

## Case Report

# Osteoma of mastoid part of right temporal bone with right naschoanal polyposis: a rare case report

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**Received:** 29 July 2018

**Revised:** 30 November 2018

**Accepted:** 01 December 2018

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## ABSTRACT

Osteomas are benign mesenchymal osteoblastic tumors of lamellar bones. In our practice, they are usually seen in the paranasal sinuses, mainly involving the frontal and ethmoidal sinus. Osteoma of the temporal bone is uncommon and when they occur, they are most commonly seen in the external auditory canal. Mastoid osteomas are a rare entity with incidence of 0.1 - 1% of all benign tumors of skull. They are slowly growing and usually asymptomatic. We report a rare case in a 28 years female patient who presented to us with right postauricular bony swelling of size 2.5×3 cms along with bilateral nasal obstruction. Patient was analyzed for her clinical condition, imaging details, treatment and surgical plan. Diagnosis of right mastoid osteoma with right naschoanal polyposis was made after non-contrast computed tomography of temporal bone and paranasal sinuses respectively. Complete surgical excision of the osteoma along with endoscopic removal of the polypoidal tissue was done with good cosmetic outcome without recurrence.

**Keywords:** Mastoid osteoma, Nasochoanal polyposis, Computed tomography, Surgical excision

## INTRODUCTION

The term osteoma is reserved for a well-defined, slowly growing tumor composed of osseous tissue generally found in the skull, paranasal sinuses and the mandible. Mastoid osteomas are a rare entity with incidence of 0.1 - 1% of all benign tumors of skull.<sup>1</sup> Its etiopathogenesis includes factors like trauma, hereditary, post radiation and chronic infection.<sup>2</sup> Computed tomography scan of the temporal bone is key investigation for its diagnosis.<sup>3</sup> Osteomas are usually asymptomatic but occasionally present with pain due to their growing size.<sup>4</sup> In such cases, surgical excision is the plan of action as it has shown good results from both aesthetic and curative angle.<sup>5</sup> In mastoid osteomas extending into facial canal and bony labyrinth subtotal excision is indicated to

prevent damage to these structures leading to facial nerve palsy and sensorineural hearing loss respectively.<sup>6</sup>

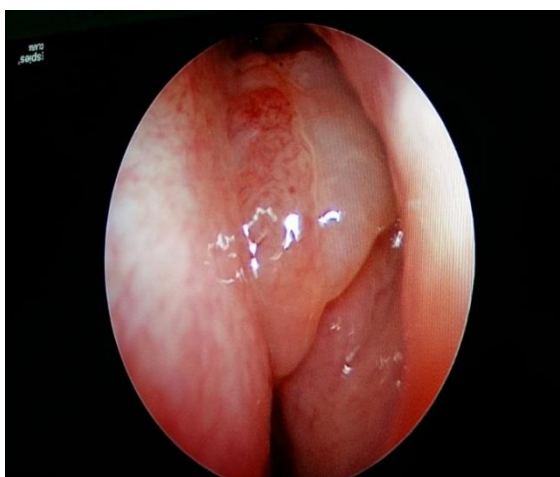
## CASE REPORT

A 28 years old female presented to ENT outpatient department at Bapuji hospital, JJMMC, Davangere, with chief complaints of a hard swelling in the right postauricular region since 8 years and bilateral nasal obstruction, more on the right side since 3 months. She had noticed the swelling 8 years ago during her routine work, which was then small size and was not associated with pain. The swelling had grown progressively to present size and is associated with on and off type of pain in the last 2 years. She also complained of nasal obstruction on both sides for past 3 months. It was partial in nature on left side while complete type on the right.

The obstruction was present constantly throughout the day. On examination, there was a single globular shaped swelling with smooth margin of approximate size (2.5×3.0) cm at right post auricular region (Figure 1).



