

## Case Report

### Management of Unerupted Central Incisor Due to Compound Odontoma: A Case Report

Shamsher Singh, Lalita Mandia, Vivek Adlakha, Nitin Sharma, Subhash Chander, Bharat Sankhla

#### Abstract

Odontomas are hamartomous lesions or malformations rather than true neoplasms and are frequent cause of isolated delayed tooth eruption. Odontomas are asymptomatic in nature and often diagnosed in the second decade of life. The present case reported with missing tooth in upper front region. Clinical and radiographic finding are suggestive of compound odontoma. Hence treatment was planned for surgical removal of the lesion followed by orthodontic treatment.

**Keywords:** Odontogenic Tumors;Compound Odontoma;Delayed Tooth Eruption;Orthodontic Extrusion;Forced Eruption;Tooth Movement.

*Shamsher Singh, Lalita Mandia, Vivek Adlakha, Nitin Sharma, Subhash Chander, Bharat Sankhla. Management of Unerupted Central Incisor Due to Compound Odontoma: A Case Report. International Journal of Oral and Maxillofacial Pathology; 2012;3(2):45-48. ©International Journal of Oral and Maxillofacial Pathology. Published by Publishing Division, Celesta Software Private Limited. All Rights Reserved.*

Received on: 07/12/2011 Accepted on: 21/04/2012

#### Introduction

A mixed odontogenic tumour emulating all the hard tissues products of a mature tooth germ, the odontoma is probably the most common type of odontogenic tumour or hamartomas.<sup>1</sup> Although usually located pericoronal to an impacted tooth, the odontoma may also arise from odontogenic progenitor cells within the periodontal ligaments and become located between tooth root and are not associated with disturbance in eruption.<sup>1</sup> Odontomas exhibit complete epithelial and mesenchymal differentiation to the point that both enamel and dentin are formed.<sup>2</sup> Gabell, James, and Payne grouped odontoma according to their developmental origin: epithelial, composite (epithelial and mesodermal) and connective tissue.<sup>3</sup> Clinically, odontomas are either complex or compound.<sup>3</sup> Complex odontomas are less common than compound variety in the ratio 1:2. Compound odontomas are more common in the anterior region while complex odontomas tend to occur in the posterior region of the jaw. Usually odontomas are asymptomatic; size varies from few millimetres to many centimetres in their dimension.

Understanding tooth development and eruption will guide a clinician to diagnose and differentiate normal from an abnormal. Constant evaluation about the dynamics of dentition is essential for the diagnosis and treatment of irregularities during this process. The presence of odontoma can delay the exfoliation of a deciduous tooth and the eruption of the permanent

successors, which should be carefully observed. Here, we present a case of compound odontoma along with clinical presentation, radiographic features, histopathological features and surgical treatment and its orthodontic correction.

#### Case report

An 11 year old boy came to the Department of Pedodontics and Preventive Dentistry with the chief complaint of non-eruption of the upper right front tooth. Patient was healthy and asymptomatic. His past dental and medical history was not significant. Intraoral examination revealed that #11 was not erupted into the oral cavity. According to the patient's mother, #21 was erupted into oral cavity three years back. Clinically both #12 & #21 were fully erupted (Figure 1). There was no sign of inflammation, pain or infection and normal surrounding mucosa was normal. An intraoral periapical radiograph revealed presence of #11 deep in alveolar bone. The crown of the unerupted #11 was overlapped by tooth like mass (Figure 2) and almost covering the central half of the unerupted #11. The lesion was clinically asymptomatic. Based on the clinical and radiographic evaluation, a diagnosis of odontoma was made.

The eruption of tooth #11 was probably impeded by the tooth like mass. Hence, surgical removal of the lesion was planned. Local anaesthesia was given on both side of the labial sulcus and palate (infra-orbital, nasopalatine nerve block and infiltration). Incision was given and a labial flap was raised medial to #21 to the distal of #12

region and two releasing incision were given (Figure 3). A surgical bur was used to remove the alveolar bone covering the incisal edge of the #11. Once the incisal edge was exposed, the tooth like mass was located at approximately the same level as it was on radiograph. A tooth like mass (Figure 4) was removed with the help of mucoperiosteal elevator; the socket was irrigated with saline. Black silk suture were given. A complete course of antibiotics was given, sutures were removed after one week and healing was satisfactory. The tissue was sent for histopathological evaluation. Decalcified, haematoxylin and eosin section of specimen revealed homogenous eosinophilic mass of dentin which encircles

the pulp like tissue which contain delicate loose fibrous matrix along with few vascular spaces (Figure 5).

