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MANDIBULAR SWELLING REVEALING OF A MANDIBULAR OSTEOMA: A CASE REPORT

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Abstract

Introduction: *Osteoma is a rare benign osteogenic tumor characterized by the proliferation of slow-growing compact and spongy bone, most commonly occurring in the craniofacial skeleton, and rarely affecting the jaws.* ***Case report:*** *A young 18-year-old patient consulted for discreet pain in the right retromolar region and progressive mandibular swelling. The panoramic radiograph showed a well-defined radiopaque image, approximately 3 cm in diameter, extending from the 47 to the anterior edge of the ascending branch. Additional sectional imaging was requested to assess the extension of the lesion in the anteroposterior direction and its relationship with the mandibular canal, and 47 and 48. Treatment consisted of resection of the lesion. After the pathology examination, the definitive diagnosis was in favor of an osteoma.* ***Conclusion:*** *Osteoma is a benign bone tumor, observed most frequently in young adults. Its clinical and radiological characteristics must be well known in order to differentiate it from other benign maxillary tumors and to establish the appropriate treatment.*

Keywords: *Mandibular Osteoma; Central Osteoma; Compact Osteoma.*

Introduction:

Osteoma is a rare slow-growing benign neoplasm composed of compact or cancellous bone or both. It commonly involves cranial and facial skeleton, including the paranasal sinuses and jaw bones. [1] When they appear in the jaw bones, there is a preference for the mandible rather than the maxilla. they mostly affect the body, the angle and the condyle of the mandible. Men are affected two times more than women (2:1), with ages ranging from 14 to 58 years, with an average of 29.4. [2]
Osteoma is classified as a benign maxillofacial bone tumor according to the classification of head and neck tumors published by the WHO in 2022. [3] Normally, it appear as isolated lesion. However, some osteomas are not solitary and are associated with Gardner's syndrome. Which is an autosomal dominant disease. This syndrome is characterized by multiple craniofacial osteomas and other manifestations. [4]
In this article, we report an unusual case of an 18-year-old woman presenting a large mandibular symptomatic osteoma.

Case Report:

An 18-year-old woman was presented to the dental consultation, with a chief complaint of a progressive mandibular swelling in the right retromolar region. The swelling has developed slowly over several months. The patient was in good general health, without taking any medication and has no medical or surgical history.
Exobuccal examination revealed a right mandibular swelling, not painful on palpation, covered by normal skin (**Figure 1**).

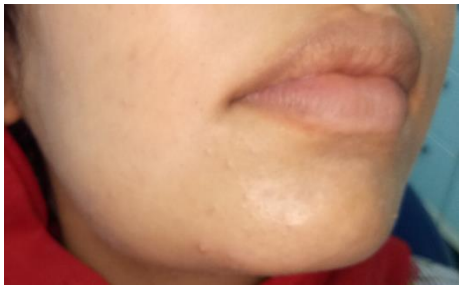

Figure 1: *Extra-oral view showing a right subangulo-mandibular swelling.*

No limitation of mouth opening was reported and no change in mandibular nerve sensitivity or lymphadenopathy were noted. The intraoral examination revealed a vestibular swelling located in the site of the 47 and 48, covered by a normal mucosa. The swelling was of hard consistency. The tooth 48 was absent on the arcade while the tooth 47 was vital, not decayed and with no mobility; percussion was normal without hypersensitivity. (**Figure 2**)

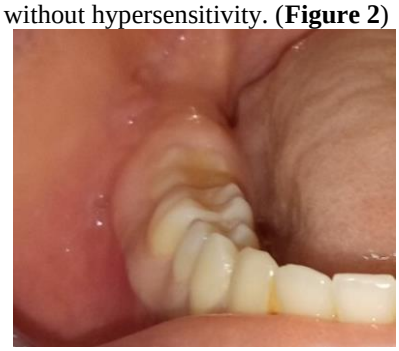

Figure 2: *Intraoral view objectifying a discreet vestibular swelling located at the right molar region.*

The panoramic radiograph showed a well-defined radiopaque image, approximately 3cm in diameter, surrounded by a radiolucent halo, extending from 47 to the anterior edge of the ascending ramus. A deformation of the lower edge of the mandible was observed. The canal was absent at the level of the image (repressed) and 48 was retained. (**Figure 3**).

