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CASE REPORT

Conservative approach in the odontogenic myxoma treatment: an alternative with less morbidity

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Abstract:

A 21 year-old female patient treated in the Maxillofacial Surgery Unit of Dr. Sotero del Rio Hospital, with a mandibular Odontogenic Myxoma diagnosis. Related to this clinical case and its aspects, is why we propose a more conservative alternative of treatment than mandibular segmental resection with safety margins. Through post surgical clinical and imaging surveillance, we can establish that using a conservative treatment for Odontogenic Myxoma with less local aggressiveness features, we can obtain favorable results in the long term and far less morbidity for the patient.

Keywords: Odontogenic myxoma; Odontogenic tumor; Conservative treatment.

INTRODUCTION

Among benign odontogenic tumors of mesenchymal origin is the odontogenic myxoma (OM)[1], a neoplasm that represents between 3 and 20% of all odontogenic tumors[2]. It is characterized by being non-encapsulated and presenting mesenchymal lineage cells with stellate or spindle-shaped morphology within a myxoid extracellular matrix rich in glycosaminoglycans and varying amounts of collagen fibers, which may contain nests or cords of inactive odontogenic epithelium[3]. It shows a predilection for the mandibular body and angle region, less frequently affecting the maxilla[4]. Despite its benign nature, it is considered a locally aggressive neoplasm with a high recurrence rate and non-metastatic behavior[5].

The heterogeneity and invasive behavior of OM remains unclear despite advances in pathological and genetic characterization. Current research is increasingly focused on identifying key biomarkers that may provide a deeper understanding of the mechanisms governing local tumor growth and dissemination, with the ultimate goal of advancing knowledge of its biological behavior and supporting the development of new pathogenesis-based therapeutic approaches[6].

Statement of Clinical Significance
This case underscores the clinical relevance of a conservative approach to odontogenic myxoma, providing evidence that less invasive management can achieve effective tumor control while minimizing morbidity, preserving anatomy and function, and promoting individualized treatment strategies over traditionally radical protocols.

At the moment, treatment of OM has not been standardized mainly due to its low prevalence, which has hindered its study. Within the reviewed literature, less invasive therapeutic alternatives with favorable postoperative recurrence outcomes have been identified, such as enucleation combined with peripheral osteotomy[3].

Based on this, we present a clinical case of a patient diagnosed with odontogenic myxoma who was conservatively treated at the Dr. Sótero del Río Hospital Complex.

CASE REPORT

A 21 year old female patient with no relevant medical history was admitted to the Maxillofacial Surgery Unit at the Dr. Sótero del Río Hospital, referred due to

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the radiographic finding of an asymptomatic radiolucent lesion in the right mandibular angle (Figure 1A). Physical examination revealed a swelling corresponding to the lingual mucosa adjacent to teeth 47 and 48. Cone Beam computed tomography (CBCT) showed a well-defined, unilocular hypodense area measuring 24.8 mm anteroposteriorly and 14.2 mm lateromedially, causing expansion of the lingual cortical bone. Tooth 48 was semi-included, displacing the inferior alveolar nerve canal caudally and laterally (Figures 1B and 1C).

An extensive incisional biopsy of the lesion was performed along with extraction of tooth 48 under local anesthesia. A macroscopically gelatinous, yellowish-brown, and friable tissue sample was obtained (Figure 2). Histopathological analysis confirmed the diagnosis of "Odontogenic Myxoma" (Figure 3).

The extraction of tooth 48 was performed along with an extensive incisional biopsy under local anesthesia. Intraoperatively, the surgical approach provided broad access to most of the lesion and revealed a favorable dissection plane, thus leading to the decision to obtain a more extensive tissue sample. The collected sample appeared macroscopically gelatinous, yellowish-brown in color, and friable in consistency (Figure 2). Histopathological examination confirmed the diagnosis of odontogenic myxoma (Figure 3).

