

Importance of Early Diagnosis of Small Solid Ameloblastoma in the Mandibular Alveolar Region: Case Report

Importância do Diagnóstico Precoce de Pequeno Ameloblastoma Sólido na Região Alveolar Mandibular:
Relato de Caso

Importancia del Diagnóstico Precoz de Ameloblastoma Sólido Pequeño en Región Alveolar Mandibular:
Reporte de Caso

Izabella SOL

DDS, MSc, PhD of Oral and Maxillofacial Surgery, Department of Diagnosis and Surgery, Araçatuba School of Dentistry,
São Paulo State University (UNESP), 16015-050 Araçatuba, São Paulo – Brazil
<https://orcid.org/0000-0003-2384-9819>

Cristóvão Marcondes de Castro RODRIGUES

DDS, MSc, Medicine Student, Department of Medicine, University of Taubaté, 12020-040 Taubaté, São Paulo – Brazil
<https://orcid.org/0000-0002-0590-9075>

Daniela MENESES-SANTOS

DDS, MSc, Department of Dentistry, Federal University of Sergipe, 49060-108 Aracaju, Sergipe – Brazil
<https://orcid.org/0000-0002-8898-9508>

Jéssica Brenda Rodrigues Medeiros MORAIS

DDS. Private Clinic, Uberlândia, Brazil
<https://orcid.org/0000-0001-6230-8631>

Marcelo Caetano Parreira da SILVA

DDS, MSc, PhD. Preceptor of Residency in Oral and Maxillofacial Surgery and Traumatology, Department of Oral and
Maxillofacial Surgery and Traumatology and Implantology, Federal University of Uberlândia (HC-UFG),
38408-100 Uberlândia, Minas Gerais – Brazil
<https://orcid.org/0000-0001-6010-8062>

Cláudia Jordão SILVA

DDS, MSc, PhD. Preceptor of Residency in Oral and Maxillofacial Surgery and Traumatology, Department of Oral and
Maxillofacial Surgery and Traumatology and Implantology, Federal University of Uberlândia (HC-UFG),
38408-100 Uberlândia, Minas Gerais – Brazil
<https://orcid.org/0000-0002-7114-4859>

Abstract

Commonly located in the posterior region of the mandible, solid ameloblastomas are often diagnosed in significant sizes due to their slow and asymptomatic growth. However, when in smaller dimensions, doubts or failures in the diagnosis may occur. The objective of this study is to report a clinical case of solid ameloblastoma in the posterior alveolar region of the mandible, with initial differential diagnosis hypotheses of periodontal lesion, lateral periodontal cyst, ameloblastoma and odontogenic keratocyst. After clinical and radiographic examination, new diagnostic hypotheses emerged due to tumor characteristics. An incisional biopsy was chosen and the diagnosis of solid ameloblastoma was defined. The radiolucent lesions found in the jaws in smaller dimensions must be carefully evaluated, as aggressive pathologies and with growth potential can be diagnosed initially, reducing the morbidity caused by these when they reach considerable sizes.

Descriptors: Odontogenic Tumors; Ameloblastoma; Oral Pathology; Diagnoses and Examinations; Oral Surgical Procedures.

Resumo

Comumente localizados na região posterior da mandíbula, os ameloblastomas sólidos são frequentemente diagnosticados em tamanhos significativos devido ao seu crescimento lento e assintomático. Porém, quando em dimensões menores, podem ocorrer dúvidas ou falhas no diagnóstico. O objetivo deste trabalho é relatar um caso clínico de ameloblastoma sólido na região alveolar posterior da mandíbula, com hipóteses de diagnóstico diferencial inicial de lesão periodontal, cisto periodontal lateral, ameloblastoma e queratoquiste odontogênico. Após exame clínico e radiográfico, surgiram novas hipóteses diagnósticas devido às características da lesão. Optou-se por biópsia incisional e foi definido o diagnóstico de ameloblastoma sólido. As lesões radiolúcidas encontradas nos maxilares em dimensões menores devem ser cuidadosamente avaliadas, pois patologias agressivas e com potencial de crescimento podem ser diagnosticadas inicialmente, diminuindo a morbidade causada por estas quando atingem tamanhos consideráveis.

