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REVIEW ARTICLE

Malignant tumors of the temporal bone – our experience☆

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KEYWORDS
Temporal bone;
Carcinoma;
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Abstract
Introduction: Malignant tumors of the temporal bone are rare, with an estimated incidence of about 0.8–1.0 per 1,000,000 inhabitants per year. The vast majority of these tumors are squamous cell carcinomas and their treatment is eminently surgical.
Objective: This study is an attempt at systematizing the forms of clinical presentation, the therapeutic possibilities, and oncological outcomes of patients with malignant tumors of the temporal bone in a tertiary hospital in Portugal.
Methods: The authors present a retrospective study of temporal bone tumors treated and followed during otorhinolaryngology consultations between 2004 and 2014. A review of the literature is also included.
Results: Of the 18 patients included in the study, 16 had a primary tumor of the temporal bone, in most cases with squamous cell carcinoma histology. Of these, 13 patients were treated with curative intent that always included the surgical approach. Disease persistence was observed in one patient and local recurrence in five patients, on average 36.8 months after the initial treatment.
Conclusions: The anatomical complexity of the temporal bone and the close associations with vital structures make it difficult to perform tumor resection with margins of safety and thus, tumor relapses are almost always local. A high level of suspicion is crucial for early diagnosis, and stringent and prolonged follow-up after treatment is essential for diagnosis and timely treatment of recurrances.
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PALAVRAS-CHAVE
Osso temporal;
Carcinoma;
Tratamento cirúrgico

Tumores malignos do osso temporal – a nossa experiência

Resumo
Introdução: Os tumores malignos do osso temporal são raros, com uma incidência estimada de cerca de 0,8–1 por milhão de habitantes por ano. A grande maioria são carcinomas espinocelulares e o seu tratamento é eminentemente cirúrgico.
Objetivo: Este trabalho tem como objetivo tentar sistematizar as formas de apresentação clínica, as possibilidades terapêuticas e os resultados oncológicos de doentes com tumores malignos do osso temporal num hospital terciário em Portugal.
Método: Os autores apresentam um estudo retrospectivo de tumores do osso temporal tratados e acompanhados em consultas de otorrinolaringologia entre 2004 e 2014. É também apresentada uma revisão da literatura.
Resultados: Dos 18 doentes incluídos no estudo, 16 apresentavam um tumor primário do osso temporal, na maioria dos casos com histologia de carcinoma espinocelular. Destes, 13 doentes foram submetidos a tratamento com intuito curativo que incluiu sempre uma abordagem cirúrgica. Verificou-se persistência da doença em 1 doente e recidiva local em 5 doentes, em média 36,8 meses após o tratamento inicial.
Conclusões: A complexidade anatómica do osso temporal e as estreitas relações com estruturas de importância vital tornam difícil a exérese tumoral com margens de segurança, pelo que as recidivas tumorais são quase sempre locais. Um nível de suspeição elevado é fundamental para um diagnóstico precoce e o seguimento rigoroso e prolongado após o tratamento é essencial para o diagnóstico e tratamento oportuno das recidivas.
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Introduction

Tumors of the temporal bone include skin cancer of the pinna extending to the temporal bone, primary tumors of the external auditory canal (EAC), of the middle ear, of the mastoid or petrous apex, and metastatic lesions in the temporal bone. Primary malignant tumors of the temporal bone have an estimated incidence of 0.8–1.0 per 1,000,000 inhabitants per year, and 60–80% of them are squamous cells carcinomas.[1]

Metastatic lesions in the temporal bone are very rare and usually originate from primary breast, lung, or kidney tumors.[2] Although they can occur at all ages, temporal bone tumors are more common in the 6th to 7th decade of life and in the male gender.[3] A multifactorial etiology has been suggested for these tumors and ionizing radiation is the most important risk factor for tumors originating in the skin of the pinna and EAC, especially in fair-skinned individuals.[4]

The development of temporal bone carcinomas in patients who have undergone radiotherapy for carcinomas elsewhere in the head has also been described. Lim et al. presented a series of seven patients with a history of radiotherapy for the treatment of nasopharyngeal carcinoma.[5]

Although chronic otitis media has been associated with the presence of the temporal bone carcinoma, there is no scientific evidence that this entity is involved in its etiology.[6]

Agents such as chlorinated disinfectants or human papillomavirus in cases of carcinomas associated with inverted papillomas have been mentioned as possible carcinogens.[7–9]

Temporal bone tumors manifest with nonspecific symptoms, such as otorrhea, ear pain, or hearing loss, that are often attributed to inflammatory ear diseases. Thus, although they usually have a superficial location, diagnosis is often delayed.[10]

Tumors of the pinna and the EAC are known to be more aggressive and have a higher risk of recurrence and lymph node metastasis, possibly due to the presence of the fusion of multiple embryonic planes in this region, which may facilitate tumor dissemination.[11–13]

In addition to a complete otorhinolaryngological examination and the histolopathological analysis, diagnostic imaging assessment of the head and neck are essential for accurate tumor diagnosis and staging. Computerized tomography (CT) with contrast allows assessing the bone erosion and the presence of regional adenopathy, whereas magnetic resonance imaging (MRI) with contrast allows a better assessment of its extension to the parotid gland, temporomandibular joint, petrous apex, and intracranial invasion. In locally advanced tumors, positron-emission tomography (PET) allows the exclusion of distant metastasis.[1]

Currently, there is no universally accepted system for the staging of temporal bone carcinomas. The most commonly used is the Pittsburgh modified by Moody et al. in 2000 (Table 1), which is based on physical examination, preoperative CT, and the presence of facial paralysis.[14]

Treatment of temporal bone tumors is a challenge for otorhinolaryngologists due to the presence of significant neurovascular structures in this region. This usually includes the extended tumor surgical resection, which according to its length, can be a wide local excision (WLE), a lateral temporal bone resection (LTBR), a subtotal temporal bone resection (STBR), or total temporal bone resection

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