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CASE REPORT

Benign Osteoblastoma of the Temporal Bone

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Abstract

We have described a benign osteoblastic lesion in the right temporal bone in a 26 year-old girl who presented with a swell mass on the right supra-auricular area and tinnitus of 17 years duration. She had been operated conservatively through middle cranial fossa approach 17 years ago. After that time the patient has had no problem. There was no other developed neurologic deficit or evidence of malignant change throughout the 17 years. When we compared serial CT scans (the old and new films), there was no important difference between them. During a 17-year follow up period, no progression of the tumor was detected. Conservative treatment for such cases is suggested.

Keywords: Benign; Osteoblastoma; Temporal bone

Introduction

Benign osteoblastoma is an uncommon tumor that has been reported under the present designation separately by Jaffe and Lichtenstein in 1956. It accounts for about 1% of all primary bone tumors and usually in adolescent and young adults, with some male preponderance.[1] The age incidence is between 6 and 12 years.[2]

It most often involves the vertebrae and long bones. It may also rarely affect the skull, with the temporal, frontal and sphenoid bones as the most commonly affected regions.[1-6] We report a particularly rare case and the overall purpose is to review the literature and discuss the diagnosis and management.

Case Report

A 26-year-old female presented with hearing loss in the right ear. She had had otologic complaints such as tinnitus, earache, but no torero, vertigo and facial nerve dysfunction. She did not describe any neurologic diseases.

The past medical history is pertinent only in that she was admitted in a local hospital because of a mass in the right temporal area associated with dull pain 17 years ago. At that time there was a firm, osteoblastic lesion in the squamous portion of the temporal bone.

In 21 September 1989, the mass was resected partially through middle cranial fossa approach by a neurosurgeon. The patient was discharged from hospital after 11 days, and the postoperative course was uncomplicated. The review of system and family history was unremarkable. Physical examination revealed an irregular mass in the medial part of the external auditory canal and seemed to be rising from the superior part of the external auditory canal. The anterior and inferior part of the tympanic membrane seemed to be normal and intact.

The mass lesion occupied 3/4 of the lumen of the external auditory canal. There was no evidence of otorrhea and the canal was dry. On palpation with instrument, its density was hard and painful. The remainder of the examination was normal except in the site of the previous surgical operation on the scalp. Previous pathologic report in 1989 showed fragments of anastomosing osteoid and bone trabecular containing reactive osteoblastic proliferation, a highly vascularised stroma with many giant cells. Fragments of the fibrotic and sclerotic tissue were also present with no significant mitosis or atypical malignant cellular features. Microscopic description of this osteoblastic lesion was in favor of osteoblastoma of the temporal

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bone (Figure 1 and 2). At the time of recent representation, pure tone audiometry showed mixed hearing loss with 50 dB air-bone gap, BC=30 dB and SRT=80 dB in the right ear. Hearing threshold in the left ear was normal. The recent CT scan showed a well-demarcated bone density tumor in the right temporal bone and a barely visible inner ear cortex but the middle ear could not be seen clearly, (Figure 3a and 3b show the CT scan done 17 years ago and Figure 4a and 4b show the new CT scan).

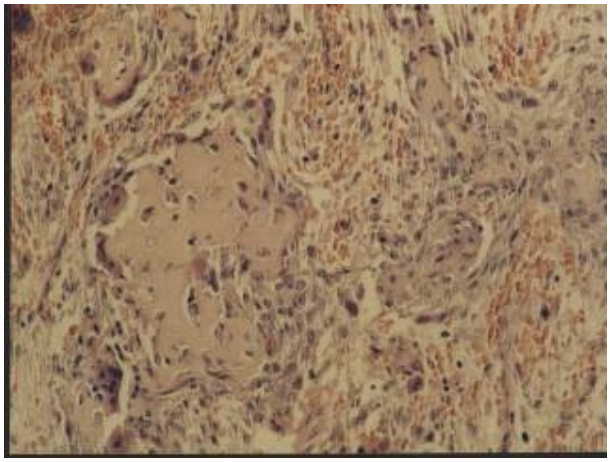


Fig 1: Variably thick trabeculae of osteoid with a rim of osteoblasts and some osteoclasts and hemorrhagic inter trabecular stroma (H & E x 250)