Descriptores: Tumores Odontogênicos; Ameloblastoma; Patología Oral; Diagnósticos e Exames; Procedimientos Cirúrgicos Orales.

Resumen

Localizados comúnmente en la región posterior de la mandíbula, los ameloblastomas sólidos suelen diagnosticarse en tamaños significativos debido a su crecimiento lento y asintomático. Sin embargo, cuando en dimensiones más pequeñas pueden surgir dudas o fallas en el diagnóstico. El objetivo de este trabajo es reportar un caso clínico de ameloblastoma sólido en la región alveolar posterior de la mandíbula, con hipótesis de diagnóstico diferencial inicial de lesión periodontal, quiste periodontal lateral, ameloblastoma y queratoquiste odontogénico. Tras el examen clínico y radiográfico surgieron nuevas hipótesis diagnósticas dadas las características de la lesión. Se realizó biopsia incisional y se definió el diagnóstico de ameloblastoma sólido. Las lesiones radiolúcidas que se encuentran en los maxilares en dimensiones menores deben ser evaluadas cuidadosamente, ya que inicialmente pueden diagnosticarse patologías agresivas y con potencial de crecimiento, disminuyendo la morbilidad causada por estas cuando alcanzan tamaños considerables.

Descriptores: Tumores Odontogénicos; Ameloblastoma; Patología Bucal; Diagnósticos y Exámenes; Procedimientos Quirúrgicos Orales.

INTRODUCTION

The diagnosis of radiolucent lesions found in the jaws is particularly difficult due to the wide variety of etiological factors and pathological

entities. The evaluation of the aggressiveness potential of these lesions is done through clinical, radiographic and histopathological examination, where the most aggressive lesions tend to cause

tooth movement, nervous disorders, loss of bone continuity and root resorption¹.

Solid ameloblastoma is a benign epithelial tumor formed by islands and epithelial cords arising from the remains of the dental lamina present in the periodontal ligament and in the dental follicle of unerupted teeth². It is characterized by being locally aggressive, infiltrative and recurrent^{3,4}, in addition to releasing bone and dental resorption mediators.² It is difficult to trace the precise point of origin of most ameloblastic tumors, because, due to their slow and asymptomatic growth, they are commonly diagnosed in considerable sizes^{3,5}, and in can radiographically mimic a periapical lesion when small sizes, making the correct diagnosis difficult^{2,6}. In view of the low incidence of these lesions in the region of the alveolar ridge and in small sizes, this study aims to report the diagnosis of small proportions of ameloblastoma in the region of the bony crest and alveolar ridge between lower molars, discovered in a routine examination, with initial diagnostic hypotheses of inflammatory lesion.

CASE REPORT

Paciente do sexo feminino, quatro anos, raça A 38-year-old male patient was referred by a Dental Surgeon to the Oral and Maxillofacial Surgery team for evaluation of lesion in the mandible. The patient reported a history of interdental bleeding for six months whenever he performed dental hygiene, with the appearance of an erosive lesion in the interdental papilla of the lower molars on the right side, initially diagnosed as a periodontal lesion.

On clinical examination, there were no signs of bone expansion, with the presence of erosive lesion in the interdental papilla between lower right molars (Figure 1A). The patient had no pain complaints, only discomfort at the site during manipulation. On the periapical radiography of the region of the molars involved, a multilocular radiolucent lesion with the appearance of soap bubbles was seen involving alveolar bone and areas of root resorption in both dental elements, without associated mobility (Figure 1B). Computerized Tomographic Cone Beam images showed a rupture of the buccal and lingual cortical at the level of the alveolar crest (Figure 2), adding to the diagnostic hypotheses odontogenic keratocyst and ameloblastoma.

Under local anesthesia, an incisional biopsy was performed. The diagnosis was compatible with ameloblastoma, with report of areas of cell atypia in the histopathological exam. In view of the result, marginal resection with a safety margin of 01 cm under general anesthesia was chosen as definitive treatment (Figure 3A-D). The mandibular base and the mandibular canal were preserved, and a reconstruction plate was installed in the basal region to provide greater stability to the residual

bone. The affected dental elements were extracted prior to resection and sent for histopathological analysis together with the final piece. The definitive diagnosis was ameloblastoma, with tumor-free margins. Initially weekly follow-ups were performed, with no occurrence of postoperative complications in 12 months (Figure 4). The patient is followed up every six months on an outpatient basis, for control and subsequent bone reconstruction.



