilization.

Endometrial cancer is the most common type of uterine cancer. It commonly occurs in women between the ages of 60-70. Endometrial cancer is different from the

more common cervical cancer that arises in the lower portion of the uterus.

Risk factors

Risk factors for endometrial cancer are quite similar to that of breast cancer. This includes early menarche, late menopause, use of estrogen replacements, obesity and infertility.

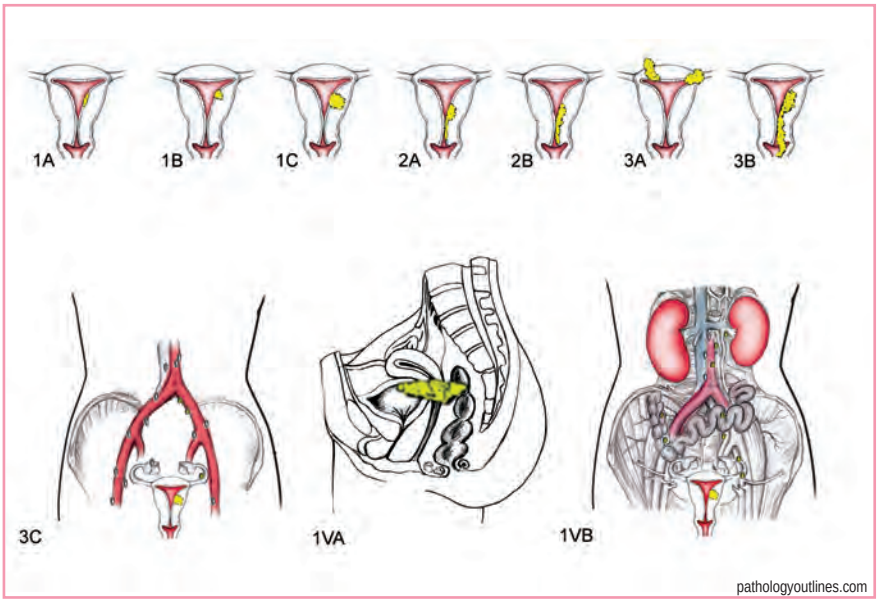
The diagnosis

Post-menopausal bleeding is the most common way in which endometrial cancer presents itself. Premenopausal women who have bleeding between the periods or extremely long or heavy periods should be suspected of endometrial cancer. Some other patients may have white or clear vaginal discharge. The more advanced cases may have pelvic pain.

After pelvic examination, most gynaecologists would order for an abdominal ultrasound. A thickened irregular endometrium on ultrasound increases the suspicion of endometrial cancer. When the level of suspicion is high, the next step would be to obtain a biopsy.

Biopsy is usually done by:

Dilation and curettage (D & C)



Endometrial aspiration and biopsy

Hysteroscopy and biopsy

The material removed is sent to a pathologist who either confirms or disproves the diagnosis of cancer. Once the diagnosis is confirmed the next step would be to assess the spread of the disease, which is done by investigations like CT scan or MRI of the abdomen.

Depending on the extent of spread, the stage of the disease is determined:

Cancer which is confined to the uterus would be stage I

Cancer which has gone on to the lower part of the uterus called the cervix would be stage II

Cancer which has spread outside the uterus but is still within the pelvic area would be stage III

Cancer which has spread far away from the uterus would be stage IV

Treatment plan

Treatment should be received preferably in a comprehensive cancer centre where surgery, radiation and chemotherapy facilities are available.

Surgery for endometrial cancer involves

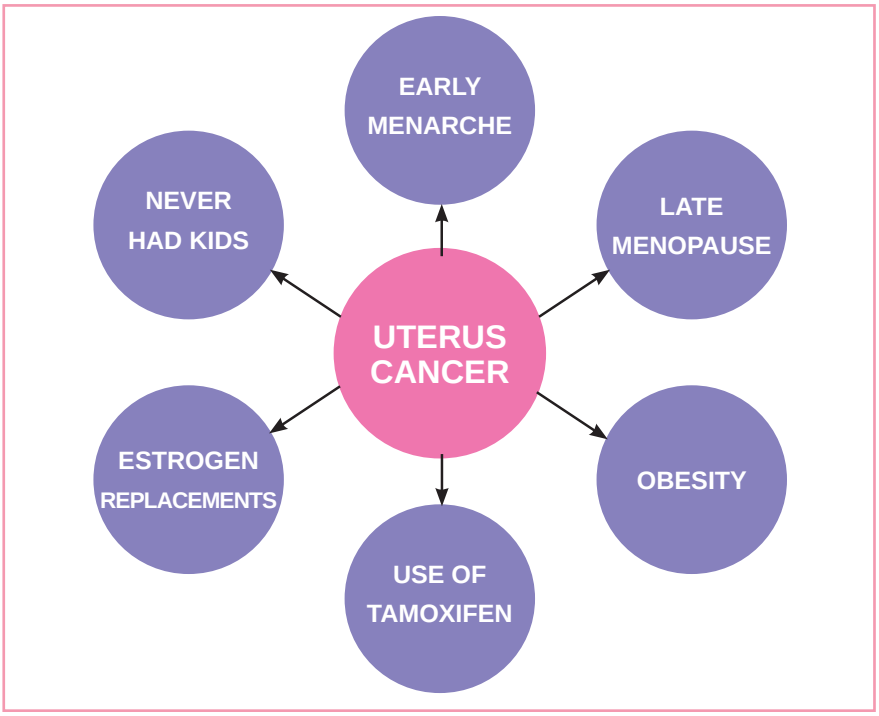
removal of the uterus from the abdomen along with removal of both the ovaries. Removal of the uterus from the vagina is not acceptable.

Hysterectomy is combined with removal of lymph nodes from the drainage areas.

Following surgery, the removed parts are examined by the pathologist, which helps in determining the final stage of the disease.

In very early cases (stage I) and when the tumour is less aggressive, only surgery is sufficient but in higher stages (stage II or III) or when the tumour is of an aggressive variety, radiation is recommended.

Radiation is of two types, one that is given externally under CT scan guidance, a procedure known as teletherapy, and the other, in which radiation is given internally on the residual portion of the vagina by placing wires, a procedure known as brachytherapy.



On quite a few occasions when the disease has already spread to the lymph nodes, it may be necessary to combine radiation with chemotherapy.

A few patients may be in the advanced stage of disease, which has spread to liver, lungs or elsewhere in the abdomen. In this case the options would be either to give chemotherapy with limited benefit or to just offer symptomatic treatment without doing anything specific for the disease.

On the whole, for patients like Mrs. Rao and many other women, maximum benefit of treatment can be given when they identify any abnormal vaginal bleeding or discharge and seek prompt medical attention for it. When detected at an early stage and promptly treated, the outcome is excellent and the patients can lead a normal life.

Endometrial cancer grades:

Grade 1 tumours have 95% or more of the cancerous tissue forming glands.

Grade 2 tumours have between 50% and 94% of the cancerous tissue forming glands.

Grade 3 tumours have less than half of the cancerous tissue forming glands. Grade 3 cancers are called “high-grade.” They tend to be aggressive and have a poorer outlook than low grade cancers.

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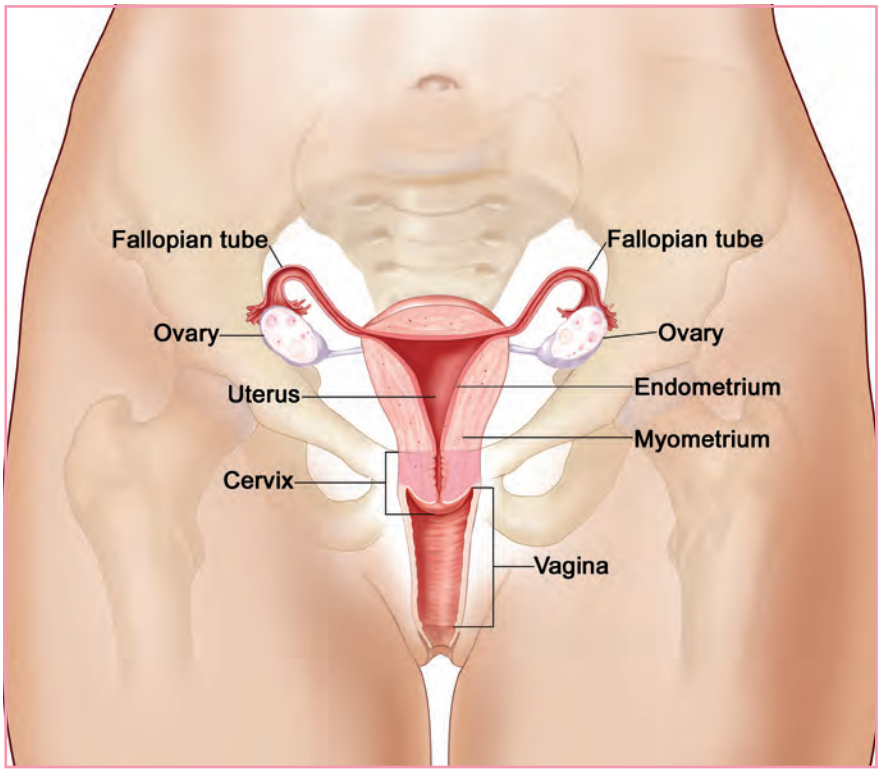
Ovarian Cancer FAQs

A woman's lifetime risk of dying from ovarian cancer is 1.1 per cent. Dr Meher Kotanam clarifies on this 'silent killer'

Ovarian cancer is one of the most common cancers in women after breast and cervix cancer. It is called a 'silent killer' as it is asymptomatic in early stages and 75 per cent of cases are diagnosed in the advanced stage. A woman's lifetime risk of dying from ovarian cancer is 1.1 per cent.



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What constitutes ovarian cancer?

Ovarian cancer largely means tumours of epithelial origin, but it can also arise from other elements namely germ cells and stroma. Epithelial ovarian cancers typically occur in postmenopausal women and are in advanced stage at the time of diagnosis, whereas germ cell tumours occur at a young age, are detected in the early stages and are completely curable.

Who are at risk?

The majority of women with ovarian cancer have no known risk factors. Early menarche, late menopause, being over the age of 30 at first childbirth, and nulliparity are said to increase the risk.

What are the protective factors?

Childbirth, breast-feeding, oral contraceptives, tubal ligation, bilateral removal of ovaries (bilateral oophorectomy), and hysterectomy.

What are the symptoms?

Symptoms are non-specific like pelvic pain, back pain, abdominal discomfort, bloating, early satiety, vaginal bleeding, and frequent urination. Ovarian masses are sometimes detected on pelvic examination.

How is it diagnosed?

Transvaginal Ultrasound (TVU) is an important diagnostic tool in evaluation of patients with pelvic mass. Computed Tomography (CT) and Positron Emission Tomography (PET scan) help in defining the extent of the disease. MRI is sometimes helpful. Tumour markers like CA 125 are adjunct to imaging and useful in follow up.

Are all ovarian masses cancers?

All masses in the ovary are not cancers. TVU helps distinguish benign from malignant ovarian cysts. Complex cysts, defined as cysts with both solid and cystic components, septations and echogenicity, are malignant and require exploration. In contrast simple cysts that are thin walled, less than 5-10 cm and without septations are usually benign.

Can we detect ovarian cancer early?

Screening for ovarian cancer has not been successful as natural history of ovarian cancer is not well understood. There is no well-defined precursor lesion and the length of time from localised tumour to dissemination is unknown. Multiple efforts are underway to develop effective screening methods. Pelvic examination, CA 125, and TVU with Doppler are studied as screening methods in high-risk individuals.

Is ovarian cancer genetic?

Around 5-10 per cent of patients carry germline mutation. Breast-ovarian cancer syndrome accounts for approximately 90 per cent of hereditary ovarian cancer and is suspected whenever there are multiple affected family members with ovarian cancer, bilateral or early onset breast cancer, both breast and ovarian cancer in the same individual, or a male relative with breast cancer.

What are the treatment modalities?

Treatment depends on the age, stage, tumour type and the desire to preserve fertility. Surgery and chemotherapy is the mainstay of treatment.

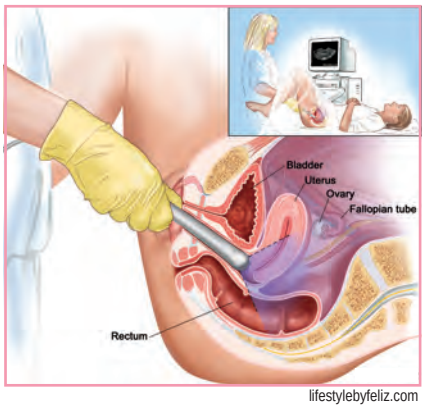
What complications can I expect after chemotherapy?

The most common early complications are loss of hair, nausea and vomiting. There can be reactions during infusion of chemotherapy, which are prevented with good premedication. Late complications include tingling and numbness in fingers and toes.

How do I prevent ovarian cancer?

Chemoprevention is by oral contraceptives. Surgical prevention is by bilateral oophorectomy, tubal ligation and hysterectomy.

Risk-reducing bilateral salpingo-



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oophorectomy is strongly recommended in women who carry germline mutation for hereditary ovarian cancer, because of high mortality of ovarian cancer and lack of effective screening and preventive approaches. Fortunately, risk of ovarian cancer does not rise dramatically until the late 30s in women with germline mutation, so women have the opportunity to complete their family prior to surgery.

Since ovarian cancer is one of the common cancers in women and there are no effective population screening methods, high index of suspicion is necessary for early diagnosis. With the new trends in chemotherapy, survival is increasing in ovarian cancer patients and awareness is necessary among the public for seeking early medical attention.

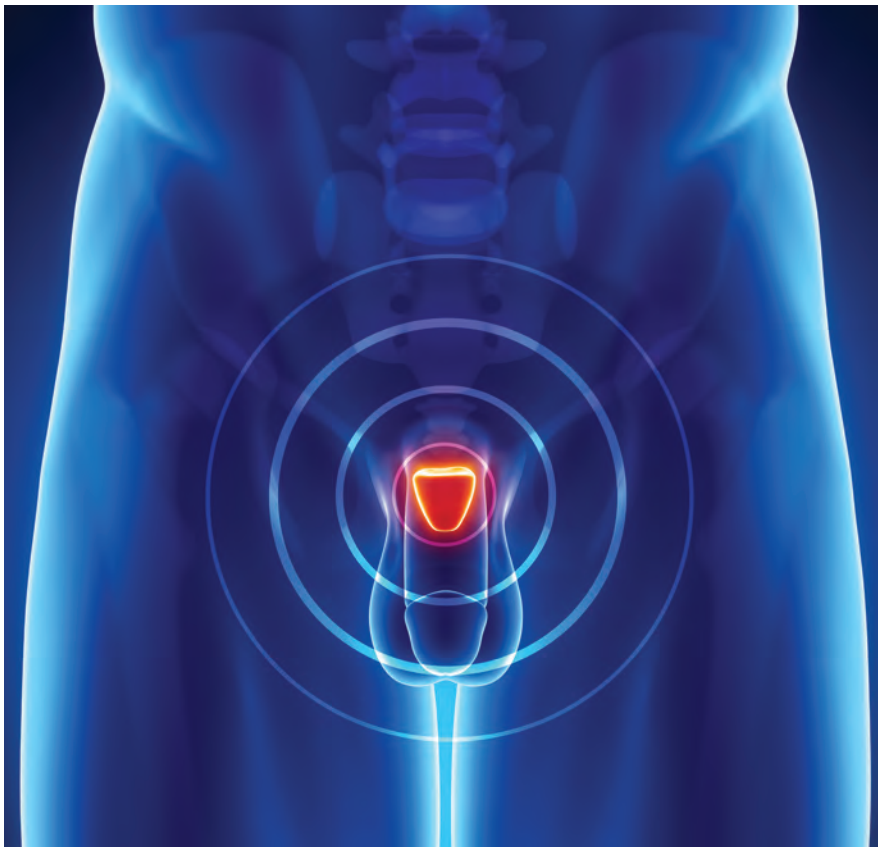
Prostate Cancer

Our Threatened Grandpas can Actually be Saved – Every male above the age of 50 should see a specialist once a year for examination, PSA test and ultrasound. Dr Janos Stumpf emphasises on the importance of early detection of prostate cancer

This is a fact that only a few people are aware of. This slow and silent killer bringing enormous hardship to patients and families due to severe urinary complaints and painful bone involvement can be diagnosed early and treated well. The stress is on 'early', though proper treatment is also important.

The organ itself is closely related to 'manhood', but its role and condition is not widely understood and discussed openly enough here in India, unlike cancer of the cervix, a similarly spread disease in females.

The prostate has an important role in male fertility as its adenoid cells produce much of the liquid-environment needed for conception, and its muscles are responsible for the release. Its function is hormone-dependent, and there is a tendency to malfunction at a senior age. Benign Prostatic Hypertrophy (BPH) produces complications when emptying the bladder. The cancer is silent for a long time, growing slowly and unnoticed. However, when the symptoms start showing, in many instances the cancer has passed the stage when cure or remedy is possible and relatively simple. A non-symptomatic, initial-stage cancer may require nothing more than careful monitoring (wait and watch policy). However, this should not be taken for granted. A careful discussion of mutually agreed type of care or treatment should be discussed in detail with an experienced urologist or oncologist.



Treatment

Surgery will surface in most of these discussions, though it is difficult for both the patient and his surgeon, even if appropriate skill and up-to-date equipment like robotic surgery or navigation are at hand.

Hormonal management is probably the mainstay of treatment. It is efficient and reasonably tolerable, though it hardly ever brings full cure for the years to come in the life of a fit senior.

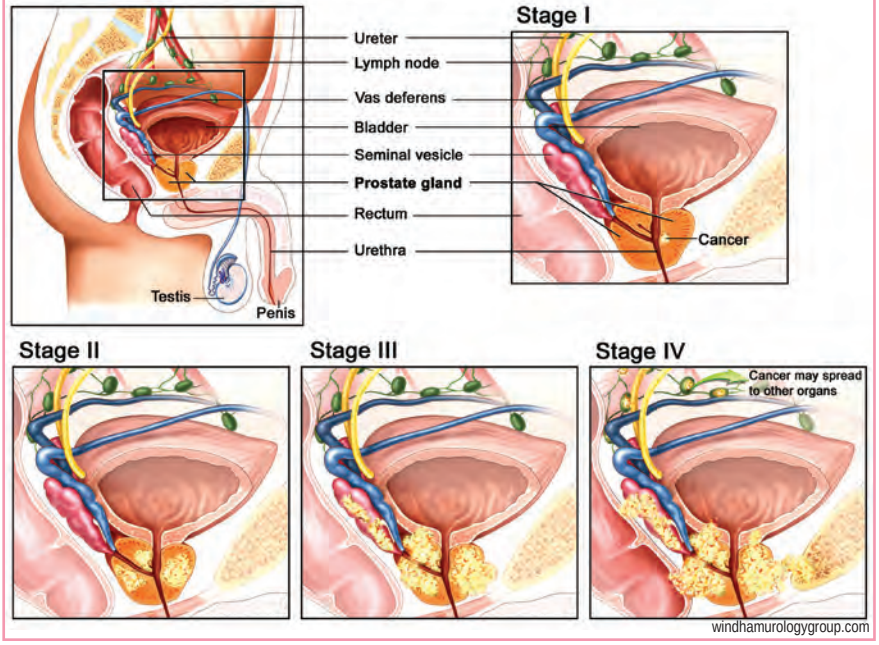
Radiotherapy used to play a palliative

role but this is not the case anymore if appropriate skill and machines are available. The last two decades have brought about huge progress in planning and delivery of External Beam Radio-Therapy (EBRT). Intensity Modulated Radiotherapy (IMRT), or its more precise version, the Image Guided Radiotherapy (IGRTI), is a very specialised and careful delivery of therapeutic X-ray photons generated by a linear accelerator. This is the most common solution, though early stage cancer can be cured by implantation of radioactive isotopes, a technique that has been used for decades. This is called brachytherapy, and it uses radioactive gold or iodine for permanent isotope implantation in the prostate. Its other form is temporary implantation of inactive tubes, and exposure by an appropriate isotope kept in a pre-computed manner in the tubes by an after-loader.

