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Central giant cell granuloma of the temporal bone

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Introduction

Central giant cell granulomas (CGCG) are rare, non-neoplastic, osteolytic lesions predominantly found in the gnathic bones. Since the first report by Jaffe in 1953, manifestation in different locations are described. Nevertheless, the occurrence of CGCG in the temporal bone is a rarity and only a few cases are reported in literature.

Method

This poster presents the case of a patient with CGCG located in the right temporal bone and a review of relevant literature.

Case

A 45-year-old patient was referred to our department with progredient right-sided hearing impairment with no history of otalgia, otorrhea, vertigo or tinnitus nor any known trauma to the skull. In the clinical examination a bulging of the anterior wall of the right external auditory canal was demonstrated which correlated with an osteolytic lesion in the anterior temporal bone shown on subsequently performed CT and MRT scans. The lesion reached the temporomandibular joint, eroded the temporal calvaria and protruded into the middle cranial fossa with a total diameter of 2,5 cm. (Fig.A-C)
A whole-body scintigraphy including tomographic imaging (SPECT) could not demonstrate any skeletal metastatic lesions.

Pure tone audiometry displayed a right-sided, conductive hearing loss with an air-bone gap of 25-30 dB and normal inner ear function in all measured frequencies as well as a Typ C tympanogram. Clinical examination of the facial nerve showed normal facial function in all areas (House-Brackmann Grade I).

Histopathologic examination of tissue extracted in a pretreating hospital via an endaural approach (as described by Heermann), identified the lesion as CGCG.

With no detection of a H3F3A mutation or an USP6 translocation a giant cell tumor of the bone and an aneurysmal bone cyst could be excluded as potential differential diagnoses.

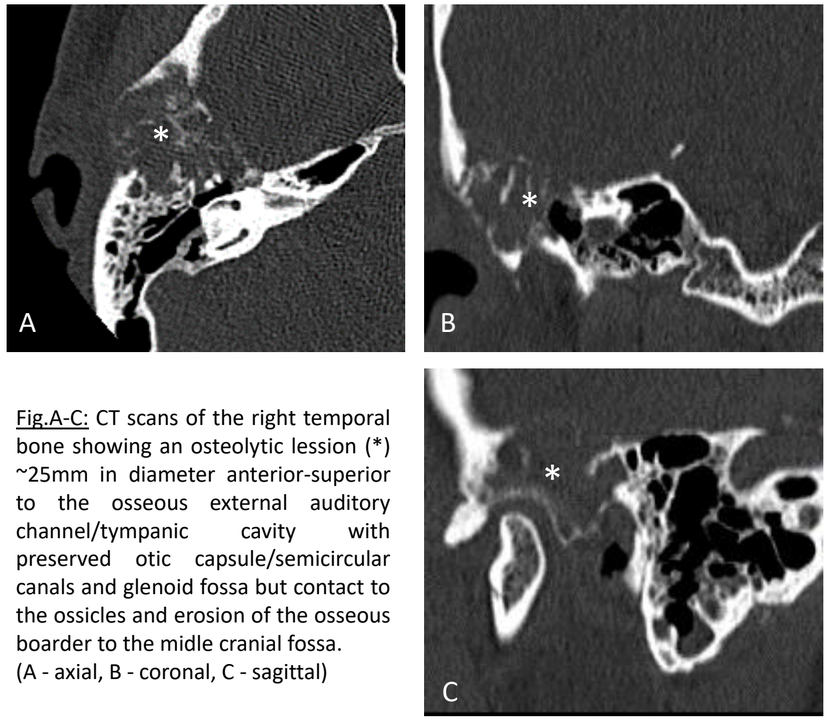

Fig.A-C: CT scans of the right temporal bone showing an osteolytic lession (*) ~25mm in diameter anterior-superior to the osseous external auditory channel/tympanic cavity with preserved otic capsule/semicircular canals and glenoid fossa but contact to the ossicles and erosion of the osseous boarder to the midle cranial fossa.
(A - axial, B - coronal, C - sagittal)

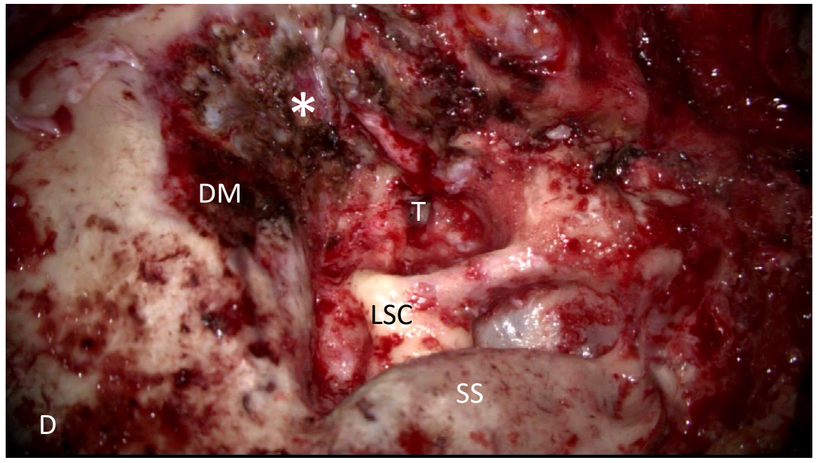

Fig. D: Right temporal bone after complet resection of CGCG (*) via infratemporal fossa type B approach;
Exposed dura of middle cranial fossa (DM), lateral semicircular canal (LSC), tympanic opening of auditory tube (T), sigmoid sinus (SS)

A complete resection of the lesion was performed via an infratemporal fossa type B approach (Fig.D). Upon removal, the lesion was found to have attachments to the dura of the middle fossa with no intra-axial extension.
The postoperative course was uneventful and radiographic follow up (MRI) after 3 months showed no signs for recurrence

Discussion and Conclusion

The etiology of CGCG remains unclear with several cases of patients with no history of trauma and inflammation challenging the initial theory of post-traumatic and/or post-inflammatory macrophage activation suspected to be the trigger of granuloma formation. [1–3]
If located in the temporal bone, typical symptoms are caused by local destruction of adjected, critical structures but preoperative diagnosis of CGCG is challenging as differential diagnosis like giant cell tumor, brown tumor of hyperparathyroidism and aneurysmal bone cyst can present similar clinical symptoms and imaging characteristics. [4,5]
With histopathological confirmation of diagnosis complete radical resection is the treatment of choice with clinical and radiological follow-up investigastions considered to be indispensable as a recurrence rate of 10-20% is described in literature.[6] If a more aggressive growth is suspected intralesional injection of corticosteroids and calcitonin treatment are potential supplementary treatment options.[7,8]

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