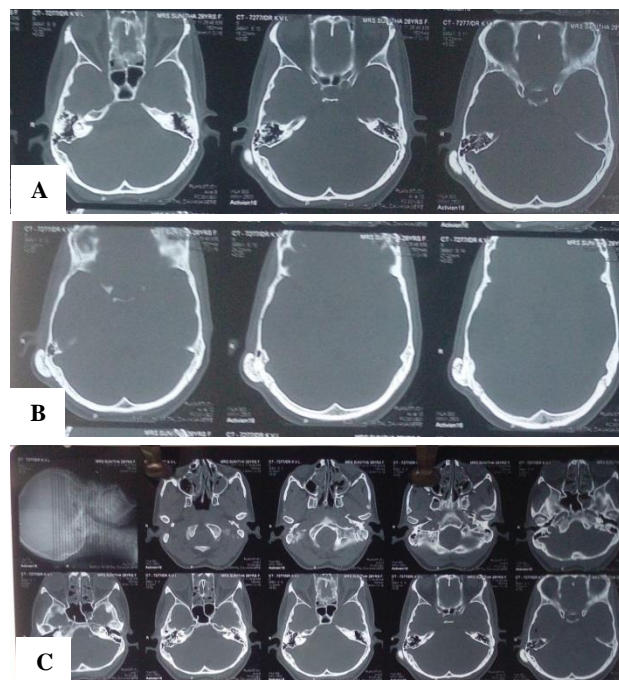
**Figure 1: Preoperative view of the bony lesion.**



**Figure 2: DNE (diagnostic nasal endoscopy) image showing pale, glistening, polypoidal mass in the right nasal cavity.**

Swelling was hard in consistency, covered with skin, mild tenderness was present and its base fixed to underlying bone. Surrounding area was normal. No past history of trauma or infection. Otoscopic examination and tuning fork test were normal. Neurological examinations: normal. There was no other similar swelling in the skull. On diagnostic nasal endoscopy (DNE), a single polypoidal mass was noted filling the right nasal cavity extending up to the choana (Figure 2) with left sided deviated nasal septum. HRCT of the temporal bone showed a bony protuberance measuring (21\*23\*9.6 mm) arising from the right mastoid cortex without involvement of the inner table of temporal bone (Figure 3 A and B). Mastoid pneumatization was normal on both sides. CT Nose and PNS (plain) showed homogenous polypoidal tissue filling the right nasochoanal region with inflammatory mucosal thickening in both the maxillary, ethmoidal and sphenoid sinuses (Figure 3C). Left sided deviated nasal septum was also present. Surgical

resection of the mastoid osteoma was performed followed by endoscopic clearance of the polypoidal tissue from the affected sinuses. At the end septoplasty was done to correct the deviated nasal septum. Histopathological reports confirmed the diagnosis of mastoid osteoma and polypoidal tissue in right nasal cavity. No local recurrence was observed during the follow up period of 6 months post surgery. Patient was satisfied with cosmetic outcome.



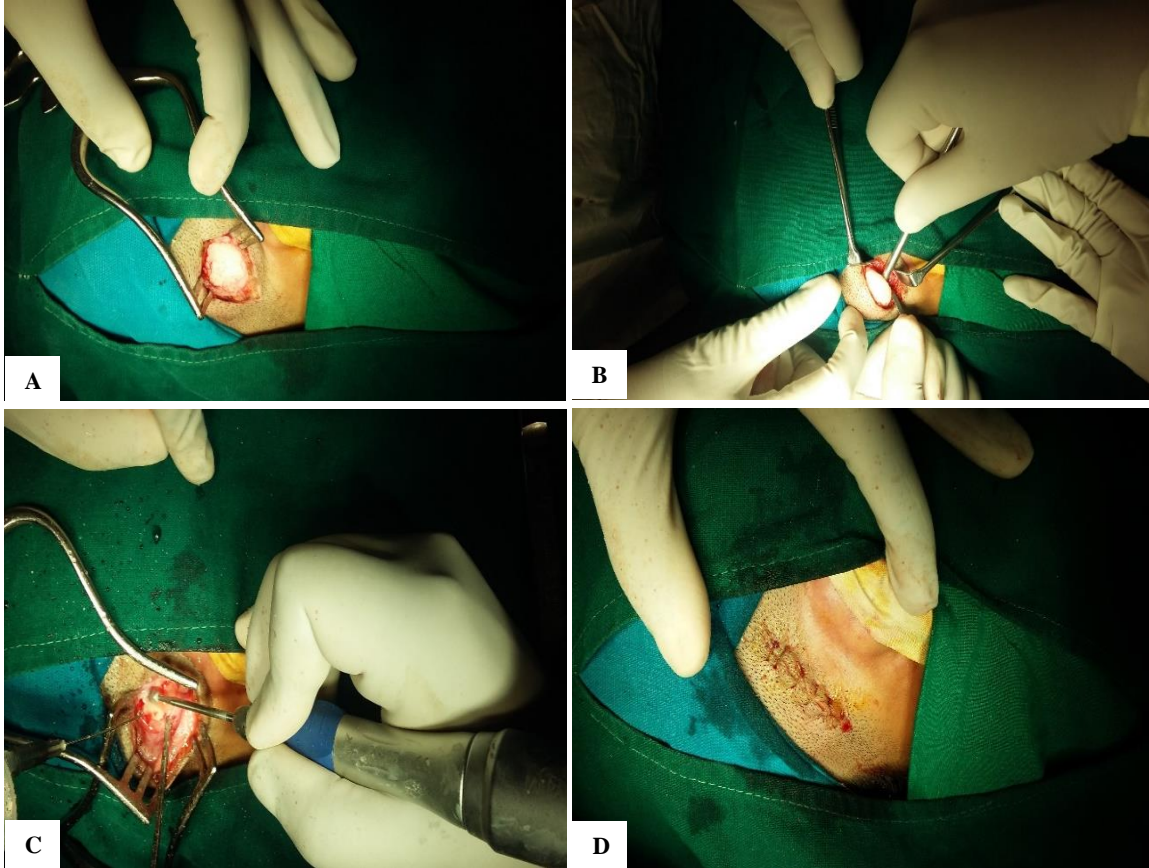
**Figure 3: (A) HRCT showing bony protuberance from the right mastoid bone with normal mastoid pneumatization on both sides; (B) Axial view showing pedunculated dense osteoma arising from outer cortex of right mastoid bone; (C) CT PNS showing: Deviated nasal septum towards left side, along with polypoidal inflammatory mucosal thickening in both ethmoidal sinuses and maxillary sinuses.**

