

Case Report

Odontoma as an Etiology of Permanent Incisive Retention: Two Clinical Cases

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Abstract: The eruption's disorder of the maxillary incisors will be introduced through two cases of simple and compound odontomas. The clinical and radiological characteristics will be presented as well as the treatment and the evolution of permanent incisors. Patients have consulted the pediatric odontology department at the universal hospital la Rabta for the persistence of temporary teeth or the delayed eruption of permanent incisors. The cases described were diagnosed provisionally as odontoma on the basis of clinical and radiographic findings. Orthodontic and prosthetic approaches were used to restore function and esthetic. Early diagnosis of odontoma helps to ensure better prognosis, adopt less complex and traumatic treatment. Pediatric dentist must be aware to signs of changes from normality.

Keywords: Simple odontoma, compound odontoma, retained incisor, eruption's disorder.

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INTRODUCTION

The World Health Organization (WHO) classifies odontoma within the category of odontogenic tumors composed by epithelium and odontogenic ectomesenchyme with or without formation of mineralized dental tissues [1].

The term « odontoma » was coined in 1867 by Paul Broca. Odontomas were defined as « tumors formed by the overgrowth of transitory or complete dental tissues » [2]. They are considered to be developmental anomalies rather than true neoplasms [3].

The etiology is unknown but the genetic mutation in a tooth germ and traumatic injuries in primary teeth are possible factors [4, 5].

Odontomas are generally asymptomatic, usually detected during a standard X-ray examination and frequently associated with unerupted permanent tooth [6].

Odontomas may be found at any age; however, most of them are detected in first two decades of life. There is no gender predilection. Whereas, Budnick

found a slight predilection for the occurrence in males (59%) compared with females (41%). Of all the Odontomas, 67% occurred in maxilla and 33% in mandible [7]. The compound odontoma has a predilection for the posterior region of the jaw.

The presentation of the following cases below shows the eruption disorder of the maxillary incisors due to simple and compound odontomas in patients who have consulted the pediatric odontology department at the Rabta hospital for the persistence of teeth temporary or delayed eruption of permanent incisors.

The clinical and radiological characteristics is hereby presented as well as the treatment and evolution of permanent incisors are discussed on a case-by case basis.

1st case report

A 10 year old female patient X reported to the department of pediatric dentistry in the Rabta hospital with a major complaint of persistence of 51, 61 and 52 and ectopic eruption of 22.

The clinical history did not reveal any systemic pathology associated. The patient as well as parents were unable to recall any trauma to the oral cavity or head and neck region.

During the clinical examination, no facial asymmetry was detected extraorally. Intraoral examination revealed a mixed dentition with unerupted central and lateral right incisors as well as the prolonged retention of the corresponding primary teeth. A discrete volume, painless on palpation was observed of the adhered vestibular mucosa.



Figure: Intraoral photograph of patient revealing persistence 51, 52, 61

The panoramic radiograph revealed the presence of three masses having similar aspects than teeth, obscuring the eruption of the permanent incisors.



Figure: Panoramic radiograph

At the call of the teeth the presence of 3 lines was discovered: Firstly, the lineage of temporary teeth, then the line of permanent teeth, however in this case, there is a line between the temporary and permanent teeth. Which lead to the diagnosis of supernumerary structures.

A Cone Beam x-ray was commissioned to identify supernumerary structures, their positions, their relationship with anatomical structures, and permanent teeth.

Three odontomas were visualized on the sagittal, coronal and axial slices. We could see on the slices A, B, C their positions.

- A: The odontoma is in a palatine position.
- B: Odontoma is in the middle of the alveolar process.
- C: The odontoma is in a vestibular position.

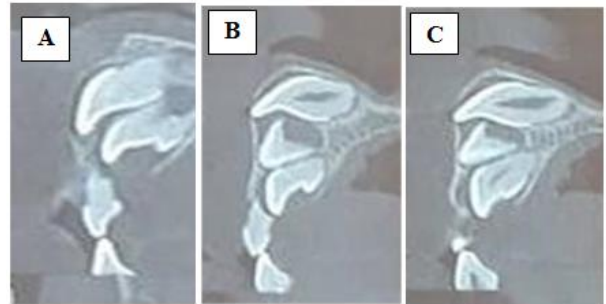


Figure: Cone Beam slices

The three temporary teeth 51, 52, 61 were extracted. The 3 odontomas were removed surgically.



Figure: 3 odontomas and 3 primary incisors



Figure: Intraoral photograph after extraction of primary and odontoma

An appliance for slow expansion was made in order to correct the transverse deficit, the clutter, and to arrange the space for prosthetic teeth at the anterior side, which allows us to restore the patient's aesthetics.

Six months later, it was possible to correct the transverse direction, to arrange the space for the permanent incisors. The 12 tooth erupted in a position slightly in vestibular.



