

BEYOND THE BONY CURTAIN: A CASE OF A RARE OSTEOMA

Karthikeya Patil, Sanjay C.J., Varusha Sharon Christopher, Eswari Solayappan

Department of Oral Medicine and Radiology, Dental College and Hospital, Academy of Higher Education and Research. Karnataka, India.

Purpose. To discuss a rare benign bone growth known as mastoid osteoma, which poses a significant challenge for medical professionals due to its rare incidence and varied clinical presentations. These growths often lack symptoms until they reach a significant size or cause specific problems. This can be confirmed through radiological diagnostic methods like cone beam computed tomography.

Materials and methods. A clinical case of a 46-year-old female patient reported a complaint of pain in the left lower back tooth area in the past 2 weeks. On complete examination, diffuse swelling is observed in the right posterior auricular region without any signs of inflammation. CBCT, a high-resolution three-dimensional imaging technique, was performed to evaluate the hard tissue lesions.

Results. CBCT revealed a dense radio-opaque lesion that appeared sessile, which was extending anterior-posteriorly and inferior to the mastoid region posteriorly. The radio-opaque mass was not impinging on any other structures present at the base of the skull.

Discussion. Osteomas, benign tumours in the craniofacial area, require prompt identification for otolaryngology and head and neck surgery to prevent complications like hearing loss, vestibular discharges, facial nerve compression, and cerebral involvement. A reliable diagnosis is essential for implementing appropriate therapy and preventing problems that could significantly impact a patient's health.

Conclusion. This case report highlights the importance of understanding the clinical significance of mastoid osteomas to improve treatment strategies, enhance diagnostic accuracy, refine treatment modalities, and enhance patient outcomes.

Keywords: osteoma, mastoid process, cone beam computed tomography, diagnosis, radiology.

Corresponding author: Sanjay C.J., e-mail: drsanjaycj_dch@jssuni.edu.in

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ЗА КОСТНЫМ «ЗАНАВЕСОМ»: СЛУЧАЙ РЕДКОЙ ОСТЕОМЫ

Картикея Патил, Санджай С.Дж., Варуша Шарон Кристофер, Эсвари Солаяппан

Кафедра стоматологии и лучевой диагностики, Стоматологический колледж и больница, Академия высшего образования и исследований. Карнатака, Индия.

Цель. Представить редкое доброкачественное новообразование кости, известное как остеома сосцевидного отростка, которое представляет собой значительную проблему из-за своей редкой встречаемости и разнообразных клинических проявлений. Данные образования часто не имеют симптомов, пока не достигнут значительных размеров или не вызовут специфических осложнений. Это можно подтвердить с помощью таких рентгенологических методов диагностики, как конусно-лучевая компьютерная томография.

Материалы и методы. Представлен клинический случай 46-летней пациентки, которая жаловалась на боль в области левых нижних моляров в течение последних 2 недель. При полном осмотре в правой задней ушной области наблюдался диффузный отек без каких-либо признаков воспаления. Для оценки поражений твердых тканей была проведена КЛКТ – метод трехмерной визуализации с высоким разрешением.

Результаты. КЛКТ выявила плотное радиоденсивное образование, которое было несмещаемым, распространяющимся спереди назад и ниже сосцевидной области сзади. Данное образование не вызывало давления на какие-либо другие структуры, присутствующие в основании черепа.

Обсуждение. Остеомы – доброкачественные опухоли в краниофациальной области – требуют быстрой верификации в оториноларингологии и хирургии головы и шеи, чтобы предотвратить такие осложнения, как потеря слуха, вестибулярные нарушения, сдавление лицевого нерва и поражение головного мозга. Точный диагноз необходим для проведения соответствующей терапии и предотвращения осложнений, которые могут существенно повлиять на здоровье пациента.

Заключение. В данном наблюдении подчеркивается важность понимания клинического значения остеом сосцевидного отростка для совершенствования тактики ведения пациентов, повышения точности диагностики, уточнения методов и улучшения результатов лечения пациентов.

Ключевые слова: остеома, сосцевидный отросток, конусно-лучевая компьютерная томография, диагностика, лучевая диагностика.

Контактный автор: Санджай С.Дж., электронная почта: drsanjaycj_dch@jssuni.edu.in

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Mastoid osteomas, relatively rare benign bone growths originating in the mastoid bone, serve as a distinct difficulty for medical professionals due to their rare incidence and varied clinical presentations. These tumours tend to lack any symptoms until they reach an appreciable size or contribute to particular problems. Because mastoid osteomas are hard to spot, it is important to have a deep understanding of their symptoms, radiological features, and surgical details in order to properly diagnose and treat them [1].

The prompt and thorough identification of mastoid osteomas is of utmost significance in the field of otolaryngology and head and neck surgery, given the potential repercussions on patient well-being and quality of life. Although mastoid osteomas are mostly nefarious, they can cause a multitude of problems, including conductive hearing loss, vestibular disputes, facial nerve compression, and cerebral involvement [2].

