

PERIPHERAL OSTEOMA OF THE BASE OF THE SKULL: A CASE REPORT

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Abstract:

Osteoma is usually a slow growing, asymptomatic benign boney neoplasm that occurs most commonly in the paranasal sinuses and the mandible. Osteoma treatment depends on the size and the location of the lesion and the symptoms it is causing. Treatment options include surgical excision, debulking, shaving, condylectomy, or no treatment with observation. We are reporting a case of 56-year-old female who presented with a peripheral osteoma of the base of the skull of a considerable large size with a history of dizziness and tinnitus. However, in this case, surgical intervention was not done due to the sensitive anatomical location and the size of the lesion.

Key words: *Peripheral Osteoma, Osteoma.*

Introduction

Osteoma is a benign boney neoplasm that mostly occurs in the skull bones and rarely in other bones. ⁽¹⁾⁽²⁾⁽³⁾ It consists of mature cancellous or compact bone. ⁽¹⁾⁽²⁾⁽³⁾ It is either periosteal osteoma that originate from the surface of the bone, or endosteal osteoma that occurs centrally

within medullary bone.⁽²⁾⁽³⁾ Generally, it is discovered during the second to fifth decades of life, but it also can be found in any age.⁽¹⁾⁽²⁾ Males are usually affected more than females.⁽²⁾

Osteomas have a predilection to occur in the mandibular body, condyle and paranasal sinuses.⁽³⁾⁽⁴⁾⁽⁵⁾ Although osteomas are usually asymptomatic and present as slow solitary bony expansion⁽¹⁾⁽²⁾⁽³⁾, minority of cases reported pain, tooth impaction, tooth displacement, dizziness and sometimes may grow to a considerable size to cause facial deformity.⁽³⁾⁽⁶⁾ Other complications such as proptosis, decreased visual acuity and diplopia are present when paranasal sinuses are involved.⁽³⁾⁽⁷⁾ Infrequently, more serious life-threatening complications may occur when extended intracranially that might cause meningitis, cerebral abscess or intracranial mucoceles.⁽³⁾⁽⁸⁾

Radiographically, they appear well-circumscribed sclerotic radiopaque masses.⁽²⁾⁽³⁾ Histologically, the compact osteomas consist of bone marrow spaces in dense compact bone, while cancellous osteomas consist of trabeculae of lamellar cancellous bone with fibrofatty marrow.⁽²⁾⁽³⁾ Osteoma treatment depends on the size and the location of the lesion and the symptoms it is causing, treatment options include surgical excision, debulking, shaving, condylectomy, or not treatment with observation.⁽³⁾⁽⁸⁾⁽⁹⁾⁽¹⁰⁾⁽¹¹⁾

Case Presentation

A 56-year-old female patient was referred in 2019 to the dental hospital at Imam Abdulrahman Bin Faisal University, for the evaluation of bony mass at the base of the skull seen on radiograph. The patient reported a history of dizziness 28 months ago, lasted for 4 months followed by tinnitus in the right ear. Her medical history did not reveal any systemic diseases or abnormalities. She also has no significant family medical history.

Upon extra-oral examination, everything was within normal limit except for slight mouth deviation to the left side when opening her mouth. No facial asymmetry was noticed. Intra-oral examination did not reveal any abnormality.

An orthopantomogram examination was done, it revealed a well-circumscribed, uniformly radiopaque, round mass on right TMJ region overlapping space of the condyle, part of sigmoid notch and glenoid fossa. The condyle on the left side appears hypoplastic in size in comparison to the right condyle. Flattening of condylar head with slight inferior displacement of the condyle can be appreciated on the right side. The condyles on both sides appear hyperplastic which make the coronoid processes appear relatively larger bilaterally. The sigmoid notch also appears to be larger in size on the right side in comparison to the left (Figure-1).

CT study revealed a hyperdense mass on right TMJ region measuring 4.43 cm mediolaterally and 3.32 cm antero-posteriorly (Figure-2 a,b). Serial axial slices show well-defined hyperdense lobulated mass appearing to be formed around the condyle and with uniform radiodensity

including the glenoid fossa superiorly to slightly beyond the sigmoid notch inferiorly; obliterating both the anatomical structures. The lobulated mass extends lateral to the right condyle and medial to the right zygomatic arch and extends along most part of the petrous part of temporal bone posteriorly and the greater wing of sphenoid anteriorly (Figure-2c).