Figure: Intraoral aspect 6 months after expansion

A profile telerradiography is given every two months showing the adjustment of route eruption of the 11 and the 21.

A panoramic radiograph was requested after one year to assess the eruption path of the central incisors. It shows:

- The formation of 2/3 of the root of the 21
- The 21 is approaching to the eruption site
- The tooth 11 is not clear. Another “Cone Beam” was requested.

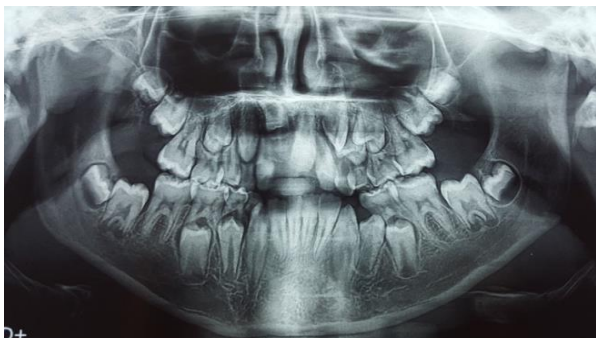


Figure: Panoramic radiograph post-surgery

2nd case report

Patient Y, age 10, consults for the persistence of 51. Age and eruption of the 21 are two predatory factors in the retention of the 11. Oral examination revealed painless swelling regarding the 11 germ.



Figure: Radiographic mass at the high of tooth 51

Radiographic exam: The panoramic radiography showed a radiographic mass very similar to that of an odontoma at the high of tooth 51. Cone beam radiography was used for farther investigation. It suggested that there is presence of radiopaque small and

multiple structures similar to teeth (denticles) and the central incisor was displaced and changed the orientation.

In order to assess the situation more accurately radiologically, a digitized volume tomography (Cone Beam) was performed.

An Odontoma could be measured on sagittal, coronal and axial slices.



Figure: Coronal slice

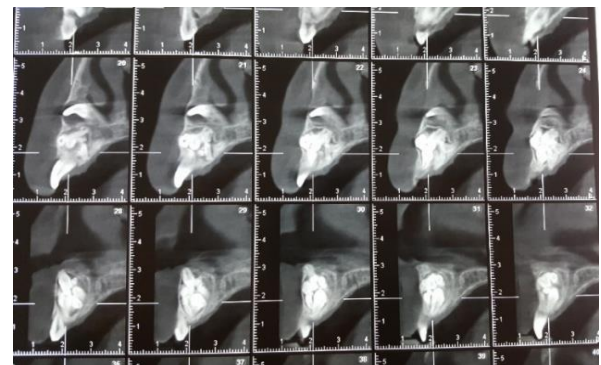


Figure: Sagittal slices

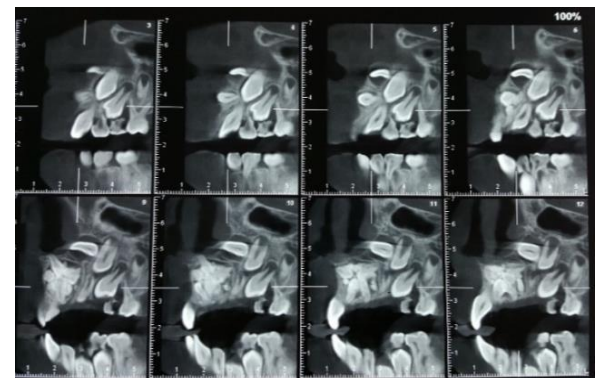


Figure: Axial slice

The central incisor was displaced far from the site of eruption to become close to tooth 13. Radiographic exam showed a horizontal axe of the central incisor. It is in a vestibular position in the

alveolar process, the vestibular cortical was weakened in places.

Sagittal slices show that the 11 is in contact with the 13 germ. The eruption prognosis of the 11 is unfavorable since not only the tooth is in horizontal position but also it is far from the eruption site. The surgery is executed out in 2 phases:

- The first surgery consists in the removal of the odontoma and the installation of a bone substitute since the size of the odontoma was important.
- The second phase consists of the extraction of the 11 and this will be after the bone healing of the first site of the odontoma and the layout of the space for the prosthetic rehabilitation.

The hypothesis of the presence of a compound odontoma was admitted after the analysis of the clinical and radiographic exams, which also contributed to the indication for removing it surgically. The procedure consisted of: antiseptics, local anesthesia and incision. The flap was folded then osteotomy reached the bone recess in which the tumor was situated.

After removing the calcified structures and several denticles, the surgical recess was treated by curettage and irrigation with physiologic solution, and the flap was replaced and sutured.