A reliable diagnosis is essential not only

for swiftly implementing pertinent therapy measures but also for averting the emergence of problems that may significantly impact a patient's general health and well-being [3-5]. Moreover, comprehending the detailed clinical components of mastoid osteomas contributes to improving treatment strategies, ensuring the best possible results, and advancing the overall comprehension of this uncommon ailment among medical professionals. Therefore, a comprehensive emphasis on identifying mastoid osteomas highlights the need for proactive healthcare measures and emphasises the requirement for ongoing research to enhance diagnostic skills and treatment approaches.

By assessing the particular case in this report, our objective is to provide a comprehension of the challenge related to mastoid osteomas, highlighting the significance of a multidisciplinary approach in their treatment. This case report aims to provide valuable insights for clinicians and researchers by delving into the complexities of mastoid osteomas. It ultimately seeks to enhance diagnostic accuracy, refine

treatment modalities, and improve outcomes for patients with this condition.

Materials and methods.

Clinical Description. A 46-year-old woman reported to the outpatient facility of the hospital with a complaint of pain in the left lower back tooth area that had persisted for approximately 2 weeks. She provided a medical history of sporadic pain that exacerbates while chewing food and when food becomes lodged. The discomfort declines after administering medications. The patient is free from any other systemic condition and is devoid of any specified drug allergies.

Diagnostic Assessment. During the extraoral examination, no abnormalities were observed in the region of the primary focus. A diffused swelling was present in the right posterior auricular region with no secondary surface changes, and during palpation, the swelling was bony-hard in consistency with no tenderness or other signs of inflammation (Fig. 1).

Results.

A dense radio-opaque lesion was observed in the radiograph, which was extending anterior-posteriorly inferior to the mastoid region extending posteriorly, which was sessile. No changes were present in the architecture of the mastoid cells, and the growth was not impinging on any other structures present in the base of the skull (Fig. 2,3).

A diagnosis of mastoid osteoma was made based on its clinical presentation and extremely compacted structure as observed in radiological images.

Therapeutic Intervention. The patient declined any treatment following the diagnosis as she didn't have any symptomatic or cosmetic concerns in accordance with the swelling.

Follow-up. The patient was requested to attend a routine 6-month follow-up appointment to evaluate the progression of the osteoma.



Fig. 1 a (Рис. 1 а)



Fig. 1 b (Рис. 1 б)

Fig. 1. Photos.

a – Diffuse swelling is observed in the posterior auricular region (encircled in black), with no secondary surface changes visible. b – Contralateral (normal) side with no noticeable swelling or abnormalities.

Рис. 1. Фотографии.

а – Диффузный отек в задней ушной области (черная окружность), без видимых вторичных изменений кожи. б – Контралатеральная (нормальная) сторона без отека или изменений.

During the intra-oral examination, it was observed that there were deep dental cavities in the proximal areas of teeth 45 and 46. Additionally, tenderness was noted when percussion was done.

Since the bony-hard swelling was intriguing, with patient consent, a cone beam computed tomography of the right middle ear region was advised, as cone-beam computed tomography (CBCT) has emerged as an essential diagnostic technique for evaluating hard tissue lesions. It has its own advantages that enhance our understanding of these bone lesions.

Discussion.

Osteomas in the craniofacial region are noncancerous growths marked by the excessive growth of dense or spongy bone tissue. They are prevalent in the sixth decade, with a 1:2 male-to-female ratio, and typically occur in the cranio-maxillofacial region and at a younger age [6]. They are notably situated in membranous bones, and they include the skull, face bones, and jaw bones. Osteomas occurring in the maxillofacial region are relatively rare, with a higher incidence in the mandible compared to the maxilla. Specifically, the mandibular body and angle



Fig. 2 (Рис. 2)

Fig. 2. CBCT, 3D reconstruction, mastoid processes.

A mastoid osteoma (highlighted with a red circle). The osteoma exhibits an elongation in the infero-posterior direction. The contralateral mastoid process appears anatomically normal with no abnormalities.

Рис. 2. КЛКТ, 3D-реконструкция, сосцевидные отростки.

Остеома сосцевидного отростка (красная окружность). Остеома имеет удлинение в нижне-заднем направлении. Контралатеральный сосцевидный отросток анатомически нормальный, без патологических изменений.



Fig. 3 (Рис. 3)

Fig. 3. CBCT, mastoid processes.

A – Axial section showing the osteoma (indicated by a white arrow). B – Coronal section showing the lesion with uniform radio-opacity (indicated by a white arrow). C – Sagittal section highlighting the lesion (circled in white). A mastoid osteoma with consistent radio-opacity across all views. The normal architecture of the mastoid air cells is preserved, aiding in the diagnosis.

Рис. 3. КЛКТ, сосцевидные отростки.

A – Аксиальный срез, остеома (белая стрелка). B – Корональный срез, указывающий на изменения сосцевидного отростка с равномерной радиоденсивностью (белая стрелка). C – Сагиттальный срез, указывающий на изменения сосцевидного отростка (белая окружность). Остеома сосцевидного отростка с равномерной радиоденсивностью во всех плоскостях. Нормальная архитектура воздушных ячеек сосцевидного отростка сохранена, что помогает при диагностике таких состояний.

are the locations most usually affected by this condition [7]. Osteomas located in the mastoid region are highly uncommon, accounting for less than 0.1% of all osteomas, the majority of which are predominantly pedunculated [8]. Moreover, the occurrence of sessile osteoma is exceedingly uncommon, as seen in the present case. While they frequently do not exhibit symptoms, they can be linked to swelling, facial asymmetry, and pain. Accurate diagnosis and meticulous treatment can relieve symptoms without any potential risks associated with surgery.

