

## Case Report

# A Very Rare Benign Giant Osteoma in Temporo-parieto-occipital Region

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### Abstract:

*Osteoma is a slow growing benign mesenchymal osteoblastic tumor formed by mature bone tissue. The most common site reported is the fronto-ethmoidal region and neighboring sinuses. Involvement of the temporal and occipital squama is extremely rare. Like giant osteomas in other locations of the skull, they can reach large volumes but are essentially benign and potentially curable by excision. The author present a case of giant osteoma in Temporo-Parieto-Occipital region in a teenage girl.*

**Key word:** Osteoma, Temporo-parieto-occipital region, Giant

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### Introduction

Osteomas in the parietal occipital and mastoid regions are exceptionally rare. Asymptomatic in most of the cases, patients may present with esthetic issues or symptoms of external auditory obstruction<sup>1,4</sup>. Computed tomography is the gold standard for diagnosis [5]. The main aim of the radio imaging is to rule out invasion of the inner table of the calvarium and its intracranial extension of the lesion<sup>1</sup>. Complete

excision in the symptomatic and giant osteomas is the therapeutic goal<sup>4</sup>.

### Case Report

A 18-year-old female from Mymensing, Bangladesh reported to the Neurosurgery OPD of Dhaka Medical Collage Hospital with a slowly progressive swelling on the right side of her head for more than 5 years. It was gradually increasing in size. There was no history of trauma, headache, hearing impairment, otorrhea,

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dizziness, vomiting, visual trouble, or neurological deficit or similar swellings elsewhere in her body. It slowly progressed in size over time. Once it attained a massive size, she and her family think for medical advice. There were no important past medical or surgical illnesses. Her bladder and bowel habits were normal.

On examination it was sessile bony growth which was bilobed and communicated to each other. The larger



Fig.-1:

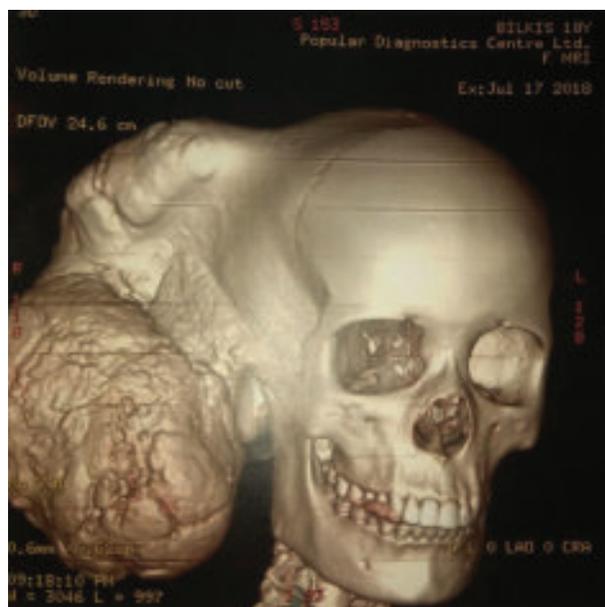


Fig.-2:



Fig.-3:

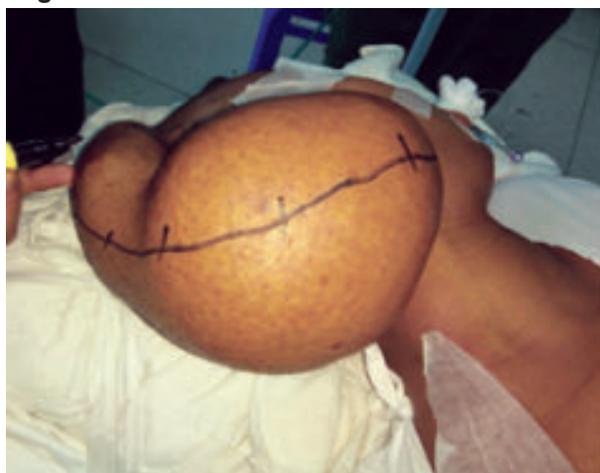


Fig.-4:



Fig.-5:

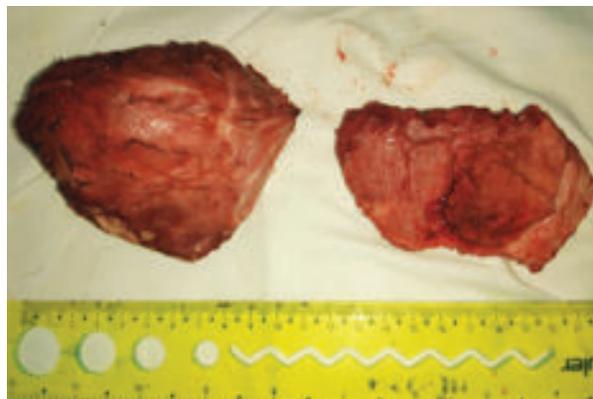
one is about 26×23×10cm in dimension and the small one is 13×9×5cm in dimension. Both of them are smooth, bony hard, and non-tender. The skin overlying the lesion was normal. The margin of the lesion was clearly demarcated.

