

Management of Large Complex Odontoma of Posterior Mandible: A Rare Case Report

Shailesh Menat¹, Pratik Rathod², Anil Managutti³, Parth Suthar⁴, Bhranti Shah², Kashyap Girdhariya²

¹Professor, ²Post Graduate Student, ³Professor & Head of Department, ⁴Senior Lecturer, Department of Oral & Maxillofacial Surgery, Narsinhbhai Patel Dental College and Hospital, Sankalchand Patel Univeristy, Visnagar.

Abstract

Odontomas are hamartomatous lesions or malformations rather than true neoplasms which are generally asymptomatic. Making up 22% of all odontogenic tumors of the jaw, it is the most prevalent benign odontogenic tumor. It can be either compound or complex odontoma. Complex odontomas do not resemble teeth at all, whereas compound odontomas, which are composed of calcified tissues which resemble tooth. Odontomas usually are diagnosed accidentally on routine radiographic examination. Complex odontomas are frequently found in the posterior mandible. We report the case of unusually large sized complex odontoma in right posterior mandible which had been successfully managed by surgical excision by multiple separated blocks via intraoral approach to prevent pathological fracture of mandible and avoiding extraoral incision which leads to unwanted extraoral scar.

Key words: *Odontoma, Complex odontoma, Hamartomata, Odontogenic tumor, Scar*

Corresponding Author: Dr. Pratik Rathod, Post Graduate Student, Department of Oral & Maxillofacial Surgery, Narsinhbhai Patel Dental College & Hospital, Sankalchand Patel University, Visnagar. 7567110450. mailme.pratikrathod@gmail.com.

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Introduction

Broca first used the term "odontoma" in 1867, referring to any tumor that resulted from the excessive, either temporary or permanent, and growth of dental tissues. Of all the odontogenic tumors of the jaw, they make up 22% and are the most prevalent benign odontogenic tumors.^{1,2} The incidence of odontomas was found to be equal in male and female patients, in accord with results of some studies. Odontomas were found most frequently at 10 to 19 years of age.^{3,4}

According to the World Health Organization, odontomas can be divided into compound and complex odontomas.

The dental tissue in a compound odontoma is arranged in a well-ordered manner, resulting in a lesion that is made up of numerous tooth-like structures while when this calcified dental tissue is merely an uneven mass that does not resemble even rudimentary teeth morphologically it is referred to as a complex odontoma.^{1,5}

Although the exact cause of the disease is unknown, established etiological variables include genetic alterations, trauma experienced during primary dentition, and heredity. Odontomas may also present as a component of the following syndromes:

Gorlin-Goltz syndrome, Herrmann syndrome and Gardner syndrome.³⁻⁵

Odontomas frequently have a slow growth rate and are not aggressive. The majority of complex odontomas described in literature typically have a diameter of no more than 3 cm which are considered not to increase in size after calcification of the odontogenic tissues but rarely they can increase in size with a diameter larger than 3 cm, also called giant or large odontomas⁶ and shows symptoms like cortical plate expansion, displacement of the neighboring tooth. The diagnosis can be made either during routine radiographic examination or while evaluating the causes of delayed eruption.^{2,7}

Surgical excision is the preferred course of treatment to remove the odontoma. Complex odontomas have no known risk of recurrence, and conservative treatment frequently permits the surrounding dentition to be preserved.⁶⁻⁹

This case report presents large complex odontoma in posterior mandibular region which was removed carefully to avoid pathological mandibular fracture.

Case Report

An 8-year-old male child presented with the complaint of missing lower right back teeth. Medical history was found to be insignificant. On examination, no gross facial asymmetry was detected, and an intraoral swelling was present extending from 84 to retromolar region which was obliterating the vestibule without any pus discharge (Fig.1). A permanent first molar and deciduous second molar were missing. On palpation, swelling was non-tender, bony hard in consistency and bucco-lingual cortical expansion was present.

OPG (Fig.2) showed a radio-opaque mass with a thin, radiolucent border that measured 4x5 cm and extended from 84 to the crown of the unerupted 46 antero-posteriorly and from the alveolar crest to the inferior border of the mandible supero-inferiorly. The erupting permanent canine and premolars could be seen at mesial aspect of the tumor mass. The clinical and radiographic examination led to provisional diagnosis of complex odontoma.