Coronal and axial serial slices show the hyperdense mass to be continuous with the glenoid fossa and part of temporal bone at base of the skull. However, no slice shows a breach in the inner table of the greater wing of sphenoid and the petrous part of temporal bone, thus, confining the mass exterior to the cranial cavity. Coronal slice shows loss of cortical integrity of the superior surface of the condylar head. Both the condyles do not appear at the same level with the right condyle being slightly inferiorly displaced than the left (Figure-3a,b).

There is a hypodense area between the head of the condyle and the mass separating the two. This might indicate an intact joint space (figure 4a). The internal structure of the entire mass is predominantly hyperdense with an exception of a fraction of inner most part being hypodense (figure 4b).

Based on the clinical and radiographic findings, a provisional diagnosis of peripheral osteoma of the base of the skull was made. Since the lesion is occupying a dangerous zone, there was a concern regarding complete excision of the lesion. A biopsy was recommended to confirm the diagnosis and to rule out other lesions.

Histological examination revealed fragments of mature normal compact bone (figure 5), supporting the diagnosis of osteoma.

Discussion

Base of the skull is not a common location for the development of peripheral osteoma, there are few reported cases in such anatomical location.⁽¹⁰⁾⁽¹¹⁾⁽¹²⁾ Gnathic osteoma shares a common symptoms and manifestation depending on their location and size, these manifestations range from being asymptomatic, facial swelling or asymmetry, pain, tenderness, headache, limited mouth opening or mandibular movement, and mandibular deviation.⁽²⁾⁽³⁾⁽¹⁰⁾⁽¹¹⁾⁽¹²⁾ Some rare symptoms has been reported in the literature as well like seizures, meningitis, dizziness, and tinnitus.⁽⁶⁾⁽⁸⁾ In our case the patient presented with a sign of mouth deviation to the left and history of dizziness and tinnitus of the right ear. While mouth deviation is a common finding with gnathic osteoma, dizziness and tinnitus on the other hand are usually associated with auditory canal osteoma, which is not the case with our patient, but we still believe that these symptoms are associated with the presented lesion, especially that the osteoma and the tinnitus are both on the right side.

Choosing the modality of how to treat peripheral osteoma depend on several factors, these include the location and size of the lesion, associated signs and symptoms, and patient

preferences.⁽³⁾⁽¹⁰⁾⁽¹¹⁾ In our case, a decision of not to intervene surgically with periodic follow up of the patient was made due to the anatomical location and the size of the lesion. This was to allay the concern of leaving the patient with more serious disabilities and complications after surgery.

Conclusion

Diagnosis of benign bony lesions may be challenging and may require more advanced radiographic imaging to give better view and understanding of the lesion. Even after reaching a definitive diagnosis of such lesions, treatment might not be the best option available for the patient since some of these lesions occur in unfavorable anatomical location. Operating in such anatomical location might leave the patient with disabling complications.

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Figure-1: OPG showing large radiopacity in the right temporomandibular joint

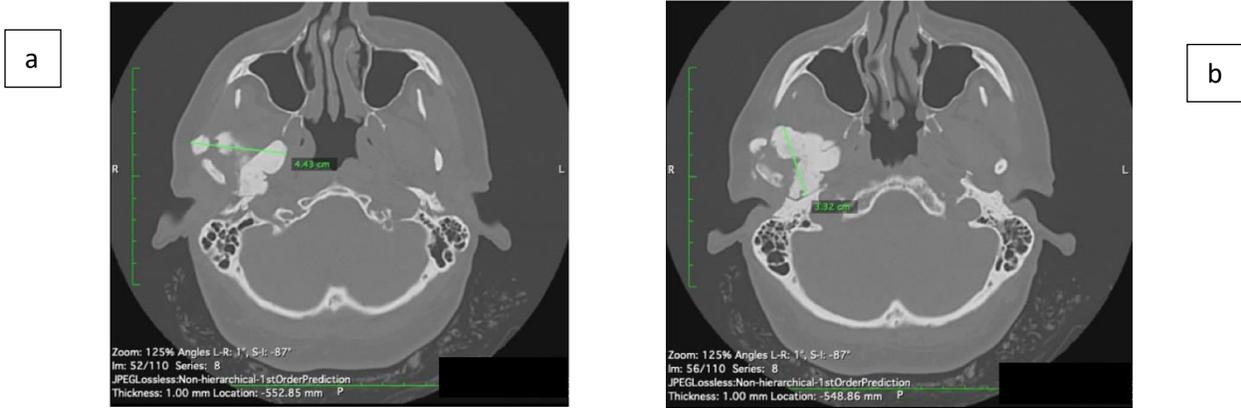


Figure-2a,b: Axial CT slices showing hyperdense mass of size 4.43 X 3.32 cm mediolaterally in right condylar region involving the sphenoid and temporal bones