### *Operative procedure*

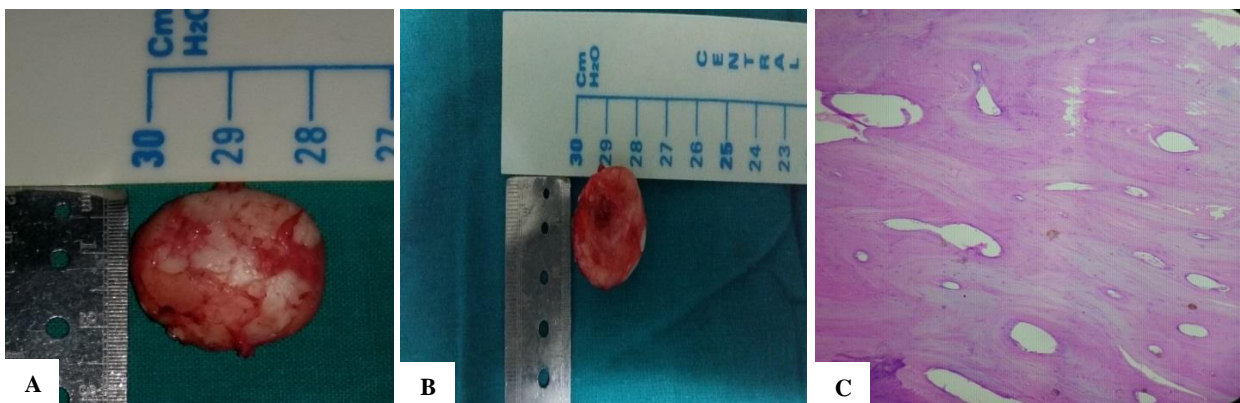
Intraoperatively, a modified postauricular incision was given over the swelling, 4cm behind the post auricular groove and incision deepened to raise the subcutaneous tissue. Later the periosteum was elevated with the help of periosteal elevator and the osteoma was exposed (Figure 4 A and B). It had a pedunculated base in which there was a slit separating the lesion and the mastoid cortex. It was removed from base with the help of hammer and chisel and the mastoid cortex was then drilled and smoothed (Figure 4C). The wound was closed in layers and skin sutures applied (Figure 4D). The osteoma measured 2.1×2.3 cms (Figure 5 A and B). Then endoscopic clearance of polypoidal tissue from the right nasochoanal region was performed with wide maxillary antrostomy. Viewed the maxillary antrum with 45 degree endoscope. No remnants left. Submucous resection

(SMR) of the deviated nasal septum was done. Postoperatively bilateral nasal cavity packing was done and patient was kept under observation for next two days. Post aural sutures were removed after 1 week. Wound was healthy with good cosmetic outcome. Histopathology

reports confirmed the clinical diagnosis, revealed mature osteoma (Figure 5C) and polypoidal soft tissue. She was under regular follow up for next 6 months and no recurrence was seen.



**Figure 4:** (A) Exposure of the right mastoid osteoma; (B) Exposure of the base and cutting the osteoma from its base; (C) Cutting the mastoid from its base and finally the edges of the bone were polished with a diamond burr; (D) Wound closed in layers.