Radiosurgery by CyberKnife is an elegant and convenient new form of radiation, which can also be considered.

Important precondition of success

On the whole, non-surgical management of prostatic cancer is very well developed. Its results are as good as that of an open surgical intervention without the associated risks and inconveniences.



However, there is one important precondition of success - early diagnosis. That is not only a dream for doctors but also a proven reality; screening for prostatic cancer is fairly reliable, not at all expensive and associated with no major inconvenience.

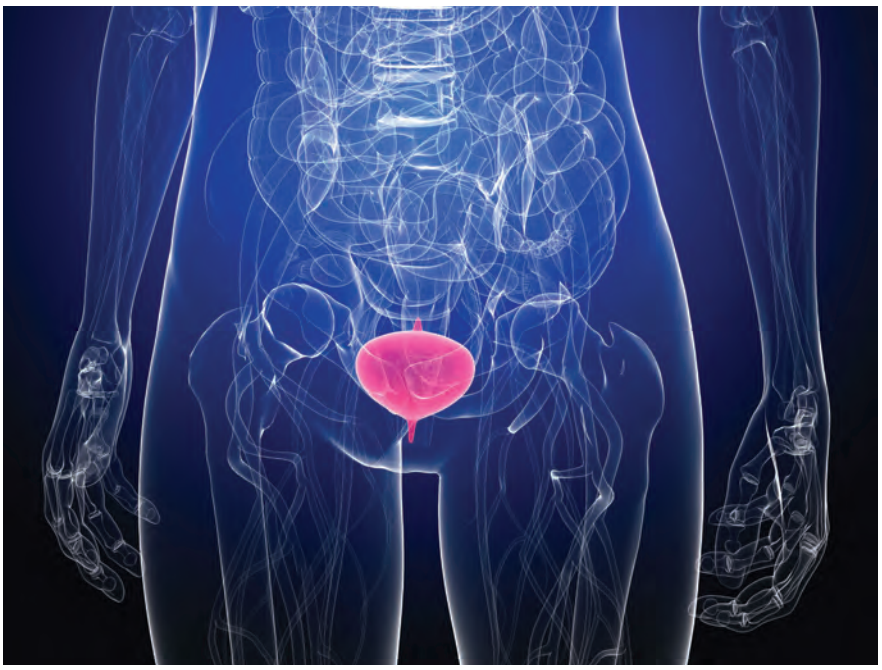
Every male above the age of 50 should see a specialist (urologist or oncologist) once a year for examination, PSA test and ultrasound. Those with positive family-history need to see an oncologist to develop their individual screening program. Progress in medical care has developed the solution of detecting the cancer at an early and curable stage, and there are enough ways to cope with the challenge efficiently. New treatments like kryo-therapy etc. can help in special cases.

Management of advanced cancer of the prostate is much more complex, expensive and not very efficient. It may require chemotherapy beyond hormonal management and palliative irradiation.

The heart of the matter is, who takes the responsibility to spread the knowledge and care for our grandpas? Maybe you, my dear reader…

Bladder Cancer

Uncontrolled proliferation of normal cells lining the bladder wall can lead to cancer. Dr Mahadev Potharaju advises that 50 per cent of patients can be cured with appropriate treatment



The urinary bladder is a hollow sac like organ situated in the pelvis. Its major function is to store the urine produced by the kidneys before finally emptying it. Uncontrolled proliferation of normal cells lining the bladder wall can lead to cancer.

Risk factors

Though the exact cause of bladder cancer is unknown, there are certain well recognized risk factors. Smoking is one of the most important risk factors, and smokers have twice the risk of developing bladder cancer than non-smokers. People exposed to certain chemicals like aromatic amines. which are especially used in dyeing, rubber, leather and textile industries are also at increased risk if proper precautions are not taken. Chronic irritation of the bladder wall due to any cause can also lead to bladder cancer.

Symptoms

Some of the common symptoms of bladder cancer are haematuria and recurrent urinary tract infection. However, it is important to realize that most of the early cancers may be totally asymptomatic. A patient with these symptoms should consult his doctor if the symptoms persist for more than two weeks.

Diagnosis

The mainstay of diagnosis is a cystoscopy and biopsy where a long tubular instrument is inserted into the urinary bladder and the entire bladder lining is inspected. If any tumour is seen, the urologist tries to resect as much tumour as possible. Any abnormal looking tissue is taken for biopsy and sent to the pathologist for examination under a microscope. The pathologist will confirm any cancer if present, and the depth of penetration into the wall of the urinary bladder. Some of the other tests that the patient may have to undergo for diagnosis and staging are: urine for cytology, ultrasound, CT/MRI scan, and sometimes PET-CT and bone scan, if indicated.

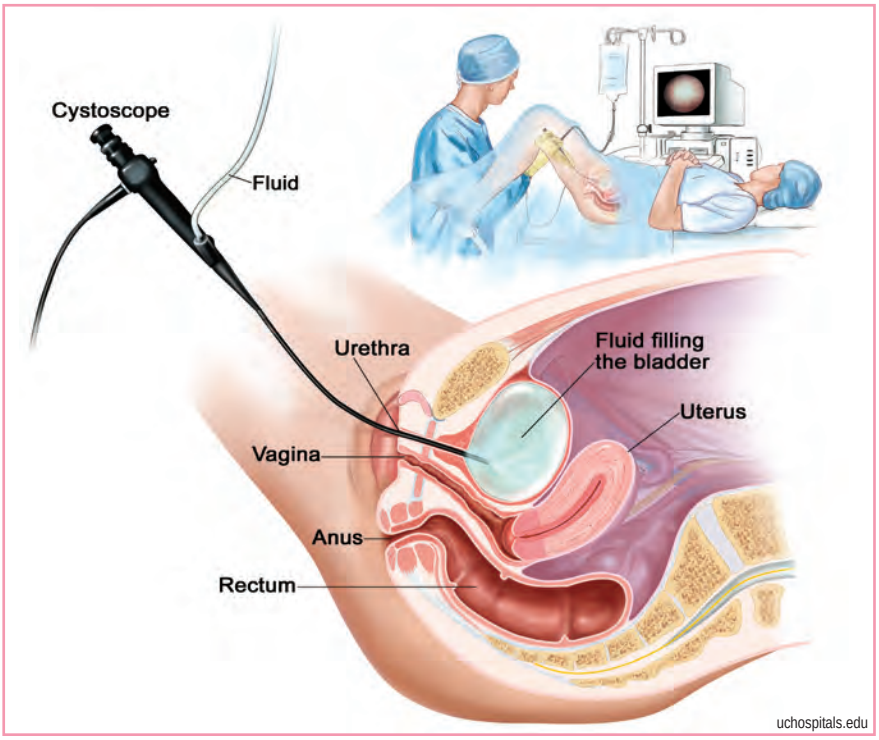
The purpose of doing these tests is to find out the stage of the cancer as the prognosis and treatment depends upon the stage. Broadly speaking, there are four stages depending upon how deep the cancer has penetrated into the bladder wall, and whether it has spread into other structures outside the bladder like lymph nodes, bone, liver etc.

Treatment

There are three main modalities of treatment - surgery, radiotherapy, and chemotherapy, either alone or in combination. In very early bladder cancers limited to the superficial layer of the bladder wall, immunological therapy is used where the patient comes in for multiple sessions of a drug being instilled into the bladder.

Surgery is one of the most widely used treatments. In most of the locally advanced tumours, the surgery is called radical cystectomy where the entire bladder and some adjoining structures are also removed. This operation requires some form of urinary diversion for the urine to come out through a new pathway. In certain less advanced tumours, a partial cystectomy may be sufficient where only a part of the bladder will be removed.

Radiotherapy alone or in combination with chemotherapy is an alternative to surgery where the patient wants to conserve his bladder. Radiotherapy is the use of high energy X-rays which are focused on the area to be treated without affecting the tolerance of surrounding normal structures. Today, there are a number of sophisticated treatment techniques like IMRT, IGRT etc. to achieve this aim using state of art linear accelerators.



Chemotherapy is the use of medicines given intravenously and is called systemic treatment as it can kill cancer cells anywhere in the body.

Appropriate treatment in a good multidisciplinary hospital can result in curing more than 50 per cent of patients. If the cancer is diagnosed at an early stage, the results are much better.

The TNM (Tumour, Nodes, Metastasis) staging system categorizes bladder cancer using the following scale:

Stage 0 - Noninvasive tumours that are only in the bladder lining

Stage I - Tumour goes through the bladder lining, but does not reach the muscle layer of the bladder

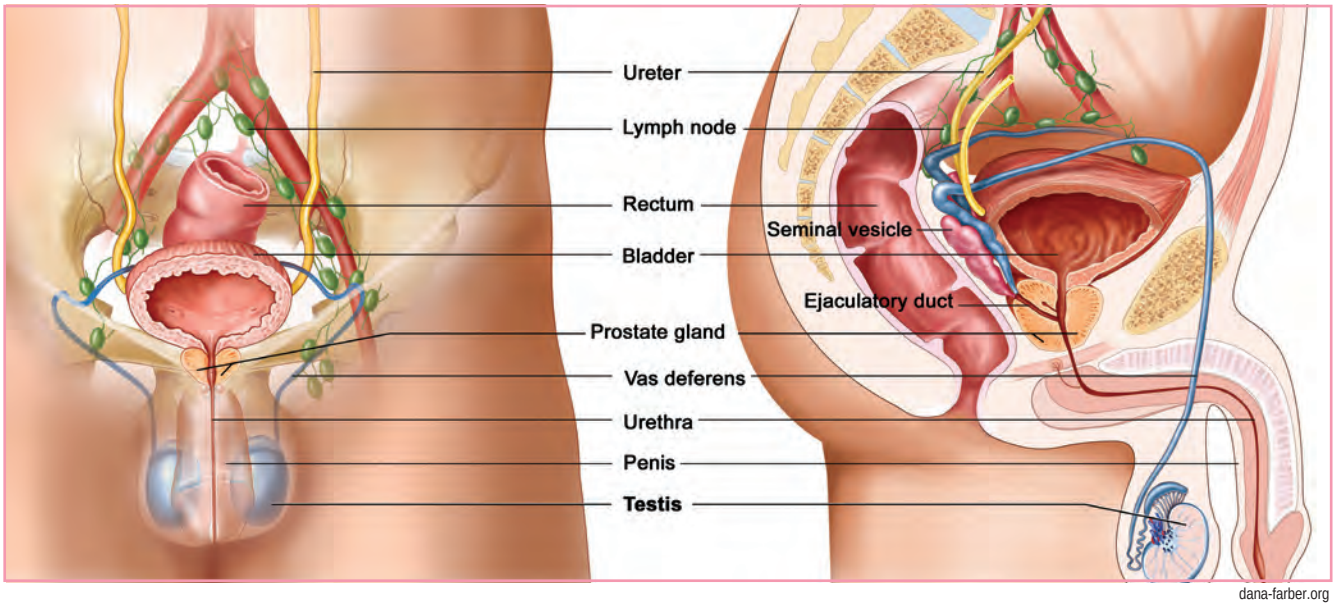
Stage II - Tumour goes into the muscle layer of the bladder

Stage III - Tumour goes past the muscle layer into tissue surrounding the bladder

Stage IV - Tumour has spread to neighboring lymph nodes or to distant sites (metastatic disease)

Testicular Tumours

If untreated, testicular tumours have a high potential to adversely impact lives, both in terms of longevity and quality. Dr A V S Suresh elucidates on the reasons why these tumours need to be widely discussed



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Though global statistics indicate that the lifetime risk of testicular tumours in men is approximately about 1 in 250, Indian statistics show a slightly lower incidence. The review suggests that it comprises of one per cent of all cancers in men. The disease is not as widely discussed as breast, lung or cervical cancers, though it deserves to be, because of the following reasons:

Like breast cancer, it is one organ which can be easily felt and self-examined.

It usually affects young men (ages 20-39) in the prime of their youth, which is the most productive age.

Testicular cancer has the highest cure rate among all cancers (more than 90 per cent), and cure is possible even if detected late (there are documented cured cases in fair numbers even in stage IV, unlike breast or lung cancer) and for a given stage it has higher cure rates than any other screen detected malignancies.

If untreated, it has a high potential to adversely impact lives, both in terms of longevity and quality.

Symptoms

Prominent symptoms include pain/swelling/lumps in testicles/groin areas, though some uncommon and atypical symptoms are also known. If the disease spreads all over, it may show signs like cough, headache etc.

Other conditions that mimic testicular cancer

Not all lumps on the testicles are tumours, and not all tumours are malignant; there are many other conditions such as testicular microlithiasis, epididymal cysts, appendix testes (hydatid of Morgagni), and so on which may be painful but are non-cancerous.

Causes

Like most other cancers, in many of the cases the cause is not known. Among

the known causes, prominent risk factors include undescended testes (cryptorchidism), family history, mumps and inguinal hernia. These cases require more intense vigilance or are preferred for selective or high risk screening.

Types

Although testicular cancer can be derived from any cell type found in the testicles, more than 95 per cent of testicular cancers are germ cell tumours, which are of two types; seminomas, or slow growing cancer and non-seminomas or fast growing cancer. Remaining five per cent are from other cells in the testes.

Treatment

It is a model for multidisciplinary management of cancer, with appropriate integration of surgery, chemotherapy and radiation therapy. However surgery is the mainstay and is mandatory in all the cases.

Surgery

Inguinal orchiectomy - While it may be possible in some cases to remove testicular cancer tumours from a testis while leaving the testis functional, this is almost never done, as the affected testicle usually contains pre-cancerous cells which spread throughout the entire testicle. Thus removing the tumour alone without additional treatment greatly increases the risk that another cancer will form in that testicle. Since only one testis is typically required to maintain fertility, hormone production, and other male functions, the afflicted testis is almost always removed completely in a procedure called inguinal orchiectomy. (The testicle is almost never removed through the scrotum; an incision is made beneath the belt line in the inguinal area.)

The common misbelief that surgical removal of a testicle will affect fertility is far from reality as most of these patients do have normal fertility and potency. Chemotherapy, used in advanced cases, on the other hand, can harm sperm count/quality, which is usually reversible. Sperm banking in such cases should be considered.

Retroperitoneal Lymph Node Dissection (RPLND) leading to retrograde ejaculation, which has been modified and refined.

Radiation

The abdomen is treated with radiation in some cases of seminoma to prevent nodal recurrences. Though rare with advanced radiation techniques, it may lead to many long term complications including second cancers in early stage seminomas, and can be replaced with more intense follow-up. It is proven that risk of recurrence is not very high, and even if it recurs, complete salvage is still possible.

Chemotherapy

It is the standard treatment for non-seminoma when the cancer has spread to other parts of the body (that is, stage 2B or 3). The standard chemotherapy protocol is three or sometimes four rounds of Bleomycin, Etoposide and Cisplatin (BEP).

The unmet need

Despite this aggressive approach, 20-30 per cent of patients treated for metastatic disease die of the disease. This emphasises the need for well-conceived randomised trials to define newer therapies for this group of patients.

Complications of treatment and debated issues

This issue is becoming more prominent as it is now recognised that there is risk of overtreatment, long term sequelae and morbidity. The ability to achieve equivalent results with more than one competing modality has also raised many controversies in the management of this cancer.

Childhood Cancer

More than 40,000 children develop cancer each year in India. Dr S V S S Prasad sheds light on childhood cancers, an unpreventable disease

It is common belief that cancer is a disease of the aged and the incidence of cancer increases as age increases. But, we should know that cancer occurs in children too, and more importantly, that 70 per cent of childhood cancers are curable.

Cancer occurs when a cell grows and multiplies uncontrollably. Cancers differ depending on the type of cell involved in this growth and multiplication.

Different types of cancer have different manifestations and treatments. As the cancer cells grow, they cross their normal boundaries and destroy their neighbouring cells and tissues causing swelling, pain and sometimes ulceration and bleeding. They can spread to other organs too (metastasis). As the cancer grows it destroys organs and bones and steals the body's nutrition. Thus the child is weakened and the body's defences against other illnesses also become weak.

Pediatric patients form about five per cent of cancer cases. More than 40,000 children develop cancer each year in India. Childhood cancers arise due to non-inheritable genetic mutations in the growing cells which are random and unpredictable. This makes childhood cancer unpreventable.

The most common childhood cancers are:

- Leukaemia (blood)
- Lymphoma (lymph nodes)
- Brain cancer
- In teenage, osteosarcoma (bones)

Symptoms and diagnosis

Fever with anaemia and bruises, swollen lymph glands, swelling of a part of body with or without pain, headache and vomiting, should arise suspicion of cancer in both parents and doctors. Once cancer is suspected the child should be taken to a centre with pediatric oncology facilities, where further evaluation to confirm the diagnosis and staging of cancer will be done, and appropriate treatment instituted. A pediatric oncology facility includes a pediatrician and others with oncology training. This multi-disciplinary team

decides the most appropriate investigation and treatment for the child.

Treatment

Cancer treatment in childhood includes surgery, radiation (use of X-rays to kill cancer cells) and chemotherapy (use of medicines to kill cancer cells).

Surgery

Surgery has a minor role in childhood cancers. In lymphoma it is useful in biopsy of a lymph node for diagnosis. It is also useful in removal of some tumours such as kidney and bone tumours.

Radiation

Radiation therapy is the main treatment modality in brain tumours. Radiation is also used in treatment of other cancers along with chemotherapy.

Chemotherapy

Chemotherapy forms the backbone of childhood cancer treatment. Chemotherapy is usually given for long periods ranging from 1-3 years. Children tolerate chemotherapy much better compared to adults. This is because children experience less stress, and cell recovery from the toxic damage of chemotherapy is faster. Chemotherapy is given intravenously (through a vein), orally (by mouth), and intrathecally (into the spinal fluid) depending on the drug regimen and the type of cancer.

