

International Journal of Dental Science and Innovative Research (IJDSIR) IJDSIR : Dental Publication Service Available Online at:www.ijdsir.com

Volume – 7, Issue – 4, July– 2024, Page No. : 65 - 69

Complex Odontoma: A Case Report

¹Dr. Ayeda Jehan, Post graduate student, Dept of Oral Pathology & Microbiology, Indira Gandhi Govt Dental College, Jammu.

²Dr. Rubeena Anjum, Professor & HOD, Dept of Oral Pathology & Microbiology, Indira Gandhi Govt Dental College, Jammu.

³Dr Mandeep Kaur, Assistant Professor, Dept of Oral Pathology & Microbiology, Indira Gandhi Govt Dental College, Jammu.

Corresponding Author: Dr. Ayeda Jehan, Post graduate student, Dept of Oral Pathology & Microbiology, Indira Gandhi Govt Dental College, Jammu.

Citation of this Article: Dr. Ayeda Jehan, Dr. Rubeena Anjum, Dr Mandeep Kaur, "Complex Odontoma: A Case Report", IJDSIR- July– 2024, Volume –7, Issue - 4, P. No. 65 – 69.

Copyright: © 2024, Dr. Ayeda Jehan, et al. This is an open access journal and article distributed under the terms of the creative common's attribution non-commercial License. Which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given, and the new creations are licensed under the identical terms.

Type of Publication: Case Report

Conflicts of Interest: Nil

Abstract

Odontomas are known as the most common odontogenic tumor and are considered to be a hamartoma rather than a true neoplasm. They are often asymptomatic and are mostly discovered on routine radiographs. When fully developed, odontomas contain components such as enamel, dentin, pulp, and sometimes cementum, mirroring the structural elements found in normal teeth. According to the World Health Organization, odontomas are classified into compound odontoma and complex odontoma. Compound odontomas are calcified tissue and are characterized by their resemblance to normal teeth, whereas complex odontomas do not show similarity to the tooth. Complex odontomas are commonly observed in the posterior mandible. Here we report a case of a complex odontoma in the posterior left maxillary region in a 21 years old female. After clinical

and radiographical examination, it was provisionally diagnosed as odontoma. It was then removed surgically and after histopathological examination confirmed as complex odontoma.

Keywords: Complex odontoma, Compound odontoma, hamartoma, odontogenic tumors.

Introduction

The term "odontoma" means "tumor formed by the overgrowth or transitory of complete dental tissue", a definition coined by Paul Broca in 1867. However, only in 1992 did the World Health Organization (WHO) recognise a classification of two types of odontomacompound odontoma and complex odontoma ^[1]. Morphologically and anatomically, compound odontoma is a tooth-like structure whereas complex odontoma does not show any similarity to the tooth ^[2]. The etiology of odontome is unknown. Various predisposing factors can

Dr. Ayeda Jehan, et al. International Journal of Dental Science and Innovative Research (IJDSIR)

contribute in the development of odontoma such as local trauma, genetic mutation, and infection. Odontomas may also be linked to syndromes such as Gardner's syndrome and Hermann's syndrome ^[3].

Usually asymptomatic, most of the odontomas are often detected in second decade of life as routine radiographic finding. Majority of complex odontomas are located in posterior mandible, followed by anterior maxilla. Resorption of neighboring teeth is rare. Unerupted teeth are associated with 10% to 44.4% of complex odontomas. Relative frequency of complex odontomas varies between 5% and 30% ^[4].

In this article, we present a case of asymptomatic complex odontoma in the posterior maxillary region with brie literature review. Surgical removal along with the extraction of impacted tooth was opted as the treatment of choice.

Case Report

A 21 years-old female reported in the department of Oral Medicine and Radiology with a chief complaint of decayed tooth in the maxillary left posterior region of jaw. The patient had no significant medical or familial histories, and she was afebrile. There was no history of trauma to the maxillofacial region. Intra oral examination revealed carious and partially erupted (buccally) 28. There was a well-defined circumscribed intra oral swelling localised to 28 region which was non tender and hard in consistency. Extraorally there was no significant abnormality. The patient was recommended to undergo panoramic radiograph and cone beam computed tomography.

