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Surgical Management of Unerupted Maxillary Central and Lateral Incisor Analogous To Odontome - A Case Report

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Introduction

Paul Braco first used the term "odontoma" in 1867 to describe tumors that developed as odontogenic dental hamartomas.[1] They are categorized as complex and compound. The compound odontomas have all of their tissues arranged in a way that makes them resemble teeth, while complex odontomes lack this arrangement, and they vary in size and shape.[2] The cause of odontoma is still unknown, although odontoblastic hyperactivity has been linked to local trauma or infection. Odontome development is also caused by changes in genetic components, which may be linked to diseases like Hermann's syndrome and Gardner's syndrome. Odontomatomas are typically seen during routine radiography and are asymptomatic. Clinically, it manifests as a delayed eruption of the sucedaneous teeth or a delay in the exfoliation of the primary tooth.[1] Here, we are presenting a case of impaction of the right permanent maxillary central incisor due to the presence of complex odontome in the maxillary anterior region.

Keywords: Hyperactivity, Micromotor, Odontoma, Povidineiodine

Case report

A 10-year-old male came to the Department of pedodontics and Preventive Dentistry, Himachal Dental College Sundernagar district mandi with the chief

complaint of missing tooth in the upper front region of the jaw.

Figure 1: Intraoral view of the patient showing unerupted right maxillary permanent central incisor.

The patient's medical and family history was noncontributory. There was no history of trauma at the location of the missing tooth. Also, no swelling or any other significant finding was noted.

On radiographic examination,

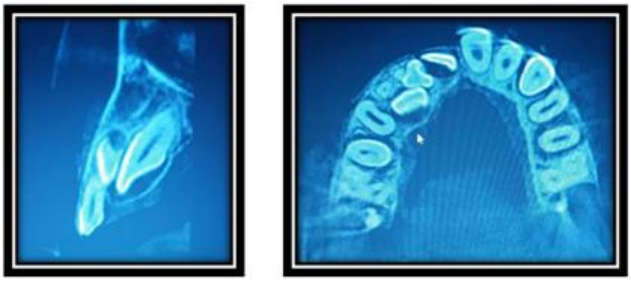

Figure 2: CBCT showing presence of odontoma at the eruption path of the permanent maxillary central incisor.

Impacted permanent maxillary central incisor were seen. and the existence of tooth-like formations along the impacted tooth's eruption path. A preliminary diagnosis of the odontome was made based on the radiographic pictures, and a surgical removal of the lesional portion was scheduled.

The incision was made at the crest of the ridge while under local anesthetic. A full thickness mucoperiosteal flap was raised from labial side After removing a portion of the bone with a micromotor and bur, the odontome was exposed. And irregular calcified masses were removed without disturbing the underlying tooth. Curettage was done, and the area was irrigated with povidineiodine solution and normal saline (0.9%).

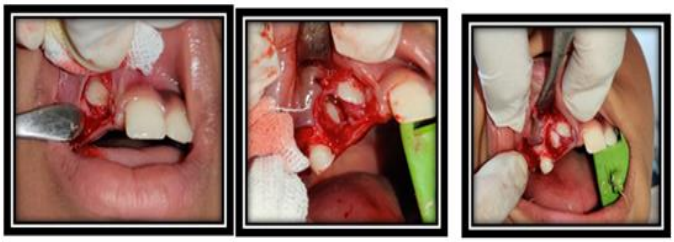

Figure 3: Intraoral image at the time of incision where full thickness mucoperiosteal flap was raised from labial side and exposure of the odontoma at the surgical site.

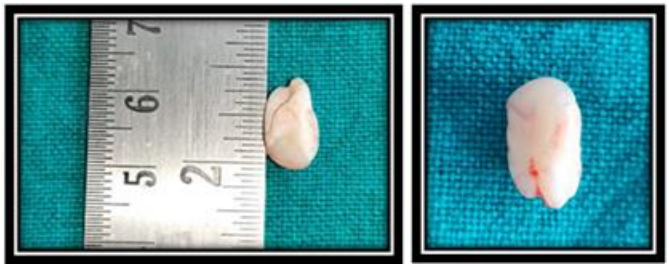

Figure 4: Excised calcified mass

After hemostasis was achieved, the flap was repositioned, and sutured using 3-0 silk.

