



CANCER

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INTRODUCTION:

Cancer is a group of diseases involving abnormal cell growth with the potential to invade or spread to other parts of the body. Possible signs and symptoms include a lump, abnormal bleeding, prolonged cough, unexplained weight loss and a change in bowel movements.^[3] While these symptoms may indicate cancer, they may have other causes.^[3] Over 100 types of cancers affect humans.

Not all tumors are cancerous; benign tumors do not spread to other parts of the body. The study of cancer, called oncology, is the work of countless doctors and scientists around the world whose discoveries in anatomy, physiology, chemistry, epidemiology, and other related fields made oncology what it is today. Technological advances and the ever-increasing understanding of cancer make this field one of the most rapidly evolving areas of modern medicine. Cancer begins when cells in a part of the body start to grow out of control. There are many kinds of cancer, but they all start because of out-of-control growth of abnormal cells. To learn more about how cancer forms and grows, see our document called Cancer. Cancer is the second leading cause of death in the United States. About one-half of all men and one-third of all women in the US will develop cancer during their lifetimes. Today millions of people are living with cancer. Human beings and other animals have had cancer throughout recorded history.

So it's no surprise that from the dawn of history people have written about cancer. Some of the earliest evidence of cancer is found among fossilized bone tumors, human mummies in ancient Egypt, and ancient manuscripts. Growths suggestive of the bone cancer called osteosarcoma have been seen in mummies. Bony skull destruction as seen in cancer of the head and neck has been found, too. Our oldest description of cancer (although the word cancer was not used) was discovered in Egypt and dates back to about 3000 BC. It's called the Edwin Smith Papyrus and is a copy of part of an ancient Egyptian textbook on trauma surgery. It describes 8 cases of tumors or ulcers of the breast that were removed by cauterization with a tool called the fire drill. The writing says about the disease, "There is no treatment." The origin of the word cancer is credited to the Greek physician Hippocrates (460-370 B.C.) considered the "Father of Medicine." Hippocrates used the terms carcinogens and carcinoma to describe non-ulcer forming and ulcer-forming tumors. In Greek, these words refer to a crab, most likely applied to the disease because the finger-like spreading projections from a cancer called to mind the shape of a crab. The Roman physician, Celsus (28-50 BC), later translated the Greek term into cancer, the Latin word for crab. Galen (130-200 AD), another Greek physician, used the word oncos (Greek for swelling) to describe tumors. Although the crab analogy of Hippocrates and Celsus is still used to



describe malignant tumors, Galen's term is now used as a part of the name for cancer specialists – oncologists.

This is Project Report/Essay - Cancer. Among diseases, Cancer ranks high as a major killer being responsible in recent years. Cancer is estimated that about one million people in United States receives treatment for some kind of Cancer each year. Of these, more than half are new cases, having been diagnosed for the first time during the year. If present trends continue, about one fourth of the nation's citizen's will sooner or later develop cancer. These are several kinds of cancer all of them malignant tumors. A tumor is a swelling or mass resulting from abnormal growth of tissue. Cancer is likely to damage important or vital organs or tissue in any or all part of the body. Causing serious disease and often death.

II.OBSERVATION :-

Now a days, lot of people suffer from unavoidable disease known as cancer.

III. PROBLEM :-

Cancer still tolls huge numbers of lives. In spite of effective treatment, basic understanding of the causes and factors responsible for cancer.

IV.HYPOTHESIS :-

1. Cancer remain unidentified in initial stage.
2. Carcinogens induces cancer which are present in environment due to pollution.
3. Normal genes of body become defective and cause cancer.
4. Lack of awareness in public to identify the cancer.

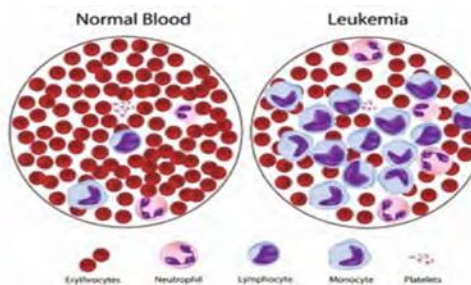
The cancer is an incurable disease but it can be treated by combination of surgery, drugs and radiation therapy.

