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Juvenile Ossifying Fibroma: Case Report

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Abstract **Case Report**

Juvenile ossifying fibroma is a rare benign tumor, it is a locally aggressive, with a high tendency to recur. ***Report case:*** 10-year-old child who presented with swelling at the angle of the mandible right, painless, hard in consistency, ranging from tooth 83 to 85, lasting for 2 years. The treatment consisted of surgical resection hemimandibulectomy right with temporomandibular disarticulation. The diagnosis of fibroids can be difficult to make, only surgery combined with histological analysis can confirm this.

Keywords: ossifying fibroma, diagnosis, treatment.

INTRODUCTION

Craniofacial fibro-osseous lesions are characterized by the transformation of bone tissue of normal structure into fibrous tissue which can mineralize in different forms: spongy bone, lamellar bone or cementum tissue [1]. The majority of these tumors are asymptomatic and progress slowly. Juvenile ossifying fibroma (JOF) is one of those fibro-osseous tumors that occurs in young patients with rapid growth potential, belonging to the complex group of non-odontogenic tumors having membranous ossification [2]. It is a well-defined neoformation, sometimes even encapsulated, made up of fibrous tissue containing variable quantities of calcified material resembling bone and/or cementum [3]. It almost exclusively affects the bones of the maxillofacial skeleton [4, 5]. Its preferred site is the mandible in 75% of cases, in the premolar-molar sector [6, 7] or the incisive sector for other authors [8, 9]. It is very aggressive locally and has a strong tendency to recur [10]. We report a case of FOJ diagnosed in the *Department* of *Otorhinolaryngology and Cervico-Facial Surgery* Mohammed VI University Hospital in Oujda.

CASE REPORT

The child M.M., aged 10, presented to the consultation of the department of Otorhinolaryngology and cervico-Facial-Surgery Mohammed VI Oujda University Hospital, for painless swelling of the right mandibular angle that had been developing for 2 years. During questioning: no history of trauma and no medical history is reported. Inspection showed facial asymmetry related to swelling of the right mandibular angle on exo-oral palpation: the swelling was hard, painless and well limited. There was not lymphadenopathy. (figure1). Endo-oral examination: a normal dental articulation, vestibular filling extending from 83 to 85, l with sideways movement of tooth 85 with erythematous oral mucosa (figure 2). Scan of the facial mass with axial and coronal sections and in 3D highlights: At the level of the right mandibular horizontal branch, a heterogeneous osteolytic image measuring 46*45*30 mm with breakage of the cortex and thickening of the soft tissues opposite without signs of invasion (figure 3). A surgical excision via the vestibular route, during the surgery, the lesion was not encapsulated, there was no more vestibular cortex, No longer having any bone support, The treatment consisted of Interruptive:terminal mandibulectomy:hemi-mandibulectomy right with temporomandibular disarticulation (figure 4). The anatomopathological examination of the surgical specimen showed: fibrous proliferation of fasciculated architecture vaguely limited at the periphery and not encapsulated, the stroma is fibrous, of heterogeneous cellularity, made of regular spindle cells, this proliferation is surrounded at the periphery by mature bone tissue and regular, an immunohistochemical study was carried out, showing: MDM2 and CDK4 negative: appearance of a juvenile ossifying fibroma of the trabecular type. Clinical control showed complete mucosal healing (figure 5).

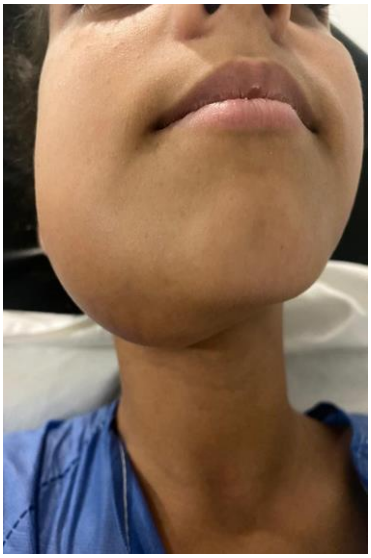

Figure 1: Preoperative photograph: swelling of the right mandibular angle of hard consistency, well limited, no lymphadenopathy