Figure 5: Exposure of the unerupted central incisor after complete removal of calcified mass and the surgical site was sutured using 3-0 silk.

Post extraction instructions were given to the patient. And patient recall after one week. One-week

postoperative intraoral radiograph taken which confirm the successful extraction of odontom.

The patient is advised for regular follow-up to ensure the eruption of the central incisor to its position.

After 10 Days

After 1 Month

After 1 Month

After 2 Months

After 6 Months

After 6 months when patient came to the department we notice lateral incisor of right side was also not erupted so we took RVG.

Figure 6: Missing lateral in the upper right front region of mouth

Figure 7: Intraoral image at the time of incision

So we planned a surgery on that day. incision was made at the crest of the ridge while under local anesthetic, and we remove the thick fibrous tissue and exposing the lateral incisor as you can see in fig 8.

Figure 8: Exposure of lateral incisor

The patient is advised for regular follow-up to ensure the eruption of the lateral incisor to its position.

Figure 9: Showing eruption of central and lateral incisor.

Discussion

Dentists frequently deal with tooth impaction in clinical settings, which is characterized as a condition in which a

tooth does not erupt into a proper functional position by the anticipated periods. There have been several local etiologic variables identified for tooth impaction. These consist of trauma, ankylosis, odontomes, odontogenic tumors, and dentigerous cysts. The most frequent etiological cause among these is odontoma.[3]

In 1867, Paul Broca coined the term "odontome." Because the organization of odontogenic cells was unable to achieve the normal state of morphological differentiation, an odontoma is a tumor of odontogenic origin with differentiation of epithelial and mesenchymal cells that create enamel and dentin with aberrant irregular pattern.[4,1]

Odontomes can be divided into two groups: (According to WHO classification)

1. **Complex odontome:** Calcified dental tissues are simply arranged in an irregular mass bearing no morphologic similarity to rudimentary teeth.

2. **Compound odontome:** All odontogenic tissues in an orderly pattern that results in many teeth-like structures, but without morphologic resemblance to normal teeth.[4]

In 1946, Thoma and Goldman[5] classified them as:

Geminated composite odontomes: Two or more well developed teeth fused together.

Compound composite odontomes: Consists of more or less rudimentary teeth

Complex composite odontomes: Are calcified structure that has no great resemblance to the normal anatomical arrangement of dental tissues.

Dialated dontomes: There is marked enlargement of the crown or root part of the tooth.

Cystic odontomes: Is normally encapsulated by fibrous connective tissue in a cyst or in a wall of cyst[5]

Local trauma, odontoblastic hereditary hypersensitivity in infectious/inflammatory processes, anomalies (Gardner syndrome, Hermann's syndrome), and changes in genetic components that regulate dental development are some of the many etiological factors linked to the formation of odontome.[5,7]

In primary and permanent dentition, odontomes are treated by surgically removing them. It is possible for the impacted teeth to erupt on their own or with orthodontic traction if odontomes are extracted early without affecting the underlying tooth germ.[3]

The underlying odontomes were surgically removed in this case, and the impacted central incisor has been monitored for eruption. The tooth can erupt normally if the root of the impacted tooth is still growing, but it loses its ability to erupt once the root apex closes.[3,6]

In this case report, root formation of the impacted incisor was not complete. Therefore, it is expected that impacted right maxillary permanent central incisor may erupt spontaneously. By detecting odontomas early, we can improve prognosis, prevent lesion recurrence, and prevent adjacent teeth from erupting out of alignment using simpler and less costly treatment procedures.[4]

Conclusion

Even if there is no history of trauma, all pediatric patients who exhibit clinical signs of delayed eruption, missing teeth, or temporary tooth displacement should have a comprehensive visual and radiographic examination to rule out the presence of any space-occupying lesions in the eruption path.

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