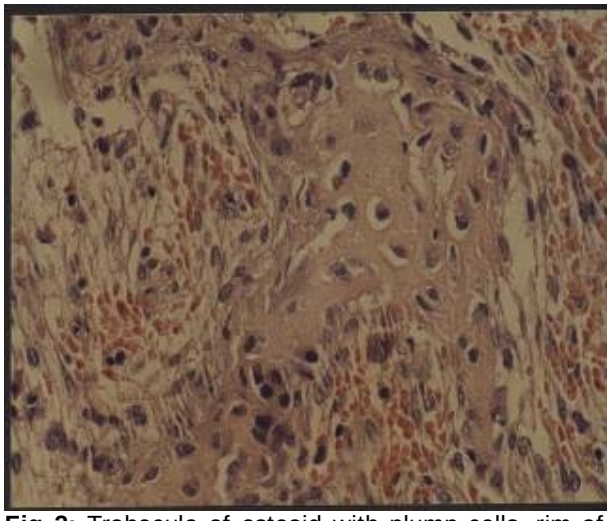
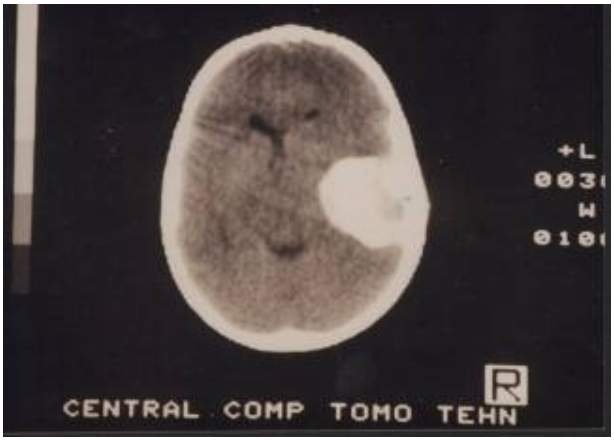


Fig 2: Trabecula of osteoid with plump cells, rim of osteoblasts and hemorrhagic inter- trabecular storma (H & E x 400)



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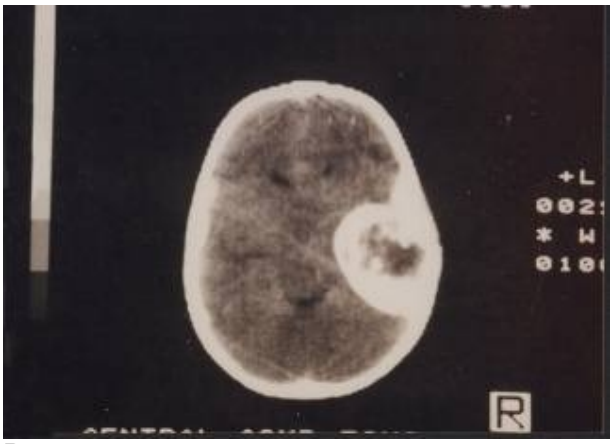

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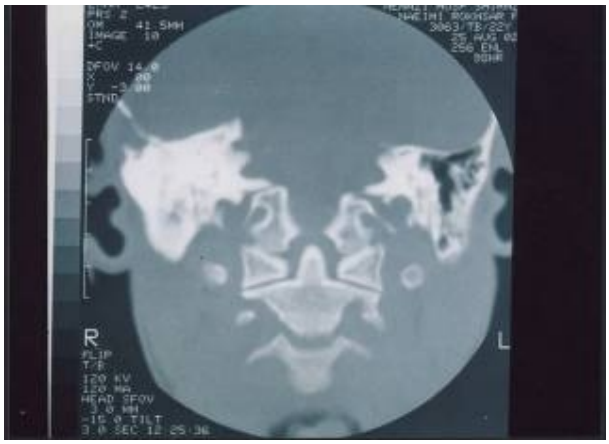
Fig 3: CT scan showing a well-demarcated bone density tumor in the right temporal bone and a barely visible inner ear cortex while the middle ear could not be seen clearly 17 years before admission.

Discussion

The incidence of osteoblastoma is about 0.8% to 1% of all bone tumors. It is a disease of the young, with a peak common in boys. The most common site is vertebrae. The skull involvement is rare.[1-7] The male to female ratio is 2 to 1.[8] Osteoblastoma is a benign tumor with slow growth but it could have aggressive behavior and extend to surrounding structures.[2] Most of them are, of course, self limiting[3] and have good clinical prognosis.[4] CT Scan is a choice technique to show the tumor, although it is insufficient to determine the nature of the lesion.[4] The scans usually demonstrated a bony destruction and parts of calcification.[4,7] In our patient, CT Scan showed the tumor



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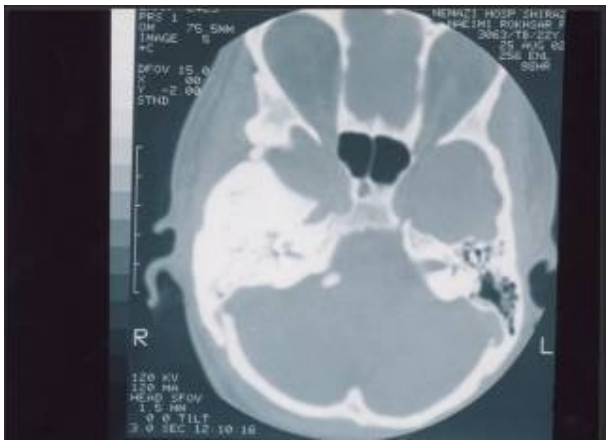