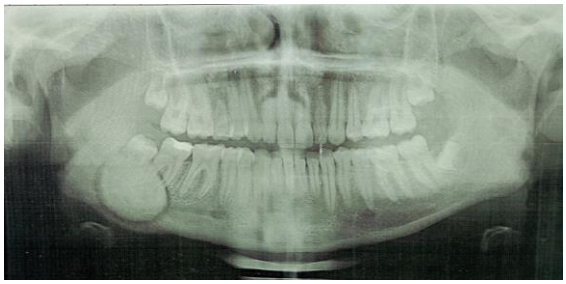

Figure 3: *Panoramic radiograph showing a well-defined radiopaque lesion surrounding the roots of tooth 47 and the impacted tooth 48*

CBCT imaging was done to assess the extension of the lesion and its relationship with the mandibular canal and with 47 and 48. It revealed an hyperdense image with thinning and expansion of both the internal and external cortex, (in a 'blown-out' appearance). The mandibular canal was pushed back by the lesion. (***Figure 4***)

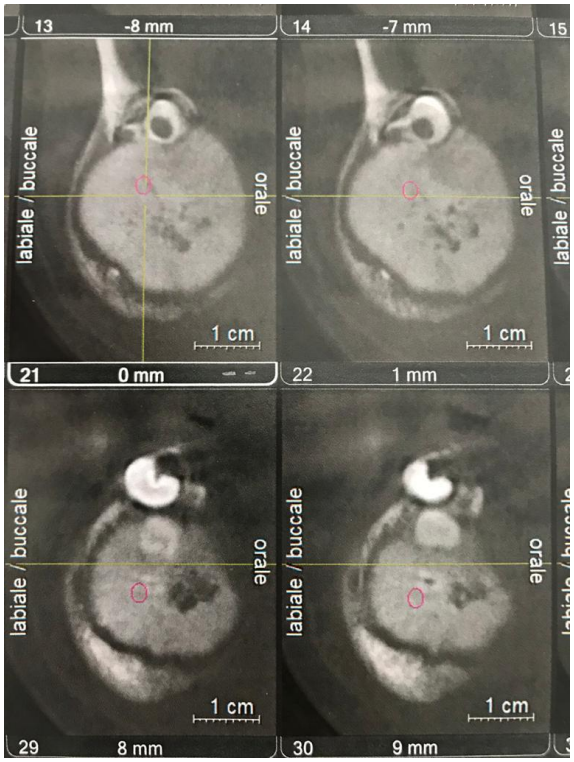

Figure 4: *Cone beam coronals reconstructions showing an hyperdense image with the thinned and expanded of the internal and external cortex and the mandibular canal is pushed back by the lesion.*

Based on the clinical and radiographic data, the diagnosis of osteoma, cementoblastoma at an advanced stage or focal cemento-osseous dysplasia were proposed. The diagnosis of odontoma, and mandibular osteoblastoma were also proposed. Diagnosis such fibrous dysplasia was ruled out since in this case the lesion was focal. The diagnosis of malignant tumors was ruled out also because the lesion was well limited and slowly evolving, with absence of lymphadenopathy and alteration of sensitivity.

The treatment consisted of a surgical resection with extraction of the 48 and 47. The surgery was done under general anesthesia through the vestibular intraoral route. Given the risk of fracture, an osteosynthesis plate was fixed after excision of the lesion (***Figures 5 and 6***)

Figure 5: *Surgical resection of the osteoma with extraction of the 48 and 47*

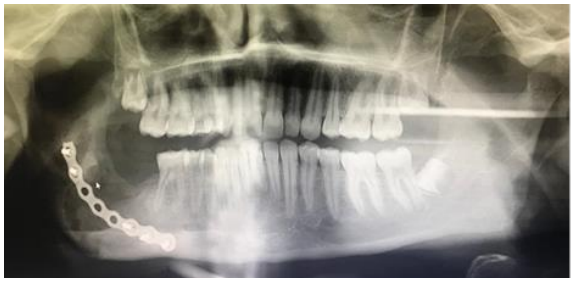

***Figure 6**: The panoramic radiography of control after excision of the lesion and fixation of osteosynthesis plate.*

The histological study showed a benign proliferation of compact bony trabeculae comprising a few regular osteocytes. The appearance was in favors of a compact osteoma. (***Figure 7***)

