Oral cancer: Etiology, diagnosis, and management in oral pathology.

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Introduction

Oral cancer, also known as mouth cancer or oral cavity cancer is a type of cancer that affects the tissues in the oral cavity, including the lips, tongue, gums, floor of the mouth, and the lining of the cheeks. It is a significant public health concern worldwide, with high morbidity and mortality rates. Understanding the etiology, early diagnosis, and effective management of oral cancer is crucial for improving patient outcomes and reducing the burden of this disease [1].

Etiology

The development of oral cancer is multifactorial, involving a combination of genetic, environmental, and lifestyle factors. The most common risk factors associated with oral cancer include tobacco use (both smoking and smokeless forms like chewing tobacco), excessive alcohol consumption, betel quid chewing, and human papillomavirus (HPV) infection, particularly with high-risk strains such as HPV-16 and HPV-18.

Tobacco and alcohol use are considered the primary risk factors for oral cancer. The carcinogens present in tobacco smoke can damage DNA and promote the development of malignant cells. Similarly, chronic and excessive alcohol consumption can cause cellular damage, impair the body's natural defence mechanisms, and increase the risk of cancer development. Betel quid chewing, popular in some regions of Asia, is also strongly associated with oral cancer due to the carcinogens present in the betel nut and other ingredients [2].

Diagnosis

Early diagnosis plays a crucial role in the successful management of oral cancer. Dental professionals, including dentists and oral pathologists, are often the first to detect suspicious lesions during routine oral examinations. Suspicious signs include persistent ulcers, white or red patches, lumps, or unusual growths in the oral cavity.

Once a suspicious lesion is identified, a biopsy is performed to obtain a tissue sample for pathological evaluation. The biopsy helps determine the presence of cancer cells, their histological type, and grade of malignancy. Additional imaging studies such as computed tomography (CT), magnetic resonance imaging (MRI), and positron emission tomography (PET) may be used to evaluate the extent of the disease, including the involvement of nearby lymph nodes or distant metastasis [3].

Management

The management of oral cancer involves a multidisciplinary approach, with a combination of surgery, radiation therapy, chemotherapy, and targeted therapy depending on the stage and extent of the disease. Surgery is often the primary treatment modality for localized oral cancers. The goal is to remove the tumour and surrounding healthy tissues to achieve clear margins. The extent of the surgery depends on the location and size of the tumour. In some cases, reconstructive surgery may be required to restore the functional and cosmetic aspects of the oral cavity. Radiation therapy uses high-energy radiation beams to destroy cancer cells and is often employed in combination with surgery or as the primary treatment for advanced tumours. It can be delivered externally (external beam radiation therapy) or internally (brachytherapy) depending on the specific case [4].

Chemotherapy involves the use of drugs to kill cancer cells throughout the body. It is typically used in combination with other treatment modalities, either before surgery to shrink tumours (neoadjuvant chemotherapy), after surgery to destroy remaining cancer cells (adjuvant chemotherapy), or in cases of advanced or recurrent disease.

Targeted therapy is a relatively new approach that utilizes drugs designed to target specific molecular abnormalities present in cancer cells. These drugs interfere with the growth and spread of cancer cells while sparing healthy cells, resulting in fewer side effects compared to traditional chemotherapy [5].

Conclusion

Oral cancer is a significant health concern, and understanding its etiology, early diagnosis, and effective management are crucial for improving patient outcomes. A comprehensive approach involving dental professionals, oncologists, surgeons, and other healthcare providers is necessary to provide optimal care for patients with oral cancer. By raising awareness, promoting prevention measures, and advancing treatment strategies, we can strive to reduce the burden of oral cancer and improve the quality of life for those affected by this disease.

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