Fig.1: Intraoral photograph showing bone expansion, vestibular obliteration and missing teeth in the right posterior mandible.



Fig.2: Pre-operative radiograph showing radiopaque mass in the body of mandible with retained deciduous canine and 1st molar and impacted 2nd and 3rd molar.

Surgical excision was performed under general anaesthesia via intraoral approach. Crestal incision was placed and expanded buccal cortical plate was seen which was removed and the exposed tumor mass was separated in multiple blocks and removed using micromotor (Fig.3) carefully keeping intact inferior border of the mandible and inferior alveolar nerve. Closure was

achieved using simple interrupted Vicryl 3-0 sutures.

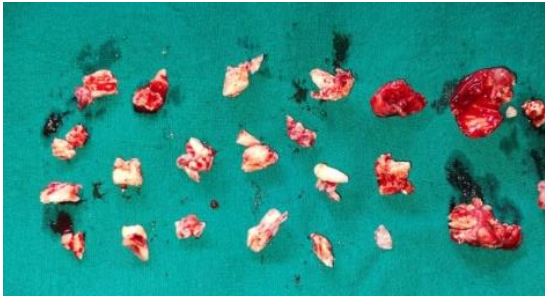


Fig. 3: Tumor is removed in multiple bits with deciduous teeth.

The Specimen was sent to histopathological examination, which was in correlation of clinical presentation suggestive of complex odontoma. Patient was kept on a soft diet for 1 month. Post operative OPG (Fig.4) showed removal of tumour mass along with 84 and erupting permanent teeth was preserved. The patient had no pain or abnormality in the affected area over a 2-year follow-up period and did not reveal any signs of recurrence.



Fig. 4: Post-operative radiograph showing preservation of continuity of inferior border of mandible.

Discussion

Large odontomas are associated with higher rates of morbidity during treatment because of their size and proximity to vital anatomical structures like the inferior alveolar artery and nerve. Clinical and radiographic features should be taken into consideration when deciding on a surgical

strategy and to decide whether bone reconstruction is needed or not.¹⁰

In the past, odontomas were considered as odontogenic tumors and required radical excision. This radical excision was unjustified despite the expansion and thinning of the mandibular bony plates. Selective removal of the denticles and related connective tissue capsule is the preferred choice for the treatment of odontomas.⁷

The approaches for the removal of the benign tumor in the posterior mandible are extraoral approach or an intraoral approach.^{9,11-13}

1. Extraoral approach, which includes partial resection of the mandible, and may entail a portion of the inferior alveolar nerve, requiring bone grafting for reconstruction and strict internal fixation. In addition, a scar might show. It is thought that this approach is quite aggressive because odontomas are thought to be benign lesions.

2. The lesion can be removed intraorally by removing the buccal cortex keeping intact only a narrow inferior border. Considering that the lingual bone is typically thin, fracture risk needs to be thought of.⁹

3. Intraoral approach using sagittal split osteotomy (SSO) - With this technique, significant cortical bone defects are avoided, and the tumor site is well accessible. Since the canal can be seen clearly and adequately with the SSO, lesions close to the IAN can be removed without causing permanent damage to the neural structure.^{11,13}

Two-stage surgery or immobilization of the mandible may be indicated since mandibular fractures can occur after a large lesion is removed in one stage.^{10,14}

In this technique, removal of most of the lesion and preserving the adjacent unerupted tooth is done, thus reducing the chance of a pathological fracture of the mandible. Anterior maxillary fixation and soft diet for a period of 4 weeks is recommended. The second stage should be carried out once the substantial bone consolidation is observed 3 months after the first surgical stage. It is then considered safe to remove the unerupted tooth and the remaining lesion.⁹

Since the inferior border of mandible and lingual cortex was intact after removal of the tumor and due to economic constraint for patient, reconstruction was not considered in this case. The prognosis is generally good with a low relapse index, but if removal is done during the initial stage of calcification, the rate of relapse rises.

Conclusion

Even though complex odontomas associated with missing teeth are uncommon, it's crucial to diagnose them. Panoramic radiography will be helpful in identifying these lesions early on. Surgical excision is the preferred treatment for complex odontomas of any size. Timely and accurate diagnosis and treatment can prevent further complications and reconstruction needs in young growing patients. With very little chance of recurrence, the prognosis for complex odontomas is very favorable.

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