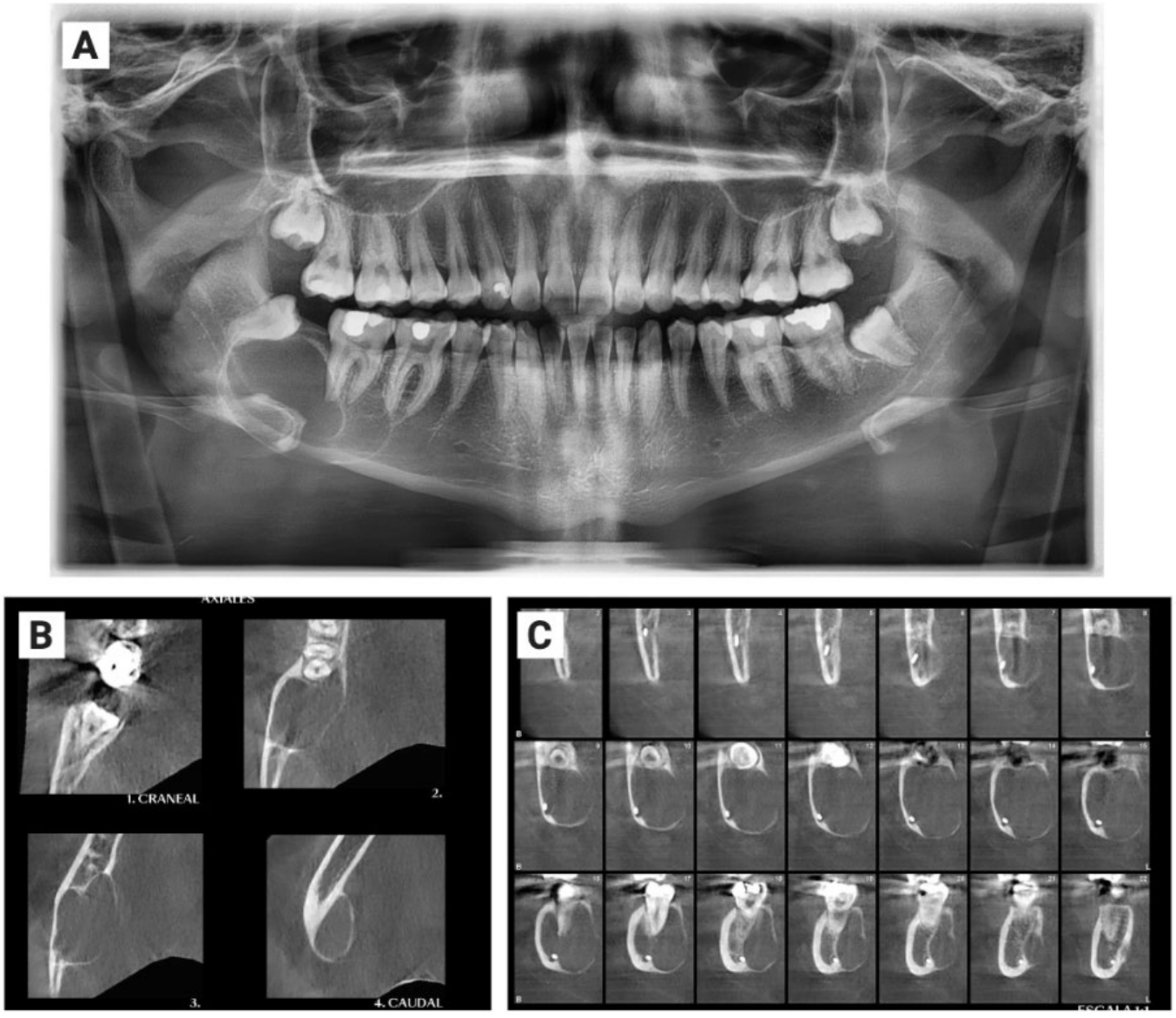

Figure 1. Preoperative Radiographs. **(A)** Admission panoramic radiograph. **(B)** Admission Cone Beam computed tomography axial section. **(C)** Admission Cone Beam computed tomography coronal section.

