Kulak Burun Boğaz Uygulamaları 2013;1(3):135-138
doi: 10.5606/kbbu.2013.02486

Case Report / *Olgu Sunumu*

Osteoma of the mastoid region

Mastoid bölgede osteom

Çağatay Han Ülkü, Abitter Yücel

Department of Otolaryngology, Necmettin Erbakan University, Meram Medical Faculty, Konya, Turkey

Mastoid osteomas are rare, slow-growing and usually asymptomatic benign neoplasms. Treatment is surgical excision for the aesthetic reasons and the related symptoms. Osteosarcoma, fibrous dysplasia, metastatic tumors, giant cell tumors, and multiple myeloma should be considered for the differential diagnosis. A 26-year-old woman was admitted to our clinic with gradually increasing painless mass on the left postauricular region for five years. She had a trauma history and hematoma formation on the same region. The patient was asymptomatic, however complaining about the aesthetic appearance. Physical examination revealed a painless mass with bony consistency, approximately 3.5x3.0 cm in size on the left postauricular region. It was non-tender, fixed to the mastoid, hard and had smooth surface. Overlying skin was normal. Computed tomography demonstrated a bony mass arising from the mastoid cortex of the well-pneumatized left temporal bone. The mass was surgically excised by retroauricular approach for aesthetic reasons. Histopathologic diagnosis was reported as an osteoma. Postoperative period was uneventful and there was no recurrence on six-month follow-up examination.

Key Words: Mastoid; osteoma; temporal bone; treatment.

Mastoid osteomlar nadir gelişen, yavaş büyüyen ve genellikle asemptomatik benign tümörlerdir. Tedavi cerrahi eksizyon ile estetik kaygılar ve ilgili semptomlar için yapılır. Osteosarkom, fibröz displazi, metastatik tümörler, dev hücreli tümörler ve multipl miyelom ayırıcı tanıda dikkate alınmalıdır. Yirmi altı yaşında kadın hasta, sol postauriküler bölgede beş yıldır yavaş büyüyen ağrısız kitle ile kliniğimize başvurdu. Hastanın aynı bölgede travma ve hematom oluşumu öyküsü vardı. Hasta asemptomatikti, ancak estetik görüntüden şikayetçiydi. Fizik muayenede sol postroauriküler bölgede, kemik yoğunluğunda, yaklaşık 3.5x3.0 cm boyutlarında, ağrısız kitle belirlendi. Kitle ağrısız mastoid kemiğe fikse, sert ve düzgün yüzeyli idi. Üzerindeki cilt normaldi. Bilgisayarlı tomografide, iyi havalanan sol temporal kemiğin mastoid korteksinden kaynaklanan kemik yoğunluğunda bir kitle saptandı. Kitle estetik nedenlerle retroauriküler yaklaşımla cerrahi olarak eksize edildi. Histopatolojik tanı osteom olarak bildirildi. Ameliyat sonrası dönem sorunsuz geçti ve ameliyat sonrası altıncı ayda yapılan kontrol muayenesinde nüks izlenmedi.

Anahtar Sözcükler: Mastoid; osteom; temporal kemik; tedavi.

Osteomas are slow-growing and generally asymptomatic benign bone neoplasms. They are rare in the head and neck and generally arise from paranasal sinuses, especially in the ethmoidal and frontal regions.[1]

Temporal bone osteomas are mainly reported in the external auditory canal (EAC) and rarely in the petrous apex, internal auditory canal, middle ear cavity, temporomandibular joint or styloid process and mastoid area.[1-3] They generally progress to extracranial growth in the mastoid area and may cause a cosmetic deformity.[4] The surgical treatment must take associated concerns such as pain and cosmesis into consideration.[4-6]

To our knowledge, only 130 mastoid osteoma cases have been described in the literature up to 2004[7] and we herein report another one.

Received: November 08, 2013 *Accepted:* December 19, 2013

Correspondence: Çağatay Han Ülkü, M.D. Necmettin Erbakan Üniversitesi, Meram Tıp Fakültesi, Kulak Burun Boğaz Hastalıkları Anabilim Dalı, 42100 Meram, Konya, Turkey.
Tel: +90 532 - 317 17 65 e-mail: chanulku@yahoo.com

CASE REPORT

A 26-year-old woman was admitted to our clinic with slowly increasing painless swelling over the left postauricular region. The patient first noticed the swelling five years ago. She reported a previous head trauma and hematoma formation over the same region. The patient was asymptomatic but complaining about the aesthetic appearance. Physical examination revealed a swelling with bony consistency, about 3.5 cm in diameter over the left postauricular region (Figure 1). It was painless, not movable and hard. The surface of the swelling was smooth and overlying skin was unaffected. The rest of the ENT/general examination and audiometry were within normal limits. Computed tomography (CT) demonstrated a bony mass arising from the mastoid cortex of the well pneumatized left temporal bone (Figure 2). The patient underwent surgical excision for aesthetic reasons under general anesthesia. A retroauricular incision was used and after periostal elevation the tumor was exposed (Figure 3a). The bony tumor and its base were removed by drilling until normal mastoid air cells were reached (Figure 3b). Histopathologic diagnosis was compact osteoma. No sign of disease was present at the most recent follow-up examination six months after the operation.