VII.Types of cancer:-

1. Leukemia:-

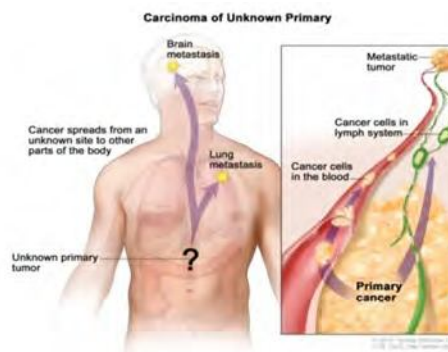
Blood consists of three types of cells **Red Blood cells, White Blood Cells, Platelets**

Leukemia's are a group of diseases characterized by *increased numbers of white cells* in the blood and bone marrow.



2.CARCINOMA:-

It is a mainly affected cells that make up the skin or the tissue lining organs, such as the liver or kidneys: Not all cancers are carcinoma. Other types of cancer that aren't carcinomas invade the body in different ways. Those cancers begin in other types of tissue, such as: Bone, Bloodvessels, Immunesystemcells, Brain, spinal cord



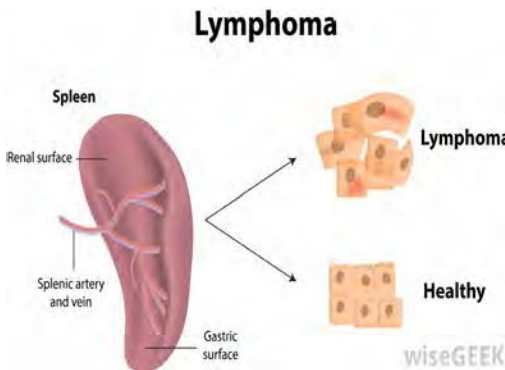
3.SARCOMA:-

A sarcoma is a rare kind of cancer. Sarcomas are different from the much more common carcinomas because they happen in a different kind of tissue. Sarcomas grow in connective tissue -- cells that connect or support other kinds of tissue in your body. These tumors are most common in the bones, muscles, tendons, cartilage, nerves, fat, and blood vessels of your arms and legs, but they can happen anywhere.



4.Lymphoma:-

Lymphoma is cancer of the lymph system (or lymphatic system), which is part of our immunity. It is characterized by the formation of solid tumors in the immune system.¹ The cancer affects immune cells called lymphocytes, which are white blood cells.



5. LIPOMA:-

A lipoma is a growth of fat cells in a thin, fibrous capsule usually found just below the skin. Lipomas aren't cancer and don't turn into cancer. They are found most often on the torso, neck, upper thighs, upper arms, and armpits Lipomas are the most common noncancerous soft tissue growth.



Lipoma removed from the breast

VIII.CHARACTERISTIC OF CANCER CELLS:-

A few important characteristic of Cancer Cells are given below :

1. Cancer cell cultures are immortal and can grow indefinitely.
2. Cancer cell do not show contact inhibition.
3. Cancer Cells lack intracellular adhesion.
4. Cancer Cells does not depend upon anchorage.
5. In cancer cells molecular changes in all membrane components (glycolipids and glycoprotein) have been found.
6. Tuberous cells consume much more glucose than normal cell because they have to grow and multiply.

IX. CAUSES OF CANCER:-

The cause of cancer are not fully understood. However it is known that some chemicals are carcinogenic or cancer causing. Some causes of cancer are given below :

1. Certain chemicals found in cigarette and smoke, asbestos, nickel and certain dyes, to mention only a few of the many substances implicated in the induction of cancer.
2. Heredity has a definite influence on the occurrence of cancer in human being.
3. Exposure of ultraviolet rays also cause cancer.
4. X-Rays can also induce cancer.
5. Tobacco chewing is also the main cause of the oral cancer.
6. Syphilis of the tongue, jagged teeth often precedes cancer of the tongue.

There must be still other factors in the causing of cancer. We should look out for any condition likely to cause cancer or for the earliest signs of what may be developing cancer.