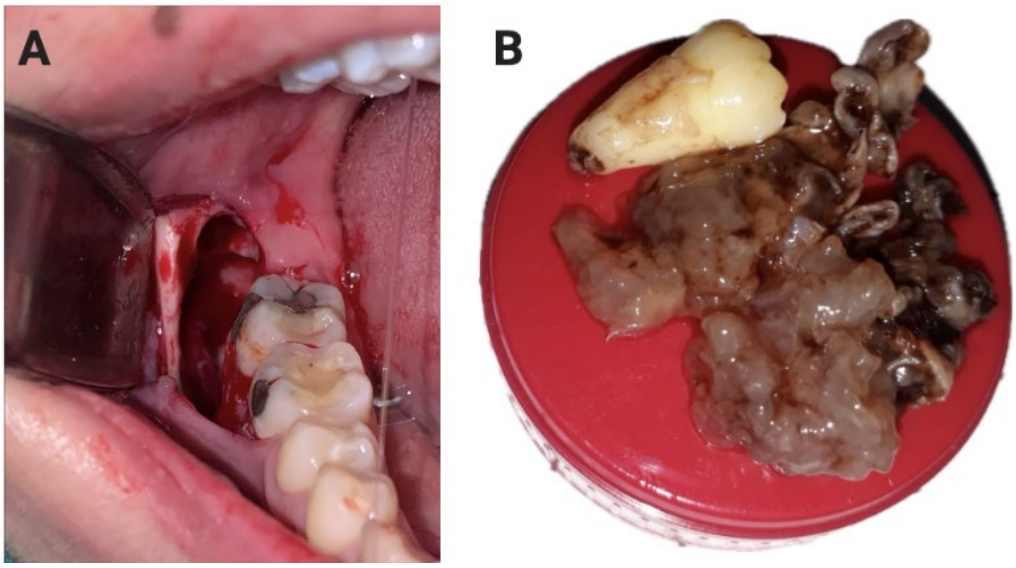

Figure 2. **(A)** Surgical wound post-biopsy of the lesion. **(B)** Macroscopic lesion; fragments of soft tissue with a gelatinous appearance and light brown color, accompanied by an additional laminar tissue fragment with gelatinous adhesions, and a third molar surrounded by a large amount of hemorrhagic material.