B

Fig 4: The new CT scan of the patient showing a well-demarcated bone density tumor in the right temporal bone and a barely visible inner ear cortex while the middle ear could not be seen clearly.

exactly and when compared with the old one of 17 years ago, no progress in the tumor was found. MRI was characterized by signal void on T1 and T2 weighted images.[9]

The tumor enhanced irregularly with gadolinium and underlying dural enhancement was also noted.[9,10] Studies using technetium 99 m scintigram showed an increased uptake in the mass[7] and FDG-PET studies revealed a high uptake in the tumor in spite of its pathologically benign feature.[7] The hypervascular nature of the tumor necessitated pre-operative angiography because of vascular blood supply, and if pre-operative embolization is performed, the tumor can be resected safely and easily with the least bleeding.[10,11] We requested only CT scan as imaging and due to her poor economic status, she refused to do other techniques.

Osteoblastoma behaves in a benign fashion and most authors recommend that it should be treated conservatively, e.g. using curettage and partial resection.[4,7,10,11] Although total resection is the technique of choice, the site of lesion does not permit this and increases the chance of morbidity and mortality.[4,8] This case was treated only with curettage and it would seem to be enough as a conservative management. There is no role for adjuvant radiotherapy and chemotherapy in osteoblastoma, so radiotherapy is not recommended unless there is local recurrence.[8] However, radiation may induce malignant degeneration of a previously benign tumor.[11]

The general condition of this patient is good and she lives without any neurologic deficit. It seems that the growth of tumor has been stopped, so it is evident that most often such growths are self limiting.

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Conflict of interest: None declared.

References

1 Ohkawa M, Fujiwara N, Tanabe M, Takashima H, Satoh K, Mori Y, Honjo Y, Nagao S. Benign Osteoblastoma of the Temporal Bone. *AJNR Am J Neuroradiol* 1997; **18(2)**:324-6. [9111670]

2 Low Y, Foo CL, Seow WT. Childhood temporal bone osteoblastoma: a case report. *J Pediatr Surg* 2000; **35(7)**:1127-9. [10917313] [doi:10.1053/jpsu.2000.7843]

3 Ronis ML, Obando M, Bucko MI, Liebman EP. Benign Osteoblastoma of the Temporal Bone. *Laryngoscope* 1974;**84(5)**:857-62. [4827589] [doi:10.1288/00005537-197405000-00016]

4 Ugur HC, Torun F, Kanpolat Y. Petrous bone osteoblastoma invading the cavernous sinus. *J Clin Neurosci* 2005;**12(4)**:489-92. [15925793] [doi:10.1016/j.jocn.2004.06.016]

5 Khashaba A, De Donato G, Vassallo G, Landolfi M, Russo A, Taibah A, Sanna M. Benign osteoblastoma of the mastoid part of the temporal bone: case report. *J Laryngol Otol* 1995;**109(6)**:565-8. [7643005] [doi:10.1017/S0022215100130737]

6 Gibson SE, Prayson RA. Primary Skull Lesion in the Pediatric Population: A 25-Year Experience. *Arch Pathol Lab Med* 2007;**131(5)**:761-6. [17488162]

7 Shimizu N, Sakata K, Yamamoto I. Benign osteoblastoma of the temporal bone: Case report and review of

the literature. *Surg Neurol* 2006; **66(5)**:534-8. [17084206] [doi:10.1016/j.surneu.2006.02.044]

8 Potter C, Conner GH, Sharkey FE. Benign Osteoblastoma of the Temporal Bone. *Am J Otol* 1983; **4(4)**:318-22. [6859240]

9 Tsuchida T, Nagao S. Benign osteoblastoma of the temporal bone: MRI. *Neuroradiology* 1995;**37(4)**: 326-7. [7666973] [doi:10.1007/BF00588348]

10 Tawil A, Comair Y, Nasser H, Hourani R, Rebeiz J, Chamoun R. Periosteal osteoblastoma of the calvaria mimicking a meningioma. *Pathol Res Pract* 2008;**204(6)**:413-22. [18359169][doi:10.1016/j.prp.2008.01.005]

11 Doshi SV, Frantz TD, Korol HW. Benign Osteoblastoma of the Temporal Bone: Case Report and Review of the Literature. *Am J Otolaryngol* 2001;**22(3)**:211-4. [11351292] [doi:10.1053/ajot.2001.23432]