(International Print/Online Journal)

SJIF IMPACT FACTOR: 5.565
PUBMED-National Library of Medicine ID-101739732

ISSN (Print): 2209-2870
ISSN (Online): 2209-2862

International Journal of Medical Science and Current Research (IJMSCR)
Available online at: www.ijmscr.com
Volume 4, Issue 6, Page No: 757-761
November-December 2021

IJMSCR

A Composite Compound Odontoma of the Anterior Maxilla Associated With an Impacted Canine

[1]Dr. Rohit Srikanthan, [2]Dr. Ankesh Kumar Jain, [2]Dr. Giriraj Sandeep, [3]Dr. Narahari Ranganatha
[1]Professor, [2]Assistant Professor, [3]Associate Professor.
Department Of OMFS
Rajarajeswari Dental College and Hospital, Bengaluru

***Corresponding Author:**
Dr. Rohit Srikanthan
Professor, Department Of OMFS, Rajarajeswari Dental College and Hospital, Bengaluru

Type of Publication: Original Research Paper
Conflicts of Interest: Nil

Abstract

Anomalies of the jaws are sometimes accidentally diagnosed during the routine radiographic investigations associated with other patient complaints. Complex odontoma are defined as the odontogenic tumour, which are usually rare in the maxilla and are generally asymptomatic in presentation. Frequently the odontoma may lead to failure of eruption of the teeth. This case report describes a case of a compound odontoma in a 50- year-old male, which resulted in the impacted permanent canine associated with a retained deciduous canine and associated periapical cyst in the adjacent tooth. A calcified mass and an impacted canine was seen on the radiograph and was diagnosed as an odontoma which was surgically extracted

Keywords: odontoma, impacted canine, Compound odontoma

Introduction

World Health Organization classification 2005 describes odontoma as an odontogenic benign tumor of the young age [1]. Despite this, odontomas are clinically classified as tumor-like formations i.e. hamartoma of dental tissues or developmental anomalies, rather than true odontogenic neoplasms [2]. Two main types of odontoma are: (a) complex odontoma, an amorphous and disorderly pattern of calcified dental tissues with no resemblance to tooth, and (b) compound odontoma which resembles tooth like structure . The compound odontoma has tendency toward the anterior maxilla, whereas complex odontoma shows a occurrence in the posterior jaws. Both variants consist of all dental tissues such as enamel, dentin, cementum, and pulp [7, 8]. The radiographic evaluation of compound odontomas appear as a lesions with a radiolucent halo containing radio opaque zones which represent small denticle, while in the complex types the radiopaque elements appear as irregular and disorderly masses with no resemblance to dental structures [2, 9]. These lesions are often associated with impacted permanent teeth [10, 11]. Surgical removal represents the best treatment option and the prognosis is favorable, with low recurrence [7, 8, 12–15]. The aim of this case report is to describe the surgical procedure for odontoma removal localized in the anterior maxilla area associated with an unerupted permanent maxillary canine and a retained deciduous canine.

Case Description

A 50-year-old male patient in apparently good health condition reported to a private dental clinic in Bangalore with the complaint of pain in his upper front tooth region towards the right side for 3 days. Patient had no significant medical history. Intraoral examination revealed the presence of a decayed right permanent maxillary lateral incisor and retained primary maxillary right canine. A missing right

permanent maxillary canine was also observed. A panoramic X-ray (orthopantamograph) showed radiopaque structure suggesting of a provisional diagnosis of an odontome and an unerupted right canine in mesial position associated with a periapical cyst irt 12. For further assessment a cone beam computerized tomography (CBCT) was advised which revealed the presence of a radio opaque structure in the primary canine vicinity. An impacted permanent canine was observed with the crown towards the apex of retained deciduous tooth and root around the maxillary sinus with no breach of sinus lining. The laboratory examinations revealed all parameter within the normal limits. Subsequently, surgical enucluation of the cystic lesion with an apicoectomy irt 12 and extraction of both the primary and permanent canine and the odontome was planned under local anaesthesia. Tooth 12 was priorly root canal treated before planning the procedure.

The procedure was performed under local anesthesia (2% lignocaine with 1: 100,000 epinephrine). A mucoperiosteal flap was raised on the buccal side and bone was removed using a low-speed drill until the crown of the permanent impacted canine was exposed. The extraction of deciduous canine was performed, and the cystic lesion associated with 12 was enucleated with apicoectomy. Odontome was then removed following the permanent canine extraction which was done en toto. The wound was carefully irrigated with an antiseptic solution and cleaned with a sterile dressing. Hemostasis was achieved; closure of mucoperiosteal flap was carried out using a absorbable suture. The histological examination confirmed the diagnosis of compound odontoma. The postoperative period was uneventful. Postoperative treatment consisted of antibiotics and analgesics, digluconate chlorhexidine mouthwash for 5 days.

Discussion

The term odontoma was introduced by Paul Broca in 1867. He described it as tumor formed by the overgrowth of transitory or complete dental tissues. Odontoma are intraosseous lesions predominantly located in the anterior maxilla and anterior mandible region. The majority of odontomas are asymptomatic on presentation, although swelling, pain, suppuration, bony expansion, and displacement of teeth may be occasionally observed. Their pathogenesis has been associated with a number of factors thar could be trauma during primary dentition

Or hereditary anomalies such as Gardeners syndrome, Hermann's syndrome, and basal cell nervous syndrome, odontoblastic hyperactivity.