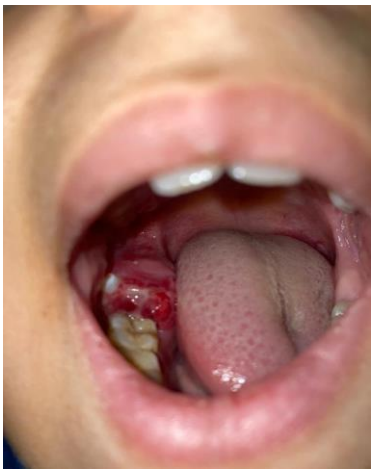

Figure 2: Swelling located next to 83 and 85 filling the vestibule, covered with an erythematous-looking mucosa and causing tooth displacement of 85

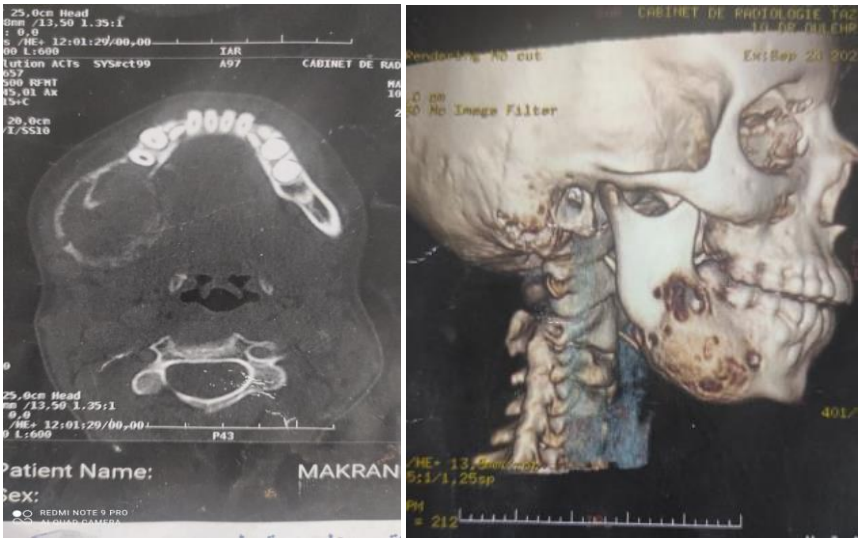

Figure 3: Axial and 3D CT section of the facial mass without injection of contrast product: a heterogeneous osteolytic image with breakage of the cortex of the right mandibular horizontal branch

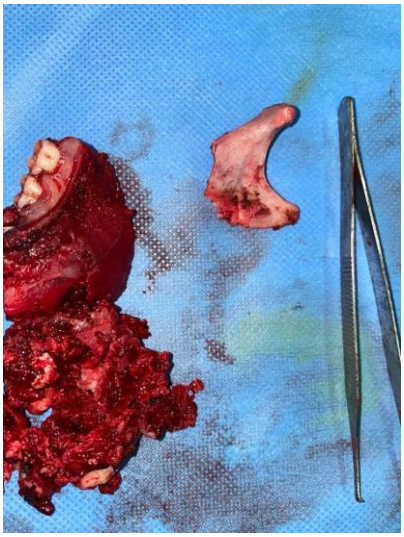

Figure 4: View of the ossifying fibroma

Figure 5: Postoperative photograph

DISCUSSION

Juvenile ossifying fibroma is a benign neoplastic tumor that is sometimes very aggressive. Its etiology is poorly understood, containing different amounts of calcified deposits of bone, cementum or a mixture of the two (3). Taking into account the amount of hard tissue formed in the lesion, ossifying fibroma was subdivided histologically into ossifying fibroma and cementifying fibroma. The two fibromas have therefore long represented two separate entities (WHO classification 1971), included respectively in odontogenic tumors for cementifying fibroma and non-odontogenic bone tumors for ossifying fibroma. In 2005, the World Health Organization to group these two entities into one: ossifying fibroma [11]. Ossifying fibromas are subdivided into two clinicopathological subtypes: conventional ossifying fibromas and juvenile ossifying fibromas. Based on morphological characteristics, juvenile ossifying fibromas (JOFs) have two variants: the trabecular form and the psammomatoid form [13]. It represents 2.5% of benign bone tumors of the head and neck [12]. Juvenile ossifying fibroma mainly affects children and young patients [14], which is perfectly consistent with our clinical case (10 years old). Sex predilection is a subject of controversy: Johnson *et al.* [15] report a higher incidence in women, El-Mofty [16] speaks of a male predilection while other authors note no sex predilection [17]. Clinically, juvenile ossifying fibroma manifests as a hard swelling evolving asymptomatically which can lead to facial asymmetry.