Figure 1: Initial assessment of the lesion. (A) Clinically, erosive lesion with normal color was observed in the interpapillary region of lower molars. (B) On periapical x-ray, it was possible to notice osteolytic lesion, with images suggestive of multiple foci of root resorption.



Figure 2: In CT cone beam, it is possible to observe in the coronal cut loss of continuity of the buccal and lingual cortical.

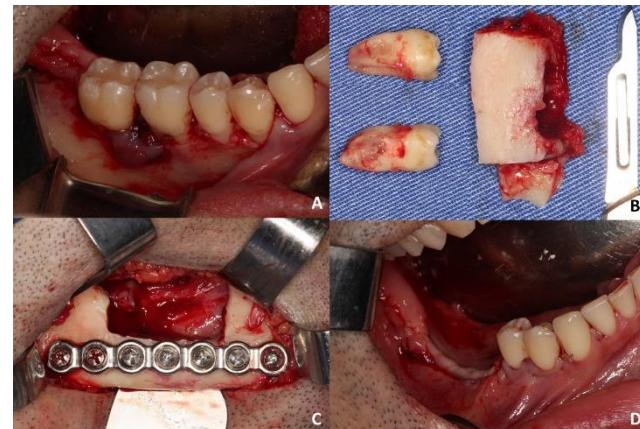


Figure 3: Trans-operative. (A) After an extra-oral incision, an intraoral incision to expose the tumor was made, bypassing the gingival area infiltrated by the tumor. (B) Extraction of the dental elements involved in the lesion, which showed macroscopic areas of root resorption, follow by subsequent installation of reconstruction plate and resection tumor with a safety margin was performed. (D) Final intraoral aspect.



Figure 4: Post operative panoramic of 12 months.

DISCUSSION

The diagnosis of radiolucent lesions in the jaws must be based on clinical, radiographic and microscopic characteristics, making it necessary to differentiate cysts, tumors and dysplasia from endodontic and periodontal lesions^{6,7}. For this, the histopathological analysis must be performed to establish a definitive diagnosis of these small lesions found in routine exams², as they can be representations of initial aggressive lesions, as reported by O'Reilly et al.¹. As in the case discussed, given the presence of osteolytic lesions in the jaws, a thorough evaluation of the clinical and radiographic findings should be performed, delimiting all possible hypotheses for diagnosis.

The low incidence of ameloblastoma in alveolar region is reported, and its detection in small/medium size is accidental and often mistaken initially as another entity². Sinha et al.⁴ reports the unusual presentation of ameloblastoma in the dental alveolus of a tooth previously treated as an endoperiodontal lesion. Faitaroni et al.⁷ reports the diagnosis of ameloblastoma after enucleation of an extensive radiolucent lesion involving lower incisors, which had been clinically diagnosed as a periodontal lesion. Gondak et al.⁶ report five cases of unicystic ameloblastoma clinically diagnosed as apical periodontitis. Panneerselvam et al.⁸ demonstrated unicystic ameloblastoma involving lower molars with radiographic appearance similar to a cyst. In this case report, the diagnosis of ameloblastoma in the region of the bony crest associated with root absorptions in posterior teeth was made possible through a multilocular image on radiographic examination, being confirmed by incisional biopsy. We emphasize the importance of a correct interpretation of clinical and radiographic findings for the detection of initial pathological lesions with subclinical signs that may go unnoticed when the initial diagnosis fails.

The literature cite the importance of the relationship between the diagnosis of ameloblastoma and the presence of root resorption, a finding that is rarely seen among others benign odontogenic tumors but which requires a biopsy to establish the definitive diagnosis². Panneerselvam et al.⁸ emphasize the importance of including the hypothesis of other pathologies in the presence of osteolytic lesions found in routine exams. The case presented corroborates the above implications, since the initial diagnostic hypotheses considered only inflammatory lesion, which did not correspond to the characteristics found in computed tomography. Although clinically only gingival erosion was observed as a sign of abnormality, the imagological signs represented a warning of the aggressiveness of the lesion under investigation, not being compatible with the hypotheses of

inflammatory and cystic lesions raised in previous attendance.

