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REVIEW ARTICLE

COMPOUND COMPOSITE ODONTOMAS ASSOCIATED WITH IMPACTED PERMANENT MAXILLARY CENTRAL INCISORS –REPORT OF A CASE AND REVIEW OF LITERATURE

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ABSTRACT

Odontomas are the most common type of odontogenic tumours occurring within the jaws and are frequently associated with retained deciduous teeth interfering with the eruption of permanent teeth. This paper reports the case of a 11 year old boy with the complaint of retained deciduous teeth in the upper front tooth region. Intra-oral examination revealed the presence of retained deciduous teeth 51,61 and unerupted permanent central incisors. OPG revealed the presence of calcified masses in the form of tooth-like structures present above the root apices of 51,61 causing root resorption and impeding the eruption of both the permanent maxillary central incisors. Surgical removal of the lesion was done and spontaneous eruption occurred within 6 months. Early intervention especially in pediatric patients is very important for better behavior management, restoring esthetics and functional ramifications of missing anterior teeth as well as for the psychological well being of the patient.

KEYWORDS : Compound odontoma, impacted teeth, odontoma, maxillary central incisor

INTRODUCTION :

Knowledge about the dynamics of development of dentition from the beginning of tooth formation till their eruption is essential for establishment of a normal dentition and to aid in early diagnosis and treatment of problems occurring in the eruption that may endanger physiologic development. The complete eruption of permanent lateral incisors associated with absence of one or both permanent central incisors should always be considered abnormal, especially when the deciduous central incisors are still present. A delay in time between the exfoliation of a deciduous tooth and the eruption of its permanent successor is known as dental retention which may cause lot of problems in the developing dentition. This may be due to ectopic tooth development or eruption, premature apical closure, unfavorable tooth rotation, altered eruption sequence, premature loss of deciduous teeth, sequelae of trauma to the primary dentition, presence of a supernumerary tooth or a tumor (odontoma) or cyst etc., or insufficient space in the dental arch[1].

Odontomas are the most common type of odontogenic tumors occurring in the upper and lower jaws, which are frequently associated with retained deciduous teeth and interfere with the eruption of succedenaous tooth. Paul Broca coined the term "odontoma" in 1867. They are defined as a benign odontogenic tumors composed of odontogenic epithelium and odontogenic ectomesenchyme with dental hard tissue formation. They are slow growing lesions, asymptomatic, which are rarely diagnosed before the second decade of life.

The etiology of odontoma may be local traumas, genetic factors and infections. The pathogenesis may be associated with trauma during development of permanent dentition, hereditary anomalies like Gardner's syndrome, Hermann's syndrome, Basal cell nervous syndrome, odontoblastic hyperactivity or alterations of the genetic mechanisms accountable for scheming dental growth[2].

Odontomas are two types, compound and complex. Compound odontoma appear as numerous small tooth-like structures while complex odontomas appear as single amorphous mass enclosed in a fibrous capsule. The complex type is more common in the posterior region of the mandible while the compound type is most commonly found in the anterior region of the maxilla and are usually associated with unerupted teeth.[3] The most commonly impacted teeth are canines, followed by maxillary central incisors and third molars. This paper reports a case of compound composite odontomas associated with impacted permanent right and left maxillary central incisors and retained primary maxillary central incisors.

CASE REPORT :

A 11 year old boy reported with his father to the Department of Pedodontics and Preventive Dentistry with the chief complaint of retained deciduous teeth in the upper anterior region. The patient was very much concerned about the esthetics. A detailed case history was taken, the boy was in good health and did not suffer from any medical conditions. On general physical examination, the patient was well oriented, height and weight appropriate for the age. Extra-orally, patient had a convex facial profile with no facial asymmetry.

Intra-oral examination revealed that the patient was in mixed dentition period with retained deciduous teeth 51, 61 and unerupted permanent central incisors, while the permanent laterals have already erupted. Eruption pattern of the other teeth were found to be normal. The patient did not complain of any pain in the upper anterior region. An IOPA was taken which revealed the presence of two radiopaque tooth-like structures apical to the roots of 51 and 61. An OPG was taken again to confirm the presence of supernumerary teeth and to know whether any other abnormalities were present in the upper and lower arches. OPG revealed two radiopaque tooth-like structures each of size 2x2 cm seen on the apical region of 51 and 61. A well-circumscribed radiolucent zone surrounded them. The roots of 51 and 61 showed resorption till the apical third. Impacted permanent central incisors 11 and 21 were seen apical to the radioopaque structures. 11 was found to be rotated and inclined more obliquely and 21 was found to be normal with one-third root formation. All the other teeth were found to be in the normal erupting pattern with no abnormalities of the crown or root. Differential diagnosis includes ameloblastic fibroma, ameloblastic fibrodontoma

and odonto ameloblastoma. Based on the clinical and radiographic evidences, a diagnosis of retained deciduous 51, 61 along with compound composite fibro odontoma and impacted central incisors was made (Fig 1). This diagnosis was later confirmed by histological examination.

Treatment planning included removal of retained deciduous 51,61 and the odontomes in relation to them and to wait for the spontaneous eruption of maxillary permanent central incisors. With bilateral infraorbital nerve block, a trapezoidal mucoperiosteal flap was raised and the overlying bone was removed with bur to expose the odontomes which were then surgically removed, followed by the extraction of retained deciduous teeth 51 and 61 (Fig 2).

