

CASE REPORT



Complex odontoma: A clinical case report

Gabriela da Rocha Leódido, Rudys Rodolfo de Jesus Tavares, Francisco José Lima Maciel, Andrezza Bastos Maciel

Department of Post-Graduate Program in Dentistry, CEUMA University, Sao Luis, Brazil

Keywords

Biopsy, Complex odontoma, odontogenic tumors

Correspondence

Rudys Rodolfo de Jesus Tavares, CEUMA University, Rua Josue Montello, 01, São Luis, Brazil. Email: rudysd@uol.com.br

Received 15 January 2015;

Accepted 27 February 2015

doi: 10.15713/ins.sjod.30

How to cite the article:

Leódido GR, Tavares RR, Maciel FJ, Maciel AB.

Complex odontoma: A clinical case report. Sci

J Dent 2015;2:31-35.

Abstract

Odontomas are mixed odontogenic tumors composed of mineralized tissue of ectomesenchymal origin. According to the World Health Organization (WHO) ranks, the odontomas are classified into two main types: Complex and compound. They are usually detected in routine radiographs and may be related to various causes, and are rarely associated with impacted teeth. This article aims to present the clinical and histopathological features of this tumor through a case report. The female patient, 18-year-old, sought dental care and reported pain, swelling, and bleeding in the region of the impacted tooth 48. A lesion was observed in the image exam, so a biopsy was performed. The result of the biopsy confirmed that, it was a case of complex odontoma in the posterior mandible, which was removed by technical curettage of the lesion.

Introduction

Complex odontoma is an odontogenic tumor of ectomesenchymal origin, usually asymptomatic, rare, characterized by the expansion of the cortical bone, which may cause pathological bone fracture if left untreated.^[1,2]

Radiographically, complex odontoma can be found in circular and ovoid shape. The vast majority of cases may be associated with impacted teeth, usually surrounded by amorphous radiopaque masses, with a thin radiolucent zone.^[3,4]

By having an etiology of idiopathic origin, it is suggested that the dental impaction, trauma, presence of local infection, malformation, and spacing could trigger the formation of an odontoma.^[5]

Internationally, in 1971 the first classification system accepted for odontogenic tumors was published by the World Health Organization, being updated in 2005. According to the Organization, odontomas can be classified into two types: Compound and complex.^[6]

Both have no predilection in terms of gender and age, but some authors show that most affect the women in the second decade of life.^[7,8] The incidence of combined odontoma corresponds to 67% of cases while the complex corresponds to 33%.^[9]

The presence of odontoma can cause a lot of inconveniences, especially problems related to interference in the tooth eruption, slowing or preventing the process and causing an ectopic eruption in some cases.^[10-12]

Some potential sequelae were also reported: Displacement and malformation of neighboring teeth, diastema, anodontia, and the pressure exerted by odontoma can cause pain, devitalization, and dental resorption. Therefore, it is recommended that, once detected odontoma, this should be removed surgically.^[13]

The surgical technique for removing odontomas consists, in general, of the observation of the basic principles for surgical extraction of impacted teeth. It is usually adopted the enucleation technique for total tumor removal, followed by curettage, in order to remove the entire lesion.^[14,15]

Considering the importance of knowledge of its etiology, clinical, and radiographic aspects and factors of certain usual lesions in the oral region, as well as the precariousness of information and lack of articles about these diseases, it is necessary to review the literature based on the present clinical case, in order to supplement previous work, enhance the knowledge of dental surgeons, as an aid in the differential diagnosis, as well as in carrying out, preventive campaigns to decrease late diagnosis

in municipalities lacking of information. Thus, this study aims to carry out a case report of a patient with a complex odontoma since the establishment of diagnosis by clinical, radiographic, and histological examination until completion of treatment.

Case Report

The patient BLSP., 18-year-old, attended the Service of Oral and Maxillo Facial Surgery and Traumatology of Dental Specialty Center of Sao Jose de Ribamar – Maranhão (CEO- SJR/MA), referred for specialized treatment, in order to perform the extraction of an included tooth (48) and surgery to remove lesions that had not been diagnosed.