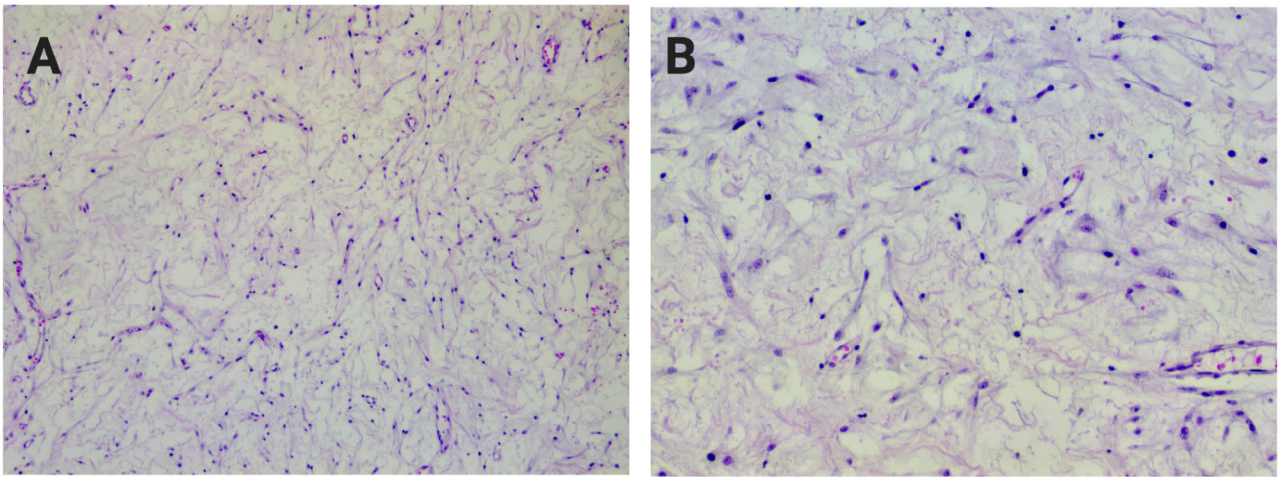

Figure 3. Histopathological sections. A proliferation of spindle-shaped and stellate cells was observed within a highly loose extracellular matrix with low staining affinity, exhibiting edema and numerous hyperemic capillaries. Increased collagen deposition was noted in the periphery; however, the matrix remained quite loose at the surgical resection margin. No nests of odontogenic epithelium were identified, confirming the diagnosis of odontogenic myxoma.

Imaging follow-up at 7 months post-biopsy showed peripheral bone apposition and a reduction in lesion size across all three spatial dimensions (Figure 4). Given this favorable progression, along with features indicative of lower local aggressiveness (small size, well-defined margins, unilocular presentation, absence of root resorption or cortical perforation), patient age, and adherence to treatment, a conservative surgical approach was chosen to avoid resective surgery and its potentially greater postoperative sequelae.

Conservative surgical treatment consisted of enucleation of the lesion with peripheral osteotomy, accompanied by extraction of tooth 47 under general anesthesia. Follow-up images at 12 and 21 months postoperatively showed complete bone apposition at the surgical wound, with no radiological evidence of residual injury (Figure 5).

This case report was approved by the Ethics Committee of the Complejo Asistencial Dr. Sótero del Río. Written informed consent was obtained from the patient for the publication of clinical information and associated images.

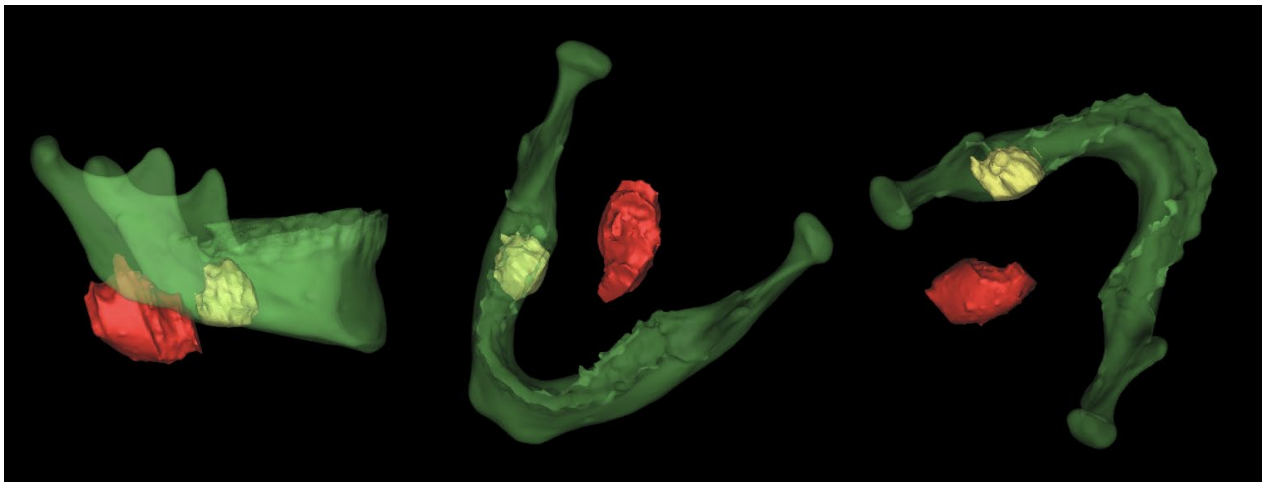

Figure 4. Initial lesion volume (Red) compared to the lesion volume 7 months post-biopsy (Yellow) and the disinclusion of tooth 48.