Panoramic radiograph showed a well - defined radioopaque mass similar in density to calcified dental tissues, located distal to 27 and coronal to impacted 28 [Figure:1].



Figure 1: Orthopantomograph showing a well-defined radiodense lesion in the maxillary left posterior region CBCT showed well defined radiopacity extending from alveolar crest of 28 region towards the floor of maxillary sinus left side approximating the crown portion of impacted 28. Size of the well- defined radiopacity was 13.90 mm x 13.04 mm [Figure 2].



Figure 2: CBCT showing a well-defined radiodense lesion approximating the crown portion of impacted 28 Based on the clinical and radiographic findings, provisional diagnosis of complex odontoma was made. Differential diagnosis of this condition included Calcifying epithelial odontogenic tumor, cementoblastoma, osteoid osteoma and cementoossifying fibroma.

Surgical excision of the mass under Local anesthesia was performed along with extraction of 28 and sent for histopathological examination.

Grossly, the specimen showed a Creamish- brown, multiple hard tissues and a tooth with soft tissue attached

Dr. Ayeda Jehan, et al. International Journal of Dental Science and Innovative Research (IJDSIR)

proximally measuring 2.5 x 2.2 cm in greatest dimension [Figure:3].



Figure 3: Multiple hard tissues and a tooth associated with soft tissue

The H & E stained sections revealed the presence of disorganised and haphazardly arranged mature hard tissues resembling dentin, cementum and few foci of pulpal tissue. Clear empty areas that represented enamel lost during decalcification were present. The basophilic incremental lines of Dentin were evident as dentin is present in relatively larger quantities and form the bulk of lesion [Figure:4].

Based on histopathological features final diagnosis of "Complex Odontoma" was made.



Figure 4: Irregular arrangement of dentine, enamel matrix and pulpal tissue

Discussion

Odontomas are mixed odontogenic tumors because they are composed of tissues originating from both epithelial and mesenchymal cells. According to the latest classification of the WHO (2005), odontomas are broadly classified into compound and complex odontoma ^[5]. Compound odontomas are more common as compared to complex odontoma ^[6]. Complex odontomas show slight male predilection ^[4]. Complex odontomas are usually located in the posterior mandibular region, whereas compound odontomas exhibit a predilection towards anterior maxilla^[7,8]. In our report, maxillary posterior region case was involved.Complex odontomas are mostly asymptomatic in nature and are usually found in routine radiographic examinations [9]. Clinically, three forms of odontomas have been identified in the literature: peripheral (extraosseous or soft tissue), central (intraosseous), and erupted odontomas.Central odontomas are typically found within the bone and are often found accidentally or due to impaction of a permanent or deciduous tooth. Peripheral odontomas are the least common types. Erupted odontomas are the intraosseous odontomas that are located coronally to an erupting or impacted tooth, or superficially facilitating their eruption into the oral cavity^[10].Rarely does a complex odontoma appear in the oral cavity. Because there is no periodontal ligament present in this lesion, its eruption is different from that of teeth ^[9].

Complex odontomas are slow growing, expanding lesions that are usually detected in the second decade of life ^[4,11]. In the presented case, the patient was in the third decades of life.Odontomas are usually associated with alterations in permanent or temporary tooth eruption and incidence of this association ranges from 41% (according to Katz in a series of 396 odontomas) to 87% (according to Tomizawa et al) ^[12,13]. In our case report 28 was partially erupted (buccally) due to obstruction caused by the presence of odontoma. Complex odontomas are frequently found in the right side of the jaw ^[14]. However, in this case, the complex odontoma was seen on the left side of the jaw.

Dr. Ayeda Jehan, et al. International Journal of Dental Science and Innovative Research (IJDSIR)

Radiographically, complex odontomas shows three stages based on the degree of mineralization. The first stage is characterized by radiolucency due to lack of calcification. Intermediate stage is characterised by partial calcification. The third stage appears radiopaque with amorphous masses of dental hard tissue surrounded by a thin radiolucent zone ^[4]. In our case, third stage was noted but without surrounding radiolucent zone.