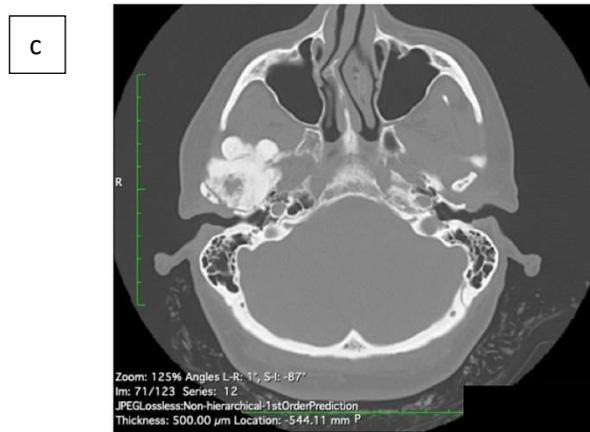


Figure-2c: Multiple hypodense areas, within the mass

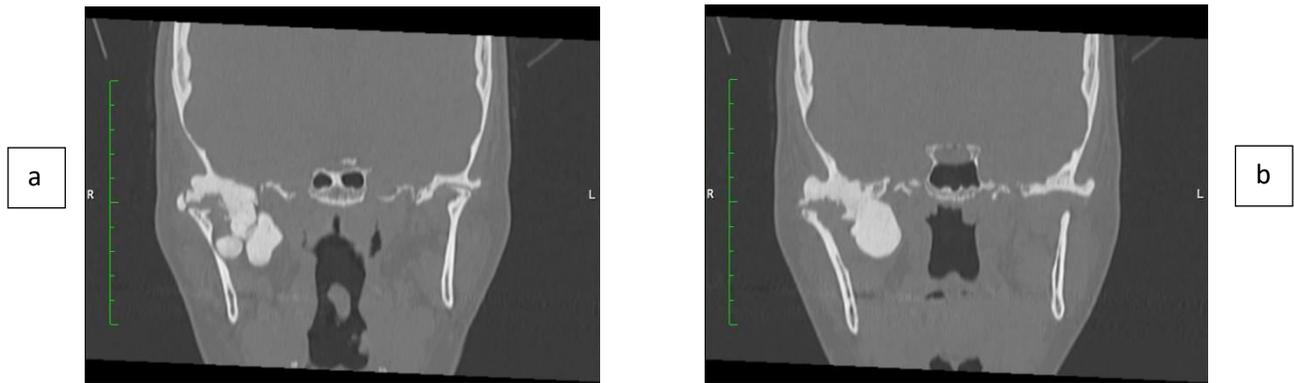


Figure-3: (a), Note the altered surface of condylar head; (b), Supero-inferior extent of the hyperdense mass. Note the inferior extension of the mass in lateral and medial pterygoid areas.

