

General Characteristics and Causes of Esophageal Cancer

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DESCRIPTION

Esophageal cancer is a kind of cancer that develops in the oesophagus, which is the food tube that connects the throat and the stomach. Swallowing difficulties and weight loss are common symptoms. Swallowing discomfort, a hoarse voice, swollen lymph nodes glands around the collarbone, a dry cough, and even coughing up or vomiting blood are all possible symptoms. The illness is divided into two subtypes: Esophageal Squamous-Cell Carcinoma (ESCC, which is more frequent in poor countries, and Esophageal Adeno Carcinoma (EAC, which is more common in industrialised countries. There are a few less frequent varieties as well. The epithelial cells that lining the oesophagus give rise to squamous-cell cancer. Barrett's oesophagus is a disorder in which glandular cells in the bottom part of the oesophagus have already converted into intestinal cells, resulting in adenocarcinoma. Tobacco, alcohol, very hot beverages, a bad diet, and chewing betel nut are all causes of the squamous-cell type. Tobacco usage, obesity, and acid reflux are the most prevalent causes of adenocarcinoma.

An endoscopic biopsy is used to diagnose the condition a fiberoptic camera. Stopping smoking and adopting a healthy diet are two methods of prevention. Treatment is determined by the cancer's stage and location, as well as the patient's overall health and preferences. Surgery alone may be used to treat small localised squamous-cell tumours in the hopes of a cure. Chemotherapy, either with or without radiation treatment, is usually utilised in conjunction with surgery in the majority of cases. Chemotherapy and radiation treatment can stop the development of larger tumours. Palliative treatment is frequently indicated in the context of advanced disease or when the patient is unable to undergo surgery.

Squamous-cell carcinoma and adenocarcinoma are two different kinds of cancer with different risk factors. Smoking and alcohol use have been associated to squamous-cell cancer. Long-term acid reflux has been associated to the development of adenocarcinoma. Tobacco use is linked to both forms of cancer. People over the age of 60 are more likely to have both kinds.

SQUAMOUS-CELL CARCINOMA

Tobacco (smoking or chewing and alcohol are two important risk factors for esophageal squamous-cell cancer. Tobacco and alcohol have a powerful synergistic impact when combined. According to some estimates, smoke causes roughly half of all instances and alcohol causes one-third, whereas men's cases are caused by a combination of smoking and heavy drinking. Alcohol-related risks appear to be connected to its aldehyde metabolite as well as mutations in related enzymes. In Asia, metabolic variations like these are rather frequent.

Regular drinking of very hot liquids above 65 °C or 149 °F and absorption of caustic chemicals are other important risk factors. High amounts of nitrosamines (chemical substances present in cigarette smoke and some foods in the diet appear to be a risk factor as well. Exposure to nitrosamines from processed and grilled meats, pickled vegetables, and other foods, as well as a limited consumption of fresh foods, appear to be associated with unfavourable dietary habits. Nutritional inadequacies, low socioeconomic position, and poor oral hygiene are other causes. In Asia, chewing betel nut areca is a significant risk factor. Physical trauma may heighten the danger. This might entail consuming really hot beverages.

ADENOCARCINOMA

Acid reflux a very common ailment also known as Gastro Esophageal Reflux Disease (GERD has been firmly associated to this form of cancer for a long time. In reaction to erosion of the esophagus's squamous lining, long-term GERD can cause a change in cell type in the lower section of the oesophagus. Barrett's oesophagus is a condition that affects women 20 years later than it does males, presumably owing to hormonal causes. On a molecular level, there is a small HOXA13-expressing compartment in the oesophagus that is more resistant to bile and acids than typical squamous epithelium and is susceptible to both intestinal differentiation and oncogenic transformation. Following GERD, this HOXA13-expressing compartment outcompetes the typical squamous compartment, resulting in the development of the intestinal aspect of the oesophagus and an increased risk of esophageal cancer. Barrett's oesophagus is more

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frequent in those who have symptomatic GERD or bile reflux, which increases the likelihood of additional alterations that might progress to adenocarcinoma. The risk of adenocarcinoma developing in the context of Barrett's oesophagus is unknown, and it may have been overstated in the past. Obesity and overweight appear to be linked to an increased risk. The link between obesity and cancer appears to be the strongest of any obesity-related malignancy, while the reasons for this are unknown.

Helicobacter pylori infection which is believed to affect over half of the world's population is not a risk factor for esophageal

adenocarcinoma and may even protect against it. Despite being a source of GERD and a risk factor for gastric cancer, the infection appears to be linked to a 50% reduction in the incidence of esophageal adenocarcinoma. The biochemical basis for a protective effect is a little hazy. One theory is that some strains of *H. pylori* lower stomach acid, minimising the damage caused by GERD. Reduced rates of *H. pylori* infection in Western countries during the last few decades, which have been related to decreased home congestion, might be a role in the contemporaneous rise in esophageal cancer.