After two months of follow up, #11 shows no sign of eruption. Hence, it was planned to move unerupted #11 orthodontically. A window was made surgically after giving local anaesthesia and begg's bracket was placed on tooth #11, #12, #21 and #22. Orthodontic wire was tied up with ligature wire and elastic thread was moved around #11 and tied up around #21 and #12. (Figure 6) After 3 months of treatment, #11 was seen in the oral cavity almost in alignment to adjacent #21. (Figure 7)



The intraoral photograph (Figure 1) and with preoperative radiograph ((Figure 2) showing unerupted tooth #11. The surgical exposure (Figure 3) and extracted specimen (Figure 4) The hematoxylin and eosin stained photomicrograph of compound odontoma showing homogenous eosinophilic mass of dentin which encircles the pulp like tissue (Figure 5). The orthodontic extrusion with elastics of tooth #11 has been carried out (Figure 6). Postoperative photograph showing erupted and aligned tooth #11 (Figure 7).

### Discussion

The etiology of the odontoma is unknown. It has been suggested that local trauma or infection may lead to the production of such a lesion.<sup>4</sup> Hitchin reported that odontomas are inherited or are due to a mutagenic or interference, possibly postnatal, with the genetic control of tooth development.<sup>5</sup> However, Philipsen et al. suggested that the formation of a compound odontoma is

pathogenically related to the process producing hyperdontia, 'Multiple Schizodontia' or locally conditioned activity of dental lamina.<sup>6</sup>

The WHO has classified odontoma into two types depending on their degree of morphodifferentiation<sup>2</sup>. The compound odontoma is a lesion in which all the dental tissues are represented in an orderly fashion

so that there is at least superficial anatomic resemblance to teeth. In a complex odontoma, on the other hand, although all the dental tissues are represented, they are formed in such a rudimentary fashion that there is little or no morphologic resemblance to normal tooth formation<sup>2</sup>.

These are usually asymptomatic lesion and based on the data of the survey of Philipson et al the relative frequency of the compound odontoma represents 9 - 37% of all odontogenic tumours, making it the most common odontogenic tumours<sup>6</sup>. The average age at diagnosis is 17.2 years (range 0.5 - 73 years). Seventy five percentage of all case are diagnosed at around age 20 years and slight predilection occurrence in males compare to female (1.2:1). The anterior maxilla is the site of most compound odontoma, and diagnosis is frequently made on the basis of the failure of a permanent tooth to erupt. In 40 - 50% of cases, an impacted permanent tooth is associated with the compound odontoma<sup>7</sup>.

According to odontoma survey of Philipson et al<sup>6</sup>, the average age at diagnosis for complex odontoma is 19.9 years (range 2 - 74 years) and the incidence is between 5 and 30%. 84% of these tumours occur before age of 30 years. Males are more commonly affected than females (1.5:1). Most complex odontoma are localized in the posterior region of the mandible and often impacted teeth are observed in 10 - 45% cases<sup>7</sup>.

Many interesting cases of odontoma have been reported worldwide.<sup>8</sup> Bland Sutton (1888) first reported the presence of bilateral compound odontoma in the maxillary sinus, Bland Sutton (1922) found abnormal sized complex composite odontoma that is, 7.6 x 6.2 x 3.9 cm and weighing 883 gm, compound composite odontoma containing 2000 denticles was reported by Herman in 1957. Thomson et al. in 1968 reported multiple compound odontomas of maxilla and mandible. The term odontoma syndrome was given by Manil (1974) in a case that had multiform odontoma both in maxilla and mandible. Vengal M et al., found large erupting complex odontoma in the right mandibular angle region,<sup>9</sup> and Gabriel SS et al reported ulcerated lesion measuring about 2 cm in diameter in the molar region of the fourth quadrant.<sup>10</sup> Radiographically, compound odontoma shows a collection of tooth-like structures of

varying size and shape surrounded by a narrow radiolucent zone, also present in this case report<sup>11</sup>. An odontoma has a limited growth potential, but it should be removed because it contains various tooth formulations that can predispose to cystic change, interference with eruption of permanent teeth and cause considerable destruction of bone<sup>8</sup>. Cystic odontoma increase in size slowly and cause large expansion of bone,<sup>1</sup> which is not seen in the present case.<sup>6</sup>

Kaban states that odontomas are easily enucleated, and adjacent teeth that may have been displaced by the lesion are seldom harmed by surgical excision because they are usually separated by a septum of bone.<sup>3,12</sup> The treatment option for odontoma comprises surgical extraction, fenestration and posterior orthodontic traction or simple observation with periodic clinical and radiographic examination to evaluate the path of eruption of teeth.<sup>13-15</sup>

In present case, the delayed diagnosis of the lesion resulted in complete root formation of unerupted tooth, making it necessary to use orthodontic traction of the affected tooth to guide in adequate position in the dental arch. Hence, of all paediatric patients that present clinical evidence of delayed permanent tooth eruption or temporary tooth displacement, with or without history of previous dental trauma, radiographic examination should be performed.