Chae et al.⁹ sought to quantify the growth rate of ameloblastoma based on documented tumor dimensions and the duration of symptoms, finding a percentage of 87.84% growth per year for benign ameloblastoma, corroborating to the infiltrative pattern and high growth potential observed of the ameloblastomas². Depending on its clinical presentation, the treatment of ameloblastoma will be surgical by enucleation or resection, where the lowest rates of recurrence are associated with resection treatment with a safety margin^{2,6,8}. A better radiographic understanding of ameloblastoma can improve its early diagnosis, treatment and prognosis¹⁰. Early detection, as reported in this case, enabled a less morbid treatment, where marginal mandibular preservation was made possible respecting the safety margin proposed in the literature, offering the patient less aggressive treatment and which will favor subsequent reconstruction with autogenous graft.

CONCLUSION

Careful evaluation of small radiolucent lesions in the jaws is necessary as they can be confused with pathologies of less severe inflammatory origin. The incisional biopsy for primary diagnosis of any suspected pathology found in routine examinations is essential for correct diagnosis, decreasing the morbidity of the ameloblastoma and avoiding unnecessary therapies.

REFERENCES

1. O'Reilly M, O'Reilly P, Todd CE, Altman K, Schafer K. An assessment of the aggressive potential of radiolucencies related to the mandibular molar teeth. *Clin Radiol*. 2000;55(4):292-5.
2. Martins GG, Oliveira IA, Consolaro A. The mechanism: how dental resorptions occur in ameloblastoma. *Dental Press J Orthod*. 2019;24(4):21-32.
3. Ide F, Mishima K, Yamada H, Horie N, Saito I, Shimoyama T, et al. Unsuspected small ameloblastoma in the alveolar bone: a collaborative study of 14 cases with discussion of their cellular sources. *J Oral Pathol Med*. 2008;37(4):221-7.
4. Sinha D, Dormaar T, Salvo N, Politis C, Bornstein MM, Jacobs R. Solid ameloblastoma mimicking a periodontal defect: A diagnostic dilemma. *Eur J Oral Implantol*. 2016;9 Suppl 1(2):189-93.
5. Takeda Y, Yamamoto H. Ameloblastoma located in the alveolar bone: a case report. *J Nihon Univ Sch Dent*. 1990;32(4):270-4.
6. Gondak RO, Rocha AC, Neves Campos JG, Vargas PA, de Almeida OP, Lopes MA, et al. Unicystic ameloblastoma mimicking apical

periodontitis: a case series. *J Endod.* 2013;39(1):145-8.

7. Faitaroni LA, Bueno MR, De Carvalhosa AA, Bruehmueller Ale KA, Estrela C. Ameloblastoma suggesting large apical periodontitis. *J Endod.* 2008;34(2):216-9.
8. Panneerselvam K, Kavitha B, Panneerselvam E, Parameswaran A. Mural Unicystic Ameloblastoma mimicking Odontogenic Cyst. *J Family Med Prim Care.* 2020;9(5):2524-2527.
9. Chae MP, Smoll NR, Hunter-Smith DJ, Rozen WM. Establishing the natural history and growth rate of ameloblastoma with implications for management: systematic review and meta-analysis. *PLoS One.* 2015;10(2):e0117241.
10. Mariz BA, Andrade BA, Agostini M, de Almeida OP, Romañach MJ, Jorge J Jr, et al. Radiographic estimation of the growth rate of initially underdiagnosed ameloblastomas. *Med Oral Patol Oral Cir Bucal.* 2019;24(4):e468-e472.

CONFLICT OF INTERESTS

The authors declare no conflict of interest.

CORRESPONDING AUTHOR

Izabella Sol

Department of Diagnosis and Surgery,
Araçatuba School of Dentistry,
São Paulo State University (UNESP),
16015-050 Araçatuba, São Paulo – Brazil
e-mail: izabella.sol@unesp.br

Received 02/04/2022

Accepted 31/12/2023