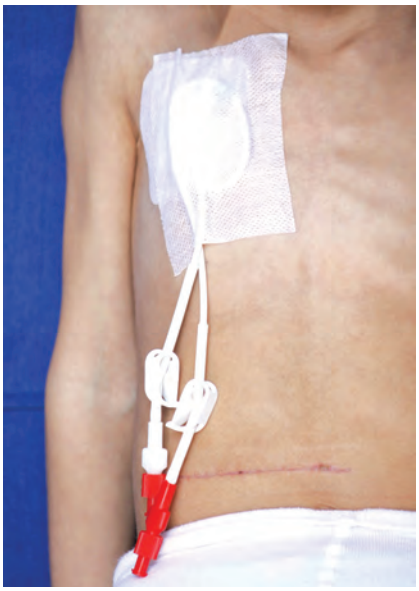
Chemotherapy entails short-term side effects like nausea, vomiting, hair loss, anaemia, bleeding and infection. Long term effects can occur too, and these include infertility, growth retardation, and secondary cancers (other cancers). Nowadays we have many improvements in treatments that minimise these side effects.

Bone marrow transplantation

Cancer cell killing sometimes needs high dose chemotherapy. This high dose chemotherapy, apart from killing the cancer cells in the body and the bone marrow, also destroys the normal bone marrow cells. Hence bone marrow transplantation with stem cells from a donor (allogeneic) or from the patient himself (autologous - stem cells taken out and preserved before the high dose chemotherapy) is needed for normal blood production after the high dose chemotherapy.

Coping with cancer

Children older than five years would want to be involved in their own treatment, and therefore they should be explained

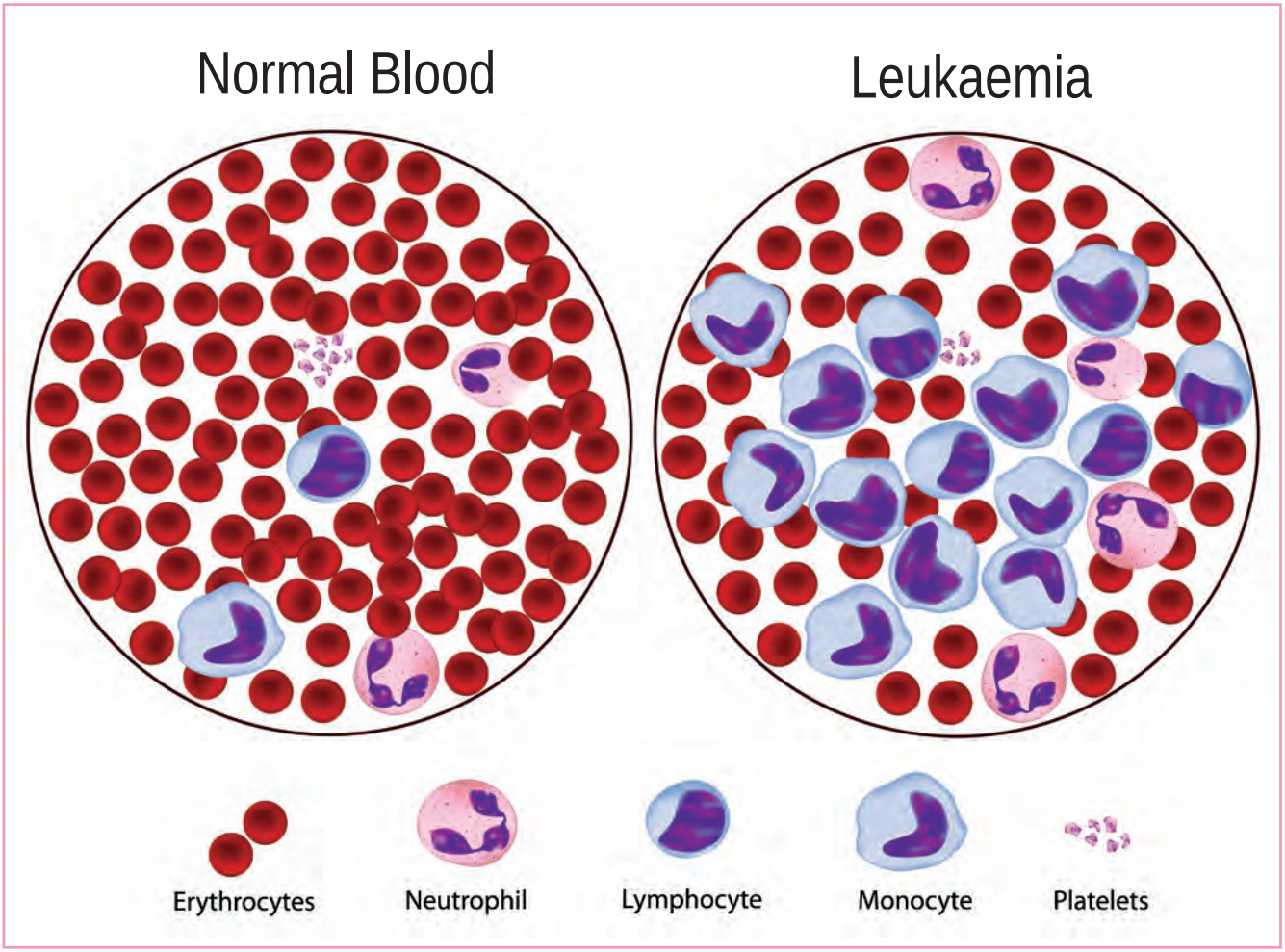


about their cancer and its treatment in a language appropriate to their age. Their families should be guided through the pain, uncertainty and disruptions to life caused by the cancer by a team which includes a psychologist, social workers and others. The team should talk to the teachers and classmates to remove misunderstanding and make them compassionate. This helps the kids cope with their illness better.

Thanks to the advances in treatment modalities, more and more children are successfully getting treated. Hence we should understand that appropriate treatment with good pediatric oncology facilities helps realise the goal 'Childhood Cancer is Curable'.

Acute Leukaemia

In acute leukaemia, the condition progresses at a rapid and aggressive pace, and treatment needs to be administered immediately, cautions Dr Harsh Dua



Cancer occurs when there is uncontrolled abnormal cell growth and development. It disturbs the normal life span of cells wherein they are formed, mature, carry out their intended function, die, and are replaced by new cells which are constantly regenerated in the body to maintain normal cellular function. Cancer represents the disturbance of this process.

Leukaemia is cancer of the white blood cells. The symptoms of leukaemia include:

Breathlessness

Having repeated infections over a short space of time

Pale skin

Tiredness

In acute leukaemia, the condition progresses at a rapid and aggressive pace, and treatment needs to be administered immediately.

Bone marrow

Bone marrow is a spongy material that is found inside the bones, and it produces all of the blood cells. It also produces vital cells called stem cells that can create other specialised cells that carry out essential functions. These specialised cells are of three types:

Red blood cells which carry oxygen around the body

White blood cells which help fight infection

Platelets which help stop bleeding

Acute leukaemia prevents the affected bone marrow from producing stem cells that mature into adult blood cells. Instead it releases numerous immature blood cells called blast cells.

The immature white blood cells begin to rapidly disrupt the normal balance of cells in the blood, limiting the presence of red blood cells or platelet cells in the body. This can lead to tiredness and other

symptoms of anaemia, and also increase risk of excessive bleeding.

The patient also becomes more vulnerable to infection as the white blood cells are not properly formed and thus ineffective in fighting bacteria and viruses.

Types of acute leukaemia

There are two main types of white blood cells classified according to the type of white blood cells that are affected by cancer:

Lymphocytes which are mostly used to fight viral infections

Myeloid cells which fight bacterial infections, defend the body against parasites and prevent the spread of tissue damage

The two main types of acute leukaemia are:

Acute lymphoblastic leukaemia, which is cancer of the lymphocytes

Acute myeloid leukaemia, which is cancer of the myeloid cells

Acute myeloid leukaemia

It is more common in older people, especially when over 50 years of age, and more common in males than females, though it is not clear why. The causes of

acute leukaemia are uncertain, but known risk factors include:

Exposure to high levels of radiation

Exposure to benzene, a chemical that is used in manufacturing and is also found in cigarettes

The lack of healthy blood cells in the blood supply causes most of the symptoms of acute leukaemia, which usually begin slowly before rapidly escalating in severity as the number of blast cells in the blood increases.

Outlook

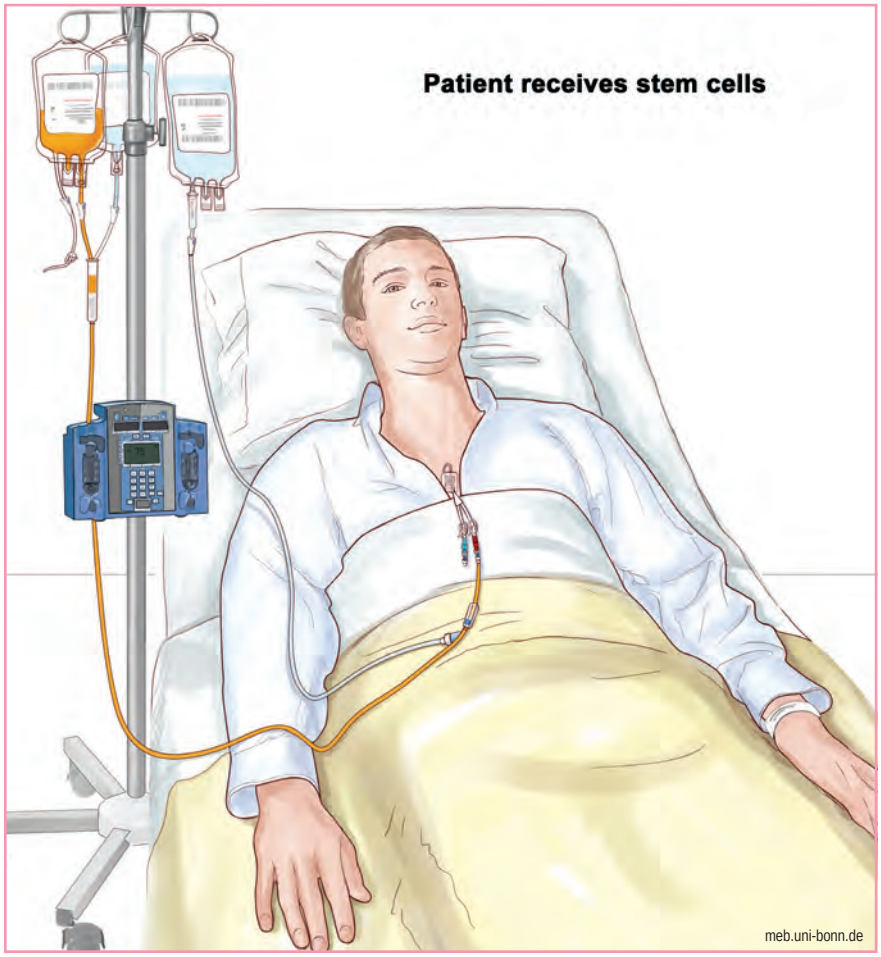
The outlook for people with AML depends on the sub-type of AML, with some sub-types being more challenging to treat than others. The cure rate thus varies, and some sub-types have a 75 per cent cure rate, while others have a 20 per cent cure rate. The outlook also favours younger people as compared to older people. The treatment usually includes a combination of chemotherapy and radiation, or a bone marrow transplant in some cases.

Acute lymphoblastic leukaemia

ALL is the most common type of cancer found in children, though it is uncommon on an overall basis. Approximately one in every 2,000 children will develop ALL. The majority of cases develop in the age group of two to five year olds, and 85 per cent develop in children below the age of 15.

Outlook

The outlook for children with ALL is optimistic, as almost all of them will achieve a remission from their symptoms. 85 per cent of children will be completely cured, whereas only 40 per cent of adults will be completely cured.



Treatment

Treatment for AML involves two stages:

Induction: The aim of the initial stage of treatment is to kill the leukaemia cells in the bone marrow, restore the blood to proper working order and resolve any symptoms that may be present.

Consolidation: This stage aims to kill any remaining leukaemia cells that may be present in the central nervous system.

Treatment for ALL involves three stages:

Induction

Consolidation

Maintenance, which involves taking regular doses of chemotherapy tablets to prevent the leukaemia returning. This seems to be the most effective stage.

Other treatments

The other treatments that are used in some circumstances are:

Radiotherapy

Stem cell transplant

Targeted therapies

New directions

The treatment of hematologic malignancies is rapidly changing, and primary therapy for leukaemia has advanced steadily over the past years. Biologic advances have led to a better understanding of drug resistance and the emergence of various targeted therapies, which have revolutionised the way in which leukaemias are treated. Some of these offer patients more treatment options with less toxicity.

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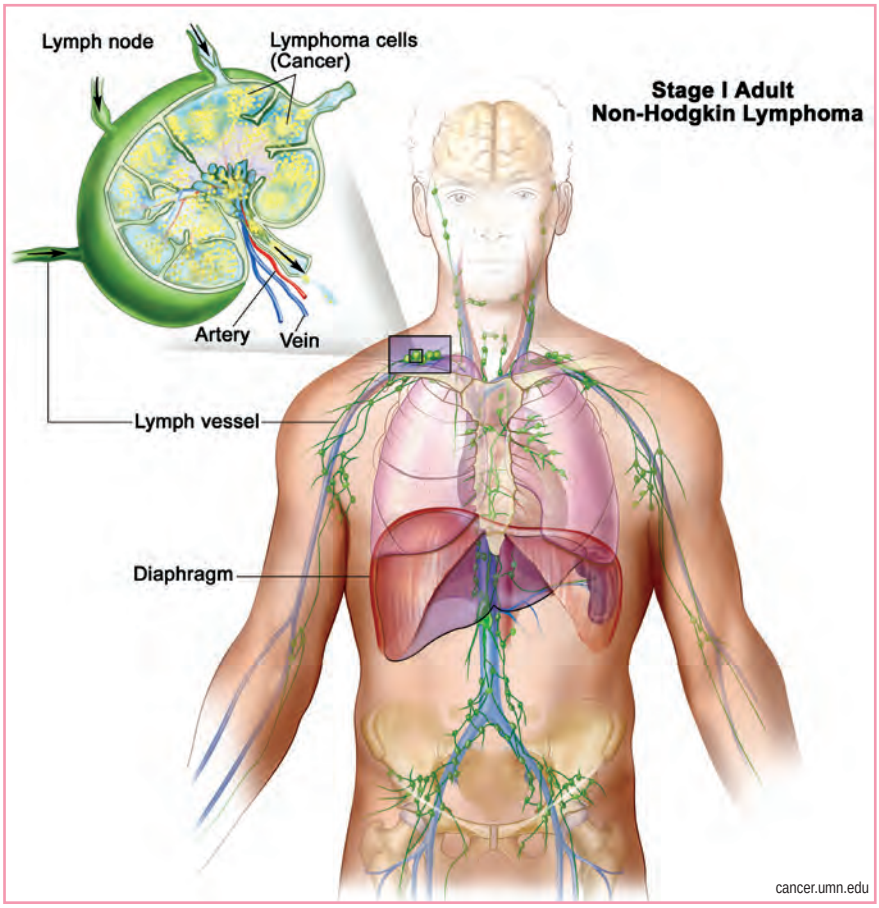
Non-Hodgkin Lymphoma Cure Is Possible

Lymphomas can start almost anywhere in the body, but with modern advances in diagnosis, imaging studies and availability of targeted drugs, the outlook for patients has improved tremendously, explain Dr Raja T and Dr R Ramu



Lymphomas are cancers originating from the lymphatic cells of the immune system, typically seen as solid tumours. The lymphatic system is part of the body's immune system and helps fight infections and other diseases. Because lymphatic tissue is found in many parts of the body, lymphomas can start almost anywhere. In 1832, Thomas Hodgkin, a British pathologist published the first description of lymphoma, a specific form which is named after him as 'Hodgkin Lymphoma'. Since then many other forms of lymphoma have been described, all grouped under a single label 'non-Hodgkin lymphoma'.

However, the latest lymphoma classification by the WHO (2008) considers the ancient arrangement obsolete because the different lymphomas grouped under NHL have very little in common with each other. Hence the NHL label is slowly being abandoned considering its minimal relevance.

Causes and risk factors

The cause of this cancer is unknown for most patients. However, lymphomas may develop in people with a weakened immune system such as in organ transplant patients on immunosuppressive drugs or HIV infection. Certain viruses such as HTLV-1 (Human T Cell Leukemia/ Lymphoma Virus), hepatitis C, and Epstein-Barr virus seem to directly affect the DNA of the lymphocytes and help transform them into cancer cells.

Helicobacter pylori, a type of bacteria known to precipitate stomach ulcers causes chronic immune system stimulation and has been associated with Mucosa Associated Lymphoid Tissue (MALT) lymphoma of the stomach.

Although NHL can affect all age groups, the chance of developing this disease increases with age.

Symptoms

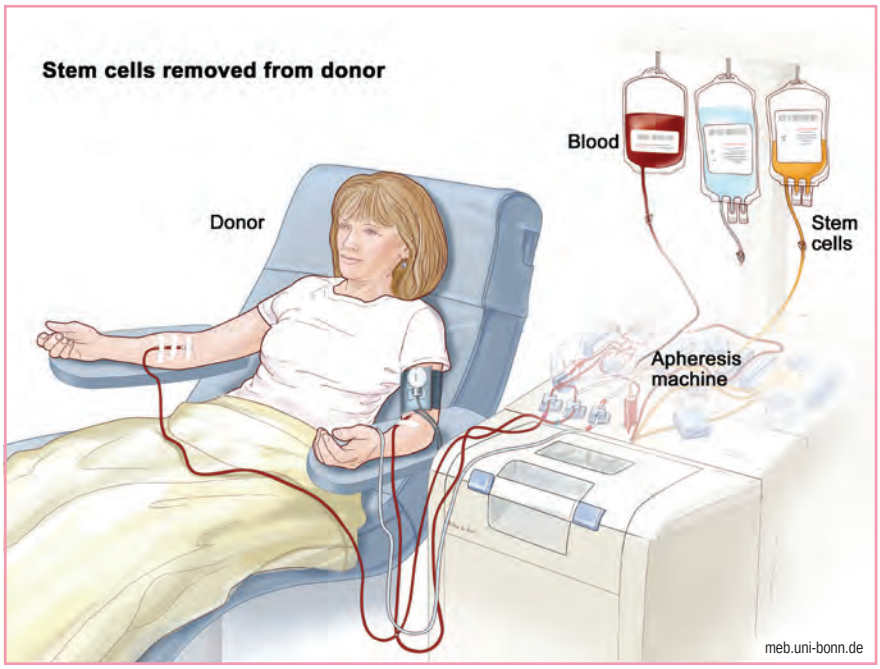
They may vary depending on the location of the tumour in the body. The most common symptoms are enlarged painless lymph nodes in the armpit, neck or in the groin. Others include fever, night sweats, weight loss, breathlessness and abdominal distention.