After thorough anamnesis, she reported the same pain in the tooth, swelling, and inflammation lasting for 2-years. It also said that in 2011, after undergoing assessment for orthodontic treatment, an injury was detected through panoramic radiographs, being referred to specialized services for diagnosis and treatment.

The extraoral clinical examination allowed the professionals to observe an asymmetry in the lower third of the face on the right. It was also noted a hardened area fixed on the body of the right mandible area, painless on palpation. In the intraoral clinical examination, it was observed swollen gums and bleeding to the touch and presence of fistula on the facial surface in the region of tooth 48 [Figure 1]. Regarding the radiographic examination, there was the presence of impacted tooth in the mandibular base region (tooth 48) with cortical bone thickening, associated with extensive radiopaque mass, circumscribed by a radiolucent halo [Figures 2 and 3].

The patient returned just 2-years after the initial contact, and then being performed an incisional biopsy of the lesion, where the result of the histopathological examination indicated the presence of a complex odontoma [Figure 4]. It was decided to perform the excision of the lesion in a surgical center under general anesthesia since due to the size of it; there was a great risk of mandibular bone fracture. Then the following preoperative tests were requested: Complete blood count, fasting blood glucose, coagulation, blood type, urea, creatinine, and surgical risk. As preoperative medication was applied, it was required the internal use of these drugs to decrease the infectious-inflammatory condition: Antibiotic (amoxicillin 500 mg, 01 tablet every 8 h for 7 days), and analgesics (paracetamol 750 mg, 01 tablet every 8 h, for 4 days). There was also orientation on the strict oral hygiene, using mouthwashes (diclonate of chlorhexidine 0.12%).

After delivery of the exams, the patient was referred to the Surgery and Traumatology Hospital Clementino Moura in São Luís - MA to perform the surgery.

After general anesthesia, it was made an extraoral surgical submandibular access on the right, with dissection in planes. After the bone exposure, it was observed that the buccal bone plate had papyraceous consistency. As the injury was located at the base of the jaw, and with a length of 42 mm, it was decided to perform a complete resection in blocks, combined with the removal of the impacted tooth [Figure 5].



Figure 1: Initial clinical aspect of the lesion in the jaw: Presence of exposed bone rim, swollen gums, fistula in the vestibular region



Figure 2: Panoramic radiography: Presence of included tooth in the region of the jaw branch (tooth 48), radiopaque area suggests the existence of complex odontoma

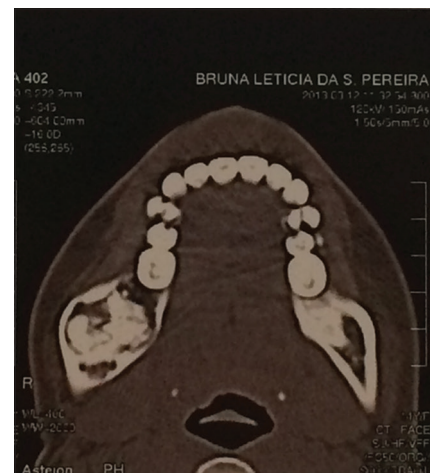


Figure 3: Computer tomography (Fan-Beam)

After surgical excision, it was found that the body of the jaw was very fragile, with reduced amount of lingual bone plate, so it was decided to reinforce the structure with the use

of reconstructive titanium plate (2.4 system) fixed with four screws, ending with suture in planes with vicryl 3.0 resorbable thread [Figure 6], and the last plane corresponding to the skin was sutured with nylon 5.0.

The patient was hospitalized for 48 h to control pain and postoperative edema and to prevent infection, with the administration of dexamethasone 10 mg every 12 h, intravenously, associated with cephalothin 1 g every 8 h, intravenously and tramadol hydrochloride 100 g every 8 h intravenously during the hospital stay.

After a month and 28 days of surgery and antibiotic therapy, there was an initial improvement of the lesion with normal gum appearance without the presence of intra-oral fistula and extra-oral edema [Figure 7A]. A panoramic radiograph was required to evaluate the titanium plate and bone regeneration in the region.