Histopathologically, complex odontomas are often spherical in shape and consist primarily of a disordered mixture of dental tissues ^[4]. Cementum or cementumlike materials are frequently mixed with dentin-like structures. Within the calcified mineralized masses of varying dentin qualities, one can observe small cavities containing pulp tissue, enamel matrix, and epithelial remnants. Around the lesion, there is often a thin fibrous capsule or, in some cases, a cyst wall is present ^[15]. Similar findings were noted in our case.

Odontomas are treated by simple local excision, and the prognosis is excellent. Recurrences have not been reported. The lesion may recur if it is incompletely removed at its early, predominantly soft tissue stage. Occasionally. a dentigerous cyst may arise from the epithelial lining of the fibrous capsule of a complex odontoma ^[4,16].

Conclusion

Complex odontoma is often associated with impacted tooth and can also impede eruption of permanent tooth. Even though they are benign, their eruption into the oral cavity can result in pain, inflammation and infection. Odontomas should be excised due to the possibility of developing a dentigerous cyst or other neoplasms.

References

 Maltagliati A, Ugolini A, Crippa R, Farronato M, Paglia M, Blasi S, Angiero F. Complex odontoma at the upper right maxilla: Surgical management and histomorphological profile. European Journal of Paediatric Dentistry vol.21/3-2020.

- Lehman H, Lustmann J, Regev E. Removal of an extensive mandibular odontoma using an intraoral approach. Quintess Int. 2013;44(6):425–428. doi: 10.3290/j.qi.a29181.
- Pacifici A, Carbone D, Marini R, Pacifici L. Surgical management of compound odontoma associated with unerupted tooth. Case Rep Dent. 2015; 2015:902618.
- 4. Reichart AP, Philipsen HP. Odontogenic tumors and allied lesions. London: Quintessence; 2004.
- 5. Kaur M, Anjum R, Singh J, Pal P. Complex Odontome: A Case Report. JOHR 2012; 3(1):33-36.
- de Oliveira BH, Campos V, Marçal S. Compound odontoma – Diagnosis and treatment: Three case reports. Pediatr Dent. 2001;23: 151–7.
- Dua N, Kapila R, Trivedi A, Mahajan S, Gupta SD. An unusual case of erupted composite complex odontoma. J Dent Sci Res. 2011; 2:1–5.
- Serra-Serra G, Berini-Aytes L, Gay-Escoda C. Erupted odontomas: a report of three cases and review of literature. Med Oral Patol Oral Cir Bucal. 2009;14: E299–E303.
- Vengal M, Arora H, Ghosh S, Pai KM. Large erupting complex odontoma: a case report. J Can Dent Assoc. 2007; 73:169–173.
- Shafer WG, Hine MK, Levy BM. Odontogenic Tumors. In: Rajendra R, editor. A Textbook of Oral Pathology. 6th ed. Philadelphia: Elsevier Noida; 2009. pp. 287–90.
- Budnick SD. Compound and complex odontomas. Oral Surg Oral Med Oral Pathol. 1976;42(4):501–506. doi: 10.1016/0030-4220(76)90297-8.

- 12. Katz R. An analysis of compound and complex odontomas. J Dentist Child 1989; 56:445-48.
- Tomizawa M, Otsuka Y, Noda T. Clinical observations of odontomas in Japanese children: 39 cases including one recurrent case. Int J Paediatr Dent. 2005; 15:37-43.
- Magnur VS, Prabhadevi C, Sharma R. Odontoma. A brief overview. Int J ClinPed Dent. 2011; 4:177–85.
- Regezi JA, Sciubba JJ, Jordan RC. Odontogenic Tumors. In: Rudolf P, editor. Oral Pathology, Clinical Pathologic Correlations. 4th ed. St. Louis: W. B. Saunders; 2003. pp. 286–8.
- Neville BW, Damm DD, Allen CM, Chi AC. Oral and maxillofacial pathology. Elsevier Health Sciences; 2015 May 13. 674-675p.