

DEFINITION

1. **Carcinomatosis** is characterised by widespread metastatic deposits from a primary cancer tumour. The site of the primary tumour may not be known.
2. Cancer is a term which embraces a large number of different diseases, the common feature of which is a malignant tumour. This is a growth (neoplasm) which is not circumscribed but which infiltrates the surrounding tissues and metastasises (spreads to other sites in the body, thereby producing secondary deposits). Any tissue in the body may be affected.
3. Cancers are classified according to the tissue of origin. **Carcinoma** arises from epithelial tissue and **sarcoma** from connective tissue. The suffix **blastoma** implies a tumour of embryonic origin.

CLINICAL MANIFESTATIONS

4. Metastatic spread may occur to any tissue from any tissue, although some types of primary tumour often exhibit a characteristic metastatic pattern. The sites for metastatic spread are determined by a number of factors, including the size of the structure and its lymphatic and vascular supply. The commonest sites for metastases are the lung, liver, bone, skin and brain.
5. Carcinomatosis may cause **local** or **general** effects. The general effects may include **metabolic, neurological, endocrine** or **psychiatric** features.
6. **Local** effects depend on the site of the metastases. The commonest symptoms include chest pain and dyspnoea from lung secondaries, pathological fractures of bones, liver dysfunction including jaundice, ascites from peritoneal metastases and headaches or other cerebral symptoms from brain metastases. Lymphatic blockage may cause localised oedema, which may be massive. Skin metastases are visible and palpable.
7. The most common **general** effect is weight loss, which may develop into cachexia. Massive ascites may produce severe loss of protein and trace elements. Electrolyte imbalance may lead to cardiac dysrhythmias. Neurological syndromes include peripheral neuropathy and myopathic syndromes. Endocrine disorders may be mimicked.

AETIOLOGY

8. Cancer is not one disease but a group of widely different diseases. While some aetiological factors may be common to a number of different types of cancer, each type should be recognised as an individual disease with its own specific aetiology.

9. The common feature of all cancers is the loss of control over normal cell division and differentiation. Cell division proceeds by a complex sequence of events. For this to be maintained in a normal way, it must be strictly controlled. It has been found that certain regions of the chromosomes are vital to this control. These regions are called oncogenes. Whilst the oncogenes perform normally, cell division and differentiation remain under control.
10. The process whereby oncogenes lose control of cell division and differentiation is known as activation. When this occurs, cell division and differentiation become chaotic and neoplasia (carcinogenesis) ensues. The factors which activate oncogenes are numerous and varied, some being endogenous, others environmental. There is evidence that in most types of cancer a number of different factors play a part at different stages of the neoplastic process.
11. Some types of cancer are strongly genetically determined with a family history, for example retinoblastoma. In other types of cancer an external agent is the dominant factor, for example aniline dyes, which will cause carcinoma of the bladder in 100% of cases following sufficient exposure.
12. Some individuals are **genetically determined** to be more likely to develop cancer and there is a strong history of a certain type of cancer in their family of origin. Some cancers are more common in one sex than the other.
13. During life many **constitutional factors** are present which may activate oncogenes. These include humoral factors, immunological factors and the normal ageing process during which spontaneous changes affect the genes (somatic mutations).
14. For the most part, cancer is commoner at the extremes of life. This may be because the immune system is relatively less efficient in the young and the elderly. In addition, with increasing age, the summation of naturally occurring somatic mutations and any exposure to carcinogens may become sufficient to activate oncogenes.
15. **Environmental factors** play a part in the aetiology of some types of cancer. The following groups of factors have been identified:
 - 15.1. **Chemical**, for example aniline dyes and carcinoma of the bladder.
 - 15.2. **Physical agents**, for example asbestos and mesothelioma.
 - 15.3. **Ionising radiation** which, when a certain dose is exceeded, will cause cancer in some, but not all, tissues.
 - 15.4. **Ultraviolet radiation** which may cause cancer of the skin. Its tissue penetration is limited and so it does not cause cancer in the deeper tissues.
 - 15.5. Some specific **viruses** have been identified which play a part in the causation of particular types of cancer, for example hepatitis B and primary carcinoma of the liver.

15.6. It has been suggested that a wide variety of other environmental factors may cause certain types of cancer. Many of these suggestions have been based on animal studies, in vitro experiments or epidemiological studies with small samples or inadequate controls. These contentions are still at the stage of speculation.

16. The primary cancer leading to carcinomatosis is not caused by climatic extremes, trauma, physical or mental stress, or lowered resistance arising from hardship or other diseases. The progress of the condition is independent of external factors other than medical treatment.

CONCLUSION

17. Carcinomatosis is a term used when there are multiple widespread deposits of secondary cancer. The site of the primary tumour may not be known. Constitutional and environmental factors play a part in the aetiology. The course of the condition is unaffected by environmental factors, other than those involved in its treatment.

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