

Various Causes of Carcinoma

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DESCRIPTION

Carcinoma is a malignancy that develops from epithelial cells. Specifically, a carcinoma is a cancer that begins in a tissue that lines the inner or outer surfaces of the body, and that arises from cells originating in the endodermal, mesodermal or ectodermal germ layer during embryogenesis. Carcinoma has also come to encompass malignant tumors composed of transformed cells whose origin or developmental lineage is unknown (see cancer of unknown primary origin; CUP), but that possess certain specific molecular, cellular, and histological characteristics typical of epithelial cells. This may include the production of one or more forms of cytokeratin or other intermediate filaments, intercellular bridge structures, keratin pearls, and/or tissue architectural motifs such as stratification or pseudo-stratification.

There are a large number of rare subtypes of anaplastic, undifferentiated carcinoma. Some of the more well-known include the lesions containing pseudo-sarcomatous components: spindle cell carcinoma (containing elongated cells resembling connective tissue cancers), giant cell carcinoma (containing huge, bizarre, multinucleated cells), and sarcomatoid carcinoma (mixtures of spindle and giant cell carcinoma). Pleomorphic carcinoma contains spindle cell and/or giant cell components, plus at least a 10% component of cells characteristic of more highly differentiated types (i.e. adenocarcinoma and/or squamous cell carcinoma). Very rarely, tumors may contain individual components resembling both carcinoma and true sarcoma, including carcinosarcoma and pulmonary blastoma. A history of cigarette smoking is the most common cause of large cell carcinoma [1].

The Cancer occurs when a single progenitor cell accumulates mutations and other changes in the DNA, histones, and other biochemical compounds that make up the cell's genome. The cell genome controls the structure of the cell's biochemical components, the biochemical reactions that occur within the cell, and the biological interactions of that cell with other cells. Certain combinations of mutations in the given progenitor cell ultimately result in that cell (also called a cancer

stem cell) displaying a number of abnormal, malignant cellular properties that, when taken together, are considered characteristic of cancer.

This process of continuous growth, local invasion, and regional and distant metastasis is not halted via a combination of stimulation of immunological defenses and medical treatment interventions; the end result is that the host suffers a continuously increasing burden of tumor cells throughout the body. Eventually, the tumor burden increasingly interferes with normal biochemical functions carried out by the host's organs, and death ultimately ensues. Carcinoma is but one form of cancer one composed of cells that have developed the cytological appearance, histological architecture, or molecular characteristics of epithelial cells. The likely major underlying cause of mutations in carcinomas is DNA damage. Endogenous (metabolically-caused) DNA damage is also very frequent, occurring on average more than 60,000 times a day in the genomes of human cells. Externally and endogenously caused damages may be converted into mutations by inaccurate translesion synthesis or inaccurate DNA repair (e.g. by non-homologous end joining).

The Carcinomas are classified according to their origin within the body. Common carcinomas include. As the most common type of skin cancer, basal cell carcinoma develops from the bottom layer of the skin, which is otherwise referred to as the *basal* layer. This type of cancer typically grows at a slow rate, thereby limiting its ability to spread to other parts of the body. Some of the typical skin symptoms associated with a basal cell carcinoma. As the second most common type of skin cancer, squamous cell carcinoma is a slow growing cancer that does not usually spread to other organs in the body. The most common areas of the body affected by squamous cell carcinoma include the skin, gastrointestinal tract and respiratory tract. The cells that grow and reside within the milk duct lining of the breast are affected by invasive ductal carcinoma. As this cancer continues to grow, these cancerous cells can break through the wall of the milk ducts and invade other parts of the body [2].

The Carcinoma-*in-situ* (CIS) is a term used to describe cancer cells that have not spread beyond their original location. In fact,

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the term “*in situ*” translates into “in its original place.” Some common *in-situ* carcinomas. Ductal carcinoma *in-situ* is the most common type of breast cancer. While this may be true, these cancer cells remain confined to the milk duct lining within the breast, thereby preventing the spread of this cancer from escaping the duct walls to surrounding breast tissue. As a result, patients with ductal carcinoma *in-situ* typically have good prognosis rates upon diagnosis.

The Carcinoma *in-situ* of the urinary bladder is commonly found in male smokers between the ages of 60-70 years old. There is a 90% recurrence rate of this type of cancer. The diagnosis of cervical carcinoma *in-situ* typically follows the identification of pre-cancerous cells present on the surface layer of the cervix. Bowen Disease, which is also known as squamous cell carcinoma *in situ*, typically arises as a result of sun exposure. Therefore, the most common areas of the skin affected by Bowen Disease will include the face, ears, and neck. Malignant tumors made up of transformed cells whose origin or developmental lineage is unknown but have specific molecular, cellular and histological characteristics typical of epithelial cells are also characterized as carcinoma. Carcinoma is diagnosed using biopsy, such as fine-needle aspiration, core biopsy or subtotal removal of a single node. A pathologist then analyzes the sample under a microscope to identify molecular, cellular or tissue architectural characteristics of epithelial cells [3].

The Carcinoma *in situ* is the term for a small, localized carcinoma that has not invaded through the epithelial basement

membrane restricting the carcinomatous cells from adjacent normal cells. This type of carcinoma is pre-invasive but not pre-malignant. Carcinoma *in situ* almost always continues to grow and progress until it infiltrates and penetrates into and through the basal membrane or other structures. Once the basal membrane or other structures are penetrated, these lesions are no longer considered carcinoma *in situ*, but invasive carcinomas. Cure rates for carcinoma *in situ* may be 100% if lesions can be removed using surgical resection, cryotherapy, laser ablation or other local treatment before metastasis.

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