The aetiology of osteomas remains a subject of debate. Some experts propose that osteoma is a non-cancerous bone tumour, while others contend that it could indicate an inflammatory process or atypical healing. The precise aetiology of osteoma formation remains incompletely elucidated; however, various reasons have been postulated, encompassing

trauma, inflammation, developmental anomalies, genetic aberrations, sinus polyp calcification, perturbations in calcium metabolism, metaplasia, and muscle theory [9].

Osteomas are associated with many syndromes, either as a prominent characteristic or as part of wider clinical presentations. Gardner syndrome, an inherited disorder reminiscent of familial adenomatous polyposis, manifests with the presence of osteomas in the jaw and skull in conjunction with the development of colorectal polyps [10]. Osteomatosis of the Mandible (OMM) is a disorder marked by a diagnosis of several osteomas in the mandible. It is different from Gardner syndrome; however, both conditions have analogous jaw symptoms [11]. Multiple Osteomatosis Jaw lesions (MOJL) are characterised by the presence of several osteomas in the jawbone, which sometimes come along with other dental abnormalities [12]. Hereditary Multiple Exostoses (HME) is a condition that is dis-

tinguished by the presence of cartilaginous exostoses as well as benign bone overgrowth that resembles osteomas [13]. Osteoma cutis, a condition that features the formation of bone within the skin, has been associated with several diseases, including Albright's inherited osteodystrophy [14]. It is worth mentioning that osteomas are known to happen randomly without being associated with any specific disease. This highlights the significance of discovering links with syndromes in order to provide comprehensive patient care and genetic counselling. Regular clinical evaluations, imaging examinations, and, if needed, genetic analysis are crucial for the accurate diagnosis and efficient treatment of many disorders.

Cone beam computed tomography (CBCT) is one example of an advanced exploratory method. Cone-beam computed tomography has emerged as an essential diagnostic technique for evaluating hard tissue lesions. It has its own advantages that enhance our understanding of these bone lesions. CBCT, with its high-resolution three-dimensional imaging, enables thorough visualisation, aiding in the precise assessment of the size, location, and extent of these osteomas. This is usually challenging to achieve with conventional methods. The examination is facilitated by the incorporation of multiplanar reconstruction features, which allow for in-depth imagery of the lesion's shape and its effects on adjacent structures [15].

The possible conditions to consider in the differential diagnosis of mastoid osteomas include exostoses, periosteal osteoblastoma, and osteosarcoma. Exostoses are typically characterised by numerous wide-based growths that stop growing after puberty. In contrast, osteomas are usually singular, attached by a stalk, and can continue growing even after adulthood. Periosteal osteoblastomas exhibit varying bone density, with areas of reduced density causing pain and showing accelerated growth. Osteosarcoma, a malignant condition, presents with unclear boundaries and an osteolytic appearance, causing discomfort and rapid growth [16]. However, our case did not match these criteria.

Mastoid osteomas, typically nonmalignant, might give rise to difficulties as they en-

large. These conditions consist of conductive hearing loss in close proximity to auditory structures, recurring otitis media, and compression of the face nerve leading to facial paralysis. Osteomas that affect the inner ear can result in symptoms such as vertigo, dizziness, and imbalance. Additionally, these growths can produce tinnitus by affecting the auditory structures. Headaches may be caused by large osteomas, and severe consequences might occur if the osteomas extend into the skull [17].

Mastoid osteomas, depending on their size and location, might cause aesthetic issues and lead to middle ear diseases. Difficulties encountered during the process of cleansing the ears can heighten the likelihood of earwax blockage or infections. Not all osteomas lead to difficulties, and many individuals do not experience any symptoms. The severity of the condition frequently corresponds with the dimensions, placement, and rate of expansion, underscoring the importance of prompt detection. Surgical surgery should be considered in cases where there are noticeable symptoms or problems, emphasising the significance of proper care [18].

Conclusion.

This report illustrates the necessity of conducting comprehensive patient evaluations that transcend beyond the stomatognathic system. It also advocates the effective use of radiographic examinations as a means of thoroughly evaluating lesions. Mastoid osteomas are extremely uncommon benign tumours that develop gradually and are attached to the outer cortex of the temporal bone. When a robust mass is present in the retro auricular region, mastoid osteoma remains an alternative diagnosis to be looked at. CBCT is the technique of choice for assessing the lesion and acquiring appropriate information for the purpose of diagnosis and treatment. Excision by surgery is a viable option when symptoms such as pain and hearing loss are noticeable or when it is desired for aesthetic purposes. Relapse is extremely rare, and malignant transformation has not been previously reported; therefore, the prospects for mastoid osteoma treatment are exceptionally favourable.

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