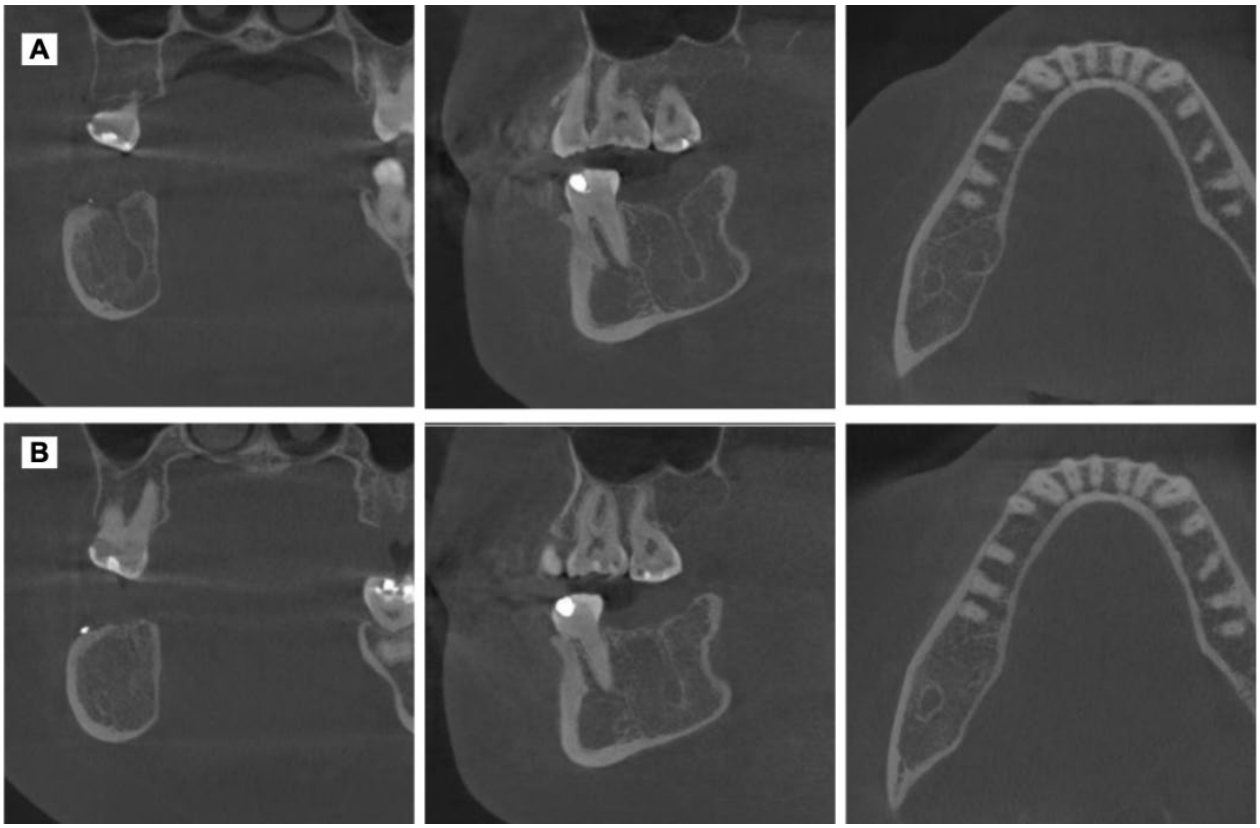

Figure 5. Cone Beam Computed Tomography longitudinal follow-up scans. **(A)** Postoperative Cone Beam computed tomography at 12 months showing coronal, sagittal, and axial sections, respectively. **(B)** Postoperative Cone Beam computed tomography at 21 months showing coronal, sagittal, and axial sections, respectively.