The rate of growth of the tumor differs depending on its location and its aggressiveness. Its increase in volume can be the cause of paresthesia, malocclusion, sinusitis or proptosis [18,19], the FOJ is a very aggressive tumor and grows rapidly compared to other fibro-osseous lesions of the maxillae. The maxillofacial location of the F.O. is preferentially mandibular in 75% of cases, involving the premolar-molar region [20]. Radiologically, the lesion may appear radiopaque, radiolucent or mixed depending on the degree of calcification [21, 16]. The tumor can cause expansion or rupture of the cortices, displacement or

even root resorption [16, 19]. In our case, the radiological image was heterogeneous osteolytic with breakage of the cortex. The ossifying fibroma is characterized by a "ground glass" appearance, not encapsulated, separated from the surrounding bone by a radiopaque border [16,18]. This appearance can help differentiate it from dysplasia fibrous which is characterized by an x-ray image without clear boundaries [22]. EL-Mofty, in 2002 [16], was based on histological criteria to classify ossifying fibroma into two categories: e trabecular ossifying fibroma which occurs mainly between 8 and 12 years of age corresponds to our case; psammomatoid which occurs between 16 and 33 years of age in the sinus and orbital region [23]. The psammomatoid variant is slightly more cellular than the trabecular [16, 24-27], the psammomatoid form is more aggressive and recurrent. Clinical and radiological examinations alone do not provide sufficient diagnostic arguments; only comparison with the anatomopathological examination makes it possible to specify the exact nature of the tumor lesions. The main differential diagnosis of FO is fibrous dysplasia (FD), but also cystic lesions. Pathological examination makes it possible to eliminate cysts but the differential diagnosis with fibrous dysplasia is more complicated.

The absence of a clear border of fibrous dysplasia during surgical intervention is an important point in the differential diagnosis. Management for Small lesions can be treated by curettage or enucleation [28, 29]. Some authors propose safety margins of 5 mm [30]. A broader surgical approach, even interruptive, is recommended for large and infiltrating tumors [31, 32]. The reconstruction will depend on the size of the resection. The covering tissues are of good quality so the use of free bone grafts is perfectly legal as first intention if the length does not exceed 6cm (The harvesting site most often chosen is the iliac crest or the rib). the child, it is possible to perform a bone graft but it is also necessary to take into account the considerable potential for bone regeneration of the periosteum and the modalities of adaptive growth which make therapeutic abstention in certain particular cases perfectly legal [33]. Early dental rehabilitation using endosseous implants is impossible due to the remodeling that takes place on the graft. On the other hand, in cases of extensive mandibular substance loss or if integumentary sacrifices are necessary, Free Vascularized Bone Transfer then becomes indicated for immediate reconstruction [34]. The evolution of this tumor is constantly benign, however in the absence of treatment, the tumor grows slowly and can reach a considerable volume with rupture of the bone cortex and diffusion into the soft tissues. For recurrent F.O.J with rapid progression, without demarcation with the surrounding bone, most authors recommend resection, the literature reports 30% to 58% of recurrences and would occur within two postoperative years [35] which justifies clinical monitoring and radiological over several years.

CONCLUSION

FOJ is a rare benign fibro-osseous tumor of the craniofacial region, particularly the mandible. The totality (comparison) of clinical, histological and radiological data is often necessary to make the diagnosis. Treatment is surgical with enucleation-resection depending on the size of the lesion or larger resection with bone reconstruction for large fibroids.
30% to 58% of FOJ recurrences and would occur within two postoperative years [20] which justifies clinical and radiological monitoring over several years.

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