



Pathophysiology of Precancerous Condition, its Symptoms and Causes

Jalton Cale*

Department of Oncology, University Hospital Münster, Münster, Germany

ARTICLE HISTORY

Received: 02-Jan-2023, Manuscript No. JCMEDU-22-87766;
Editor assigned: 06-Jan-2023, Pre-QC No. JCMEDU-22-87766 (PQ);
Reviewed: 20-Jan-2023, QC No. JCMEDU-22-87766;
Revised: 27-Jan-2023, Manuscript No. JCMEDU-22-87766 (R);
Published: 03-Feb-2023

Description

A precancerous condition is a condition, tumor, or lesion involving abnormal cells that is associated with an increased risk of developing into cancer. Clinically, precancerous conditions include various abnormal tissues with an increased risk of developing into cancer. Some of the more common precancerous conditions include certain colon polyps that can progress to colon cancer, monoclonal gammopathy of undetermined significance that can progress to multiple myeloma or myelodysplastic syndrome and cervical dysplasia, which can progress to cervical cancer. Bronchial premalignant lesions can progress to squamous cell carcinoma of the lung.

Pathologically, precancerous tissue can range from benign neoplasia, which is tumors that do not invade adjacent normal tissues or spread to distant organs, to dysplasia, a collection of highly abnormal cells that in some cases are at increased risk of progression to anaplasia and invasive cancer that is life-threatening. Sometimes the term “precancer” is also used for carcinoma in situ, which is a non-invasive cancer that, unlike the invasive stage, has not grown and spread into nearby tissue. As with other precancerous conditions, not every carcinoma in situ will become an invasive disease, but it is at risk.

Pathophysiology

The pathophysiology of precancerous lesions is thought to be similar to that of cancer and also varies depending on the site of the disease and the type of lesion. Cancer is thought to always be preceded by a clinically silent premalignant phase during which many oncogenic, genetic and epigenetic changes accumulate before it is truly malignant. The duration of this premalignant phase can vary from cancer to cancer, from site to site and from individual to individual. A growing body of evidence

suggests that escape from the immune system occurs in premalignant lesions and that the nature of the initial immune response to these lesions may determine whether they progress to cancer or regress to normal tissue.

Symptoms

Symptoms of precancers vary according to the affected organ. In many cases, individuals with precancerous conditions experience no symptoms. Precancerous conditions of the skin or oral cavity may appear as visible lesions without associated pain or discomfort, while precancerous conditions of the hematologic system are typically asymptomatic and, in the case of monoclonal gammopathy of unknown significance, may rarely cause numbness and tingling in the hands and feet or difficulty with balance.

Causes

In most cases, there are many risk factors for precancerous conditions and lesions are the same risk factors that determine an individual's vulnerability to a particular cancer. For example, individuals with cervical or anal infection with oncogenic or cancer-causing strains of Human Papilloma Virus (HPV) are at increased risk for cervical and rectal cancer, as well as cervical and anal dysplasia. Likewise, exposure to the sun or especially UV radiation is an important risk factor for both actinic keratosis, which can turn into melanomas, and skin cancer. Smoking is a risk factor for premalignant (as well as malignant) lung lesions. Hereditary conditions that are risk factors for cancer may also be risk factors for premalignant lesions. However, in many cases, precancerous conditions or lesions may be sporadic and idiopathic in nature, meaning that they are not associated with an inherited genetic risk factor for a particular cancer, nor with a direct causative agent or other identifiable cause.