DISCUSSION

Odontogenic myxoma affects males and females in a ratio of approximately 1:2 and typically presents in patients during the third decade of life, most frequently between 20–29 and 30–39 years of age. However, cases have also been reported in children as young as 17 months. Overall, the reported mean age of presentation ranges from approximately 8.1 to 40.1 years[6,7].

There is limited evidence in the literature regarding the pathogenic mechanisms of odontogenic myxoma and their relationship to its aggressive behavior; however, studies have identified overexpression of proteins such as BCL2, BCLX, and the matrix metalloproteinase MMP-2. Matrix metalloproteinases (MMPs) are essential enzymes involved in the regulation and remodeling of the extracellular matrix, playing a crucial role in intercellular communication and in modulating cell-surface receptors, adhesion molecules, and growth factors. Nevertheless, the role of MMPs in the invasive process of odontogenic myxoma remains under investigation. Although the expression of several metalloproteinases such as MMP-1, MMP-2, and MMP-9 has been demonstrated, no expression pattern has yet been identified that clearly differentiates these tumors from normal odontogenic tissue formation. Therefore, additional functional studies using cell culture models are still needed to elucidate the precise role of MMPs in the growth and progression of this pathology[6]. Additionally, mutations in the PRKAR1A gene, which regulates the cAMP-dependent protein kinase A alpha-1 subunit, have been detected in tissue samples from odontogenic myxoma lesions[8,9].

The lesion is often an incidental finding on imaging studies, appearing as a uni- or multilocular radiolucent area with well-defined or diffuse margins. It may also be associated with clinical symptoms including pain, paresthesia, tooth mobility related to the lesion, and in some cases, mucosal ulceration if the tumor invades the mucosa[4,7]. Odontogenic myxoma typically presents as a slow, painless bony expansion that can cause facial deformity due to tumor growth, and is commonly associated with an unerupted tooth, likely originating from the mesenchymal portion of the dental germ[10].

Several treatment options have been described, varyig according to tumor location and size. Surgical approaches range from enucleation and curettage to wide excision and radical resection with wide safety margins[4].

In a retrospective cohort study by Chrcanovic & Gómez[3], including 1.692 OM cases treated by various methods, recurrence rates were analyzed according to factors such as intraosseous location, lesion size, cortical perforation, locularity, presence of septa, tooth association, clinical symptoms, and previous treatment. The recurrence rates were as follows: curettage (31,3%), enucleation (13,1%), enucleation with curettage (12.7%), enucleation with peripheral osteotomy (6.7%), marginal resection (1.3%), and segmental resection (3.1%). The authors note that the high recurrence rates may be due to OM's lack of encapsulation and local invasion beyond radiographically visible margins. They conclude that the first-line treatment should be enucleation with peripheral osteotomy due to its low recurrence and minimal morbidity[3].

Decision making in this case followed the guidelines proposed by Trode et al., who describe a comprehensive and individualized therapeutic algorithm for each patient. Consistent with our approach, their study recommends adopting a conservative treatment strategy when the lesion is well defined, unilocular, limited in size, does not compromise critical bony structures, and shows no evidence of recurrence between interventions. An integrated assessment of the risk–benefit ratio of surgery was also performed, taking into account the patient's age and associated comorbidities[11].

Regarding the dental structures in close proximity to the tumor, it has been reported that extraction of the involved teeth does not improve prognosis by itself; however, it represents a fundamental step toward achieving complete lesion removal. This approach has been consistently associated with lower recurrence rates in odontogenic myxoma. Tumor recurrence is primarily linked to incomplete surgical excision rather than intrinsically aggressive biological behavior. Therefore, the removal of teeth with infiltrated roots facilitates a broader and more effective curettage of the surrounding bone, thereby reducing the risk of leaving residual tumor cells[12].

