

A Rare Case Of Compound Odontomas In Anterior Mandible

Dr. Ravi S. Patil*, Dr. Chitra Chakravarthy**, Dr. Snehalata Patil***

* Reader, **Professor, Department of Oral and Maxillofacial Surgery, *** Assistant Professor, Department of Conservative Dentistry & Endodontics, Navodaya Dental College and Hospital. Raichur-584104 KARNATAKA.

Abstract: Odontomas are non-aggressive hamartomatous developmental malformations or lesions of odontogenic origin consist of enamel, dentin, cementum and pulpal tissue. Odontomas are classified in to compound and complex. Maxillary anterior region is the most frequent site for the occurrence of compound odontomas. Intraosseous migration of unerupted teeth is a rare natural condition wherein the tooth usually shows impaction due to many pathological conditions and it occurs more in mandible involves primarily the second premolars or the canine. Among these many pathological conditions odontomas are the one of them but rarest is compound odontomas in anterior mandible. Although there are many studies and statistical data on lesions available, diagnosis should not be restricted by epidemiological characteristics. Instead it is important to account all clinical, radiographic, and pathologic signs and symptoms as well as differential diagnosis for definitive diagnosis. Additionally, it is clear that lesions often behave in an unforeseen or unusual ways. Thus, we are concluding that considering the literature, the compound odontomas their incidence is rare and unusual in anterior region of mandible. We are presenting a case with rare incidence of compound odontomas in anterior region of mandible with transmigration of impacted canine. [Patil R et al NJIRM 2013; 4(4) : 140-144]

Key Words: Odontomes, compound, anterior mandible, transmigration of tooth.

Author for correspondence: Dr. Ravi S. Patil, Reader, Satvik Dental & Implant Specialty Clinic, Amarked Hospital Complex, Near Dr Zakir Hussain Chowk, Ek-Minar, Raichur-584103, KARNATAKA. Mob: +91 9844086715, +91 9743512188 Email: drravipatil6@gmail.com

Introduction : Odontomas are nonaggressive hamartomatous developmental malformation or lesions or odontogenic origin which consisting of enamel, dentin, cementum and pulpal tissue.¹ The term "odontoma" was coined by Paul Broca in 1867² and defined odontomas as tumors formed by the overgrowth of transitory dental tissues.³ During odontoma development, enamel and dentin can be deposited in such a way that the resulting structures show anatomically similar to normal teeth structures.⁴ The etiology of odontoma is not clear, although local trauma, infection, hereditary anomalies, odontoblastic hyperactivity, or alterations of the genetic components responsible for controlling tooth development. In 1914 odontomes classified according to their developmental origin as epithelial, composite (epithelial and mesodermal) and connective tissue. According to the WHO classification, odontomes can be divided in to three groups as complex, compound and ameloblastic fibro-odontomes. A new type known as hybrid odontome has been reported by some authors.⁵ Odontomas may be found at any age; however, most of them are detected in first two decades of life. There is no gender predilection and most of the lesions are detected on routine radiographs.⁶ The absolute incidence of

odontogenic tumors varies from 0.02% to 0.1% out of which odontomas constitute about 22% of all odontogenic tumors of the jaws.⁷ Compound odontomas are characterized by multiple irregular radio opaque lesions that vary in size and shape and contains tooth like structures called denticles. Odontomas may occur before or after the eruption of the associated tooth and may cause impaction, delayed eruption of permanent teeth, or retention of primary teeth.⁸ Majority of odontomas which are located in the anterior region of the maxilla are compound type. While the great majority of odontomas located in the posterior areas, especially in the mandible, are complex odontomas. Clinically compound odontomas present with painless, non aggressive lesion, with a more limited potential growth than the complex odontoma. Mandibular canine impaction occurs 20 times less frequently than maxillary canine impaction at a frequency of 0.8-2.8%.⁹ Transmigration that is migration of impacted tooth from its normal position to contralateral (hemi arch) side occurs almost exclusively with mandibular canine due to pathological conditions in that presence of odontome is one of them.¹⁰ Treatment of odontomas is surgical removal and biopsy to confirm type of odontomas whether unusual at the site. The aim of this article is to

present a case of compound odontomas in anterior mandible is unusual and causing transmigration of impacted canine.