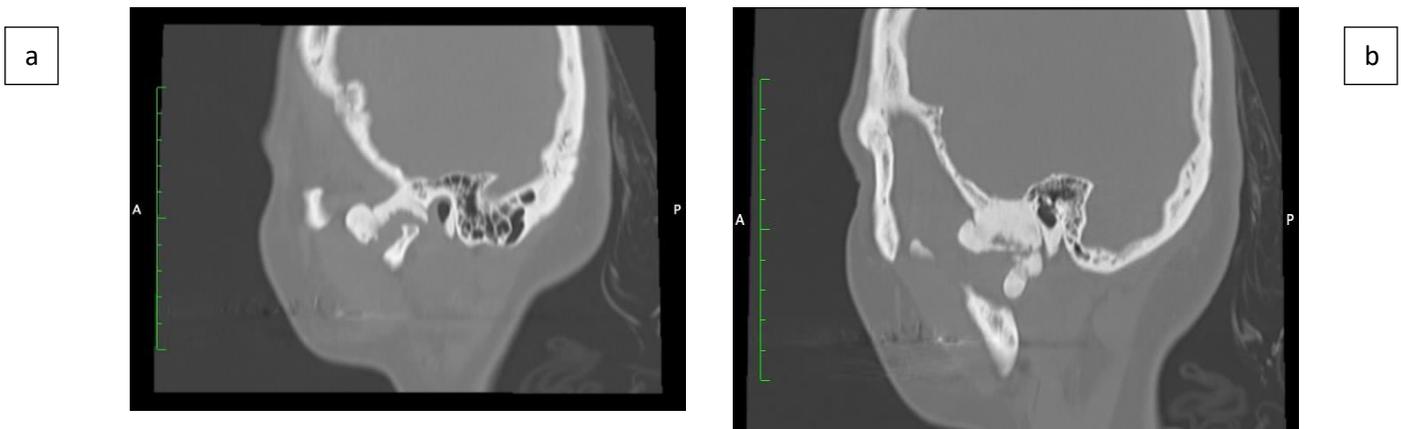


Figure 4a: Hypodense area superior to condylar head

Figure 4b: Hypodense areas within the mass

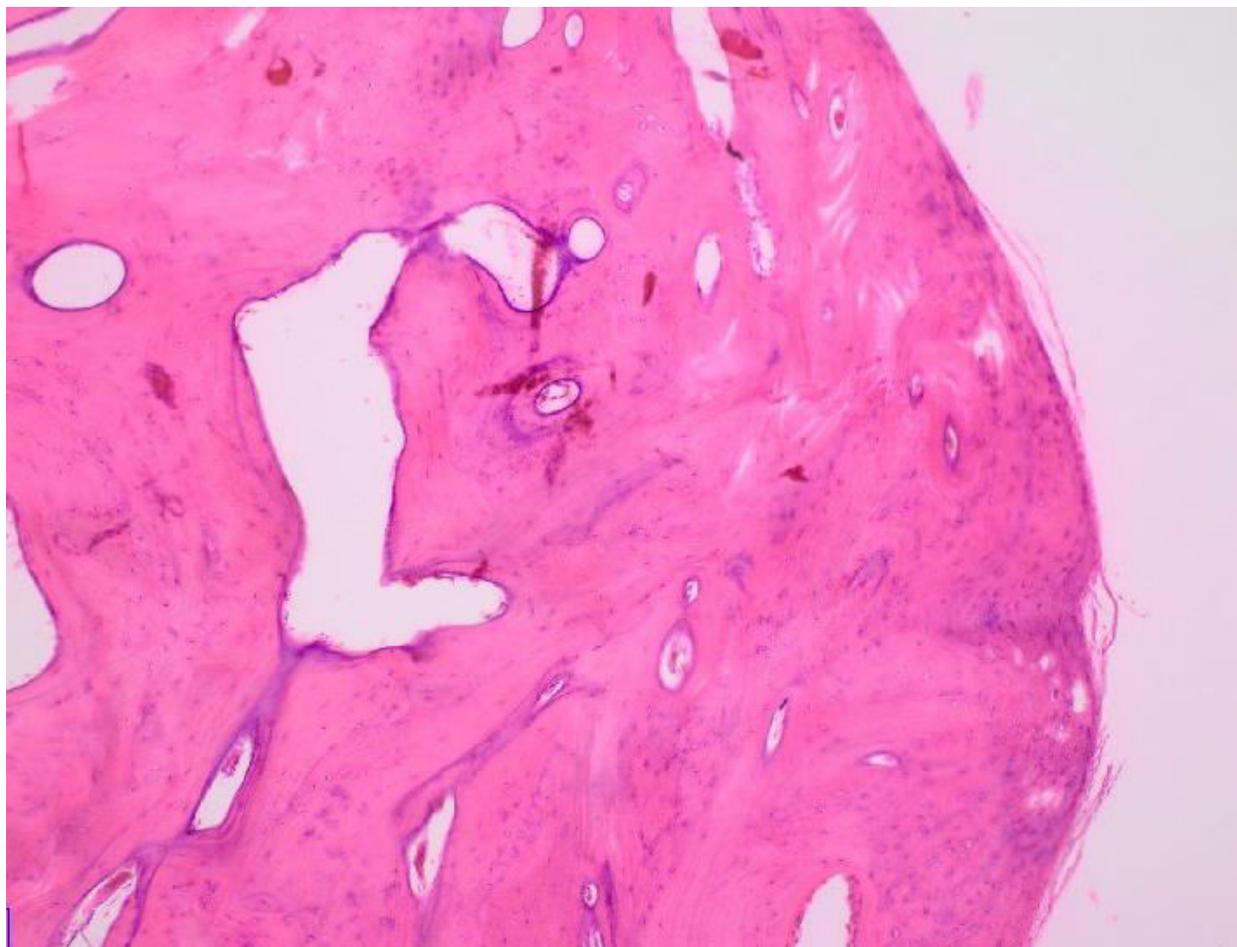


Figure-5: Photomicrograph showing tumor mass consisting of dense compact bone (H&E stain, x10 magnification).