## Conclusion

Odontomas are the most common type of odontogenic tumours or hamartomas and arise as a result of aberration in the tissues responsible for the formation of the teeth. These are usually asymptomatic requires surgical extraction and careful monitoring to guide unerupted teeth in to normal occlusion. Hence results achieved suggest that early diagnosis of the odontomas allows the adoption of a less complex and less expensive treatment and ensure better prognosis.

## Author Affiliations

1.Dr.Shamsher Singh, Senior Lecturer, Department of Pedodontics and Preventive Dentistry, Vyas Dental College, Jodhpur, Rajasthan, 2.Dr.Lalita Mandia, Lecturer, Department of Conservative and Endodontics, Surendera Dental College and Research Institute, Sriganganagar, 3.Dr.Vivek Adlakha, Reader, Department of Pedodontics and Preventive Dentistry, Subharti Dental College, Meerut, UP,

4. Dr. Nitin Sharma, Senior Lecturer, Department of Pedodontics and Preventive Dentistry,  
 5. Dr. Subhash Chander, Senior Lecturer, Department of Conservative and Endodontics,  
 6. Dr. Bharat Sankhla, Senior Lecturer, Department of Oral Pathology, Vyas Dental College, Jodhpur, Rajasthan, India.

#### Acknowledgement

We would like to thank the staff members of the oral pathology department for their support & cooperation.

#### References

- Lewis R, Eversole. Clinical outline of oral pathology-diagnosis and treatment. 3<sup>rd</sup> ed. BC Decker Inc; 2002. p298-9.
- McDonald J. Dentistry for the child and adolescent. 8<sup>th</sup> Ed. Elsevier; 2007:164-5.
- Batra Puneet, Gupta Shweta, Rajan Kumar, Duggal Ritu, Hariparkash. Odontome Diagnosis and Treatment: A 4 Case Report. JPFA 2003;19:73-6.
- Shafer, Hine, Levy. A Text Book of Oral Pathology. 4<sup>th</sup> Ed. W.B. Saunders & Co; 1993:308-12.
- Hitchin AD. The etiology of the calcified composite odontomes. Br Dent J 1971;130:475.
- Philipsen HP, Reichart PA, Praetorius F. Mixed Odontogenic Tumors & Odontomas. Considerations on Interrelationship. Review of Literature and Presentation of 134 New Cases of Odontomas. Oral Oncol 1997;33:86-99.
- Reichart PA, Philipsen HP. Oral Pathology: Colour atlas of dental medicine. Theime Stuttgart: 2000. 238-9p.
- Singh S, Singh M, Singh I, Khandelwal D. Compound composite odontome associated with an unerupted primary central incisor- a rarity. J Indian Soc Pedod Prev Dent 2005;23:146-50.
- Vengal M, Arora H, Ghosh S, Pai K. Large erupting complex odontoma: A case report. J Can Dent Assoc 2007;73:169-73.
- Gabriel Serra-Serra, Leonardo Berini-Aytés, Cosme Gay-Escoda. Erupted odontomas: A report of three cases and review of the literature. Med Oral Patol Oral Cir Bucal 2009;14(6):299-303.
- White, Pharaoh. Oral Radiology - Principles and Interpretation. 4<sup>th</sup> Ed. Mosby; 2000. p395-7.
- Kaban LB. Pediatric Oral and Maxillofacial surgery. Philadelphia: Saunders; 1990. p111-2.
- Frank C. Treatment options for impacted teeth. J Am Dent Assoc 2000;131:623-32.
- Liu J, Hsiao C, Chen H, Tsai M. Orthodontic correction of a mandibular first molar deeply impacted by an odontoma: A case report. Quintessence Int 1997;28:381-5.
- Katz R. An analysis of compound and complex odontomas. J Dentist Child 1989;56:445- 9.

#### Corresponding Author

Dr. Shamsher Singh,  
 Senior Lecturer,  
 Department of Pedodontics and Preventive Dentistry, Vyas Dental College and Hospital, Jodhpur, Rajasthan, India.  
 Ph: +91 9352471727  
 Email: drshamsher\_singh@yahoo.com

Source of Support: Nil, Conflict of Interest: None Declared.