Figure 1. A swelling with bony consistency, about 3.5 cm in diameter on the left postauricular region is seen.

DISCUSSION

Osteomas commonly arise from the paranasal sinuses in the head and neck region, but are rarely found in the temporal bone.[1] They can occur in all parts of the temporal bone, including the bony portion of the external auditory canal, middle ear, eustachian tube, mastoid and squamous portions, zygomatic process, glenoid fossa, petrous apex, internal auditory canal, and styloid process.[1-3]

Osteomas of the temporal bone are slowly-growing benign neoplasms, usually asymptomatic and often determined incidentally during examination for an unrelated complaint.[8] But they may produce swelling and cause asymmetry in some cases.[4-6] Intracanalicular osteomas are more common than extracanalicular osteomas in the temporal bone.[4] Ohhashi et al.[9] reported that external auditory canal osteomas occur twice as often in males whereas extracanalicular osteomas of the temporal bone occur twice as often in females. Extracanalicular osteomas of the temporal bone are most commonly located in the mastoid area.[6,10]

In 1887, Adam Politzer reported the first mastoid osteoma in the literature.[4,10] In clinical practice, mastoid osteoma is seen more often in females than males, mostly in the second and third decades of life. They are generally smaller than 3 cm on first examination.[10,11]

The etiopathogenesis and pathophysiology of mastoid osteoma usually remain unknown but embryogenesis, metaplasia, trauma, inflammation, surgery, irradiation or chronic infection, heredity, and glandular conditions such as pituitary dysfunction have been described as causes.[5,11,12]

Figure 2. Axial computed tomography scan demonstrated a bony mass arising from the mastoid cortex of the well pneumatized left temporal bone.

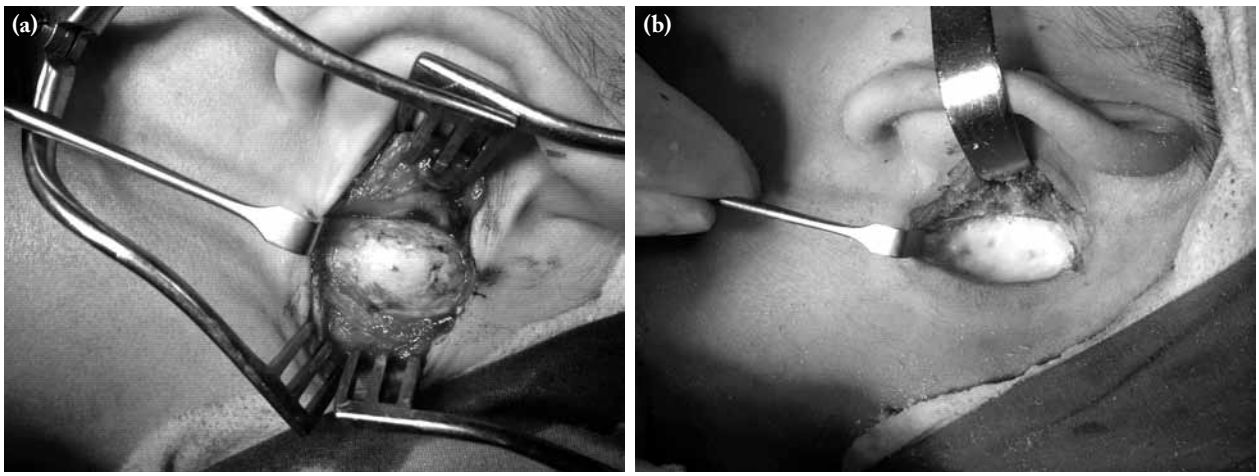

Figure 3. **(a)** After periostal elevation via retroauricular approach, the osteoma is seen. **(b)** Osteoma and its implantation base were removed by drilling and normal mastoid air cells are seen.

Clinically, mastoid osteomas are asymptomatic and may remain stable for many years but rarely cause pain or inflammation.[10,11] They generally progress to extracranial growth, producing external swelling and can cause interference with wearing glasses or cosmetic problems.[4,5] They have a characteristic hard bony consistency and are smooth on palpation with unaffected overlying skin.[10] Infrequently osteomas occur as a feature of Gardner syndrome.[5]

Mastoid osteomas generally present without signs of petrosal extension and mastoid air cells remain aerated on CT scan.[2,5] Osteomas are demonstrated as a well demarcated, dense outgrowth from the mastoid bone by CT.[12] Rarely, the osteoma can extend medially into the petrous temporal bone adjacent to the facial nerve, lateral semicircular canal or ossicles. In these cases, the anatomical relations with these structures can be determined by CT before surgical resection.[2,5,13] Radiologic evaluation also important for differential diagnosis between osteoma and other bone tumors (osteosarcoma, fibrous dysplasia, multiple myeloma, giant cell tumor etc.).[4,5,13]

Our case had a history of trauma and hematoma formation in the same region six years ago. She was asymptomatic, but complaining about the aesthetic appearance. The surface of the swelling was smooth and overlying skin was unaffected. Computed tomography demonstrated a bony mass arising from the mastoid cortex of the well pneumatized left temporal bone.