Her CT scan with 3D reconstructions (Figure 2) head revealed a bony mass in the right parietal, right temporal and upper part of squamous part of the occipital bone with same measurement. It originated from the outer table of the skull with no evidence of destruction of the inner table or extension of the mass intracranially. Hence, a diagnosis of osteoma was made.

Surgical excision was carried out for cosmetic purposes using Gigli saw and a small part by chisel. The osteoma was sessile not pedunculated. It was arising from the outer table. The bleeding from the base was controlled with the application of a bone wax. The mastoid air cells were tried not to violate and open. The inner table of the bone was removed to prevent recurrence. The gross specimen (Figure:6&7) was smooth, ivory white in appearance. We remove the osteoma by piece meal fashion. The largest one was about 17×15×8 cm in dimension (Figure 6). The histopathology report was osteoma composed of compact bone. The patient had csfotorrhoea which was treated by lumbar drain with no recurrence in the 2-month follow-up.



**Fig.-6:**



**Fig.-7**



**Fig.-8:**



**Fig.-9: Post-operative picture.**

## Discussion:

Osteomas are slow growing benign mesenchymal osteoblastic tumor formed by mature bone tissue<sup>5</sup>. Stuart first defined osteoma as a benign, circumscribed, slow-growing bony tumour<sup>1</sup> of mastoid. Osteomas, constituting 0.1–1% of all benign skull tumors, are extremely rare<sup>6</sup>. The most common site reported is the frontoethmoidal region and neighboring sinuses. Involvement of the temporal and occipital squama is extremely rare<sup>8</sup>. Most often they are localized on sutures. Osteomas larger than 3 cm are termed giant osteomas<sup>9</sup>. They are also common in the frontoethmoidal region with above 40 cases reported in the literature<sup>10,11</sup>. Only few cases of giant osteomas involving the occipital region<sup>2,3</sup>, posterior skull base<sup>12</sup>, and the atlas<sup>4</sup> have been reported in the literature so far. Etiology of the entity includes trauma, previous surgery, radiotherapy, chronic infection, and hormonal factors<sup>13</sup>. They may be a reliable marker for early detection of carriers of Gardner syndrome<sup>14</sup>. They are mostly asymptomatic, but they can present with deformity, swelling, pain, deafness, and chronic discharge<sup>15</sup>. The main clinical symptom is headache of varying intensity and quality, and in most cases not proportional to the size of the osteoma, which ranges from the size of a pepper bean to the size of a child's head. Computed tomography is the imaging modality of choice which demonstrates a rounded bony lesion on the mastoid outer cortex having distinctive margins with sessile or pedunculate base<sup>16,17</sup>.

The main differential diagnosis includes osteosarcoma, osteoblastic metastasis, isolated eosinophilic granuloma, ossifying fibroma, Paget's disease, giant cell tumor, osteoid osteoma, hemangioma, calcified meningioma, and monostotic fibrous dysplasia<sup>5,18–21</sup>. However, edges of these lesions are generally less distinct compared to the osteomas.

Osteomas are resected only if they are symptomatic or else for cosmetic reasons. Surgery is indicated in cases of deafness, discharge, dizziness and headache.<sup>2</sup> The surgical target must be outlining normal cortical bone all around the lesion. Because these lesions are limited to the external cortex, finding a plane of cleavage between the osteoma and normal bone is not difficult<sup>22</sup>. If mastoid air cells are exposed, a cortical mastoidectomy should be done [23]. Partial excision is justified if there is an extension to either facial nerve, bony labyrinth, or the fallopian canal<sup>24</sup>.

<sup>25</sup>. In such invasive scenario, damage to the facial nerve, tearing of the sigmoid sinus, and postoperative auricular discharge may complicate the postoperative course<sup>13</sup>.

Histologically, osteomas are composed of well-differentiated, mature bone characterized by dense lamellae with organized Haversian canals. Histologically, there are three different subtypes: compact, spongiotic, and mixed<sup>25</sup>.

The prognosis of the osteoma may be considered the best in terms of cosmetic and curative aspects provided complete excision is undertaken. Malignant transformation has not been reported yet<sup>24</sup>. The recurrence is also uncommon as only two cases have been reported so far<sup>26</sup>.

In young patients with skull osteomas, complete workup needs to be done to rule out Gardner syndrome by screening for the concurrent presence of intestinal polyps, soft tissue tumors, and dental abnormalities<sup>27</sup>.

## Conclusion

Giant occipital osteomas have been rarely reported in the literature. Like giant osteomas in other locations of the skull, they can reach large volumes but are essentially benign and potentially curable by excision. Proper assessment of its extension especially when it is in the vicinity of the mastoid and the suboccipital regions is imperative to providing complete excision and limiting postoperative complications.

## Consent

Both written and verbal consent for publication of images and clinical data related to this case were sought and obtained from the guardian of the patient.

## Competing Interests

The authors declare that there are no competing interests

## Authors' Contributions

Professor Dr. Asit Chandra Sarker reviewed the literature, designed the study, formatted the paper, revised, edited and approved the final format.

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