Was asked to return the patient to the Department of Oral and Maxillofacial Facial Surgery of CEO - SJR/MA

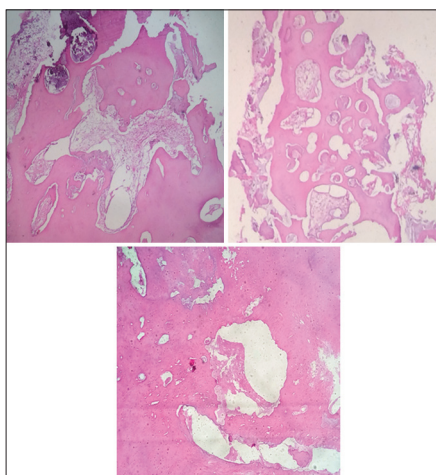


Figure 4: Histopathological exam: The histological sections showed disorganized clumps of mature tubular dentin, filed by circular spaces filled with enamel matrix.



Figure 5: Final aspect of lesion: Removal of bone tissue, obtaining bleeding margins

after 9 months, for post-operative control through clinical examination and panoramic X-ray, where it was observed total closure of the dental alveoli and normal appearance of the gums [Figure 7B].

Discussion

The relative frequency of types of odontogenic tumors showed statistical differences after retrospective studies conducted in Asia, Africa, Europe, and America.^[16,17] However, it can be assumed that the geographical variation may interfere with the difference found in these studies, since in some countries the odontoma is underestimated due to absence of clinical symptoms, limited growth of some tumors and even negligence of the patient who does not seek care.^[18,19] As in this case, where the patient took longer than 2-years after the initial discovery of the lesion to perform a biopsy and reach the histopathological diagnosis of complex odontoma. Hence, many cases are documented incorrectly or even are not sent for histopathological investigation.

In the Brazilian population, it can be observed from the odontogenic tumors the prevalence of odontomas with 29.9%, and out of these, 9.7% are compound odontomas and 15.3%, complex odontomas.^[20] However, odontomas with extensive involvement of the jaws are rarely found.^[5] In the clinical case in question, it is a rare case of an injury of extensive complex odontoma, which was possibly associated with impaction of the third molar.

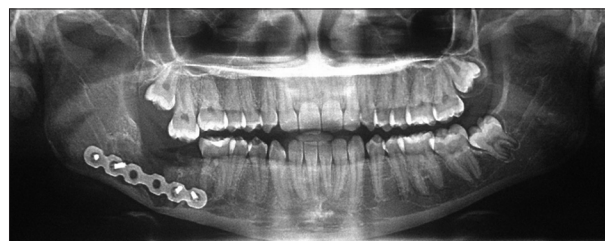


Figure 6: Final panoramic radiography

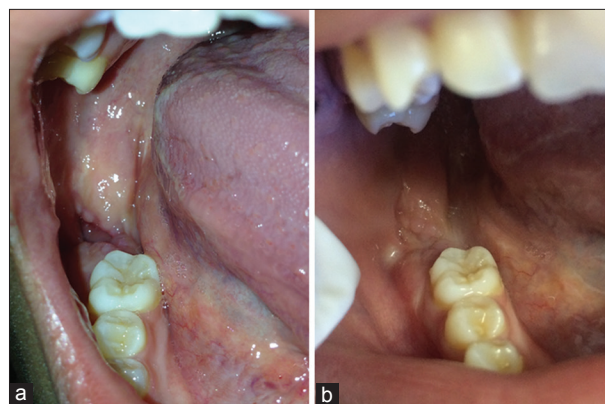


Figure 7: Clinical appearance after 2 months (a) and after 6 months (b): Postoperative intra-oral aspect, showing good healing, normal aspect of the gums, no fistula, and bleeding

In contrast, most patients with odontogenic tumors (86%) have more than 20 years, with no predilection for gender.^[16,21] The complex odontoma is more common in the mandible, in the posterior region on the right side, which is comparable to previous studies.^[7,22] In agreement with these studies, the described case deals with a mandibular lesion in the region of the tooth 48 female, 18 years of age.