Osteomas may be divided into may be divided into three types on the basis of gross specimen examination; *(i)* non-movable, with firmly attached broad base (the most common type), *(ii)* movable, often with a pedicle or a pseudarthrosis, *(iii)* movable with no attachment.[6,14]

Histopathologically, osteomas have been classified into four types; *(i)* compact (the most common type), *(ii)* cancellous, *(iii)* cartilaginous, *(iv)* mixed.[5] The compact type is hard, spherical and attached to the mastoid cortex by pedicle or wide base. It may even penetrate into the mastoid cells.[6,10,14]

Surgery is indicated for associated symptoms such as pain and cosmetic reasons for osteomas of the mastoid and squamous portion.[5,10,13,14] Superficial osteomas of the mastoid must be excised completely by drilling until normal mastoid air cells are exposed. In mastoid osteomas extending into the facial nerve and labyrinth without any symptoms, surgery might not be indicated. If total removal is accomplished, recurrence is rare.[5,10,13-15]

Our patient underwent surgical excision for aesthetic reasons under general anesthesia. A retroauricular incision was used and after periosteal elevation the tumor was exposed. A non-movable osteoma with firmly attached broad base were removed by drilling until normal mastoid air cells were reached. Histopathologic diagnosis was compact osteoma.

The complications are depends on the locations of the tumor and including facial nerve dysfunction, sigmoid sinus damage, cholesteatoma and sensorineural hearing loss by nervous compression of inner ear.[1,4]

Facial nerve damage, tearing of sigmoid sinus and postoperative discharge, have been reported as a surgical complications.[12]

In our case, the postoperative period was uneventful and no sign of disease was present at the most recent follow-up examination, six months after the operation.

Conclusion

Mastoid osteoma is a rare benign bone neoplasm. Surgery should be performed for diagnosis and cosmetic

reasons. Other benign or malignant bone forming lesions like osteochondroma, chondroma, osteoblastoma, exostosis, fibrous dysplasia and osteosarcoma should be considered in the differential diagnosis.

Declaration of conflicting interests

The authors declared no conflicts of interest with respect to the authorship and/or publication of this article.

Funding

The authors received no financial support for the research and/or authorship of this article.

REFERENCES

1. Burton DM, Gonzalez C. Mastoid osteomas. Ear Nose Throat J 1991;70:161-2.
2. Kim CW, Oh SJ, Kang JM, Ahn HY. Multiple osteomas in the middle ear. Eur Arch Otorhinolaryngol 2006;263:1151-4.
3. D'Ottavi LR, Piccirillo E, De Sanctis S, Cerqua N. Mastoid osteomas: review of literature and presentation of 2 clinical cases. Acta Otorhinolaryngol Ital 1997;17:136-9. [Abstract]
4. Ghosh SK, Datta S, Banka A. Osteoma of the mastoid-A case report. Indian J Otolaryngol Head Neck Surg 2006;58:315-6.
5. El Fakiri M, El Bakkouri W, Halimi C, Aït Mansour A, Ayache D. Mastoid osteoma: report of two cases. Eur Ann Otorhinolaryngol Head Neck Dis 2011;128:266-8.
6. Viswanatha B. Extracanalicular osteoma of the temporal bone. Ear Nose Throat J 2008;87:381-3.
7. Magliulo G, Pulice G. Mastoid osteoma. An Otorrinolaringol Ibero Am 2005;32:271-8.
8. Orita Y, Nishizaki K, Fukushima K, Akagi H, Ogawa T, Masuda Y, et al. Osteoma with cholesteatoma in the external auditory canal. Int J Pediatr Otorhinolaryngol 1998;43:289-93.
9. Ohhashi M, Terayama Y, Mitsui H. Osteoma of the temporal bone--a case report. Nihon Jibiinkoka Gakkai Kaiho 1984;87:590-5. [Abstract]
10. Denia A, Perez F, Canalis RR, Graham MD. Extracanalicular osteomas of the temporal bone. Arch Otolaryngol 1979;105:706-9.
11. Guérin N, Chauveau E, Julien M, Dumont JM, Merignargues G. Osteoma of the mastoid: apropos of 2 cases. Rev Laryngol Otol Rhinol (Bord) 1996;117:127-32. [Abstract]
12. Güngör A, Cincik H, Poyrazoglu E, Saglam O, Candan H. Mastoid osteomas: report of two cases. Otol Neurotol 2004;25:95-7.
13. Quesnel AM, Lee DJ. Extensive osteomas of the temporal-parietal-occipital skull. Otol Neurotol 2011;32:e3-4.
14. Marrocco WA. Multiple osteoma of the mastoid cavity. Arch Otolaryngol 1948;47:673-7.
15. Cheng J, Garcia R, Smouha E. Mastoid osteoma: A case report and review of the literature. Ear Nose Throat J 2013;92:E7-9.