X. CANCER SYMPTOMS:-

1. Any persistent lump or thickening in tissue, especially in the lip and tongue or breast.
2. Unexplained loss of weight.
3. Difficulty in swallowing.
4. Persistent cough or hoarseness.
5. A change in digestive habits.
6. Loss of blood through natural orifice or excess out of date loss of blood in women.
7. Change in colour of infected areas (like male wart)

8. A swelling or sore throat that does not heal easily.1. (NHS Choices Retrieved 10 June 2014)

XI. CARCINOGENS:-

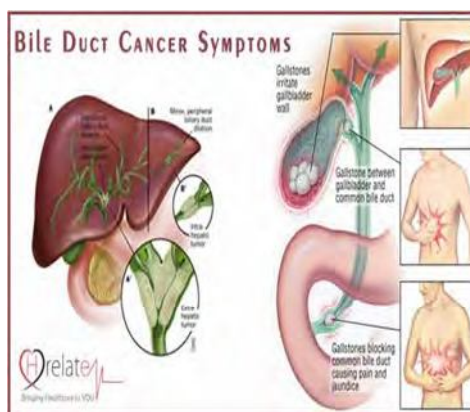
Carcinogen ® Target Tissue

1. Coulter (3, 4 benzopirene)® Skin, Lungs
2. Cadmium Oxide® Prostrate glands
3. Afiotoxin (a mould metabolite) ® Liver
4. Mustard gas ® Lungs
5. Nickel and Chromium ® Lungs
6. 2-Naphthylamine and 4-aminodiphynle® Urinary bladder
7. Cigarette Smoke ® Lungs

XII. Location for cancer:-

1. Bile Ducts :-

The bile ducts may become involved either with cancer developing within the ducts themselves or with cancer in adjacent structures. The earlier significant symptom in Jaundice, which results from continuous obstruction to flow of bile.

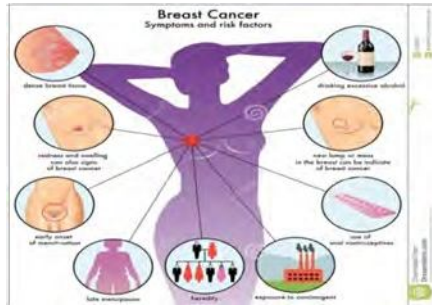


2. Breast :-

The breast is the common site of cancer in women lumps in the breasts is

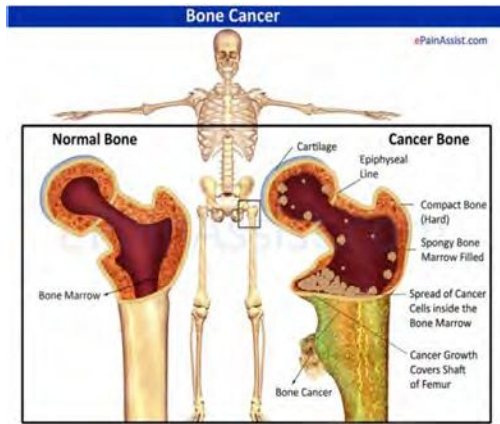


caused by cancer. So the physician is dealing with early case of lump in to breast, has to differentiate between benign tumour and malignant one. 5.([U.S. Preventive Services Task Force. 2004](#))



3. Bone :-

The cancer of bone grows due to blood streams or from some adjacent organ or tissues. Bone cancer causes pain swelling and weaken the bone.



4. Esophagus:-

Cancer of Esophagus is also common it may occur in any part of organ from the throat on down, but mostly in the lower part. Due to cancer of Esophagus, there is difficulty in the swallowing.

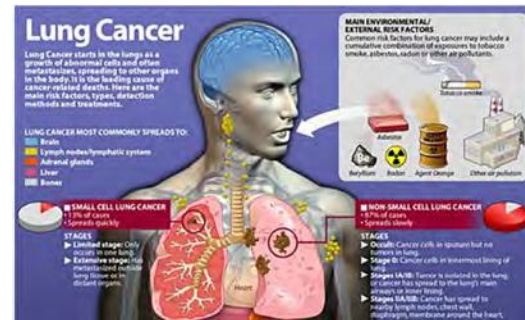


5. Lung:-

The cancer of lungs is becoming more prominent in our country which causes maximum death in our country. The main reason for the lung cancer is cigarette without treatment the survival rate for the usual type of lung cancer is zero. In the total type of cancer 40% are infected by the lung cancer. 3 ([U.S. Preventive Services Task Force 2004](#))

The reason for the high mortality rate :

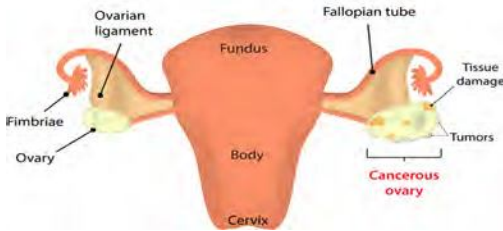
1. It is highly malignant.
2. It causes no distinctive early symptoms.