Studies such as that of Zanetti et al. support this extended conservative approach, emphasizing the importance of performing generous curettage that includes seemingly healthy tissue, with the aim of preserving vital structures without compromising surgical radicality. In the present case, the tumor extended to the root regions of teeth 48 and 47, necessitating their extraction to enable complete enucleation and ensure adequate curettage of the surrounding bone[13].

Long-term follow-up is considered a critical component in the management of odontogenic myxoma due to its high recurrence rate.There is no consensus on follow-up frequency, Dotta JH et al. suggest clinical and radiological follow-up every 6 months for 10 years, with quarterly evaluations during the first two postoperative years, as statistics indicate that approximately 73% of recurrences occur within this timeframe[3].

Establishing the first radiographic control at six months is considered reasonable because odontogenic myxoma exhibits slow growth, and early recurrences are generally not detectable before this period. The literature indicates that diagnostic changes may only begin to

appear after the sixth month, making earlier evaluations of limited clinical value[14].

Thus, the six-month follow-up represents the earliest reliable time point at which it is possible to assess whether the surgical site is healing appropriately or whether early signs of recurrence are emerging, thereby enabling timely intervention[15].

Despite surpassing the initial two-year period, follow-up should not be discontinued. The available evidence emphasizes the need for long-term surveillance, regardless of whether the treatment was conservative or radical. Notably, Rocha et al. have reported recurrence occurring more than 30 years after the initial tumor resection[16].

Monitoring strategies include thorough clinical examination supplemented by radiographs and computed tomography. Magnetic resonance imaging is specifically recommended when uncertainty persists regarding a possible recurrence, owing to its superior ability to assess soft-tissue involvement[11].

Given the low cellular density and lack of mitotic activity observed histologically, the basis for its aggressive potential remains unclear. It is likely related to the tumor's metalloproteinase profile. Increased collagen fiber content may correlate with lower aggressiveness and facilitate surgical management. For this reason, new conservative surgical techniques have been implemented. Fariña-Sirandoni et al. reported the case of an adolescent treated with 98% intralesional ethanol, followed for three years without recurrence[17].

CONCLUSION

Conservative treatment of OM can be considered in cases with favorable clinical, radiological, histological, and patient-specific characteristics, such as intraosseous location, lesion size, cortical perforation, locularity, presence of septa, tooth association, clinical symptoms, and prior treatments.

Enucleation with peripheral osteotomy appears to be a suitable therapeutic option, offering reduced morbidity, provided that appropriate long-term follow-up is ensured, with at least one annual check-up over a period of no less than 10 years. Further case series and higher-queality scientific evidence are needed to validate the indication of this therapeutic approach.

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AUTHORS' CONTRIBUTIONS

CLR: Formal analysis, Methodology, Project administration, Supervision, Validation. DRV: Conceptualization, Data curation, Software, Writing – review & editing. FDB: Conceptualization, Data curation, Software, Writing – review & editing. VPI: Conceptualization, Resources, Validation. CCM: Conceptualization, Resources, Validation.

CONFLICT OF INTEREST STATEMENT

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REFERENCES

1. Vered M, Wright JM. Update from the 5th Edition of the World Health Organization Classification of head and neck tumors: odontogenic and maxillofacial bone tumours. Head Neck Pathol. 2022;16(1):63-75. https://doi.org/10.1007/s12105-021-01404-7
2. Gomes CC, Diniz MG, Duarte AP, Bernardes VF, Gomez RS. Molecular review of odontogenic myxoma. Oral Oncol. 2011;47(5):325-8. https://doi.org/10.1016/j.oraloncology.2011.03.006
3. Chrcanovic BR, Gomez RS. Odontogenic myxoma: an updated analysis of 1,692 cases reported in the literature. Oral Dis. 2019;25(3):676-83. https://doi.org/10.1111/odi.12875
4. Shivashankara C, Nidoni M, Patil S, Shashikala KT. Odontogenic myxoma: a review with report of an uncommon case with recurrence in the mandible of a teenage male. Saudi Dent J. 2017;29(3):93-101. https://doi.org/10.1016/j.sdentj.2017.02.003