Diagnosis

A biopsy of the tumour is the only way to confirm NHL. Excisional or incisional biopsy of the tumour is usually done if a lymphoma is suspected. A needle biopsy (FNA) is usually not preferred, as it might not draw an adequate sample to make a definite diagnosis.

A bone marrow aspiration and biopsy is usually done not to confirm the diagnosis but to stage the disease. It helps to determine if the disease has infiltrated the bone marrow.

Biopsy samples are sent for histopathological examination. Other tests like immunohistochemistry, flow cytometry and cytogenetics are essential to establish a definite diagnosis. Immunohistochemistry is the method by which we can examine the cells and determine what antigens are expressed on the surface of the cells by using antibodies that bind to those antigens. We can also determine how strongly those antigens are expressed. This will help determine the type of lymphoma with a far greater accuracy, which will aid the treating physician to decide on appropriate treatment and management.



Fluorescent in situ hybridization (FISH) testing is used to look for specific changes in a chromosome such as trans-location and to visualise specific genes or portion of genes aiming at a more accurate diagnosis.

Imaging studies like CT scan, Gallium scan and PET scan are useful tools in detecting and monitoring the disease. One must understand that none of these scans can diagnose NHL without histopathological evidence.

Treatment

In recent years, there has been much progress in treating non-Hodgkin lymphoma. The treatment options for people with NHL depend on the type and its stage, as well as the other prognostic factors of the disease.

One of the most common combinations of drugs used in chemotherapy is

called CHOP. This includes the drugs cyclophosphamide, doxorubicin, vincristine (oncovin) and prednisolone. Another common combination leaves out doxorubicin and is called CVP.

Antibodies are proteins made by the body's immune system to help fight infections. Monoclonal antibodies are man-made substitutes designed to attack a specific target, on the surface of lymphocytes.

Several monoclonal antibodies are being used now to treat NHL:

Rituximab is an antibody that attaches to a substance called CD20 found on some types of lymphoma cells.

Alemtuzumab is an antibody directed at the CD52 antigen and used for some types of peripheral T cell lymphomas.

Ofatumubab is another monoclonal antibody that targets CD 20 antigen and is used mainly when chemotherapy, rituximab and alemtuzumab do not work.

Stem cell transplants are sometimes used to treat lymphoma patients who are in remission or who have a relapse during or after treatment. These are of two types:

Allogeneic stem cell transplant: The stem cells come from someone else. The donor's tissue type (also known as the HLA type) should be almost identical to the patient's tissue type to help prevent the risk of major problems with the transplant. The stem cells are usually collected from the bone marrow, peripheral blood or umbilical cord blood.

Autologous stem cell transplant: The patient's own stem cells are removed from his or her bone marrow or peripheral blood on several occasions. The cells are frozen and stored while the person gets treatment (high-dose chemotherapy and/or radiation), and are then re-infused into the patient's blood.

International Prognostic Index (IPI) for aggressive NHL

All patients	0 Point	1 Point
Age (years)	= 60	> 60
Stage (Ann Arbor)	1or2	3or4
Number of extranodal sites	= 1	>1
Performance status	0-1	= 2
LDH	Normal	Elevated
Patients aged over 60 years		
Stage (Ann Arbor)	1or2	3or4
Number of extranodal sites	= 1	>1
LDH	Normal	Elevated

Prognosis	No of factors	2-year Survival	5-year Survival
All patients			
Low – risk	0-1	84%	73%
Low intermediate risk	2	66%	52%
High intermediate risk	3	54%	43%
High risk	4 or 5	34%	26%
Patients aged over 60 years			
Low – risk	0	80%	56%
Low intermediate risk	1	68%	44%
High intermediate risk	2	48%	37%
High risk	3	31%	21%

Outcome and prognosis

Traditionally the outcome is dependent on the stage of the disease the patient is diagnosed with. There are various methods to prognosticate the outcome. One of the popular methods to predict the outcome is called the International Prognostic Index (IPI).

Cure is possible

With modern advances in diagnosis, imaging studies and availability of targeted drugs, the outlook for patients diagnosed with non-Hodgkin lymphoma has improved tremendously. The patients respond well to treatment and cure rates have increased significantly. More and more patients are cured of the disease forever, and many others are achieving long-term survival.

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The Government of India recently honoured Apollo Hospitals with the Apollo Commemorative Stamp felicitating the group's pioneering spirit, commitment to healthcare and service to the nation. It is said recognition is the greatest motivator and this tribute is the encouragement we needed as we embark on our vision of touching a billion lives.

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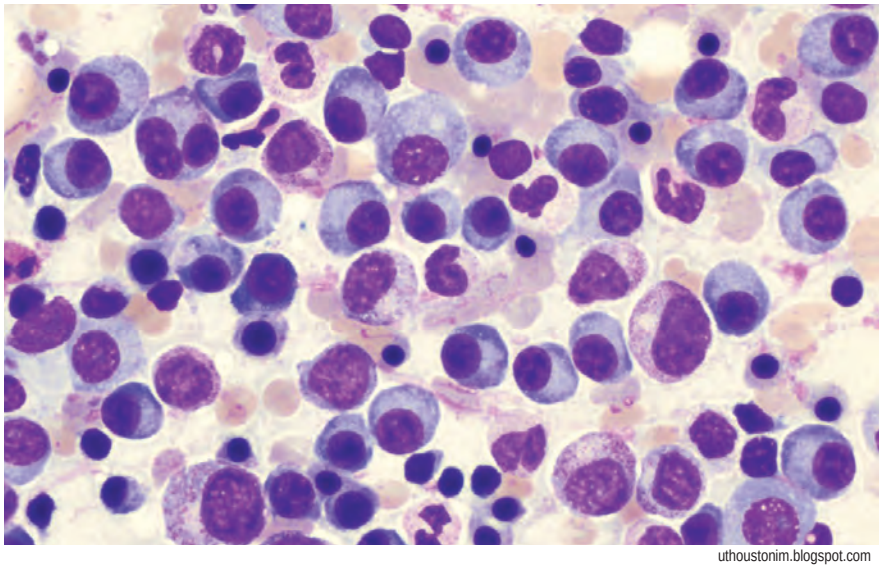
Myelomas

Multiple myelomas arise from plasma cells and do not represent a single disease entity, but rather encompass a large number of subtypes with diverse natural histories, informs Dr Rakesh Chopra and Dr Tariq Mughal

Multiple myelomas

The simplest definition of multiple myelomas is that they are a form of a cancer, which arises from a single blood cell in the bone marrow, called the plasma cells. The plasma cells that become cancerous are termed myeloma cells. Myelomas do not represent a single disease entity, but rather encompass a large number of subtypes with diverse natural histories, from those that remain indolent for long periods to those that grow rapidly, and can prove fatal very quickly if untreated.



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Types

There are four subtypes of multiple myeloma (typically referred to as simply myeloma or plasma cell myeloma; also known as myelomatosis), dependent on the type of monoclonal protein produced. Each type appears to be associated with a different disease pattern; for example, IgA myeloma is associated with more organ damage, such as in the kidneys, than bone disease. About 50 per cent of patients with myeloma have cytogenetic abnormalities. The bone marrow often contains in excess of 30 per cent plasma cells. Rarely a variant of myeloma, called smoldering myeloma is diagnosed when the plasma cells in the bone marrow are between 10 and 30 per cent and no other findings of myeloma are present.

Treatment

Newly diagnosed myeloma patient with symptoms: Our enhanced understanding of myeloma biology has led to important treatment changes over the past fifteen years. Prior to this, the treatment of the newly diagnosed patient with myeloma and those who have relapsed or have treatment refractory disease, comprised of cytotoxic chemotherapy and steroids with a modest benefit. There was some improvement with high-dose drug regimens followed by an autologous Stem Cell Transplant (SCT) (also known as an autograft). The recent availability of novel drugs, such as thalidomide (Thalomid), bortezomib (Velcade), and lenalidomide (Revlimid) has improved the overall survival, though long-term remissions and possible cure are rare. Potential cure can be accorded in some patients who are suitable for an allogenic SCT, but there is a significant risk of morbidity and mortality associated with this procedure.

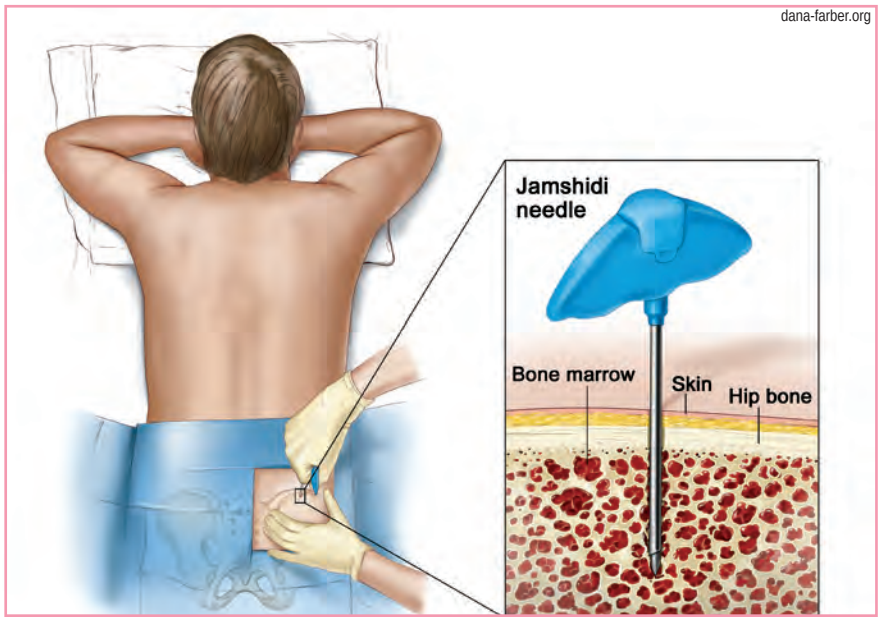
Specialists will have a structured management plan for patients with symptomatic myeloma comprising specific supportive care to control symptoms, and also to minimise the risks of myeloma-related complications, such as bone disease and kidney failure, in addition to

specific anti-myeloma therapy. Since the disease remains incurable at present, most specialists tend to offer treatment only to patients who become symptomatic.

Relapsed and refractory multiple myeloma: Relapse is defined as the reappearance of detectable paraprotein or other manifestation of disease in patients previously in CR. Progression is defined as an increase of 25 per cent in serum or urinary protein, or on the basis of increasing marrow infiltration, skeletal disease, and/or hypercalcemia (high calcium). All three novel agents, thalidomide, bortezomib, and lenalidomide are now widely approved in most countries for the treatment of patients with relapsed and refractory myeloma. Other novel strategies currently being pursued include the use of another thalidomide analogue, pomalidomide (Actmid), next generation proteasome inhibitors, carfilzomib (PR-171), and arsenic trioxide.

The future

Despite the remarkable progress made, sadly, most patients with myeloma remain incurable today. Current efforts are testing various combinations of novel drugs with diverse principal mechanisms of action. Efforts are also being directed towards developing anti-myeloma vaccines, based on the qualified success of allogeneic stem cell transplantation in achieving long-term remissions and potential cure.



Some factors that may increase your risk of multiple myeloma include:

Age: The risk of multiple myeloma goes up with age. Less than one per cent of cases are diagnosed in people younger than 35. Most people diagnosed with this cancer are over 65 years old.

Gender: Men are slightly more likely to develop multiple myeloma than women.

Radiation: Exposure to radiation may increase the risk of multiple myeloma. At most, this accounts for a very small number of cases.

Family history: Multiple myeloma does seem to run in some families. Someone who has a sibling or parent with myeloma is four times more likely to get it than would be expected.

Workplace exposures: Some studies have suggested that workers in certain petroleum-related industries may be at a higher risk.

Obesity: A study by the American Cancer Society has found that being overweight or obese increases a person's risk of developing myeloma.

Other plasma cell diseases

Bone Tumours

Limb Salvage Surgery – A Cure and A Hope!

Bone tumours need no longer be a source of morbidity, loss of livelihood and social ostracisation. Dr T P S Bhandari advises further

Bone tumours comprise of benign (non-cancer) and malignant tumours. They afflict people in the prime of their life, and since they usually involve the limbs, they are a source of morbidity, loss of livelihood and social ostracisation.

Great strides have been made in the early diagnosis and management of bone sarcomas especially in the field of limb preservation, so much so, that malignant bone tumours are no longer the dreaded cancers that they once were.

Signs and symptoms

Pain in the bones

Swelling

Restriction of joint movement

Erythema (redness and raised temperature over swelling)

Evaluation

A preliminary work up by way of a clinical examination and X-ray of the local part reveals it to be a bony lesion. Thereafter, taking into consideration the age of the patient and radiological characteristics of the tumour, the lesion can be characterized as benign or malignant with greater than 90 per cent accuracy.

Suspected malignant lesions require further evaluation to know the histology

and stage of the tumour.

Bone biopsy by a bone needle done as a day-care procedure is the preferred method. It produces minimal trauma and soft tissue contamination by tumour as compared to an open biopsy, which should be used only as a last resort.

CT scan and MRI scan identify local spread of the disease and neurovascular (blood vessels and nerves) involvement.

Staging

Bone scan and PET scan identify metastatic disease i.e. spread of disease to other parts.

Management

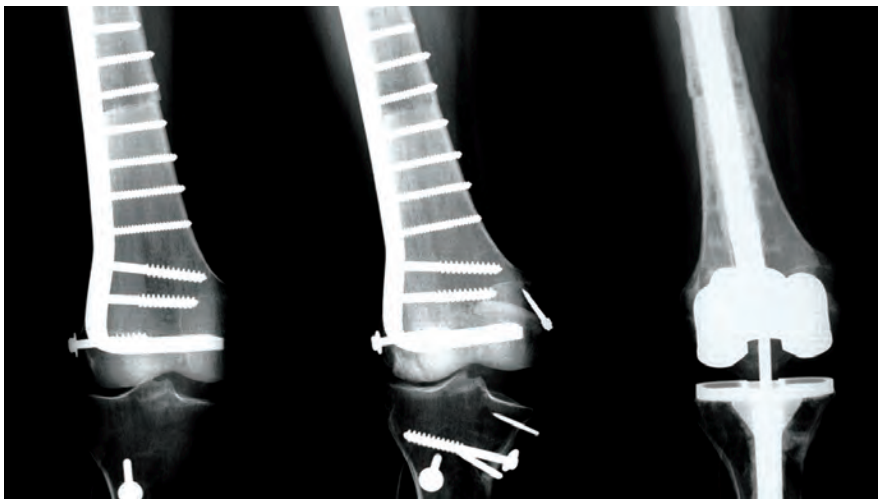
Benign bone tumours, which are asymptomatic, can be observed whereas the larger lesions and symptomatic (bone pain etc.) require surgery:

Bone curettage with bone cementing or grafting

Wide local excision with bone cementing and bone grafting

Malignant bone tumours

The principles of treatment are local control of the disease and prevention of metastases. The chemo sensitive bone sarcomas like osteosarcoma and Ewing's tumour undergo two to three cycles of



neoadjuvant chemotherapy (i.e. drugs that kill cancer cells given by way of intravenous infusion) to downstage and downsize the tumour. The next stage of the treatment is surgery.

Surgery for malignant bone tumour: Prior to the 1990s, nearly all extremity sarcomas were treated by amputation of the affected limb which still did not lead to high cure rates. In the last decade, with better understanding of the biology of the disease, and achievement of specialised expertise procedures like limb salvage surgery, today limb conservation is possible in more than 70 per cent of patients.

Limb salvage surgery is a complex two-stage limb preservation procedure.

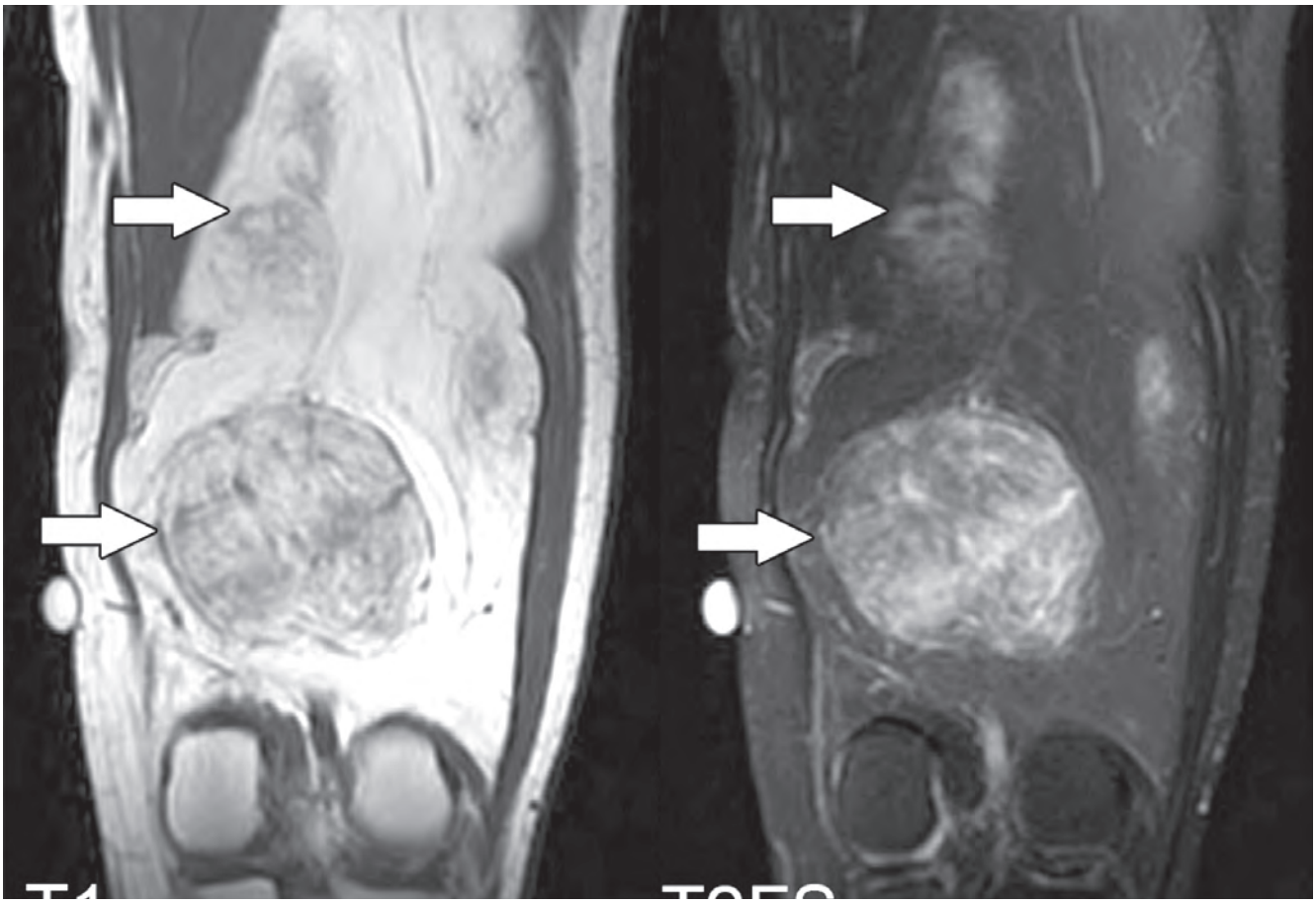
Stage I - Meticulous neurovascular dissection is done to separate nerves and vessels from the tumour bearing bone. The entire liability and functionality of the limb is dependent on this step.