The size of the denticles varied from 2cm to 3cm. One of them resembled a premolar and the other resembled a molar tooth in appearance with root like formation (Fig 3).

Flap was closed and suturing was done using 3-0 silk. Post-surgical instructions were given. Medications were prescribed and patient was advised to maintain good oral hygiene to aid in proper healing. Patient reported back after a week for suture removal. Sutures were removed and intra-oral examination revealed satisfactory healing in the upper anterior region (Fig 4, 5). Patient was asked to report after 3 months for review.

Patient reported back after 3 months and intra-oral examination revealed the presence of 12, 13,14,55,16,22,23,24,65,26,31,32,33,34,35,36,37,41,42,43,44,45,46. IOPA was taken which revealed the presence of rotated and obliquely angulated 11 with half root completion and 3mm bone coverage. 21 was found to be erupting normally with two-third root formation and 1mm bone coverage (Fig 6).

Surgical exposure of 21 was done under LA. An orthodontic consultation was done and it was decided to wait for spontaneous eruption of both 11 and 21. Review after 6 months revealed that spontaneous eruption of 21 and 11 had occurred with progressive root formation.

Fig 1 : Preoperative orthopantomogram showing the presence of retained deciduous 51 and 61 with two compound composite odontomes apical to them and impacted and rotated permanent central incisors

Fig 2 : Immediate post-operative view after removal of deciduous teeth and odontomes.

Fig 3 : Two odontomes that are removed- one mimicking a molar, other mimicking a premolar and the two retained deciduous teeth.

Fig 4 : Post- operative healing after one month showing soft tissue bulge of erupting 21

Fig 5 : Post-operative view after 1 month- palatal view

Fig 6 : 3 months post-operative IOPA showing erupting 21 and rotated 11 close to the occlusal plane.

DISCUSSION :

Odontomas are developmental anomalies rather than true neoplasms. Majority of compound odontomas approximately of about 74.3% were diagnosed before the age of 20 years. Clinically odontomas are asymptomatic, frequently stay small, hardly never exceed the diameter of a tooth. Infrequently they do grow large and may create growth of bone with resultant facial asymmetry. Clinical signs and symptoms include retained deciduous teeth, impacted teeth, swelling and infection. The most common site for impacted teeth associated with odontomas is the anterior maxilla and usually compound odontoma is situated at the periapical area of primary tooth and permanent tooth crown preventing their eruption[4]. Similarly this case was asymptomatic, present in the maxillary anterior region, associated with retention of primary teeth and impaction of permanent teeth.

Compound composite odontomas are of three types. The first type is said to be denticulate and is composed of two or more separate denticles, each having a crown and a root or epithelial sheath of Hertwig with dental hard tissues similar to that found in a tooth. The second type is particulate type and is composed of two or more separate masses or particles having no macroscopic resemblance to a tooth and consists of dental hard tissues abnormally arranged. The third type is the denticulo-particulate type which consists of denticles and conglomerate masses which are present side by side[5]. In this case, the denticulate type of odontomas were identified leading to impaction of both the permanent right and left central incisors.

Radiographically, odontomas are seen as well-defined, unilocular lesions, consisting of several radiopaque, tooth-like structures known as denticles[4]. The radiographic features of the present case also showed radio-opaque calcified masses in the form of tooth-like structures, present over the root apices of 51 and 61 causing their root resorption.

Odontomas are related with complications such as impaction, aplasia, malposition, devitalization, malformation and delayed eruption. As they are odontogenic in nature, odontomas can lead to cystic transformation into dentigerous cyst. Hence early discovery and appropriate treatment is needed to avoid complications such as tooth loss, cystic changes, bony expansion and delayed eruption of permanent teeth[6]. In our case the right maxillary permanent central incisor was displaced obliquely and the odontomas prevented the normal eruption of both the permanent right and left maxillary central incisors leading to the retention of 51 and 61.

The treatment of impacted teeth requires a multidisciplinary approach by a team of dental professionals. The role of a pediatric dentist is first to detect the abnormality, manage the patient and psychologically ensure the esthetic concern of the patient and the parent[7]. If the impacted tooth is with blunderbuss apex and in unfavourable position, surgical & orthodontic treatment is done[8]. Whereas, with early diagnosis of impaction of the permanent maxillary central incisors, surgical removal of odontoma along with adequate space is helpful in spontaneous eruption of the impacted central incisors[9]. Exposure of permanent tooth is not necessary during the removal of supernumerary teeth and mechanotherapy should be avoided to bring down

the permanent central incisors as the teeth often erupt spontaneously in 54-76% of cases if there is enough space in the dental arch with labial bony plate and good width of attached gingiva[10].

In the present case, the root formation was not complete in both the permanent maxillary central incisors and hence the tooth was expected to erupt spontaneously after surgical removal of odontomas, since adequate space to accommodate the erupting right and left central incisors was present. Follow up after 3 months and 6 months revealed progressive root formation and also spontaneous eruption taking place in both the permanent maxillary central incisors leading to the success of the treatment.

CONCLUSION:

The early diagnosis and management of odontomas is important because they are the major category of odontogenic tumours occurring in the anterior region of the jaw. Clinical and radiographic diagnosis play a major role in pediatric patients who present with clinical evidence of delayed permanent tooth eruption or retained deciduous teeth. Appropriate treatment by a multidisciplinary team leads to a simpler approach and ensures for better prognosis of the condition.

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CONFLICT OF INTEREST:

There are no conflict of interest

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