

## A rare case of petrous apex osteoma

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### Abstract

Osteomas are the most common tumours of the cranial vault and facial skeleton. Temporal bone osteoma is a rare entity. An osteoma arising from the petrous apex is extremely rare. We present a case of osteoma arising from the petrous apex followed by a discussion of the etiology, presentation, and radiologic findings.

**Keywords:** Petrous bone, Osteoma, Computed tomography.

### Introduction

Osteomas are benign head and neck neoplasms and are usually seen in the frontoethmoidal region. Temporal bone osteomas are rarely seen.<sup>1</sup> Petrous osteomas are seen even less. We will discuss the etiology, clinical and radiological findings of a petrous apex osteoma.

### Case Report

An 18 year old female presented with headache of 6 months which got worse in the last month. Neurological examination, haemogram and routine biochemical parameters showed no abnormality. On CT head and 3D reconstructions of skull base images, an osseous lesion, originating from the left petrous bone and pressing on the brain stem, was found (Figure). There was no complication in our patient, therefore she was advised to follow. No complications were observed in a 2-year follow up of the patient.

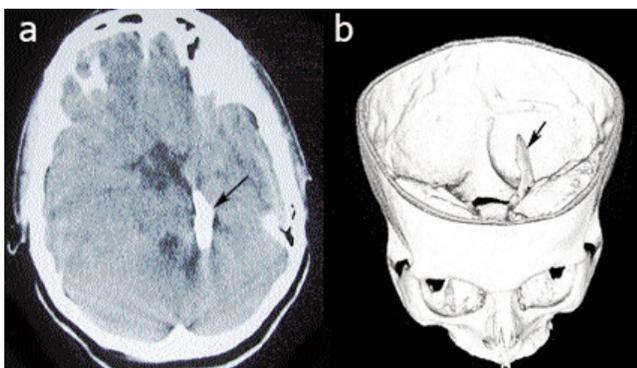


Figure: Axial plain CT image (a) and coronal 3D-CT image (b) of the skull revealing the osteoma arising from the petrous bone.

### Discussion

Osteomas are most commonly seen in the frontoethmoidal region in the head and neck region. Although it is seen more rarely, temporal bone osteomas can originate from other regions such as squamous and mastoidal parts, internal and external auricular canals, glenoid foss, middle ear, eustachian tube, petrous apex and styloid process.<sup>1-3</sup> Denia et al reported that extracanalicular osteomas of temporal bone most commonly originate from the mastoid part.<sup>4</sup> In our case, osteoma originates from the left petrous bone. Petrous bone osteomas are the rarest osteomas of temporal bone.

Data about the pathogenesis of osteomas is controversial. Three theories were identified, namely embryologic, infectious and traumatic. In the embryologic theory, it is assumed that osteomas originate from periosteal embryologic cells or embryologic cartilage cells at the junction of cranial vault bones. Infections as tuberculosis and syphilis and sinus drainage disfunction supports infectious theory. In the traumatic theory, a head trauma is usually found in patient's history. In 30% of osteoma cases, history of head trauma is found. According to some authors, post-traumatic physiological changes and inflammation may trigger metaplastic processes of osteogenic cells.<sup>5</sup> In our case, there was no trauma and infection. It has also been reported that temporal bone osteomas are seen twice more in women than men.<sup>4</sup> In our case the patient was also a female.

Cranial vault osteomas are rarely symptomatic. Most common clinical symptom is headache. It can erode and deform cranial vault. As a result, complications such as intracranial air, rhinorrhea, meningitis and brain abscesses can occur.<sup>6,7</sup> In our case, the only clinical symptom was headache and no complication was seen. In imaging of osteomas, conventional radiography, bone scintigraphy and computerized tomography are useful techniques. A three-dimensional CT scan is particularly helpful in demonstrating the exact dimensions of the osteoma and its relation to other structures.<sup>8</sup> Osteomas are sessile, well-circumscribed, protruding osseous lesions in radiographic techniques.

Osteomas are treated by surgical resection or clinical follow up. Its surgical indication depends upon several factors, amongst which the extension volume, symptomatology and complications are most important. When small and

asymptomatic they are submitted to conservative treatment, clinically monitored and followed up with computed tomography, and in cases of constant pain, neurological symptoms and extension to adjacent structure or esthetic alterations, the surgical approach is indicated.<sup>1,3</sup> There was no complication in our patient, therefore follow-up was advised.

Radiographically, the differential diagnosis of osteomas includes other benign bone-forming lesions such as osteoid osteoma, benign osteoblastoma, ossifying fibroma, fibrous dysplasia, osteochondroma, chondroma, calcified meningioma, isolated eosinophilic granuloma, giant cell tumour, and malignant lesions such as osteosarcoma and osteoblastic metastasis.<sup>8</sup>

Consequently, petrous bone osteomas are rarely seen benign tumours. Radiographic techniques provide useful information in detection of osteomas.

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