6. Ovary:-

This is the most dreadful cancer amongst the women. The most of the women die due to cancer of ovary in our country. This can be treated by surgery.

Ovarian Cancer



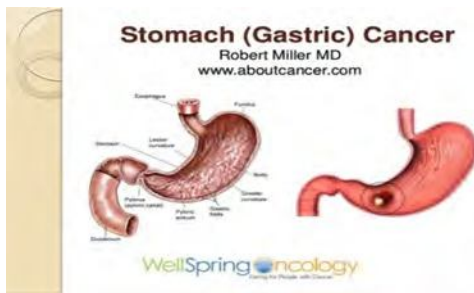
7. Pancreas:-

The cancer of pancreas causes the pain in the upper part of the membrane. Cancer of pancreas also causes Jaundice. The cancer is highly malignant cancer of pancreas is more common in men than women. This can be removed by surgery. 4.([U.S. Preventive Services Task Force, 2004](#))



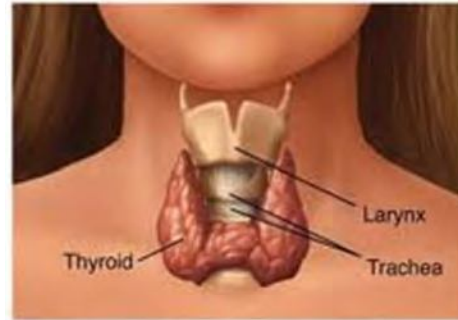
8. Stomach:-

Cancer of stomach is also more common in men than women. Symptoms are indigestion, loss of appetite, loss of weight etc. Surgical removal without delay of all or part of the stomach is only proper treatment.



9. Thyroid:-

This cancer causes the enlargement of thyroid gland, development of nodules in the gland. The removal of these nodules is very necessary for the treatment of this disease.



10. Tongue:-

Cancer of tongue cause more death than any other cancer with in the mouth. It results persistent inflammation.



p53 gene:-

The human p53 gene is located on the seventeenth chromosome. It plays an important role in cell cycle control and apoptosis. Defective p53 could allow abnormal cells to proliferate, resulting in cancer. As many as 50% of all human tumors contain p53 mutants. In normal cells, the p53 protein level is low. DNA



damage and other stress signals may trigger the increase of p53 proteins, which have three major functions: growth arrest, DNA repair and apoptosis (cell death). The growth arrest stops the progression of cell cycle, preventing replication of damaged DNA. During the growth arrest, p53 may activate the transcription of proteins involved in DNA repair. Apoptosis is the "last resort" to avoid proliferation of cells containing abnormal DNA.

The cellular concentration of p53 must be tightly regulated. While it can suppress tumors, high level of p53 may accelerate the aging process by excessive apoptosis. The major regulator of p53 is Mdm2, which can trigger the degradation of p53 by the ubiquitin system.(Jayasankara, et.al.,2016).

XIII.CURE AND TREATMENT OF CANCER:-

Diagnosis :-

Biopsy of tissue, endoscopy (Gastro scope for stomach), X-Rays ultrasound are important tests.

Anti carcinogens :-

They are the substances which prevent the action of carcinogens. Antcarcinogens occur in green yellow vegetables, fruits, milk. They are riboflavin (milk), flavonoids (green-yellow vegetables and fruits), Vitamin C, indoles (Cabbage) etc. B-carotene present in green yellow vegetables is promoter-inhibitor which weakens the action of cancer promoters.

Treatment of Cancer:-

Surgery, Bone marrow grafting (for leukemia), radiotherapy (exposure to radio isotopes), hormonal therapy, chemo therapy (use of chemicals) drugs which are more toxic to cancer cells than

normal cells. Two drugs (Vincristin and Vinblastin) from catharanthus roseus (Vinca-rosea) are effective in controlling leukemia. Taxol is anticancer drug obtained from Taxus baccata.

XIV.CONCLUSION:-

Cancer disease is incurable, but timely action can cure this disease to some extent. X-Rays and Radium have proved to be valuable aid to surgery in the treatment of many cases. They provide the only useful treatment for cancer of lymph node tissues, for cancers too extended to the curable irritation also helps to cause the cancer tissue to shrink and give relief.

We feel that we must consult an experienced physician for a through examination and advice if any suspicious sign or symptoms is observed. Delay can cause the death of a person. Therefore such delay is very dangerous.