As it is usually an asymptomatic lesion, many cases end up being discovered during a routine radiography.^[12] The radiographic aspects of complex odontoma are well-characteristic, with the presence of calcified structures, similar to a radiopaque mass not resembling a tooth, as the compound odontoma does, surrounded by a radiolucent area. Complementary to conventional radiography, computed tomography shows more details of the internal structure which cannot be clearly seen on conventional radiography, with the ability to view a tridimensional image, being of great importance in the diagnosis and surgical planning.^[23,24] In this case, the observation of the injury was through a radiographic finding in a panoramic radiograph requested by an orthodontist. After the arrival of the patient to the specialized service, periapical radiographs, new panoramic radiography, and Fan-Beam computed tomography.

The development of pathological conditions of that odontogenic tumor can be associated with the presence of impacted third molars. Thus, the removal of the tooth in the presence of the lesion needs well-established criteria.^[25] Removal is indicated in cases of infection, cysts, tumors, destruction of adjacent teeth, and bone. The development of tumors associated with the presence of impacted third molars is extremely rare. In addition, according to incidence, it is claimed to be relatively small. However, in the clinical case described in the study we noted the presence of a complex odontoma in the third impacted molar region. It is a rare injury, both by location and by its size, where it was decided to perform tooth and injury excision in a surgical center under general anesthesia due to the poor remaining bone structure for the fixation of titanium plates.^[20,26]

The prognosis of the lesion is excellent, with rare recurrence in most cases when a complete excision is performed. To minimize the recurrence of the lesion, some measures may be taken, like enucleation with peripheral osteotomies, with the removal of the overlying mucosa and the use of Carnoy solution.^[27] The treatment in case of odontoma is enucleation, but the size of the lesion can interfere in the indication, especially in cases of more extensive lesions, where the removal might involve large bone loss, potential jaw fracture and damage to the inferior alveolar nerve. In these cases, the most appropriate technique would be sagittal split osteotomy (SSO).^[28] In this case, because it is an extensive injury with the possibility of mandibular fracture, an extra-oral access enucleation was performed. After the control return of the patient, 9 months after the surgical procedure, there was a favorable clinical and radiographic condition in the region where the lesion was previously found.

Conclusion

According to the reviewed literature and the reported case, it is concluded that the evaluated lesion was a complex odontoma associated with an impacted tooth. A block resection of part of the jaw was necessary for the complete solution of the case, as well as immediate reinforcement with a titanium plate and screws, with a favorable prognosis.

Acknowledgments

Thanks to the University, its Administrative and Direction boards, which supported the development of this research throughout the structure, as well as the differentiation of the discovery of the differential diagnosis of the injury.

References

1. Preetha A, Balikai BS, Sujatha D, Pai A, Ganapathy KS. Complex odontoma. *Gen Dent* 2010;58:e100-2.
2. Magnur VS, Prabhadevi C, Sharma R. Odontoma. A brief overview. *Int J Clin Pediatr Dent* 2011;4:177-85.
3. Singer SR, Mupparapu M, Milles M, Rinaggio J, Pisano D, Quaranta P. Unusually large complex odontoma in maxillary sinus associated with unerupted tooth. Report of case and review of literature. *N Y State Dent J* 2007;73:51-3.
4. Hidalgo-Sánchez O, Leco-Berrocá MI, Martínez-González JM. Metaanalysis of the epidemiology and clinical manifestations of odontomas. *Med Oral Patol Oral Cir Bucal* 2008;13:E730-4.
5. Da Costa CT, Torriani DD, Torriani MA, da Silva RB. Central incisor impacted by an odontoma. *J Contemp Dent Pract* 2008;9:122-8.
6. Neville BW, Damm DD, Allen CM, Bouquot JE. *Oral and Maxillofacial Pathology*. 3rd ed. Philadelphia: Saunders; 2009. p. 984p.
7. Jing W, Xuan M, Lin Y, Wu L, Liu L, Zheng X, *et al.* Odontogenic tumours: a retrospective study of 1642 cases in a Chinese population. *Int J Oral Maxillofac Surg* 2007;36:20-5.
8. El-Gehani R, Orafi M, Elarbi M, Subhashraj K. Benign tumours of orofacial region at Benghazi, Libya: A study of 405 cases. *J Craniomaxillofac Surg* 2009;37:370-5.
9. Soluk Tekkesin M, Pehlivan S, Olgac V, Aksakalli N, Alatli C. Clinical and histopathological investigation of odontomas: review of the literature and presentation of 160 cases. *J Oral Maxillofac Surg* 2012;70:1358-61.
10. Kamel SG, Kau CH, Wong ME, Kennedy JW, English JD. The role of Cone beam CT in the evaluation and management of a family with Gardner's syndrome. *J Craniomaxillofac Surg* 2009;37:461-8.
11. Lee BD, Lee W, Oh SH, Min SK, Kim EC. A case report of Gardner syndrome with hereditary widespread osteomatous jaw lesions. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2009;107:e68-72.
12. Serra-Serra G, Berini-Aytés L, Gay-Escoda C. Erupted odontomas: A report of three cases and review of the literature. *Med Oral Patol Oral Cir Bucal* 2009;14:E299-303.
13. Da Silva LF, David L, Ribeiro D, Felino A. Odontomas: A clinicopathologic study in a Portuguese population.