The development of the odontoma is commonly observed with unerupted or impacted permanent teeth, , and delayed exfoliation or retention of primary teeth . In our case, odontoma had prevented the eruption of permanent canine. the patient was asymptomatic and had no previous traumatic or infective history.

According to the literature, the optimal management of the impacted tooth should allow its conservation and repositioning in the arch if the tooth is in a favourable position. On the other hand, if the tooth is in unfavourable position then the impacted teeth are frequently reported to be extracted simultaneously with the odontoma . The treatment option comprises surgical extraction and postsurgical clinical and radiological evaluations to determine the course of the impacted tooth. In our case, the permanent canine was not retrievable and indicated for removal in order to rehabilitate the patient.

Compound odontoma may seldom cause bony expansion, while complex odontoma are often known to cause marked bony expansion.

Clinically, three types of odontoma are recognised: intraosseous, extraosseous and erupted.

Thoma and Goldman classified odontomas as follows:

1. Geminated composite odontome —two or more, more or less well-developed teeth fused together.
2. Compound composite odontome—made up of more or less rudimentary teeth.
3. Complex composite odontome—calcified structure, which bears no great resemblance to the normal anatomical arrangement of dental tissues.
4. Dilated odontome—the crown or root part of the tooth shows marked enlargement.
5. Cystic odontome—an odontome that is normally encapsulated by fibrous connective tissue in a cyst or in a wall of cyst.

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An odontoma is always indicated for removal as it can predispose to cystic change, interfere with tooth eruption and cause considerable bone expansion. This case report presents the case diagnosed as composite compound odontoma associated with permanent tooth impaction and localized infection in the right maxillary canine region.

Conclusion

In conclusion, the presence of odontoma in association with an impacted tooth needs an early diagnosis and early surgical intervention. Although careful knowledge of the advanced radiographic entities is mandatory for better treatment planning and execution of a successful procedure. The authors suggest that radiographic examination should be carried out for any patient who presents with clinical evidence of delayed permanent tooth eruption or a retained deciduous tooth with or without a history of maxillofacial trauma; early diagnosis allows adoption of a less complex treatment and better prognosis for the tooth. A histological evaluation is mandatory for the correct diagnosis and post operative management of the patients. In this case report we can conclude the association of the impacted tooth associated with an compound odontome.

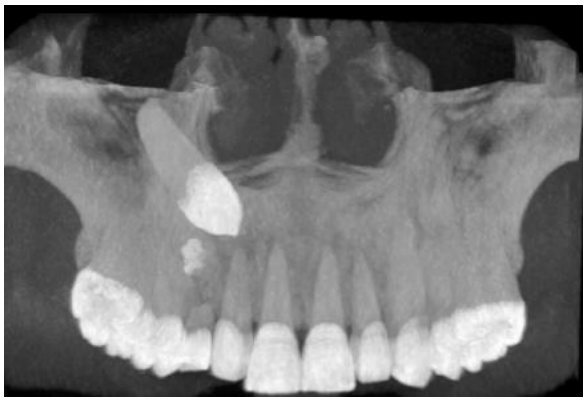
Acknowledgements -The author would like to thank the staff of the dental clinic.

Contributors -All the authors assisted in the surgical procedure and the preparation of the manuscript.

Competing interests- None.

Patient consent -Obtained**.**

Provenance and peer review -Not commissioned; externally peer review



3 D CBCT IMAGE SHOWING THE IMPACTED RIGHT MAXILLARY CANINE AND ODONTOME IN 14 REGION

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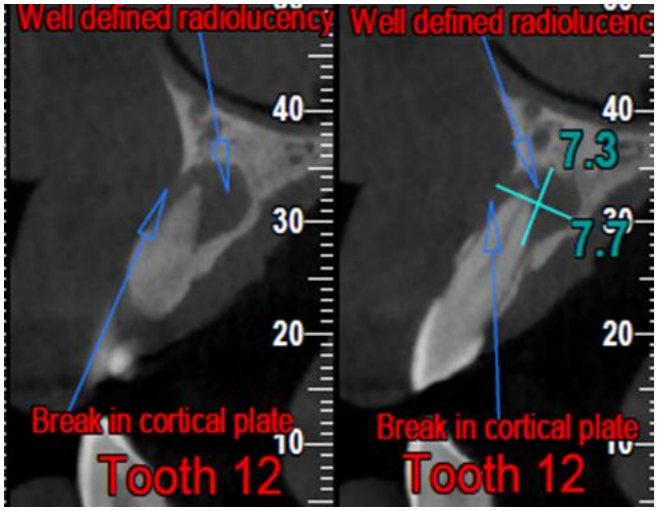
CORONAL VIEW OF CBCT



CROSS SECTIONAL CBCT 12 REGION

EXPOSURE OF IMPACTED CANINE AND ODONTOME SOCKET AFTER EXTRACTION OF 13

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EXTRACTED SPECIMEN CLOSURE

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