Stage II - Prosthetic (Titanium) implantation in the gap produced by removal of the bone enzymes preserves integrity of the limb. Thus at the end of the procedure the diseased portion of the limb has been removed with preservation of a functional limb.

Children and adults no longer have to face ostracisation and pity due to amputation, and with the help of limb salvage surgery can continue to lead productive lives on their own feet. Early detection of bone sarcomas and appropriate treatment leads to high cure rates. Apollo Musculoskeletal Unit (Hyderabad) has performed 72 limb salvage procedures with high cure rates.

Soft Tissue Sarcoma FAQs

Dr Srinivas Juluri clarifies various queries on soft tissue sarcoma, from its symptoms to diagnosis and treatment



What is soft tissue sarcoma?

Soft tissue sarcoma is the growth of abnormal cells that form a mass (tumour) in the body's soft tissues such as muscles, tendons, blood vessels, nerves, fat, and joints, but not in the organs such as the lungs, breasts or colon that perform specific functions. Soft tissue sarcomas are of more than 50 types, though the majority of them start in the limbs.

What are the symptoms of a soft tissue sarcoma?

A painless lump or swelling is the most common symptom of a soft tissue sarcoma. The soft tissue around the tumour is relatively elastic and thus it cannot be felt in its early stages, but as the tumour grows, it causes pain or soreness as it presses against surrounding nerves or muscles. These symptoms may not necessarily mean that you have soft tissue sarcoma, but you should have your doctor examine the affected area.

How is soft tissue sarcoma diagnosed?

The doctor will ask about your medical history and carry out a physical exam. An ultrasound, CT scan or MRI also enables the doctor to determine the location and spread of the growth. A biopsy is the only way to know for certain whether cancer is present. In this procedure, a pathologist examines a small sample of tumour tissue under a microscope. If cancer cells are found, he determines the stage or grade of the tumour, which tells whether the cancer is spreading. Your doctor may refer you to a specialist in soft tissue sarcoma, based on the biopsy results.

Are all sarcomas the same?

No, all sarcomas are not the same; some grow slowly while others are highly malignant and may be beyond cure when first diagnosed.

What kinds of people get sarcomas?

Sarcomas do not spare anyone at any age. Different kinds of sarcomas occur at different ages. There is no specific personality type that is more prone to sarcoma than others.

What determines whether I have a 'good' or 'bad' sarcoma?

The risk factors for survival from sarcoma are location, size, spread, grade (an important term during the pathological analysis), and special characteristics of the tumour determined after biopsy.

What is meant by the term 'grade' when referring to sarcomas?

Grade is a term used to describe the measure of how aggressive the tumour could become. It is given by the pathologist examining the tissue. Whereas low-grade tumours stay confined to one place, high-grade tumours can spread elsewhere.

Where can soft tissue sarcomas spread?

The spread of soft tissue sarcomas depend on where they start. If they are inside the abdomen, they can spread to the liver. High-grade soft tissue tumours of the limbs usually spread to the lung. A physician with experience in the management of sarcoma can tell you what your risks are, and where the tumour might spread.

Is sarcoma fatal?

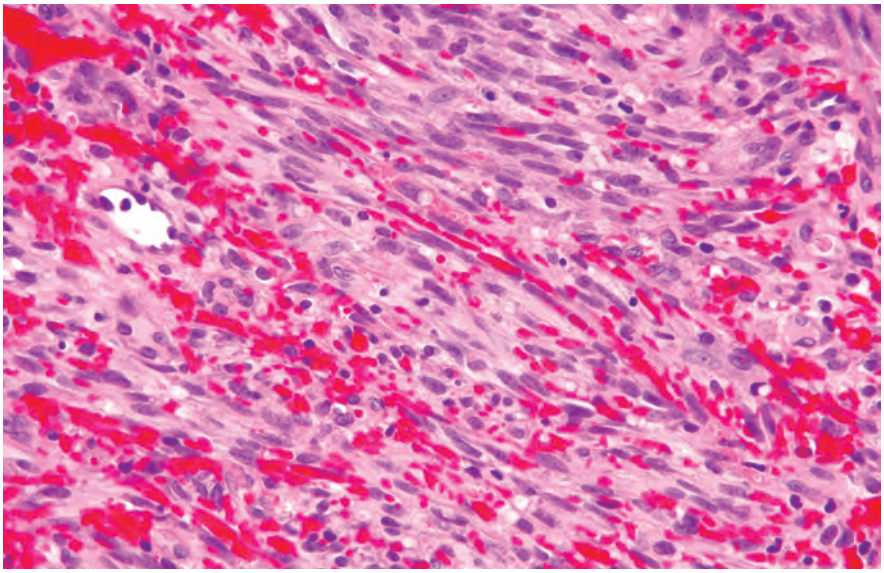
Soft tissue sarcoma has a high cure rate. In cases where it is detected early, about 90 per cent of patients have a five-year survival rate. Improvements in treatments are making prognosis for patients even more favourable.

What are the important questions to ask my doctor before treatment?

The most important thing is to be certain that you are talking to a doctor who has knowledge and experience in the management of sarcoma. It is very important to see a doctor who knows about such tumours as the disease is very rare. This is to make sure that you not only get the best treatment, but also avoid getting more treatment than needed. Sarcoma specialists usually work with a team consisting of the best and most experienced pathologists, radiologists and other professionals to help.

What are the treatment options for soft tissue sarcoma?

Advances in diagnosis and treatment have given patients of soft tissue sarcoma the possibility of a longer and productive life. Improved surgical techniques, chemotherapy and radiation therapy have substantially decreased the need for amputations. Treatment is based on



parameters such as the size, location, and growth rate of the tumour, and the general health and age of the patient.

Surgery is the most common treatment for soft tissue sarcoma, and it completely removes the tumour and a safe margin of the tissue around it. Chemotherapy or radiation therapy may be recommended depending on the outcome of the surgery.

Chemotherapy uses drugs to kill cancer cells. It is usually given in cycles, with alternating periods of treatment and rest.

Radiation therapy uses high-energy rays to damage cancer cells and discontinue their growth. It is often given five days a week for five to six weeks in the outpatient department of a clinic or hospital. It can limit the risk of a local recurrence.

When is chemotherapy administered?

Chemotherapy is given either for very high-risk sarcomas before an operation, or in certain cases where the tumour has spread.

When will I know if I am cured?

Cure is difficult to evaluate. Recurrence happens in the first two years after treatment for 70 per cent of patients. Some experience a very late recurrence, so patients with sarcoma are usually monitored for at least ten years. The latter can be readily and effectively treated.

Does sarcoma run in families?

Though sarcoma can occur in families, it is a very rare occurrence. Often there is a predisposing disease that can lead to an increased frequency of sarcoma. If your doctor is familiar with sarcoma, he or she will be familiar with those diseases.

Why is sarcoma difficult to diagnose?

Sarcoma is so rare that few doctors will ever come across a patient with sarcoma in all their years of practice. Even though they might see benign lumps and bumps often, it is unlikely to be sarcoma. Generally, any swelling larger than five cm or deep-seated needs evaluation.

Can injury cause sarcoma?

Sarcoma caused by injury is very rare. It is more common for patients to first notice a sarcoma when they bump a lump on their leg or on their arm.

Who should treat sarcoma?

It is imperative to consult a doctor who is familiar with sarcoma. It is of less concern whether that doctor is a surgical oncologist (specialist operating on cancers), an orthopaedic (bone) oncologist, a radiation oncologist, or a medical oncologist than having a doctor who is familiar with the disease.

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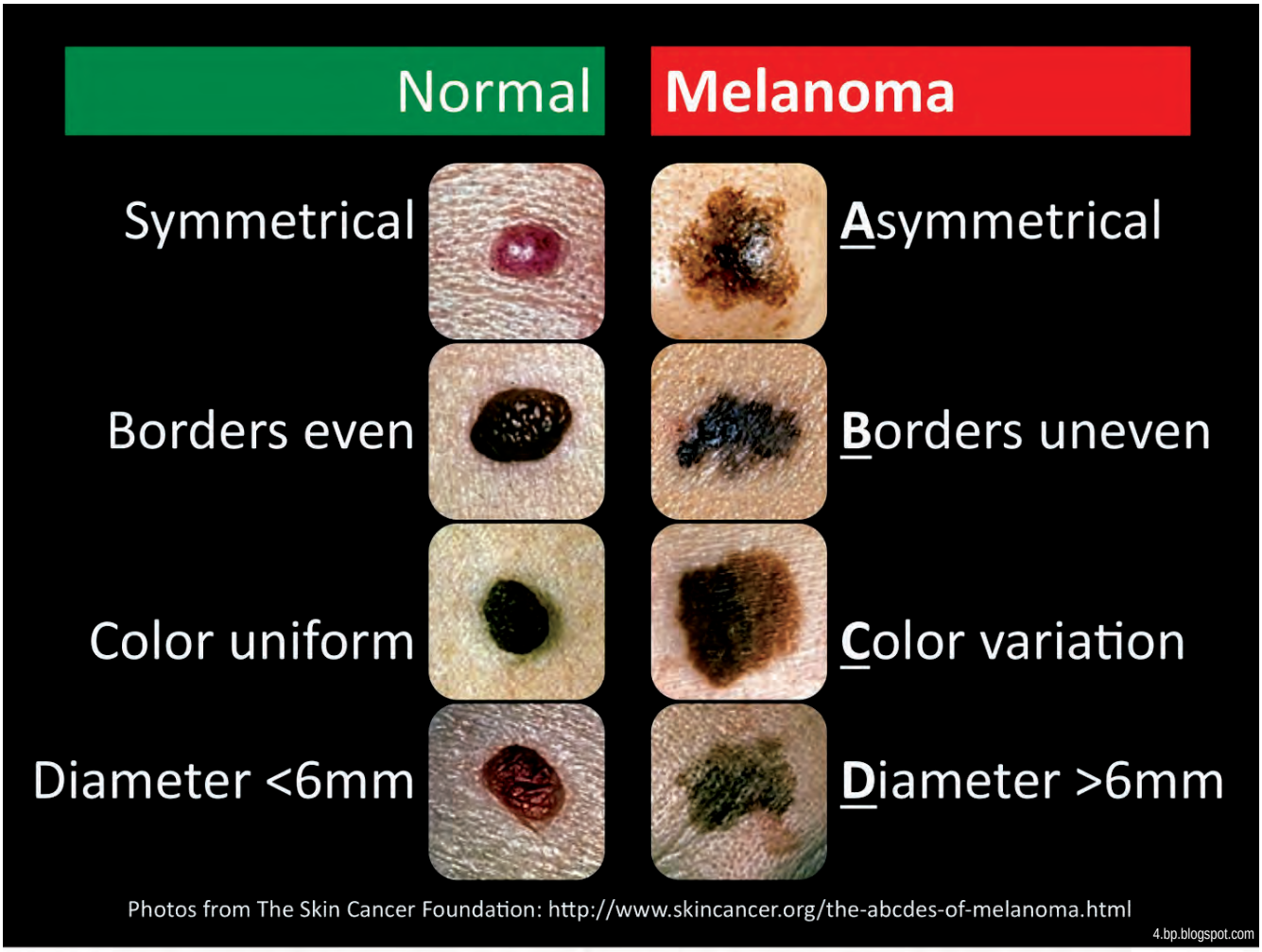
FAQs On Skin Cancer

Can common moles transform to cancer? How can we prevent skin cancer? What is total skin radiation? Dr Debnarayan Dutta answers numerous questions on skin cancer



How common is skin cancer in Indian subcontinent?

Skin cancer is relatively uncommon in Indian subcontinent. Our dark-coloured skin has high melanin pigment which protects us from UV rays and skin cancer. However, there are a few skin cancers such as squamous cell cancer, basal cell cancer, cutaneous lymphomas and melanomas frequently seen in our patients.

What are the risk factors?

Ultra violet rays are the most important factor for skin cancer. People living in equatorial region with light coloured skin have high exposure to sun and are at

the highest risk for skin cancer. People working with toxic chemicals and arsenic containing agents are prone to skin cancer, and also people living in 'arsenic regions' (containing high arsenic in water). Chronic infection (irritation) may lead to skin cancer. There are few genetic conditions (e.g. xeroderma pigmentosa) associated with skin cancer.

How can we prevent skin cancer?

Protection from excessive exposure to sunlight and UV rays, avoiding toxic chemical agents and arsenic will help to prevent skin cancer. Treatment of chronic irritation of skin, healthy lifestyle and food habits help to prevent cancer.

What are the common skin cancers?

In India squamous cell cancer (SCC) is the most common skin cancer. Chronic irritations from infection and chemical agents are the causes of SCC. SCC tends to metastasise (spread) to regional lymph nodes and other organs. Once there is metastasis, prognosis is not optimal. Another common tumour is basal cell cancer, usually seen on the face. 'Mycosis fungoides' is lymphoma of skin, and the patient has multiple lesions throughout the body. Patients have excessive itching and occasional bleeding from the lesions. Melanoma is one of the aggressive skin cancers, and produces dark coloured nodules.

How do we treat them?

Skin cancers are treated with local form of treatment (surgery or radiation therapy). Surgery is the preferred option in localised lesions. Radiation therapy is considered in extensive lesions, if there is microscopic residual disease after surgery and in patients with high risk of recurrence. 'Total skin radiation' is the treatment option in 'cutaneous T-cell lymphoma'. Chemotherapy is considered in some lymphomas and metastatic disease. Brachytherapy is also a curative option in localized basal cell cancer.

What is 'total skin radiation'?

This is a special radiation therapy technique where we treat the entire skin with low dose radiation.

Does 'melanoma' occur only in the skin?

Melanoma is the tumour of melanin containing cells. It is mostly seen in the skin, but also in eye, gut and other organs. Melanoma has a high tendency to spread in lymph nodes, liver and other organs.

What is the prognosis?

Prognosis depends upon the size, depth of invasion, extent of the lesion and also on complete removal of the tumour. Localized cancer of skin has excellent prognosis after complete removal. Skin cancers are considered 'cured' after adequate surgery or radiation therapy.

Can common moles transform to cancer?

There is a small risk that a common mole also can transform to cancer. Sudden change in colour, size, texture, and bleeding are the signs of malignant transformation.

Do persons with vitiligo have more risk of cancer?

There is no scientific rationale behind this argument. However, few persons with genetic instability disorders (e.g. Ataxia telangiectasia, Bloom's syndrome) have skin lesions as well as high risk of cancer.

Melanoma

ABCD is the common rule when it comes to melanoma. Dr A V S Suresh sheds light on this rule and more about melanoma

Though not so common in India, malignant melanoma needs special attention as once you miss the bus it is gone forever, meaning that if you delay the diagnosis and it crosses the lymph nodes, cure is almost impossible. If you look into any educational website or information portal, you will see that ABCD is the common rule, i.e.

Asymmetry: The two halves of the mole are different from each other.

Border irregularity: The spot has borders that are uneven or notched.

Colour: The spot has several colours in an uneven pattern or differs a lot in colour from the rest of your moles.

Diameter: The spot is larger than the size of a pencil eraser.

The good thing about this cancer is that it is usually seen over skin (though mucous membranes like mouth, lips and rectum may also get involved, it is uncommon), which is easy to observe and thus we can detect the disease early, if you are aware of the disease.

Diagnosis

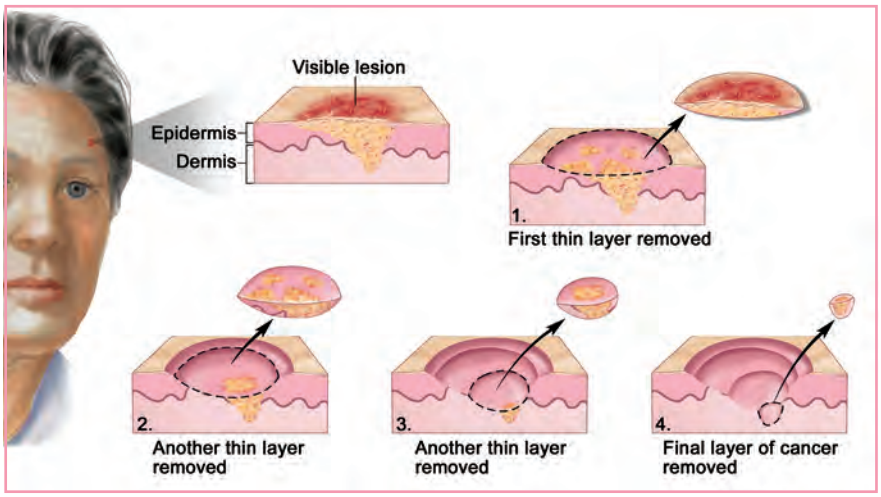
At the same time, it needs to be understood that self-diagnosis is not possible. If you see a spot that looks as

though it is new or changing, show it to a doctor. When it comes to spots on the skin, it is always better to be safe than sorry. However, not all spots are cancerous, and everybody gets spots on their skin. The older we are, the more spots we have. Hence it is important to note two things:

Observe your skin (difficult-to-see parts should be seen with the help of a mirror)

In case of doubt immediately consult a doctor

The disease confirmation is done by examining the concern-causing spot and doing a biopsy. Once this is done, the physician will usually go for prognostication (how good or bad the disease is) of the disease, which includes staging and biological characters of disease.



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Staging

The following tests and procedures may be used in the staging process:

Wide local excision: A surgical procedure to remove some of the normal tissue surrounding the area where melanoma was found, to check for cancer cells.

Lymph node mapping and sentinel lymph node biopsy: Procedures in which a radioactive substance and/or blue dye is injected near the tumour. The substance or dye flows through lymph ducts to the sentinel node or nodes (the first lymph node or nodes where cancer cells are likely to have spread). The surgeon removes only the nodes with the radioactive substance or dye. A pathologist then checks the sentinel lymph nodes for cancer cells. If no cancer cells are detected, it may not be necessary to remove additional nodes.

PET scan (Positron Emission Tomography scan): A procedure to find malignant tumour cells in the body. A small amount of radioactive glucose (sugar) is injected into a vein. The PET scanner rotates around the body and makes a picture of where glucose is being used in the body. Malignant tumour cells show up brighter in the picture because they are more active and take up more glucose than normal cells do.