Case report: A twenty six years old male patient consulted to the department of oral and maxillofacial surgery with the complaint of missing tooth in left mandibular anterior region past 11-12 years. On intraoral examination, missing left canine tooth was observed and the condition was asymptomatic. Bony prominence was noticed and palpated on lingual surface in relation to 31 and 41 tooth regions (Fig.1). The panoramic, occlusal and intraoral periapical radiographs showed around 8-10 calcified or radiopaque structures (measuring ranges between 0.4-0.8 cms individually) resembling like tooth-like structures located between lateral and first premolar teeth. These structures present with well-defined radiopacity situated in bone, but with a density that is greater than bone and equal to or greater than that of tooth. These are extending from just below the crest towards at the level of apex of the adjacent teeth approximately around 1.6cm x 1.2cm in diameter. Impacted canine located at lingual side between 31, 41 teeth (Fig.2, 3 respectively). Adjacent teeth responded positive on vitality test. Routine blood investigation revealed normal study. Case is planned under local anesthesia for surgical excision of odontomas and removal of transmigrated impacted canine which is impossible to get the tooth in to the alignment by orthodontic treatment due to its obstruction. Crevicular along with relieving incision was placed and mucoperiosteal flap was reflected to expose the site. Cortical bone trephination was performed to excise odontomas which are around 14-15 in numbers (Fig.4, 5 and 6). Impacted canine exposed via lingual approach and crown portion is lying at the level of middle one third of the root of the two central incisors (Fig.7). Impacted canine removed and wound was closed with mersilk-suture material. A biopsy report of these calcified structures revealed compound odontomas. Postoperative, panoramic radiograph showed complete excision of odontomas (Fig.8) and wound healing was satisfactory without any complications.

Discussion: Odontomas are relatively common odontogenic hamartomatous malformations, generally they are asymptomatic. Odontomas are diagnosed at any age but they are usually detected during the first two decades of life. A study analyzed 396 cases and showed that diagnosis usually happens between 11 and 15 year of age. In one more study comprising 149 cases concluded that these lesions are detected most often during the second decade of life.⁴

Fig.1 Preoperative intraoral view showing missing left canine tooth.



Fig.2 Preoperative orthopantomograph showing calcified tooth-like structures measuring about 1.6cms x 1.2cms in diameter and impacted left canine.

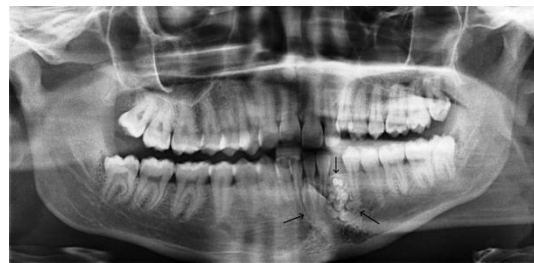


Fig.3 Preoperative occlusal radiograph showing calcified tooth-like structures at left canine region.

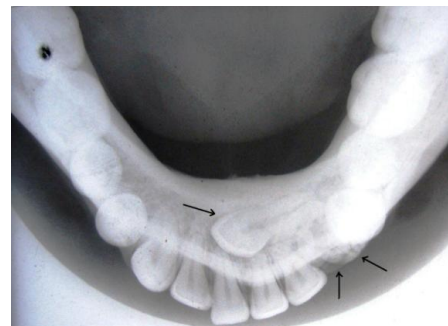


Fig.4 Intraoperative view showing intra-osseous odontomes (tooth-like structures) and attached soft tissue.

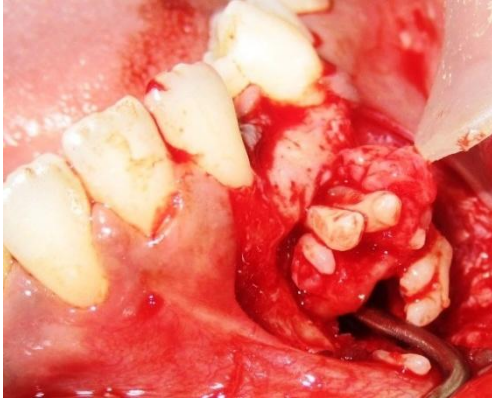


Fig.5 Intraoperative view showing bony cavity after removal of odontomas.