5. Gupta S, Grover N, Kadam A, Gupta S, Sah K, Sunitha J. Odontogenic myxoma. Natl J Maxillofac Surg. 2013;4(1):81-3. https://doi.org/10.4103/0975-5950.117879
6. Boffano P, Stathopoulos P, Ruslin M. Pathological and molecular features of odontogenic myxoma: a systematic review. Indian J Otolaryngol Head Neck Surg. 2025;77(7):2711-8. https://doi.org/10.1007/s12070-025-05552-y
7. Ortiz AFH, Almarie B, Murcia ND, Farhane MA. Odontogenic myxoma: a case report of a rare tumor. Radiol Case Rep. 2023;18(11):4130-3. https://doi.org/10.1016/j.radcr.2023.08.080
8. Perdigão PF, Stergiopoulos SG, De Marco L, Matyakhina L, Boikos SA, Gomez RS, et al. Molecular and immunohistochemical investigation of protein kinase a regulatory subunit type 1A (PRKAR1A) in odontogenic myxomas. Genes Chromosomes Cancer. 2005;44(2):204-11. https://doi.org/10.1002/gcc.20232
9. Dotta JH, Miotto LN, Spin-Neto R, Ferrisse TM. Odontogenic myxoma: systematic review and bias analysis. Eur J Clin Invest. 2020;50(4):e13214. https://doi.org/10.1111/eci.13214
10. Kumar N, Kohli M, Pandey S, Agarwal P. Odontogenic myxoma. J Maxillofac Oral Surg. 2010;13(2):222-6. https://doi.org/10.1007/s12663-010-0107-7
11. Trode H, Pouget C, Talbi M, Simon E, Brix M. Surgical management of odontogenic myxomas: a case series. Int J Surg Case Rep. 2023;112:108945. https://doi.org/10.1016/j.ijscr.2023.108945
12. Kawase-Koga Y, Saijo H, Hoshi K, Takato T, Mori Y. Surgical management of odontogenic myxoma: a case report and review of the literature. BMC Res Notes. 2014;7:214. https://doi.org/10.1186/1756-0500-7-214
13. Zanetti LSS, Carvalho BMH, Garcia Jr IR, de Barros LAP, Santos PL, Ferreira ACRM. Conservative treatment of odontogenic myxoma. J Craniofac Surg. 2011;22(5):1939-41. https://doi.org/10.1097/SCS.0b013e318211519e
14. Martins HDD, Vieira EL, Gondim ALMF, Osório-Júnior HA, Silva JSP, Silveira EJD. Odontogenic myxoma: follow-up of 13 cases after conservative surgical treatment and review of the literature. J Clin Exp Dent. 2021;13(7):e637-41. https://doi.org/10.4317/jced.58080
15. Saalim M, Sansare K, Karjodkar FR, Farman AG, Goyal SN, Sharma SR. Recurrence rate of odontogenic myxoma after different treatments: a systematic review. Br J Oral Maxillofac Surg. 2019;57(10):985-91. https://doi.org/10.1016/J.BJOMS.2019.09.005
16. Rocha AC, Gaujac C, Ceccheti MM, Amato-Filho G, Machado GG. Treatment of recurrent mandibular myxoma by curettage and cryotherapy after thirty years. Clinics (Sao Paulo). 2009;64(2):149-52. https://doi.org/10.1590/S1807-59322009000200013
17. Fariña-Sirandoni R, Núñez-Castañeda L, Donoso MA, Deramond-Díaz JP. Ethanol ablation for odontogenic myxoma: new alternative of conservative treatment. Int J Interdiscip Dent. 2023;16(1):85-7. http://dx.doi.org/10.4067/S2452-55882023000100085