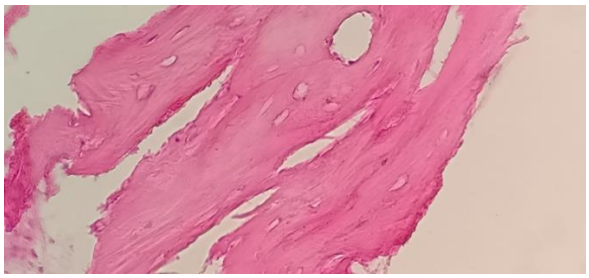

***Figure 7:** The histological examination demonstrated a benign proliferation of compact bony trabeculae comprising a few regular osteocytes (HEX40)*

Postsurgical follow-up showed prompt healing of surgical site. At 12 months follow-up, no recurrence was noticed.

Discussion

Osteomas can be classified on the basis of the site of origin: Central (which originates from the endosteum); peripheral (originates from the periosteum); Rarely, osteomas can develop as extra-skeletal lesions located in soft tissues, commonly in muscles. [5]

The pathogenesis of osteoma is still unclear, but a few hypotheses have been proposed: developmental, neoplastic, and reactive [6]. For certain authors, the theory that the lesion is developmental and caused by congenital anomalies seems unlikely, since most cases were observed in adult patients, and a genetic condition would typically manifest itself during the formative period of growth [7]. For other authors, it is also unlikely that osteomas are of a neoplastic nature because they typically present a limited potential for growth. However, in our case, the lesion was large, measuring 3 cm, despite the patient being relatively young in age.

The possibility of osteomas to be a reactive lesion resulting from local trauma is based on the history of prior trauma and only in sites susceptible to trauma like the angle or lower border of the mandible. In this case no history of prior trauma was noticed. As many of the lesions are located in close proximity to muscle attachment (i.e., masseter, medial pterygoid, and temporalis), it is possible that muscle traction may play a role in the development of the peripheral osteomas. [8,9] Clinical symptoms depend on location and size of osteoma. Small, solitary, slow-growing lesions are asymptomatic and detectable only during routine examinations. Voluminous osteomas are symptomatic with symptoms changing depending on the lesion site with sinusitis, headache and ocular symptoms for paranasal sinus locations, painless swelling for mandibular site and significant functional and aesthetic disturbances for osteomas of the condyle. The clinical presentation may be preauricular swelling, limitation of mouth opening and/or mandibular prognathism. The patient in this case complained of a discreet pain. [10,11]

Radiographically, osteomas are presented as well defined, densely sclerotic radio-opacities that can be detected on orthopantomogram. Computerized tomography (CT) or cone-beam CT (CBCT) is the imaging of choice, as it reveals the exact location, the dimensions and it represents the lesion in three dimensions. [12] For the case reported in this work, CBCT revealed interrupting of the internal cortex which suggested the fixation of the osteosynthesis plate.

Histologically, osteomas can be classified into compact and cancellous. A compact osteoma consists of mature lamellar bone with few marrow spaces, as in this case. A cancellous/trabecular osteoma is characterized by bony trabeculae and fibro-fatty marrow enclosing osteoblasts, surrounded by a cortical bone margin. According to the consulted literature, the compact type was the most frequent. [13]. The differential diagnosis includes other bone entities such as osteoblastoma, central ossifying fibroma, complex odontoma.

Osteoblastomas share highly vascular characteristics with the presence of osteoid tissue and are more frequently painful and grow more rapidly than osteomas [14] Central ossifying fibromas present with thin and well-defined borders, separated by a radiolucent rim that surrounds the bone of sclerotic borders [15]. Complex odontomas present as a highly dense endosteal radiopaque mass [16]. The presence of multiple osteomas should recall attention for the diagnosis of Gardner syndrome. [4]

Asymptomatic osteoma indicates regular follow-up and periodic radiographs. Surgery is the treatment of choice for symptomatic cases with disfigurement and functional disability. For cosmetic considerations, the intraoral approach is preferred as for our patient. In case of larger maxillary lesions, extensive resective surgery may be required followed by reconstruction with free flaps and/or cad-cam prostheses. Lesions

involving the paranasal sinuses can be treated via an endoscopic approach, with en-bloc excisions for lesions of small size and “piecemeal” resections for larger ones. [17]
The recurrence of osteomas after their excision is extremely rare, and a malignant transformation has never been reported. [18- 20]

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