**Figure 5:** (A) Convex surface of the osteoma; (B) Concave surface of the osteoma; (C) Microscopic image of mature osteoma.

## DISCUSSION

Osteomas are benign tumors of the lamellar bones.<sup>7</sup> In our practice, they are commonly seen arising from the paranasal sinuses usually frontal and ethmoidal sinuses. Osteoma of the temporal bone is infrequent and if seen, they occur commonly in the external auditory canal. Osteomas originating from the middle ear is still rarer and one arising from the mastoid is rarest. Mastoid osteomas as discussed in this case has the incidence of 0.1-1% of all head and neck tumors, has a higher incidence in females between 20-30 years age.<sup>8</sup> They are usually slow growing and asymptomatic.<sup>9</sup> Our patient is 28 years old female, who presented with a right mastoid bony swelling which was painful on superficial and deep palpation.<sup>10</sup>

Osteoma occurrence can be divided into syndromic and non-syndromic. The presence of multiple osteomas may indicate towards a syndromic condition known as Gardner's syndrome. It is an autosomal dominant disorder comprising multiple intestinal polyps, mesentery and skin fibromas, epidermoid inclusion cysts and multiple skeletal osteomas more often in membranous bones like maxilla and mandible.<sup>11</sup> Non-syndromic osteoma etiology remains unknown and various theories has been postulated in various literature and papers such as secondary to trauma, post radiotherapy, genetic and chronic infections.<sup>12</sup>

Its differential diagnosis includes osteoblastic tumors, osteosarcoma, osteoid osteoma, ossifying fibroma, Paget's disease, giant cell tumor, fibrous dysplasia, calcified hemangiomas.<sup>13</sup> Computed tomography of temporal bone, non-contrast is the investigation of choice for temporal osteomas. Osteomas usually present as radio-opaque, smooth, rounded osteogenic growth arising from outer cortex of mastoid with regular margins. The margins of other lesions are less evident. The magnetic resonance is excellent to the inflammatory tissue around the lesion. At T1 it is hypointense and at T2 the sign intensity ranges with the histological subtype. They can show rapid growth with pain suggesting of malignancy. Rarely osteomas may involve the petrous part of temporal bone along with facial nerve and part of internal ear causing facial nerve palsy and hearing loss as a complication.<sup>14</sup>

Osteomas are broadly classified into three broad categories A) Compact B) Spongy 3) Mixed. Compact osteomas also known as ivory osteomas because of dense sclerotic bone. They lack haversian system. Spongy osteomas also known as cancellous or mature osteomas composed of trabecular bone with marrow. Compact osteomas have a wider base and grow very slowly while mature osteomas are usually pedunculated and grow relatively faster.

Surgical excision of the osteoma is the treatment of choice, though small and asymptomatic osteomas are

managed conservatively and kept under regular follow up with computer tomography scans. The patient mostly comes for cosmetic correction and when large these osteomas can cause pain and difficulty in wearing spectacles. Surgical complications like drilling into posterior cranial fossa, facial nerve damage, sigmoid sinus damage can happen while drilling large osteomas with intracranial extension or lying close to facial nerve. In such cases, aggressive postoperative medical therapy including steroids and intravenous antibiotics has to initiated.<sup>14</sup> If it is close to important structures such as the facial nerve canal or bony labyrinth, a subtotal excision is adopted to preserve function.

## CONCLUSION

Osteoma in the mastoid part of temporal bone is a rare entity as in our case. They are usually slow growing and asymptomatic. Non-contrast computed tomography of the temporal bone is the investigation of choice and surgical excision is the treatment of choice. Recurrence is rare with excellent surgical outcome. Our patient came primarily for cosmetic correction and pain as only symptom. On detailed history taking and on doing routine investigations patient was found to have right nasoschoanal polyp with left sided deviated nasal septum. Surgical excision of the osteoma with endoscopic sinus surgery with septoplasty was performed. She was kept on regular follow up for 6 months. No recurrence was observed. Patient was very much satisfied with her cosmetic and curative correction. Through this report we register about a rare case in our routine ENT practice, i.e. right mastoid osteoma with right nasoschoanal polyp with left sided deviated nasal septum.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: Not required*

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**Cite this article as:** Lokanath KV, Basu D, Kuthiala A. Osteoma of mastoid part of right temporal bone with right naschoanal polyposis: a rare case report. *Int J Otorhinolaryngol Head Neck Surg* 2019;5:202-6.