

(Cancer of the nasopharynx)**DEFINITION**

1. 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.
2. 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.
3. Nasopharyngeal carcinoma is a malignant tumour of the nasopharyngeal epithelium. There are 3 histological varieties of the condition which arises most commonly from the region behind the Eustachian tube outlet known as the fossa of Rosenmuller. These are **keratinizing squamous cell carcinoma, non-keratinizing squamous cell carcinoma and undifferentiated carcinoma**.

CLINICAL MANIFESTATIONS

4. Nasopharyngeal cancer presents with hearing difficulties due to secretory otitis media, epistaxis, headaches, cervical lymph node enlargement or cranial nerve palsies. The condition spreads locally, invaliding the skull base and metastasises to the cervical lymph nodes.

AETIOLOGY

5. 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 to be an individual disease with its own specific aetiology.
6. 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. While the oncogenes perform normally, cell division and differentiation remain under control.
7. 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, other 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.

8. 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.
9. 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.
10. 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).
11. 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.
12. **Environmental factors** play a part in the aetiology of some types of cancer. The following groups of factors have been identified:
 - 12.1. **Chemical**, for example aniline dyes and carcinoma of the bladder.
 - 12.2. **Physical** agents, for example asbestos and mesothelioma.
 - 12.3. **Ionising radiation** which when a certain dose is exceeded will cause cancer in some, but not all, tissues.
 - 12.4. **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.
 - 12.5. 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.
 - 12.6. 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 on epidemiological studies with small samples or inadequate controls. These contentions are still at the stage of speculation.
13. Nasopharyngeal carcinoma is commoner in males than females and most commonly affects those aged over 60.
14. The precise aetiology of nasopharyngeal carcinoma remains unknown. There is a marked geographical variation in its incidence which has led to studies of diet and social habits as possible aetiological factors. Such an association has not been confirmed.
15. There is no causal association with alcohol or smoking.

16. A genetic element is thought to be important and this view is supported by an increased incidence in people with certain HLA tissue antigens.
17. In Asia there is a well documented association with the Epstein Barr virus although at present the evidence is that this association is not causal. DNA characteristic of Epstein Barr virus has been detected in the nuclei of nasopharyngeal cancer cells and those with the disease have high levels of antibody to Epstein Barr virus in the blood.
18. There is no reported association with exposure to excess ionising radiation.
19. Chronic mustard gas exposure is associated with an increased incidence of nasopharyngeal cancer.
20. Nasopharyngeal carcinoma is not caused by climatic extremes, trauma, physical or mental stress or lowered resistance arising from hardship or other diseases. Its progress is independent of external factors other than medical treatment.

CONCLUSION

21. Nasopharyngeal carcinoma is a malignant tumour arising from the nasopharyngeal epithelium. It is usually constitutionally determined although environmental factors may sometimes play a part in its aetiology. The course of the condition is unaffected by environmental factors other than those involved in its treatment.

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