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Nose cavity and paranasal sinus tumors

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Abstract

Introduction and purpose of paper:

The aim of this paper was to present diagnostic and therapeutic difficulties in management of sinonasal tumors, which are extremely rare. First symptoms are not specific, that is why patients usually present with advanced tumors at the moment of diagnosis. Optimal treatment depends upon extent or stage of disease.

State of knowledge:

Tumors of nose cavity and paranasal sinuses affecting less than 1 in 100 000 people per year. They are result of abnormal proliferation of variety of structures in the nose. Tumors in sinonasal region grow slowly and may invade local structures, for example the skull base, orbit, or brain. Symptoms of tumors of this region are not specific. This is reason why they are often misdiagnosed by the doctors. Proper detection and diagnostic examination require histopathology examination and imaging test such as computed tomography and magnetic resonance imaging. Due to type and stage of tumor, the treatment options are surgery, radiation therapy and chemotherapy, used separate or in combination.

Summary:

Nasal cavity and paranasal sinus tumors are rare, with a wide spectrum of histological differentiation. The accurate diagnosis of tumor plays a significant role influencing the therapeutic conduct and prognosis.

Key words: Nasal cave and paranasal sinus tumors; histopathology examination; imaging tests; surgery; radiation therapy; chemotherapy

Introduction

Tumors of the nose cavity and paranasal sinuses are considered to be an extremely rare neoplasm, affecting less than 1 in 100 000 people per year, with the average age at comparison between 50 and 60 years. The incidence rate is similar for men and women. It is estimated that 160 new cases being diagnosed in Poland annually. It is estimated that the survival rates for a stage I or stage II are over 60%. The survival rate for s stage III is 50% and for a stage IV is only 35%. [1,2]

In pathogenesis of sinonasal tumors a number risk factors have been implicated. Tobacco use and alcohol are the most common risk factors. Moreover, many of studies suggest that Human papillomavirus (HPV), exposure to air pollution and workplace chemicals can raise a risk of developing tumor.[3]

There are variety of histological type of tumors. Benign tumors include inverted papilloma, as the most common type of tumor. Moreover, juvenile angiofibroma, osteoma, hemangioma, schwannoma and meningioma may also occur. Squamous cell carcinoma is the most common type among carcinomas. Other types of sinonasal cancer include the following: adenocarcinoma, olfactory neuroblastoma, melanoma, lymphoma and sarcoma.[1]

Clinical presentation and examination

Nose and paranasal sinuses tumors usually develop slowly. Due to arise in air-filled cavities, tumors are detected most often in advanced stage. The symptoms of tumors in this region, such as nasal obstruction, headaches, runny nose, decreased sense of smell, blood-stained discharge, fatigue, pain in teeth, loss of vision or neurological deficits are non-specific. In early stage tumors may be misdiagnosed as chronic inflammatory conditions.[4-6]

Clinical examination include the following: physical examination of the nose and oral cavity by a rhinoscope or nasal endoscope. Moreover, investigation must include imaging exams such us computed tomography and/or magnetic resonance imaging. CT scans help to assess whether a tumor remains confined within natural boundaries or has eroded through the surrounding bone, while MRI better distinction of tumor from surrounding healthy soft tissue. Despite of imaging test, biopsy and histopathology examination is always required. Only histopathology examination can provide the final diagnosis.[7]

Treatment

Treatment option of nose and paranasal sinuses tumors depends on variety factors include the following: TNM, histology and resectability. Surgery, radiation therapy and chemotherapy are the main treatment options, used separately or in combination.

Treatment option depends on a stage of tumor. All benign tumors share the same treatment option of complete surgical removal. Treatment of cancers in the first and second stage depends on its location. The treatment may include usually only radiation or surgery with or without radiation therapy. Treatment of stage three and four, depends on location as well, but the treatment usually requires a combination of surgery and radiation therapy and sometimes chemotherapy as well.[7]

Surgery is a basic treatment option for all stages of tumor. During the operation it is necessary to remove cancer and margins around the tumor without damage to adjacent organs. There is variety of surgery techniques approaches. Craniofacial resection is the main method of resecting tumors. However, endonasal surgery is more often employed, as the effective alternative with equivalent treatment results.[1,7,8]

Radiation therapy is another option of treatment sinonasal tumors. For some cases, radiation therapy may be the main treatment option. However, for nasal cavity and paranasal cancers it is most often used in combination with surgery, as pre-operative radiation therapy or post-operative radiation therapy, which is the most common treatment protocol.[7,8]

Chemotherapy is not the first treatment option. Usually, it may be used within multimodal treatment. It is suggested that chemotherapy combined with surgery and radiation therapy could exert the highest effect for epithelial cancers. However, this treatment option is usually used for inoperable, recurrent tumors with or without metastases.[1,8]

In case of advanced, unresectable tumors, there is limited options of treatment. Palliative treatment is a combination of surgery, radiation therapy and chemotherapy. It is focused on improving the quality of life.[9]

Conclusions

Nose cavity and paranasal sinuses tumors are extremely rare, but aggressive. Delayed management is related to growing in air-filled cavities without specific symptoms, but also misdiagnosis as chronic inflammatory diseases by physicians. When the imaging test and histopathology examination is performed, usually tumors are advanced at the time of diagnosis, with limited options of treatment. Improvement of education and primary prevention will probably reduce the mortality of these cancers.

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