- Quintessence Int 2009;40:61-72.
14. Isler SC, Demircan S, Soluk M, Cebi Z. Radiologic evaluation of an unusually sized complex odontoma involving the maxillary sinus by cone beam computed tomography. *Quintessence Int* 2009;40:533-5.
 15. Iatrou I, Vardas E, Theologie-Lygidakis N, Leventis M. A retrospective analysis of the characteristics, treatment and follow-up of 26 odontomas in Greek children. *J Oral Sci* 2010;52:439-47.
 16. Luo HY, Li TJ. Odontogenic tumors: A study of 1309 cases in a Chinese population. *Oral Oncol* 2009;45:706-11.
 17. Osterne RL, Brito RG, Alves AP, Cavalcante RB, Sousa FB. Odontogenic tumors: A 5-year retrospective study in a Brazilian population and analysis of 3406 cases reported in the literature. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2011;111:474-81.
 18. Mehra P, Singh H. Complex composite odontoma associated with impacted tooth: A case report. *N Y State Dent J* 2007;73:38-40.
 19. Tawfik MA, Zyada MM. Odontogenic tumors in Dakahlia, Egypt: analysis of 82 cases. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2010;109:e67-73.
 20. Fernandes AM, Duarte EC, Pimenta FJ, Souza LN, Santos VR, Mesquita RA, *et al.* Odontogenic tumors: A study of 340 cases in a Brazilian population. *J Oral Pathol Med* 2005;34:583-7.
 21. Sriram G, Shetty RP. Odontogenic tumors: A study of 250 cases in an Indian teaching hospital. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2008;105:e14-21.
 22. Ochsenius G, Ortega A, Godoy L, Penafiel C, Escobar E. Odontogenic tumors in Chile: A study of 362 cases. *J Oral Pathol Med* 2002;31:415-20.
 23. Marques YM, Botelho TD, Xavier FC, Rangel AL, Rege IC, Mantesso A. Importance of cone beam computed tomography for diagnosis of calcifying cystic odontogenic tumour associated to odontoma. Report of a case. *Med Oral Patol Oral Cir Bucal* 2010;15:490-3.
 24. Gurgel CV, Lourenco NN, Kobayashi TY, Garib DG, da Silva SM, Machado MA, *et al.* Management of a permanent tooth after trauma to deciduous predecessor: An evaluation by cone-beam computed tomography. *Dent Traumatol* 2011;27:408-12.
 25. Werkmeister R, Fillies T, Joos U, Smolka K. Relationship between lower wisdom tooth position and cyst development, deep abscess formation and mandibular angle fracture. *J Craniomaxillofac Surg* 2005;33:164-8.
 26. Güven O, Keskin A, Akal UK. The incidence of cysts and tumors around impacted third molars. *Int J Oral Maxillofac Surg* 2000;29:131-5.
 27. Johnson NR, Batstone MD, Savage NW. Management and recurrence of keratocystic odontogenic tumor: A systematic review. *Oral Surg Oral Med Oral Pathol Oral Radiol* 2013;116:e271-6.
 28. Rittersma J, van Gool AV. Surgical access to multicystic lesions, by sagittal splitting of the lower jaw. *J Maxillofac Surg* 1979;7:246-50.