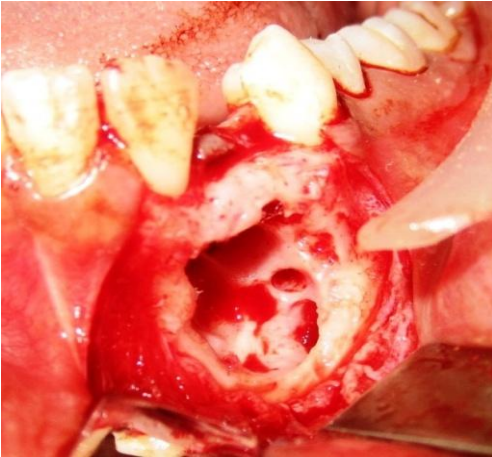


Fig.6 Specimen showing multiple odontomas with soft tissue lining attached.

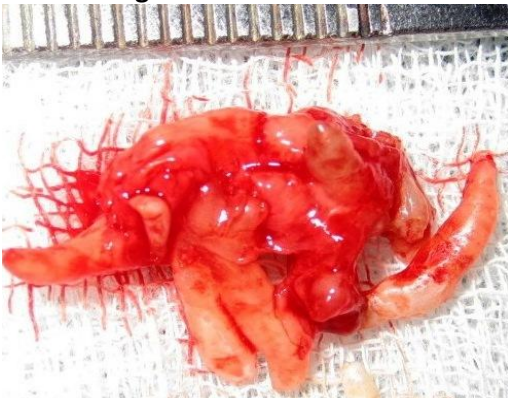


Fig.7 Intraoperative view showing impacted canine on lingual side.

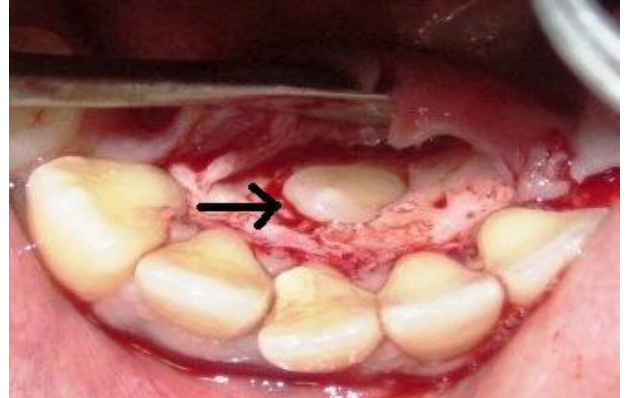


Fig.8 Postoperative orthopantomograph showing complete removed odontomas and impacted canine.

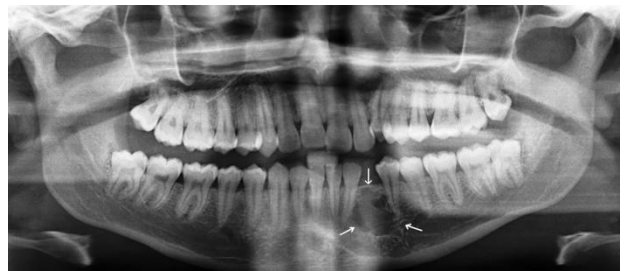
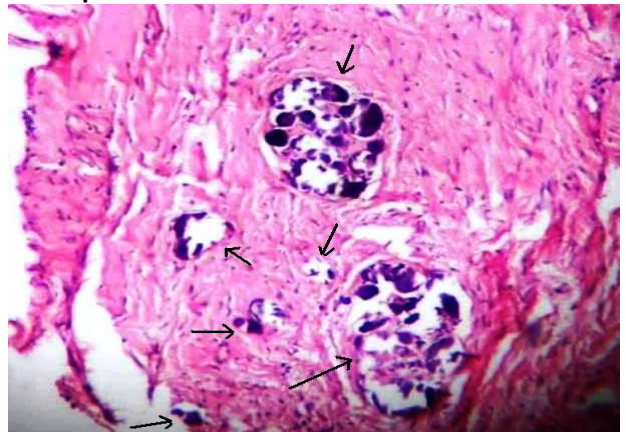


Fig.9 Image showing fibrous connective tissue stroma, areas of enamel and dentin-like matrix with spherical calcification.