Figure: Surgical procedur

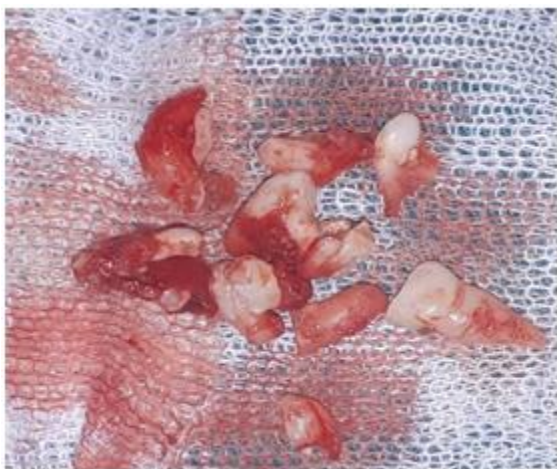


Figure: Dental structures

Several small dental structures were found. Following the extraction of the 51, the prosthetic tooth

was arranged. We noticed the presence of two diastemas on both sides of 12 and 21. To accommodate the space, a partial removable prosthesis was served with distalers in connection with the 12 and 21. Follow-up after one month: space arranged for the installation of a prosthetic tooth of size is conformed to the permanent incisor.



Figure: Space managing for the prosthetic tooth

DISCUSSION

Odontoma are nonaggressive, hamartomatous developmental malformations or lesions of odontogenic origin appearing as, small, solitary, or multiple radiopaque lesions found on routine radiographic examinations [8].

Odontomas may sometimes be associated with swelling and pain, bony expansion, suppuration and displacement of teeth or may lead to root resorption and paresthesia [9].

The diagnosis is usually established on the basis of clinical and radiological examination but only confirmed with histological study.

Ameloblastic odontoma and ameloblastic fibroodontoma bear great resemblance to the common odontoma, particularly on a radiograph and thus it is suggested that all Odontomas should be sent to an oral pathologist for microscopic examination and definitive diagnosis [10-12].

The cases described were diagnosed provisionally as odontoma on the basis of clinical and radiographic findings.

Several case series have documented that the majority of all odontomas were diagnosed in the first two decades of life [13]. Some studies have reported a correlation between patient and the type of odontoma involved, compound lesions being apparently more frequent in younger patients, which is in agreement with our cases [14].

The etiology of odontomas is unknown [15]. It has been associated with trauma, inflammatory and/or infections processes, mature ameloblasts; cell rests of Serres (dental lamina remnants) or hereditary anomalies (Gardner's syndrome and Hermann's syndrome), odontoblastic hyperactivity, and alterations in the genetic component responsible for controlling dental

development [16]. In our reported cases no syndromes were evident and no episode of previous trauma was reported by patients and their families.

The presence of odontomas often cause disturbances in the eruption of teeth leading to impaction, delayed eruption of dentition, retention of primary teeth and abnormalities in the position of the teeth, tipping or displacement of adjacent teeth [17], dilacerations, ankylosis, dentigerous cysts, periodontal disease, presence of supernumerary teeth and systemic or genetic interrelation, such as cleidocranial dysostosis and hypopituitarism[18-20].

In the first case, the two maxillary incisors and the left lateral incisor was noticed to be embedded due to odontomas. In the second case, the left maxillary permanent central incisor was not erupted even the age of the patient was 10 years old because of the odontoma. We noticed the retention of primary teeth in the two cases.

Treatment of choice consists in conservative surgical enucleating by means of the removal of the conjunctive tissue capsule that surrounds it [21]. The impacted teeth tend to erupt regardless of the degree of root formation after extirpation of the odontoma. There is some reports where the orthodontic traction was necessary to lead the impacted teeth to a satisfactory occlusion [22, 23]. In one study [24], 29 teeth associated with 45 odontomas analyzed were completely aligned through the orthodontic surgical approach, and only four teeth erupted spontaneously after surgery during the 15 years of follow-up. 32 of the 45 odontomas were in the vicinity of at least one tooth (21 in the incisal area). A total of 12 teeth were extracted (8 complex and 4 compound odontomas) and, of the preserved teeth, 33 were displaced and retained. In the first case, the germs of 21, 11 and 12 were under odontomas. 9 months after surgical intervention, the radiographic exam showed the eruption of 12, harmonious and proportional development of 11's root. We noticed a morphological alteration of the 21. Although the expansion of maxillae using orthodontic removal plate including prosthetic teeth, the 22 presented a rotation and signs of disharmony observed in clinical and radiographic exams which needs a second orthodontic approach and more investigations about the prognosis of 21.

In the 2nd case, the 21 showed a very unfavorable position close to the nasal cavity and an increase of pericorony sac. We decided to remove the central incisor in a second surgical intervention.

CONCLUSION

A thorough visual, manual, and radiographic examination should be performed for all children presented with clinical evidence of delayed eruption,

missing tooth, or temporary displacement, with or without history of trauma or genetic syndrome.

Early diagnosis of odontoma helps to ensure better prognosis, adopt less complex and traumatic treatment. As the early detection and treatment of the odontoma favoring the development of the dentition of the patient, so pediatric dentist must be aware to signs of changes from normality.

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