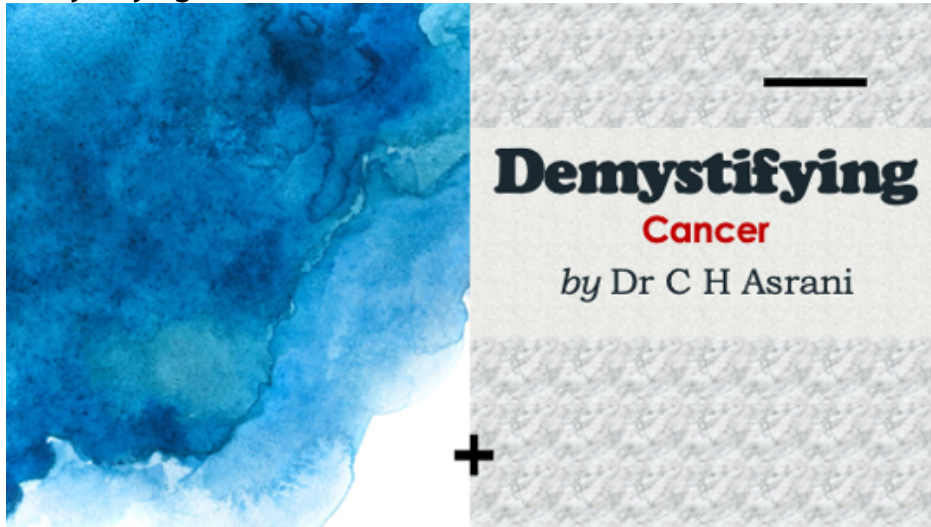


Demystifying series_7



By Dr C H Asrani DNB (Family Medicine); MBBS
Founder **INCHES** group

- Cancer is one of the principal causes of death in developed world & of morbidity in developing countries.
- It can affect people of all ages, but risk for the more common varieties viz. breast, stomach, oral, prostate, colo rectal etc. tends to increase with age.

What is Cancer?

- Under normal circumstances, cells are formed, mature, carry out their intended function and then ultimately die and new cells are constantly regenerated in the body to replace these dying cells and to maintain normal cellular function.
- It may surprise many to know between 50 billion and 70 billion cells die each day due to this process of apoptosis in the average human adult. This amounts to the proliferation and subsequent destruction of a mass of cells equal to an individual's body weight, in a year.
- Cancer represents the disturbance of this process, which can occur in several ways:
 - Cells may grow and reproduce in a disorganized and out-of-control fashion.
 - Cells may fail to develop properly, so they will not function normally.
 - Cells may fail to die normally.
 - One or a combination of these processes may occur when cells become cancerous.
- Cancer is a disease characterized by a population of cells that
 - Grow and divide without respect to normal limits,
 - Invade adjacent as well as distant tissues
 - Destroy adjacent tissues and
 - May spread to distant bodily sites through a process called metastasis.

- These life-threatening, MALIGNANT properties of cancers differentiate them from BENIGN tumors, which are self-limited in their growth and do not invade or metastasize.

What causes cancer?

- It is a combination of
 - Genomic instability
 - Environmental factors
- The term carcinogen refers to any substance, radionuclide or radiation which is an agent directly involved in the promotion of cancer or in the facilitation of its propagation.
- This may be due to genomic instability or to the disruption of cellular metabolic processes
- Common examples of carcinogens are
 - Inhaled asbestos
 - Tobacco (smoked or smokeless variety)
 - Aniline dyes
 - Tarred portion of barbecued food
 - UV rays (not so common in India)
 - Cirrhosis/ Hepatitis B/ Hepatitis C
 - Anything under the sun including the sun itself...

Few common terms when dealing with Cancer

- Benign tumor: neither invades other tissues nor metastasize. Symptoms due to pressure effects, if large.
- Pre-malignancy: A non-invasive neoplasm that may not form an obvious mass but has the potential to progress to cancer if left untreated. Pre-malignant neoplasms show distinctive microscopic changes such as dysplasia or atypia. This is stage where they can be cured. Hence, preventive checks like Pap Smear.
- Malignant neoplasm: synonymous with cancer. One that invades and metastasizes.
- Tumor: broadly defined, can be any swelling or mass. 'Tumors' in common usage are in fact neoplasms – could be benign or malignant.
- Staging of a cancer
 - Staging of a cancer describes how much the cancer has spread.
 - Based on
 - Size of a tumor, how deep it has penetrated, and invasion to adjacent organs,
 - If and how many lymph nodes it has metastasized to, and whether it has...
 - Spread to distant organs.
 - Ideally staging cannot be complete before surgery as ONLY then lymph nodes can be evaluated.
 - Correct staging is critical because treatment is directly related to disease stage.
 - Incorrect staging → improper Rx and diminution of patient survivability.

- Grading of a Cancer
 - Grading is a measurement of how aggressive the tumor is.
 - Most cancer cells are graded by how much they look like normal cells.
 - Grading is done by studying the cancerous cells taken during biopsy.
 - Whatever the method – there is observer variation.

Diagnosis of Cancer:

- Periodic checks basis age and family history
- Physical/ clinical → high index of suspicion
- Imaging (CT/ MRI/ Isotope imaging) – indirect visualization
- Endoscopy/ Laparoscopy - direct visualization
- Tissue diagnosis – GOLD standard – a must for treatment planning
 - Biopsy
 - Diagnostic
 - FNAC
 - Excisional
 - Punch biopsy – oral / cervical cancer(s)
 - Brush biopsy – Bronchogenic cancer
 - At surgery – frozen section/ removed specimen
- Immunohistochemistry

Management:

- Management of a cancer is adapted to fit each person's individual needs and depends on the
 - Size, Location, Extent of the tumor
 - Stage of the disease and
 - General health of the person.
- It is a judicious mix of chemotherapy, surgery, radiation therapy, and immunotherapy

**IF DETECTED IN TIME ANY TREATED RATIONALLY –
MOST CANCERS ARE CURABLE.
TRICK IS CATCH EARLY.**