This will be done because the melanoma can spread in predominantly three ways:

Through tissue

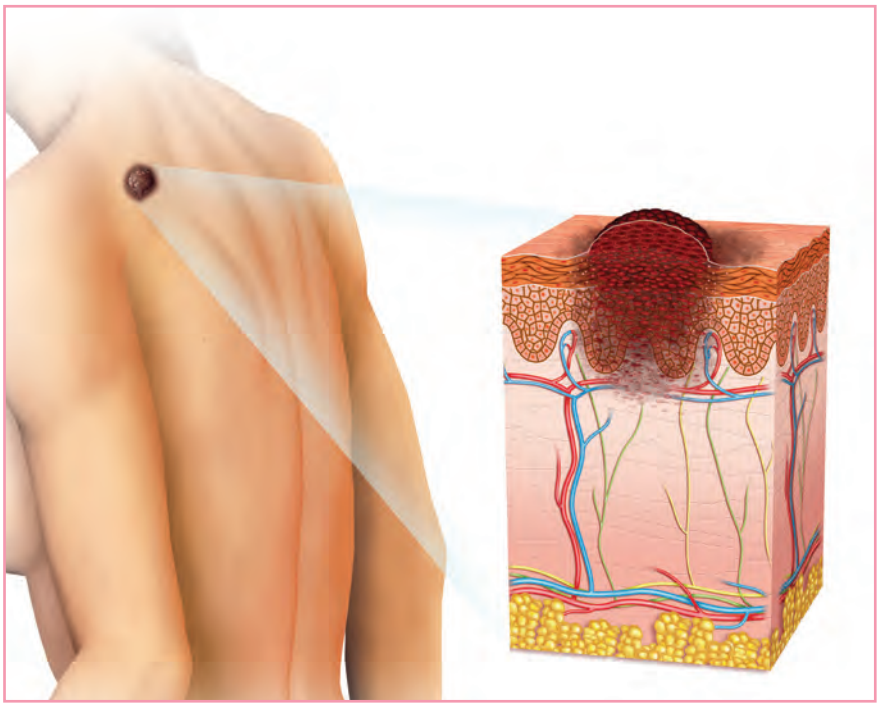
Through the lymph system

Through the blood

Types

Once the staging is done, the pathologist will give the extent of disease. For broad understanding the disease if of three types:

Superficial spreading melanoma: It



is the most common of all (70 per cent), and usually occurs in women on the legs, and in men on the back, in between the ages of 30 and 50. These melanomas are often barely raised and have a variety of colours. Such melanomas evolve over one to five years and can be readily caught at an early stage if they are detected and removed.

Nodular melanoma: It is the next common variant (20 per cent) and usually begins as deeper, blue-black to purplish lumps. They evolve faster and may also be more likely to spread.

Lentigo maligna: It is the rarest of all and occurs in rare locations like the face, which are exposed to the sun constantly.

The most useful criterion for determining prognosis along with stage is tumour thickness. If tumours measure less than one mm, they have excellent cure rates.

Treatment

In general, melanoma is treated by surgery alone. Doctors have learned that surgery does not need to be as extensive as was thought years ago. When treating many early melanomas, for instance, surgeons only remove one cm (less than half inch) of the normal tissue around the melanoma. Deeper and more advanced cancers may need more extensive surgery.

Surgery for the removal of nearby lymph glands depends on various considerations such as tumour thickness, body location, age, etc. For advanced disease, such as when the melanoma has spread to other parts of the body, treatments like immunotherapy or radiation are sometimes recommended. However once the disease is extensive or comes back, the best attempts are to reduce the suffering (palliation, which is best done by multidisciplinary team with the help of some immunotherapy, or newer tablets which selectively target these cancer cells like tyrosine kinase inhibitors)

Prevention

The three golden rules to prevent this dreaded disease are:

Reducing sun exposure

Early detection

Screening of high-risk individuals, such as anyone with a close relative who has melanoma

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Cancer Related Issues

HIV And Cancer

The rising numbers of unusual cancers in patients with AIDS is an alarming fact, cautions Dr Chanchal Goswami

Modern civilization has made another merciless contribution to the already existing long list of causes of various cancers in the form of Human Immunodeficiency Virus (HIV), the causative virus of AIDS or Acquired Immunodeficiency Syndrome. Sexual promiscuity and the oldest profession of mankind merely helped perpetuate the number of cancer patients by increasing the number of patients infected with HIV. India, with its burgeoning population and the westernisation of the social system, is already in the grip of an AIDS epidemic. Clinicians are slowly, but steadily, facing the rising numbers of unusual cancers in patients with AIDS.

A lethal combination

Patients having AIDS manifest unusual and hitherto rarely seen cancers including Kaposi's sarcoma, non-Hodgkin lymphoma, Hodgkin's disease and cancers of the lung, mouth, cervix and digestive system. The problem has become so significant globally, that most of the textbooks and websites on cancer treatment have an entire section dedicated to cancers in AIDS patients. The problem has assumed endemic proportions in regions with high concentrations of AIDS patients such as certain areas of Africa. Even the highly civilised western societies

have their own notable contribution to the global burden of cancer in AIDS victims.

The most pertinent abnormality that the AIDS virus causes to the human body is a significant loss of the body's defence mechanisms, leaving the human body prone to a plethora of opportunistic infections. This loss of immunity also renders the body unable to prevent cancers, which would otherwise have not occurred in a healthy human body. The body's weakened defences are also responsible for these cancers being more aggressive and virulent, because the body is unable to fight these cancers. The result is the occurrence of highly lethal and aggressive cancers, which are less amenable to the current modalities of treatment. The outcome is an increase in the mortality figures and loss of manpower and productivity because most of these patients are otherwise young and fit, into their productive years of life.

Awareness and action

Early detection and treatment of these cancers is vital, if one expects reasonably favourable outcomes. This can only happen if the layperson is aware of the impact of an unusual symptom or a new tumour developing in an AIDS patient. Mass education and the media should be roped in to mention the occurrence of these cancers in the ongoing anti-AIDS campaigns.

The physician community has their own share of responsibilities by keeping themselves up-to-date in coming to a diagnosis, management and ultimate outcomes of these cancers.

Unless stringent measures are taken to check the AIDS epidemic, the coming years would see more and more of these AIDS related cancers and their fatal outcomes. With the AIDS virus creeping into every nook and corner of today's social structure, the man on the street should be prepared to see more and more of such lethal diseases.

Why people with HIV seem to get cancer more often than people without it:

People with HIV and AIDS are living longer. HIV medications are helping people with HIV live longer, healthier lives. But their immune systems do not get fully healthy. As people with HIV live longer, their chances of having other health problems, like cancer, increase.

HIV and other viruses work together. Having HIV and a weakened immune system makes it easier for other viruses to stay alive in your body. HIV and these other viruses work together to help cancer cells start growing. Once cancer starts in people with weakened immune systems, it grows faster than in healthy people.

Most people with HIV smoke cigarettes. About 60% to 70% of people with HIV smoke. Smoking is a risk factor for many different types of cancer. As people with HIV live longer and continue to smoke, they increase their risk of developing smoking-related cancers.

Fertility And Cancer

Cancer can impact fertility either by directly affecting the sexual organs, or when certain treatments given to cure cancer damage their function, says Dr Srinivas Chakravarty Gummaraju

Propagation of the species and the urge to have children is one of the driving forces of evolution itself. In countries such as ours, there is an immense cultural pressure as well. Many young patients diagnosed with cancer are thus placed in a dilemma regarding their fertility and vital decisions are all too often based on emotion rather than rationality.

Fertility means the ability to produce children. The term does not reflect upon the ability to have normal sexual relations. Cancer in people of child-bearing age affects fertility in two ways. One is, when it actually affects the sexual organs; for example cancers of the ovary, uterus, cervix in women or of the testes and penis in men. The other is, when certain treatments given to cure cancer damage the function of the reproductive organs.

In men

When cancer of the testis occurs, typically the affected testis is removed. The other testis is usually sufficient to make enough sperm, and fertility is preserved in more than 80 per cent of men. Sometimes, chemotherapy is given afterwards to increase the chances of cure from the cancer. Chemo damages all dividing cells including sperm producing cells and may cause permanent infertility. With modern chemo regimens, however, 40 to 90 per cent of men may still be able to father children successfully, typically beyond two years of treatment.

Sperm banking

A major problem for many men is weighing the possibility of losing a chance at fatherhood versus compromising the treatment of a very highly curable cancer. A way out is to carefully test for sperm adequacy prior to treatment and consider sperm banking. Sperm is collected prior to any treatment and stored in a freezer, to be used at a future date by either artificially inseminating the female partner or by taking her egg and doing an in vitro fertilisation with the stored sperm (test tube baby). The success rates are between 14 to 70 per cent depending on the final viable sperm count, technique used, the woman's age and other factors.

In women

Cancers affecting the ovary, uterus or cervix are typically treated first by removing these organs surgically. In young women desiring to preserve their chances of fertility, fertility-sparing surgery may be done in certain cases. An attempt is made to preserve at least one ovary and the uterus. Eventually, successful pregnancies in 60 to 80 per cent cases are seen. In cancers of the cervix, special procedures called trachelectomy or cone-biopsy may be considered, with successful pregnancies reported in 40 to 60 per cent cases.

These are special techniques that are still evolving and need to be performed by appropriately trained gynaecologists or surgical oncologists in highly specialised centres only. However, it is very important to realise that sometimes cure of the

cancer may potentially be compromised by such 'non-standard' procedures. There may also be increased risk of loss of the pregnancy, premature delivery, low-birth weight of the baby and so forth.

Embryo cryopreservation

For proper treatment of many cancers, either chemotherapy or radiation (affecting the ovaries) may be required. Many modern chemo regimens do not affect fertility significantly (0-10 per cent risk), but some regimens do. If this is a serious concern, the most common successful technique used to preserve fertility is to perform embryo cryopreservation prior to any cancer therapy. The patient's ovaries are stimulated by a brief course of hormones, the released eggs are collected and then fertilised in a test tube by sperm obtained from her male partner (or an unknown donor). The embryo thus created is cryopreserved in a freezer for implantation into her womb (or of a surrogate mother) at a future date after cancer therapy is complete.

Several such embryos may also be prepared at the same time and preserved. The successful pregnancy rate is 20 to 40 per cent per embryo transfer to the uterus. This technique is commonly available and is performed often in our country as well. Apart from costs, there is the risk

that cancer treatment may be delayed due to the egg collection procedure or that the hormones given for egg release may affect the patient adversely. An existing male partner (or an unknown donor, if acceptable) is needed, making this a difficult option for unmarried girls.

Other techniques are being tried such as oocyte cryopreservation (preserving the female egg as such), ovarian tissue cryopreservation (preserving slices of the normal ovary with eggs) or ovariostasis (injecting certain hormonal medicines to protect ovarian function from chemotherapy). So far these have been technically difficult to do, expensive, unsuccessful or all of the above. For patients receiving radiation to the pelvis, oophoropexy or ovary transposition is a technique where the ovary is surgically moved to another site in the abdomen where radiation does not affect it. 15 to 80 per cent successful pregnancy rates are reported but it is difficult to perform, fraught with risks and it is doubtful whether it is needed at all.

All in all, there are reasonable options for cancer patients wishing to preserve their fertility. Every patient of child-bearing age needs to have a thorough discussion with their medical team, involving their families and requesting a referral to a specialised centre or a reputable fertility-clinic if necessary. The desire to have a child must be carefully balanced against the possibility of losing the chance of cure, based on the ground realities.

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Technological Revolution In Radiotherapy

The last two decades have seen significant technological advances in radiation therapy in terms of more precise dose delivery and improved sparing of normal tissues, Dr Sajal Kakkar elaborates

Radiation therapy has a pivotal role in the treatment of cancer. Approximately two-thirds of cancer patients need radiation therapy during the course of their disease. The delivery of radiotherapy has changed significantly over the last few decades. We have moved from conventional radiotherapy using rectangular fields to conformal radiation techniques like 3-Dimentional Conformal Radiotherapy (3D-CRT), Intensity Modulated Radiotherapy (IMRT), Image Guided Radiotherapy (IGRT), SRS, RapidArc, etc.

These changes in the radiation delivery have come about as a result of trying to improve the delivered dose to the tumour and reduced irradiation of the organ at risk. External beam radiotherapy involves the delivery of X-rays, gamma rays or particle radiation from linear accelerators or telecobalt machines.

Modern radiotherapy techniques

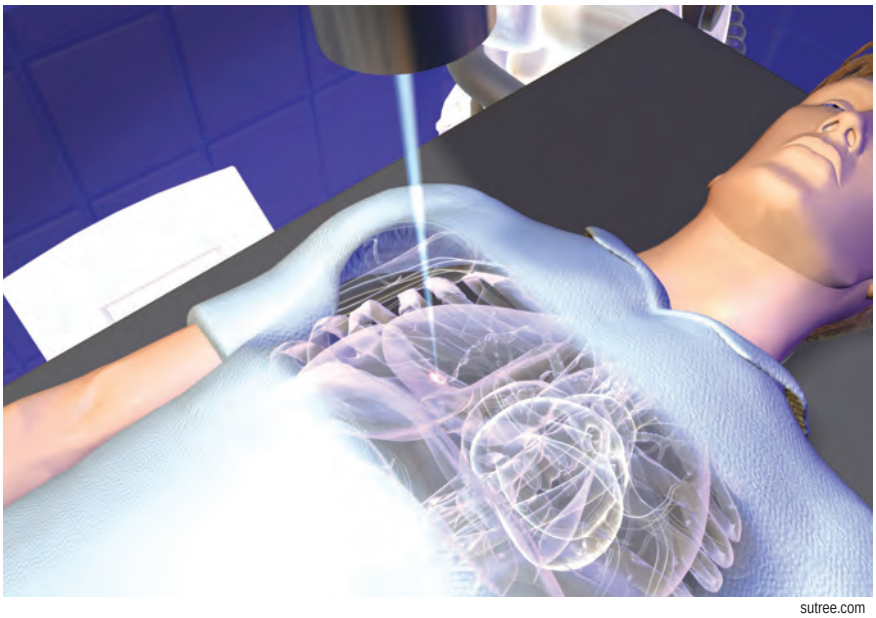
IMRT: It optimises the delivery of radiation to irregularly shaped volumes. It produces concavities in the treatment volumes by sub-dividing the radiation beam into multiple component beams (beamlets), each of which may be modified individually. For example, when treating head and neck cancers, IMRT allows for a greater sparing of salivary glands, upper aero-digestive tract mucosa, optic nerves, and brain stem. This has the potential to decrease late toxicities like dryness of mouth, swallowing and speech difficulties. In gynaecological cancers, IMRT results in reducing acute and long term side effects like abdominal cramps, diarrhea, burning during urination etc.

IGRT: Optimal IMRT delivery requires accurate image guidance. In tumours like lung cancer which exhibit large physiological motion, an extra margin around the target to account for organ motion may be quite large. Reduction in this margin allows for reduction in dose to normal tissues thus making possible higher dose delivery to the tumour. IGRT using inbuilt X-ray device, onboard CT scanners, and infra-red cameras helps in detecting and correcting the errors that occur during treatment delivery.

PET-CT (MRI fusion for tumour delineation): CT scans are the standard imaging modality used in radiation treatment planning. However CT scan is inferior to MRI in delineating soft tissues, so a fusion of CT and MRI should be considered in tumours of brain, skull base, and prostate. Positron Emission Tomography (PET) scan enables biological imaging of tumours. PET-CT fusion helps in detecting microscopic disease which can be used for dose escalation and normal tissue sparing.

Stereotactic Radiosurgery (SRS): SRS enables accurately conformed delivery of radiation in large fraction sizes, which also enables improved tumour control while limiting normal tissue toxicity. This technique is used in management of brain metastasis, acoustic neuromas, and Arterio-Venous Malformation (AVM). Extra-cranial body radiosurgery is also becoming popular in treatment of spine metastases, early stage lung cancer etc. Cyberknife is a linear accelerator mounted on a robotic arm that provides more than 1000 beam orientations. It has been used to treat tumours in lung, liver, and spine.

RapidArc: This is a volumetric intensity-modulated arc therapy, which can deliver the required dose distribution with one or a few arcs. RapidArc combines high conformity with significantly shorter treatment durations, which reduces the risk of patient or tumour movement, and is more comfortable for the patient.



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Advantages of modern techniques

- Significant reduction in normal tissue toxicities
- Offers dose escalation
- Potential for improvement in local control rates
- Improved patient compliance

Particle therapy: Charged particles like protons tend to deposit most of the energy in small areas. This has advantages in terms of normal tissue sparing and better dose homogeneity. Its current role lies in tumours close to the skull base, certain ocular tumours and pediatric patients.

The last two decades have seen significant technological advances in radiation therapy in terms of more precise dose delivery and improved sparing of normal tissues. Clinical studies investigating these modalities are likely to further increase the efficacy of radiation in years to come.

Frameless Stereotactic Radiosurgery

Dr Kausik Bhattacharya reports on stereotactic radiosurgery, a non-invasive procedure that destroys a tumour without surgery or harming nearby healthy tissue

What is Stereotactic Radiosurgery?

Stereotactic Radiosurgery (SRS) is a radiation therapy procedure that uses a special system to precisely deliver a large and accurate dose of ionizing radiation or X-ray to a tumour over one to five treatment sessions. The goal of this non-invasive procedure is to destroy a tumour without surgery or harming nearby healthy tissue. It is used to treat various types of cancers such as tumours in the brain, spine, lung, liver and prostate, as well as some other non-cancerous disorders.

Is it the same as Gamma Knife?

Gamma Knife, CyberKnife and Novalis TX are different devices used for radiosurgery. They vary in their application, versatility, patient comfort and cost. While Gamma Knife is the earliest system evolved, its use is limited only to brain tumours and is a painful and invasive procedure. CyberKnife and Novalis TX are non invasive and can be applied to any tumour in any part of the body as long as they are three to four cms in size.

Is that why it is called frameless radiosurgery?

Exactly. Unlike in the Gamma Knife where an invasive metallic frame is screwed on to the patient's head, Novalis TX system uses

a painless non-invasive mask to position the patient and uses a set of X-rays to verify the position of the tumour upto sub mm accuracy.

What are the advantages of frameless radiosurgery?

Apart from being a completely painless procedure, this form of radiosurgery offers extreme flexibility. Depending on the tumour size and location, the patient can be treated in either one or more fractions to maximise tumour control and minimise any side effects.

How difficult or safe is the procedure?

It is typically a day-care procedure

that does not require any overnight hospitalisation. It does not involve any anesthesia, cuts, stitches or blood loss. A multi-disciplinary team of radiation oncologists, radiation physicists, neurosurgeons and radiologists oversee the procedure. Thousands of procedures are performed all over the world adhering to its safety norms. The key to patient safety lies in proper choice of the case and training of manpower.

For what type of tumours do you advise frameless radiosurgery?

Non-cancerous tumours of brain like meningioma, tumours of pituitary gland, and tumours of nerve sheaths like acoustic neuroma are treated by frameless SRS. However, these days more and more patients with spread of cancer inside the brain (metastasis) are treated with this procedure. In fact, this condition forms the major bulk of frameless SRS patients.

What about the other parts of the body?

Cancers spreading into the spine and early cancers of lung in elderly people are often treated with this procedure. However, early cancers of prostate, metastatic cancer into liver or other parts of abdomen as well as recurrent cancers where other modalities have failed are also treated using SRS.