Compound odontomas are equally distributed among males and females.⁷ Odontomas arise from both odontogenic epithelium and mesenchyme which forms enamel and dentin respectively via odontogenic differentiation.³ The most common symptom is impacted permanent teeth or retained

deciduous teeth. Odontomas often causes disturbances in the eruption of its associated tooth and composed of enamel, dentin, cementum and a pulp tissue. World health organization (2005) classify odontomas are of two types complex and compound odontomas based on histological criteria.^{2,3} These malformations can be found in anywhere in the dental arches. The odontomas which are located in the anterior region of maxilla are compound, and the great majority of odontomas located in the posterior areas especially in the mandible are complex odontomas.⁴ Odontomas are also classified as extraosseous and intraosseous type. Extraosseous type occur in the soft tissue covering the tooth bearing areas and intraosseous inside the bone.^{3,1} These odontomas sometimes causes impaction and transmigration of tooth usually shows asymptomatic or sometime pain due to inflammation, infection or sensory alteration.¹⁰ Intraosseous transmigration of canine is called when it moves mesially across the mandibular symphysis to the opposite side.⁹ In this case, intraosseous odontomas causing no eruption of associated tooth and resulting in to transmigration of impacted canine on lingual side crossing the midline. In 2002 transmigration of canine was classified as follows; Type 1, canine positioned mesioangularly across the midline, labial or lingual to the anterior teeth. Type 2, canine horizontally impacted near the inferior border of the mandible inferior to apices of the incisor teeth. Type 3, canine tooth erupting on the contralateral side and Type 4, canine horizontally impacted near the inferior border of the mandible below the apices of posterior teeth on contralateral side. Type 5, canine positioned vertically in the midline with long axis of the tooth crossing the midline.¹⁰ Compound odontomas of three types; *denticular* type composed of two or more separate denticles, each having a crown and root. *Particulate* type two or more separate masses of particles bearing no macroscopic resemblance to tooth and consisting of hard dental tissues abnormally arranged. *Denticuloparticulate* type denticles and conglomerate masses or particles are present side by side.³ Compound odontomas shows a high degree of morphodifferentiation, resulting in a

lesion consisting of many tooth-like structures generally enclosed in a fibrous capsule.⁵ In one of the study, about 67% of odontomas occurred in the maxilla and 33% in the mandible.

Another study showed the compound odontoma has a predilection towards the anterior maxilla 61%, where as only 34% of complex odontomas occurred in this region and in general complex odontoma has a predilection for the posterior jaws about 59%.³ In a review of 38 cases of compound odontoma the number of denticles ranged from 2-283.⁷ Radiological features of compound odontomas appears radiopaque mass of multiple, small, calcified structures with an anatomical similarity to normal teeth usually surrounded by a narrow radiolucent zone.⁵ Odontomas are usually well encapsulated and recurrence usually not observed if the lining epithelium is removed intact.⁷

In our case, macroscopic features showing large bit of soft tissue attached with many tooth like-structures measuring 2cm x 1cm irregular in shape brown in colour in that the hard tissues appeared creamish white in colour. The gross specimen consisted of 14-15 malformed tooth-like structures which are attached each other with soft tissue.

Considering the differential diagnosis, ghost cells which are characteristic feature of calcifying odontogenic tumor are also found in odontomas but the incidence of ghost cells in complex odontomas is reportedly higher than that in compound odontomas.⁵ In this case microscopic features showed fibrous connective tissue stroma with few dilated blood spaces and areas of enamel and dentin-like matrix along with spherical calcification (Fig.9). The macroscopic, radiographic and microscopic features suggested of compound odontomas.

Although there are many studies and statistical data on lesions available, diagnosis should not be restricted by epidemiological characteristics. Instead it is important to account all clinical, radiographic, and pathologic signs and symptoms as well as differential diagnosis for definitive

diagnosis. Additionally, it is clear that lesions often behave in an unforeseen or unusual ways. Thus, we are concluding that considering the literature their incidence is rare and unusual in anterior region of mandible.

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