

Parasites and cancer: an overview of the current research.

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Abstract

Parasites and cancer are two distinct yet interrelated topics in the field of biology and medicine. Parasites are organisms that live on or inside other organisms, called hosts, and derive their nutrients from them, often causing harm or disease in the process. Cancer, on the other hand, is a complex and heterogeneous disease characterized by the uncontrolled growth and spread of abnormal cells in the body. Interestingly, there is growing evidence to suggest that parasites may play a role in the development and progression of cancer. Some parasites have been shown to release molecules that can promote tumor growth and metastasis, while others may activate host immune responses that can either inhibit or promote cancer progression. In addition, certain cancer treatments, such as chemotherapy and radiation therapy, can suppress the immune system and make the host more susceptible to parasitic infections. This highlights the importance of considering the potential interactions between parasites and cancer when developing new cancer therapies. Despite these intriguing findings, much remains unknown about the relationship between parasites and cancer, and further research is needed to fully understand the mechanisms underlying their interactions. Nevertheless, the study of these two fields holds great promise for the development of new approaches for the prevention, diagnosis, and treatment of cancer.

Keywords: Parasite and Cancer.

Introduction

Breast cancer is a common malignancy that affects women worldwide. The diagnosis of breast cancer is based on the pathological examination of tissue specimens obtained through biopsy. Breast pathology involves the evaluation of breast tissue to identify any abnormalities or changes that may indicate the presence of cancer [1].

Breast cancer is characterized by the uncontrolled growth of cells in the breast tissue. There are several types of breast cancer, and the type of cancer is determined by the characteristics of the cells under the microscope. The most common type of breast cancer is invasive ductal carcinoma, which accounts for 80% of all cases. Other types of breast cancer include invasive lobular carcinoma, inflammatory breast cancer, and Paget's disease of the breast [2].

The diagnosis of breast cancer typically involves a combination of imaging studies and a biopsy of the affected tissue. Imaging studies such as mammography, ultrasound, and magnetic resonance imaging (MRI) are used to detect abnormalities in the breast tissue. If an abnormality is detected, a biopsy is performed to obtain a tissue sample for examination under a microscope.

There are several types of breast biopsies, including core needle biopsy, vacuum-assisted biopsy, and surgical biopsy.

A core needle biopsy involves the use of a needle to remove a small sample of tissue from the affected area. A vacuum-assisted biopsy involves the use of a special needle that removes several samples of tissue at once. A surgical biopsy involves the removal of a larger sample of tissue through a small incision in the breast [3].

Once the tissue sample has been obtained, it is sent to a pathology laboratory for examination. The tissue is examined under a microscope to determine whether cancer cells are present. Pathologists use several criteria to determine whether the tissue is cancerous, including the size, shape, and appearance of the cells.

If cancer is present, the pathologist will also determine the type and stage of the cancer. The type of cancer is determined by the characteristics of the cells, as mentioned earlier. The stage of the cancer is determined by the size of the tumor and whether it has spread to other parts of the body [4].

The staging of breast cancer is important because it determines the treatment options and the prognosis for the patient. The most common system for staging breast cancer is the TNM system, which stands for Tumor, Node, and Metastasis. The Tumor category refers to the size of the tumor, the Node category refers to whether the cancer has spread to the lymph nodes, and the Metastasis category refers to whether the cancer has spread to other parts of the body [5].

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Treatment options for breast cancer depend on several factors, including the type and stage of the cancer, the patient's age and overall health, and the patient's preferences. Treatment options may include surgery, radiation therapy, chemotherapy, targeted therapy, and hormone therapy.

Conclusion

Surgery is the most common treatment for breast cancer and involves the removal of the tumor and surrounding tissue. The extent of the surgery depends on the size and location of the tumor, as well as the stage of the cancer. In some cases, a mastectomy (removal of the entire breast) may be necessary. Radiation therapy involves the use of high-energy radiation to kill cancer cells. It is often used in conjunction with surgery to kill any remaining cancer cells in the breast tissue. Chemotherapy involves the use of drugs to kill cancer cells. It is often used in conjunction with surgery and/or radiation therapy to treat breast cancer that has spread to other parts of the body. Targeted therapy involves the use of drugs that specifically target cancer cells, while leaving normal cells

unharmed. This type of therapy is often used in conjunction with chemotherapy to increase its effectiveness.

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