What are the side effects?

Being frameless, the actual procedure is absolutely painless. It takes a little more than half an hour, and patients are usually free to go home by the end of the day. They may experience a little bit of dizziness, headache and vomiting sensation for a few days, which is well managed by oral medications. Long term side effects like necrosis of adjacent tissue can be avoided by adhering to safety guidelines.

Can it replace surgery?

Not quite. Surgery and SRS are complementary. SRS is best used when the tumour is small and deep-seated, thereby making conventional surgery risky. The main advantage of SRS is that it is painless and bloodless, yet offers the same cure rates as conventional surgery.

What is the advantage of Novalis TX?

Novalis TX is a shaped-beam frameless radiosurgery system. As tumours are usually irregular in shape, the radiation beams from the Novalis TX system can be manipulated to conform to the shape

of the tumour, thereby minimiing radiation to surrounding normal tissues. Being a frameless SRS system, it is painless, flexible and convenient. Also, it is the most cost effective of all radiosurgery systems.

To prepare for SRS, tell your physician if:

You are taking medications by mouth or insulin to control diabetes.

You are allergic to intravenous contrast material, shellfish, or iodine.

You have a pacemaker, artificial heart valve, defibrillator, brain aneurysm clips, implanted pumps or chemotherapy ports, neurostimulators, eye or ear implants, stents, coils or filters.

You suffer from claustrophobia.

Fitness and Diet

Passive Yoga For Cancer Patients

The yogic method of visualisation can help cancer patients get relief from pain and speed up the healing process, ascertains Mr L K Adhikari

In view of the fact that cancer patients during their treatment, i.e. surgical procedure and chemotherapy, become very weak and do not like to move from their bed, passive yoga helps a lot during this period.

Passive yoga means following the yogic method of visualisation, and doing it only in the mind, without body movement or putting any strain on the body. The most powerful technique is the yoga nidra with visualisation.

Yoga nidra

By doing this, one can get relief from pain, speed up the healing process, and help the body to recover from hundreds of ailments such as depression, stress, high blood pressure, allergies, asthma and even cancer. The power of the mind to influence the body is quite remarkable. Although it is not always curative, visualisation can be helpful in 90 per cent of the problems.

Communicating with our organs through other senses

Images need not only be visuals but can be sounds, tastes, smells, or a combination of sensations. For example, think that you are going to taste a fresh lemon. You have cut the lemon into two pieces and are squeezing one into your mouth. By this time you might have begun to salivate. So, simply by imagination and visualisation, you have begun to salivate. Your thoughts directly influence the way you feel and behave. Your imagination can greatly help you combat stress, tension, and anxiety. The technique is not difficult to master, and you can try visualising two or three times a day. Most people find it easy to do it in bed in the morning and at night before falling asleep. With time and practice you'll be able to visualise whenever and wherever the need arises. A few minutes each day of visualisation can totally relax your mind and body.

How effective is it?

Imagery has been found to be very effective for the treatment of stress. It releases brain chemicals, i.e. endorphins, which act as your body's healing power, lowering blood pressure, heart rate, and anxiety levels. By and large, it relaxes the body and mind. Doctors specialising in imagery often recommend it for stress-related conditions such as headaches, chronic pain, high blood pressure, and also for cancer patients.

Learning the basics of visualisation

The severity of your ailment decides how much time it will take for you to start seeing results. For example, a person with

a sprained ankle may get pain relief in just one five-minute imagery session. On the other hand, it may take several weeks for a person with severe burns to notice any significant pain reduction. A person with a chronic ailment will take a lot more time to notice any change.

It is helpful to practice imagery for 15 to 20 minutes initially so that you learn to do it properly, and as you become more comfortable with the technique, you'll be able to do it whenever you need to.

Step by step imagery

Studies have revealed that imagery is most effective when it is used along with a relaxation technique like meditation, progressive relaxation or yoga. When your physical body is in a relaxed state, you don't need to be in such conscious control of your mind, and you can allow it to daydream.

Loosen your clothing and take off your shoes. You can sit comfortably in a chair, or use one of the yoga or meditation postures. You can choose to dim the lights according to your preference, and close your eyes. As you take in a few deep breaths, you will notice that you feel more and more relaxed.

When you feel relaxed, imagine your favourite scene such as a mountain slope, a beach, or a significant moment with friends or family. Try to go into this scene

each time you practise your imagery. If you can create a special, safe place where nothing can hurt you and you feel secure, it will make you more receptive to your thoughts.

Once you feel comfortable in this scene, gradually direct your mind towards the ailment you are concerned about. You can use one of the images, or if several images come to mind, choose one and stick with it for that session. On the other hand, if no images come to mind, try focusing on a different sensation.

For instance, listening to the sound of nature or any sound that is happening around you, looking with your closed eyes at anything that comes in front of you, and feeling or touching anything. Each time you do this, imagine that you are completely cured of your ailment at the end of the session. Then take a few more deep breaths and feel yourself completely fit and healthy, and become aware of your surroundings. Open your eyes, stretch, smile and enjoy your day!

Exercise For Patients Recovering From Cancer

Dr Srikanth Pasala discusses how exercise for cancer patients serves the purpose of improving physical function, mental outlook and quality of life

Cancer is the leading cause of death in economically developed countries and the second leading cause of death in developing countries. In economically developing countries, the burden of cancer is increasing as a result of population ageing, growth, as well as associated lifestyle changes including smoking, physical inactivity and diet.

Recent studies show that physical activity helps in protecting active people from acquiring some cancers such as colon, prostate and breast cancer by balancing calorie intake with energy expenditure. It improves the immune function thereby reducing the risks of cancer. Traditionally, people being treated for or recovering from cancer are advised to rest and limit their physical activity. The reduction in activity results in loss of strength, endurance and mobility, which will intensify further deterioration and lead to worsening signs and symptoms of cancer. Exercise for cancer patients serves the purpose of improving physical function, mental outlook and quality of life.

Benefits of exercise

Preservation of muscle mass

Increase in muscle strength and endurance

Improves balance

For breast cancer patients, studies show that adequate cardiorespiratory training such as walking at a brisk pace for three to five hours per week will decrease the chance of cancer relapse.

Exercise guidelines

People with cancer should obtain physician's clearance prior to starting an exercise program.

It is important that the patient starts slowly and builds gradually, focusing on duration more than intensity. The physical therapist should consider intermittent activity with frequent rest breaks.

Intensity should be light to moderate, depending on the patient's condition and response to treatment and activity.

Proper warm up and cool down periods should include light stretching to maintain range of motion.

Exercise prescription for cancer patients

Mode: Many cancer patients are at increased risk of developing osteoporosis due to treatment and side effects combined with inactivity during treatment. For these patients, weight bearing activity, such as walking, is an appropriate step in the cardiovascular recovery phase. Aquatic exercises are considered to be the best exercises for hand and foot numbness, if the individual is not undergoing radiation treatments.

Intensity: Light to moderate intensity exercises (rate of perceived exertion should be 9 to 13 on a 6 to 20 scale) are recommended. Intensity needs to be adjusted from session to session depending on the patient's response to treatment, associated fatigue and symptoms.

Borg Scale - RPE	
6	no exertion at all
7	extremely light
8	
9	very light
10	
11	light
12	
13	somewhat hard
14	
15	hard (heavy)
16	
17	very hard
18	
19	extremely hard
20	maximal exertion

Duration: Should begin with multiple short bouts of activity, three to five minutes in duration, with frequent rest periods. They should progress to 10 minute intermittent bouts and gradually build to 30 to 40 minutes of accumulated exercise.

Frequency: Cardiovascular, flexibility and balance program can be performed on a daily basis. Strength training can be done for three days a week, with at least 24 hours of rest in between sessions.

Workout program for cancer patients

a) Cardio respiratory

The program must contain the following:

Warm up session - Five minutes: Which includes upper and lower body stretches performed by the physical therapist.

Activity - 20 minutes: Walking /cross trainer/recumbent or upright bike

Cool down - Two to three minutes of relaxation

Maximum of 20 minutes on an approved cardio machine (Walking/cross trainer / recumbent or upright bike) which is adequately equipped with monitoring systems.

The target heart rate is to be calculated based on the cardio performance during

test (ref parameters), keeping a training heart rate of 60 per cent of the maximum heart rate.

On the 15th day, monitoring efficiency must improve and the bar raised on the parameters.

b) Strength

After the strength test is administered, based on the results, work starts on the muscular system. The focus is on using machines, pulleys and resistance bands, avoiding free weights. The time for strength training should be clearly outlined to the patient by the physical therapist.

The workout schedule incorporates the upper body, chest and lower body. The session should last for a period of 30 minutes, where the following group of muscles are targeted, in order to strengthen the antigravity muscles which aid in providing balance and overall function.

Warm up session - Two to three minutes which include upper and lower body auto stretches.

Body conditioning - 30 minutes.

Cool down session - Two to three minutes of relaxation.

Ten-station circuit of dumbbell and body weight exercises using multiple joint movements:

Exercise	Muscles	Repetitions	Sets
Dumbbell squat	Quadriceps, hamstrings, and gluteus maximus	5-8	1-3
Dumbbell bench press	Pectoralis major, ant deltoid, and triceps	5-8	1-3
Dumbbell one arm bent row	Latissimus dorsi, post deltoid, and biceps	5-8	1-3
Dumbbell step-up	Quadriceps, hamstrings, and gluteus maximus	5-8	1-3
Dumbbell incline press	Pectoralis major, ant deltoid, and triceps	5-8	1-3
Dumbbell pullover	Latissimus dorsi and triceps	5-8	1-3
Dumbbell lunge (stationary)	Quadriceps, hamstrings and gluteus maximus	5-8	1-3
Dumbbell press	Deltoids, triceps and upper trapezius	5-8	1-3
Dumbbell curl	Biceps	5-8	1-3

Note:

Weights should not exceed more than one kilogram and can be progressed depending on the patient's performance.
Recommended repetition speed is about 10 to 15 seconds.
Recommended training frequency is two or three non-consecutive days per week.

c) Flexibility

Manual stretching techniques for the whole body over all major muscles should be performed by the physical therapist during the exercise sessions.

Aquatic exercises

1st week - Performed in neck deep water. Warm up includes walking forwards and sideways.

Active range of motion exercises within the available range for flexibility. Strengthening exercises involve active hip movements and bicycling while floating in an inner tube or with buoyancy belt.

2nd week - Lunges to increase the strength of quadriceps and hamstring muscles. Heel raises and squats. Resistive paddles for strengthing the hip and knee musculature.

3rd week - Heel walking, toe walking and slow jogging.

4th week - Functional exercises like hopping on two feet, and leg exchanges.

Precautions to be taken while working out

Patients who are anaemic should not exercise without physician's clearance and may require reduced intensity levels.

Patients with low WBC count and those taking medications that may reduce their ability to fight infection should consider avoiding public gyms and start their workout at home.

Exercises should be avoided if there is fever above 100.4 degree Fahrenheit.

Physical therapist should watch for swollen ankles, unexplained weight gain, and/or shortness of breath at rest or with limited exertion. These symptoms should be reported to the patient's physician.

Patients who have a catheter should avoid aquatic exercises and other exposures that may cause infections.

Patients should not exercise within two hours of chemotherapy or radiation therapy, as increase in circulation may impact the effects of therapy.

Diet And Cancer

Certain foods and nutrients help in the prevention of cancer, whereas we should avoid certain foods that are associated with it, suggests Dr Arundhati Chakraborty

Purpose of nutrition care

To restore or preserve nutritional status, body composition and functional status before, during and after treatment

To reduce problems due to food, related to cancer and/or its treatment

To improve strength, well-being and quality of life

Recommendations for general nutrition

Since energy and protein needs are higher, focus is on higher energy and protein choices.

The diet has to take into account other diet restrictions for other health conditions, but is not so stringent

Everyone has different needs and symptoms

A dietitian can help incorporate various diet information

Diet and cancer

According to the American Cancer Society, there are four main steps to follow in order to prevent cancer:

Choose most of the foods you eat from plant sources

Avoid high intake of fatty foods, especially from animal sources

Stay physically active

Limit alcohol intake

Foods associated with cancer are

Fat, as the end products of metabolism have been found to produce carcinogens

Alcohol, associated with liver, colorectal, and breast cancers

Smoked and pickled products that increase risk of cancers of the oesophagus and stomach

Methods of cooking are also related to cancer, as frying or charcoal-broiling meats at very high temperatures create carcinogenic chemicals

Foods and nutrients that protect us from cancer

Vitamin C helps us protect against cancer of stomach, oesophagus and oral cavity

Antioxidants found in fruits and vegetables

Fruits and veggies containing vitamins, fibre and photo chemicals

Vitamin E and selenium have

antioxidants that protect cells against breakdown

Water intake of more than five glasses a day has been associated with a lower risk of cancer

Diet during cancer treatment

Diet plays a significant role in the treatment of cancer. Choosing the right kind of foods to eat can help the patient recover faster and stay stronger. To ensure proper nutrition, a person has to eat and drink enough of the foods that contain key nutrients (carbohydrates, fat, vitamins, minerals, protein, and water).

Symptoms that cause problems with eating include anorexia, constipation, mouth sores, nausea, vomiting, diarrhoea, trouble with swallowing, and pain. Appetite, taste, smell, and the ability to eat enough food or absorb the nutrients from food may be affected.

Malnutrition makes the patient weak, tired, and unable to resist infections or withstand cancer therapies. Eating less than the required intake of protein and calories is a major nutrition problem faced by many cancer patients. Drugs may assist in relieving cancer symptoms and side effects that cause weight loss. A combination of nutrition therapy and drugs can help the patient maintain a healthy weight.

Managing cancer treatment related side effects with diet

a) Management of loss of appetite or weight loss:

Eat smaller amounts every one to two hours

Try high calorie/protein foods

Have quick easy snacks available

Have your favourite foods for comfort and ability to enjoy eating

Eat slowly

Have the biggest meal when most hungry

Avoid drinking fluids with meals to avoid filling up too quickly

Change sitting position slowly

If able, taking a walk before meals will help to increase appetite

b) Management of dry mouth:

Take ice cubes, cool drinks, sips of water

Have moist foods

Add broth, soup, sauces, gravy, creams, butter or margarine to foods

Have water-rich fruits like pineapple or watermelon

Eat soft foods that are cool or are at room temperature

It may be helpful to try different textures

Avoid foods that break down into little pieces in the mouth i.e. muffins or crackers

Drink eight to 12 cups of liquids per day (as juices, soups, milk, custard, yoghurt, ice cream)

Always carry a bottle of liquid with you

Take lemon candies or drinks (except in case of mouth ulcers)

Keep mouth clean with a soft bristle tooth brush, rinsing mouth before and after eating

c) Management of nausea and vomiting:

Eat smaller and frequent meals

Nibble on dry foods like crackers, toast, dry cereals, and bread sticks

Avoid foods that are overly sweet, greasy, fried, spicy or have a strong odour

Sip water, juices and other liquids throughout the day

Suck on ice cubes

Eat frozen grapes and melon

Avoid eating in a room that has strong odours or is too warm

A bad taste in the mouth can be removed by sucking on hard candy with fresh flavours

Avoid lying down immediately after eating

Gradually alter sitting position

d) Management of diarrhoea:

Eat small, frequent meals and snacks

Drink plenty of non-carbonated, caffeine free fluids to prevent dehydration

Drink water, juice, sports drinks and clear broths

Limit greasy, fried, spicy or very sweet foods

Switch to low lactose milk or soy beverages

Chose salty foods to replace lost sodium

Have soups, crackers, pretzels

e) Management of fatigue and weakness:

Eating a balanced diet that includes protein, carbohydrates and fat will help boost energy

Try to eat small amounts of food throughout the day if possible, even if not hungry

Eat when you have the most energy

Take high calorie/protein foods supplements

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Beating Cancer With Nutrition

Good nutrition is required at each step of cancer treatment to heal better, advises Dr Harita Shyam and dietitian Priyanka Shukla

Nutrition is an important part of cancer treatment. Eating healthy food can help you feel better and live longer. Including different food groups will not only make your meal balanced but also give you various nutrients which you may require during the course of treatment.

Benefits of good nutrition

Good nutrition is required at each step of cancer treatment. The body reacts differently with different people depending on the type of cancer, but adequate nutrition is required from day one. Your nutritional status decides how you perform with treatment. The dietician formulates your nutrient requirements and helps achieve your nutritional goals. Eating right during cancer treatment helps a patient:

- Feel better
- Maintain body weight
- Prevent infections
- Reduce side effects

Heal or recover faster

Eating balanced diet means including different macro and micro nutrients in the meal, such as carbohydrates, proteins, fats, vitamins, minerals and water.

Common concerns

Weight loss is a major concern for doctors or dieticians, that one should not lose weight during and after treatment. Reasons for this are the side effects of treatment. Timely treatment and adequate nutrition can prevent or reduce the severity of weight loss.

Anorexia (loss of appetite) is a very common problem for cancer patients. Eating a variety of meals may improve appetite. The following steps may help cancer patients with anorexia:

Eat high calorie high protein food every two hours.

Add calories to food by adding butter, ghee, honey etc.

Eat snacks that have plenty of calories and proteins like egg sandwich, soya chunks, fruit custard, nutritional supplements (as per dietitian's advice) etc. Ice-cream, milk shakes, muffins, yoghurt, chocolates, and finger snacks are also good sources of calories and proteins.

Try new recipes with new flavours and textures.

Keep ready-to-eat food for in-between meal times.

Change in taste is another common problem during radiation and chemotherapy due to the medicines, resulting in loss of weight and appetite. The steps to follow are:

Add different flavours to food as per preference.

Add little spices and sauces.

Eat citrus fruits like lemon, oranges etc.

Rinse the mouth with water before and after meals.

Dry mouth is commonly seen during radiation due to the effect of medicine. It affects taste, speech and causes difficulty in swallowing. Ways to help relieve dry mouth are:

Drink plenty of water.

Use lemon piece or ice cube to rinse the mouth.

Eat foods such as sweets, tamarind, etc. which increase saliva.

Mouth sores and infection are mainly caused by chemotherapy and radiation. Chemotherapy, though intended to destroy fast growing cancerous cells, also damages mouth cells which grow at the same rate as cancer cells. Mouth sores can be painful and may affect food intake. The following steps may help:

Eat well cooked, non-spicy food.

Eat foods that are easy to chew, such as scrambled egg, mashed potato, plain custard, banana, papaya etc. Blended foods can also be used.

Nutritional supplements (antioxidants) can also be used as prescribed by the dietitian.

Nutrients

Carbohydrates: For a person with cancer, each day may not be the same. Because of the side effects like nausea, vomiting, and loss of appetite, the food intake may vary. Foods which give high calories in a small quantity like sweets, cereals, pasta, muffins, shakes etc., are needed.

Proteins: When the body does not get sufficient calories, it uses protein stores within itself for energy purposes. Therefore anyone undergoing chemotherapy, radiation or surgery requires extra protein to maintain the stores, heal tissues and recover faster. Proteins are present in plant as well as animal foods.

Plant sources – Pulses, legumes, nuts, soya beans, beans

Animal sources - Egg, meat, liver, fish and low-fat dairy products

Fats: Fats are required to add calories to food since weight loss is very common. Saturated fats (less than 10 per cent), Monounsaturated Fatty Acids (MUFA), rich olive oil, ground nut and canola oils are good sources of fats.

Health benefits of olive oil - A study published in the 2005 issue of Annals of Oncology has identified oleic acid (component of olive oil) as having the ability to reduce the effect of oncogene (a gene that will turn a host cell into cancer). It is also beneficial for prostate and endometrial cancer.

Polyunsaturated Fatty Acids (PUFA) - These are found mainly in sunflower, soya bean, safflower, flaxseed oil and fish.

Role of fish oil - Fish have anti-inflammatory effect which reduces the activity of free radicals. There are two components to fish oil, Eicosapentaenoic Acid (EPA) and Docosahexaenoic Acid (DHA). Many studies have shown that consumption of EPA and DHA decreases superoxide, a potent cancer promoter. EPA is effective in preventing weight loss and health related quality of life.

Fluids: These are needed for hydrating the body and restoring electrolytes. Fluids do not always mean water but also include soups, juices, rasam, milk, shakes, porridge (ragi, suji, oats) etc.

Antioxidants: These are substances which protect cells against the effect of free radicals. Free radicals are molecules which damage the healthy cells and may play a role in cancer. Antioxidants include Vitamins A, C, and E, selenium etc. They are mainly found in fruits, vegetables, nuts, meat and fish.

Other means of feeding

Cancer affecting gastro-intestinal tract such as tongue, larynx, oesophagus, stomach etc., alters the oral intake. Contrary to common belief, tube feeding is a preferred and prescribed alternative among the medical community. Clinical dietitians can help plan special tube feeds using homemade recipes or commercial formula to achieve optimum nutrition.

Food aversions to be monitored

A common observation during treatment is that the patient undergoes significant changes in his food preferences. He/she develops aversion to foods which were otherwise preferred before the treatment. Predicting which foods the aversion is developed towards, is difficult and hence needs close monitoring. Foods with high calorie and protein content are needed by the body during and after treatment, and hence should be used with caution before the treatment starts.

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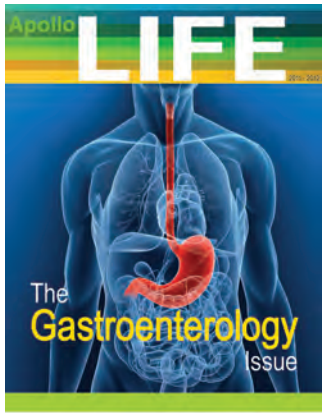

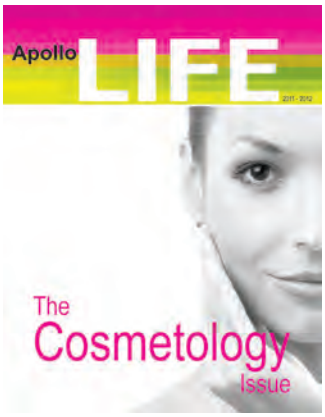

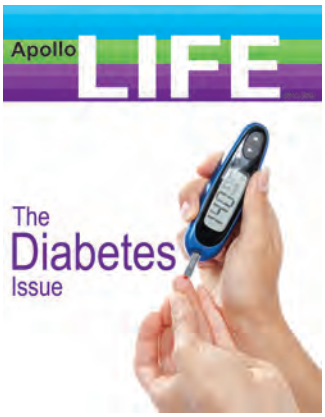

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Vegetarianism For Cancer

The danger of eating animal foods is not limited to the way they are processed. Sunita Pant Bansal emphasises how a vegetarian diet can help us fight cancer

Evidence of a link between diet and the different types of cancer is largely based on epidemiological studies, that is, on correlation between the incidence of particular cancers and specific dietary components in different populations.

The particular cancers that have been most convincingly linked with diet are the cancers of the oesophagus and stomach. Epidemiological evidence has shown that in some populations, excess consumption of alcohol is associated with an increased risk of oesophageal cancer, and that this risk is greater in smokers than in the non-smokers.

There seems to be a positive link between stroke and gastric cancer. The common factor linking them is probably a high intake of salt. Salt increases the blood pressure in susceptible individuals, but the mechanism by which a high intake of salt induces cancer of the stomach is not known with any certainty. A number of different mechanisms have been proposed. For instance, by causing irritation of the stomach lining; or by delaying emptying, thereby prolonging contact between the lining and carcinogens present in the food.

Naturally occurring toxic substances in the food may prove to be very hazardous to health. The best-known natural carcinogen is aflatoxin, a toxin produced by certain species of a fungus that may attack peanuts and occasionally other foods stored in damp conditions after harvesting. Aflatoxin is one of the most toxic substances known to man and is responsible for liver cancer.

Other associations between diet and cancer that have been suggested are ones between a low fibre content of the non-vegetarian diet and cancer of the large intestine. Also, a high fat content (especially of red meats) and cancer of the rectum, breast, ovary and uterus lining.

The hazards of non-vegetarian foods

Nature of animal foods themselves

Chemical additives commonly used in the production of these foods by manufacturers

Environment in which commercial animals are reared

The digestive decomposition of meat

causes a mild state of toxaemia, resulting in stress on the organs of cleansing and elimination. Unless a person has a very strong constitution, the continual processing of waste from the digestion of meat by the liver and kidneys eventually weakens these organs, so they can no longer perform their functions efficiently. The resulting build-up of these wastes and eventual deterioration of the body is the beginning of most diseases, especially of the degenerative type.

The animal products sold commercially are processed with a wide variety of chemical additives. When these products are manufactured and packaged, many chemical compounds are introduced to prevent the growth of microorganisms, to protect against ageing, for curing, to tenderise, and to enhance the colour and the smell.

Some additives are used to appeal to the consumer's taste buds. For example, 'paprika' not harmful in itself makes hamburger rosy for about two weeks - regardless of how much it has deteriorated. Sodium nitrate makes hot dogs and other cured meats red, and the list goes on. Many of these have already proved to be toxic; for instance, sodium nitrate combines with the amines of meat during digestion and becomes a known carcinogen. As we are warned against combining different drugs or drugs and alcohol, so we must be aware that even if a food additive is 'safe', we cannot know its effects when combined with any of the thousands of other additives used.

The danger of eating animal foods is however, not limited to the way they are processed. This becomes clear when we see the overall environment in which the animals are raised. The picturesque scene of a grass valley where animals graze has changed to jail-like buildings with cages, filled with insecticides used to keep the animals free of pests.

The food lots are operated on the underlying principle of forcing every ounce of production from the animals, in the shortest time and at the least cost. In order to maximise the profit, tonnes of antibiotics and various chemical formulations are given to the livestock daily. One of the most powerful substances given to meat animals is the artificial sex hormone called diethylstilbestrol (DES). It has been reported that DES is definitely a cause of cancer in animals and possibly a cause of cancer in man.

The risks in eating animal food today are much greater than just 10 years ago, and as we have seen, vegetarian diets have therapeutic effects too. Is it a wonder then that people are turning towards vegetarianism in a big way?

Macrobiotics

A macrobiotic regime is a vegetarian regime (with a difference), and condemns all meats, dairy products, refined grains, white bread, sugar, oil, nuts, fruits, carbonated beverages and foods containing synthetic chemicals and preservatives. Alcohol too is taboo.

A standard macrobiotic diet prescription for cancer would be: 50 to 60 per cent whole grains (chiefly brown rice), 25 per cent naturally grown, cooked vegetables, 15 per cent beans and sea vegetables and the rest, soups and condiments.

BLUEBERRY YOGHURT SHAKE

Serves 3

Ingredients

1 cup soy milk

1 cup low-fat yoghurt

2 oz soft or silken tofu (cut into 1 inch cubes)

1 large carrot (peeled and sliced into 1 inch pieces)

3/4 cup fresh or frozen blueberries (frozen makes a thicker shake)

1 tablespoon wheat bran

1 tablespoon flax seeds, roasted and ground

Directions

Blend carrots and blueberries separately and then mix them together.

Add wheat bran and flax seeds and blend.

Add tofu and blend.

Add yoghurt and blend.

Finally, add milk and blend together for 1 - 2 minutes. Serve chilled.

CHICKPEA FALAFEL

Serves 4

Ingredients

200g chickpeas, boiled and drained

1 small onion, chopped

2 tablespoons coriander leaves, chopped

2 cloves garlic, chopped

1 egg

1 teaspoon ground cumin

1/2 teaspoon turmeric

Salt and pepper to taste

1 teaspoon lemon juice

1/2 teaspoon baking powder

1 1/2 cups breadcrumbs

Oil for frying

150g yoghurt

75g cucumber, peeled and grated

Salt and pepper to taste

1 packet whole wheat pitas

2 medium tomatoes, sliced

Directions

In a large bowl, mash chickpeas until thick and pasty.

In a blender, process onion, cilantro and garlic until smooth. Stir into mashed chickpeas.

In a small bowl, combine egg, cumin, turmeric, salt, pepper, lemon juice and baking powder.

Stir into chickpea mixture. Slowly add breadcrumbs until mixture is not sticky and holds together.

Form balls then flatten into patties approximately 3 inches in diameter.

Heat oil in a large pan over medium-high heat. Fry patties until golden brown on both sides.

In a small bowl, combine yoghurt, cucumber, salt and pepper.

To serve - cut pitas in half and fill with falafel, tomatoes, and cucumber-yoghurt dip.

QUINOA SALAD

Serves 4

Ingredients

2 cups water

1 cup quinoa

30g raisins

2 medium tomatoes, diced

1 medium onion, sliced

100g radishes, diced

200g cucumber, diced

2 tablespoons sliced almonds, roasted

2 tablespoons fresh mint, chopped

2 tablespoons fresh coriander, chopped

1 pinch turmeric

1/4 teaspoon ground cumin, roasted

Salt and black pepper to taste

1/4 cup lime juice

2 tablespoons olive oil

Directions

Bring water to boil in a pan. Put in quinoa, raisins and a pinch of salt and turmeric. Cover and let simmer for 12 to 15 minutes. Remove from heat and let cool to room temperature.

Toss together tomatoes, onion, radish, cucumber, and almonds in a large bowl.

Stir in cooled quinoa and season with mint and cilantro.

In a small bowl, mix together cumin, black pepper, salt, lime juice and olive oil.

Pour this dressing into the rest of the salad and toss to mix well.

Chill 1 to 2 hours before serving.

SAFFRON LENTIL SOUP

Serves 2

Ingredients

1 teaspoon olive oil

1/8 teaspoon saffron (soaked in 1teaspoon milk)

1/4 teaspoon ground cumin seeds

1/4 teaspoon ground coriander seeds

1/4 cup finely chopped onion

1/2 cup lentils (soaked overnight in water)

2 tablespoons brown rice

6 cups water

2 cups chopped fresh asparagus

2 cups finely chopped spinach leaves

Salt and pepper to taste

Directions

Heat oil in a saucepan over medium heat. Add the onions, cumin and coriander powders and cook until the onions have softened.

Add saffron, lentils, rice and water. Cook until the lentils are soft and rice is cooked, for about 20 minutes.

Then add the asparagus and spinach. Add salt and pepper to taste. Cook till the vegetables are soft.

Serve hot with toasted whole grain bread.

TOFU CURRY STEW

Serves 4

Ingredients

200g spring onions

2 cups coconut milk

2 tablespoons soy sauce (reduced sodium)

1/2 tablespoon brown sugar

1-1/2 teaspoon curry powder

1 teaspoon grated ginger

1 teaspoon garlic paste

250g firm tofu (drain water and cut into 3/4 inch cubes)

4 tomatoes, diced

1 yellow bell pepper, thinly sliced

100g fresh mushrooms (shiitake, if possible) - cut off stems and sliced thickly

2 tablespoons fresh basil leaves, coarsely chopped

2 cups coarsely chopped greens of your choice (kale, bok choy or spinach)

Salt to taste

Directions

Cut white and green part of onions into 2 inch diagonal pieces. Finely chop some of the green stems for garnish and reserve.

In a pan, combine coconut milk, soy sauce, brown sugar, curry powder, ginger and garlic. Bring to a boil over medium heat.

Add tofu, tomatoes, bell pepper, mushrooms, basil, greens and onion.

Cover and cook, stirring occasionally, for 5 minutes more or until the veggies are tender.

Garnish with reserved chopped green onion.

Serve hot with brown rice or whole grain bread.

STIR FRY VEGETABLES

Serves 2

Ingredients

1 clove garlic, crushed

1 head of fresh broccoli, washed and chopped into florets

1 cup sliced carrots

1 red pepper, sliced

2 fresh tomatoes, cut into wedges

4 spring onions, sliced

200g shiitake mushrooms, washed, de-stemmed and sliced

1 teaspoon fresh grated ginger

1 tablespoon olive oil

1 tablespoon sesame oil

1 cup steamed potatoes, cubed (optional)

Salt to taste

200g noodles

Directions

Cook noodles in boiling water. Drain and toss with 1 teaspoon sesame oil.

Use a wok, or non-stick fry pan to cook Stir-Fry.

Sauté garlic, ginger, white part of green onion in oil.

Add broccoli and red pepper and stir-fry for about 3 minutes.

Add everything else and cook until veggies are tender.

Serve stir-fried veggies over cooked noodles.

FUSILLI WITH MUSHROOMS

Ingredients

250g fusilli pasta, boiled and drained

2 tablespoons olive oil

1 clove garlic, crushed

1 small onion, chopped

250g mushrooms (preferably Shiitake), thinly sliced

1 teaspoon flax seeds

1/4 teaspoon dried thyme

1/4 cup white wine

Salt and pepper to taste

Directions

Heat oil in a large heavy pan. Sauté garlic and onion until they become pink.

Add mushrooms and thyme. Sauté until mushrooms begin to soften, for about 3-4 minutes.

Add salt, pepper and flaxseeds. Stir for a minute.

Add wine and simmer for 2 minutes.

Pour mushroom mixture over pasta, toss and serve.

STIR FRY SOY-BEAN RICE

Serves 4

Ingredients

2 tablespoons olive oil

½ cup mushrooms, sliced

250g French beans, sliced

½ cup black beans (boiled)

¼ cup soy sauce

2-3 tablespoons water

1 teaspoon brown miso

1 teaspoon sugar

2 cups cooked rice (preferably brown)

4 spring onions, sliced

Directions

Sauté mushrooms in oil in a wok or large pan.

Add French beans and stir-fry for 3-4 minutes, till tender.

Add black beans and stir. Keep aside.

Mix together soy sauce, miso, sugar and water.

Add this to the bean mixture and mix well.

Put the pan on heat again and add rice to the bean-soya mixture. Stir fry until well mixed.

Add onions and serve hot.

Apollo Cancer Institute Facilities

Dr Rupali Basu talks about Apollo Cancer Institute, where a coordinated multi-disciplinary approach has been adopted in the treatment of patients suffering from cancer

Apollo Cancer Institute, an integral part of Apollo Hospitals Group, is among the leading cancer care centres in the country. With latest medical gadgets and state of the art technology, manned by highly skilled consultants with unmatched competence and expertise, the hospital adopts multi-disciplinary approach to offer services of international standards across the entire spectrum of oncology care ranging from screening, evaluation, diagnosis and treatment, palliative care and rehabilitation, all under one roof.

Services at a glance

Medical oncology

Surgical oncology

Radiation oncology

Paediatric oncology

Hemato-oncology and bone marrow transplant

Diagnostic services

Pain management, palliative care and rehab

Preventive oncology

Clinical excellence

Apollo Hospitals provides treatment through the Tumour Board. This consists of a panel of medical, surgical and radiation oncologists, together with radiologists, histopathologists and consultants from relevant specialties, who examine referred cases and jointly decide on the best line of treatment for each patient.

Apollo Hospitals also offers specialty clinics like the breast clinic, brain tumour clinic and thyroid clinic.

Radiation oncology

The Cyberknife ® Robotic Radio surgery system is the world's first and only radio surgery system designed to treat tumours anywhere in the body with sub-millimetre accuracy.

The Novalis Tx is the latest technology in radiation therapy. It comes with the advantage of maximising tumour destruction while minimising damage to the normal tissues. It can perform IMRT, IGRT, SRS/SRT, RapidArc etc.

Brachytherapy – internal radiation treatment option.

Nuclear medicine services including dual head SPECT gamma camera, latest MRI and CT scans, PET/CT.

Complete range of hematology, biochemistry, histology and pathology services, and all types of open and minimally invasive biopsies.

Hemato-oncology and bone marrow transplant

ACI offers the entire range of hemato-oncology services including the diagnosis and management of the entire spectrum of acute and chronic leukaemia, lymphomas and myelomas. It has a dedicated bone marrow transplant unit with facilities for apheresis, HLA typing, flow cytometry and irradiation of blood. Conditions like aplastic anaemia, thalasemia, ITP, haemophilia and other benign blood disorder are treated.

Medical oncology

Latest medicine with minimum side effects

Implantation and proper maintenance of Port-a-Cath, PICC lines etc.

Preventive management of chemotherapy side effects

Day care chemotherapy - no hospitalisation or overnight stay

Specially trained team of nurses, junior doctor and supporting team

Surgical oncology

Surgeries of all types of cancers including commando surgery for head and neck cancer, Whipple's surgery for pancreatic cancer, major colorectal surgeries, liver resection, conservative breast surgeries etc. are performed regularly with enviable success ratio.

Latest bleeding control equipment like CUSA, LigaSure, TissueLink and Electro for bloodless surgery.

Organ preservation surgeries make it possible to preserve organs like the breast, larynx etc.

Pediatric oncology

The hospital has a dedicated pediatric oncology division with a specialist team to manage childhood cancers like all types of blood and lymph node cancers, Wilms tumour, neuroblastoma, glioma, and sarcoma.

Allied services

Radio frequency ablation for advanced and inoperable liver and lung cancers.

Pain management: Strontium therapy, nerve blocking and pain pumps to help patients ease their pain and enjoy a better quality of life.

Specially trained dietitians work synchronously with the doctors and patient's relatives to provide optimum nutrition. Physiotherapists, occupational therapists and counsellors help patients maintain a normal life as far as possible.

CanHope team, comprising of psychosocial counsellors, speech therapists, stoma care therapists, dietitians and pain management physicians appropriate to the individual requirement, provide further support to the diseased and family members.

Palliative therapy

Routine palliative therapy is available for advanced cancer or for aged /weak patients who are unable to benefit from treatment.

SunShine store

This is an exclusive outlet inside the hospital campus, which caters to the need of cancer patients. It works as a one-stop provider for all accessories that would make the journey to better health that much easier. Products available at the outlet include wigs, breast prosthesis, pressure garments, gowns, scarves, inner wear, CDs and books.

Please go to www.hopeisreal.in for more information about Apollo Cancer Institute.

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