SHORT COMMUNICATION

An Impacted, Inverted Mesiodens in a Primary Dentition and a Rare Complication

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ABSTRACT

The occurrence of a mesiodens is common in the permanent dentition but is rare in the primary dentition (0.02-1.9%). A rare case of an impacted, inverted mesiodens in the primary dentition is presented. The mesiodens was discovered accidently on a radiograph, advised for intrusive luxation sustained to a primary maxillary anterior tooth. Surgery is advised after careful evaluation of the position of mesiodens; any associated pathology/complication; stage of the eruption of adjacent teeth and that of the underlying permanent tooth germ; the age of the patient; and the socioeconomic status.

KEYWORDS: Primary Dentition, Rotation, Tooth Impacted, Tooth Luxation, Tooth Supernumerary

INTRODUCTION

Supernumerary teeth are those teeth which occur in excess of the normal complement. A prevalence of 0.3-0.8% supernumerary teeth in the primary dentition and 0.1-3.8% in the permanent dentition is reported in literature.[1] A mesiodens is the most commonly occurring supernumerary tooth present in between the maxillary central incisors.

A mesiodens has the potential to cause midline diastema, impaction or rotation of teeth, cystic transformation or resorption of adjacent teeth. Although cases of both labial [2] and palatal[3] eruption of mesiodens in the primary dentition have been reported, the present report discusses a still rarer case of an inverted, impacted mesiodens which had caused an axial rotation of the underlying permanent tooth bud in a three-year-old girl. It was discovered incidentally when radiograph was advised for intrusive luxation of tooth 51(FDI notation-primary maxillary right central incisor).

Intrusive luxation injuries constitute about 8-22% of all luxation injuries sustained to the primary anterior teeth.[4] These injuries are common between 1-3 years of age because of increased resiliency of supporting bone and poor motor co-ordination.

CASE REPORT

A three-and-a-half-year-old girl reported trauma to the upper front region. History revealed that she had fallen face forwards while playing the day before. History revealed no loss of consciousness or altered sensorium and no nasal or ear bleed. However, parents observed an intra-oral bleed and mobility of an upper front tooth then. An extra-oral examination showed an abrasion on the upper lip and nasal tip. An intra-oral examination showed a grade 1 intrusive luxation of tooth 51.

An intra-oral periapical radiograph of the tooth 51 showed a palatal deflection of the crown and a foreshortening of the image [Fig 1]. There was no evidence of any alveolar fracture. In addition, an impacted, inverted mesiodens was observed which had caused an axial rotation of the underlying permanent successor tooth 11 (permanent maxillary right central incisor), the crown of which was still in the process of formation.

Fig 1: IOPA radiograph of 51

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It was decided to defer the surgical extraction of the impacted mesiodens till the child attained an early mixed dentition period. The patient was put on frequent recall visits to monitor re-eruption of intruded tooth 51.

DISCUSSION

The etiology of supernumerary teeth is not well understood. Various theories such as dichotomy or splitting of the tooth germ; atavism or phylogenetic reversion; hyperactivity of dental lamina; syndromic; or a combination of genetic and environmental factors have been proposed.

A mesiodens may be vertical, horizontal or inverted in position. A retrospective review of 256 cases of mesiodentes spanning twelve years (1990-2001) showed that 172 (67%) were inverted.[5] However, another radiographic review of 85 mesiodentes found 67 (78.8%) of these to be impacted out of which 32 (37.6%) were inverted.[6] An inverted mesiodens often fails to erupt although cases of eruption in the nasal cavity have been reported.[7]

There are numerous complications associated with a mesiodens. A retrospective review by Hyun et al [8] showed that 563 out of 1200 mesiodentes had associated complications; midline diastema being most common (35.34%). This was followed in the decreasing order by delayed eruption (20.60%), displacement (6.60%), rotation (11.02%), root resorption of adjacent teeth (7.58%), cyst formation (5.29%), and nasal eruption (3.58%).[8] Complications of the unerupted permanent successor tooth include impaction or ectopic eruption; dilaceration; or loss of vitality of the permanent tooth. Erupted mesiodens are unaesthetic, may cause malocclusion and speech impairment. In the present case, mesiodens was characteristically peg-shaped, impacted and inverted which had caused an axial rotation of the unerupted tooth 11, a rare complication.

In children, luxation injuries sustained to the teeth are more common than fractures due to large marrow spaces; increased elasticity of alveolar bone; less dense and less mineralized bone.[9] Treatment is dependent upon the nature of injury, direction of impact, degree of axial impact, stage of root development and relationship of primary tooth with the permanent successor. In the present case, a palatal deflection of the tooth 51 was suggestive of a labial inclination of the root, thus minimizing chances of injury to the permanent successor. However, the deflection may have altered the position of the inverted impacted mesiodens which in turn, may have caused an axial rotation of the underlying permanent tooth bud due to its close proximity.

Surgical extraction of the mesiodens was deferred till the early mixed dentition stage for the following reasons. The crown of permanent maxillary central incisor is usually complete by 4-5 years of age. Disturbances at this stage, such as those produced during extraction, may have led to coronal hypoplasia. Additionally, inadvertent trauma induced during surgical elevation of the impacted mesiodens may have caused displacement of the adjacent permanent tooth germ, crown/root dilaceration or total arrest of root formation depending upon the stage of tooth formation. Moreover, this immature, uncooperative age of around 3 years, in all likelihood, would have necessitated treatment under sedation, adding not only to the financial burden but also predisposing the child to anesthetic risks. Furthermore, in the event that the primary tooth was also inadvertently compromised during the surgical procedure involving extraction of mesiodens, a space maintainer would have been required for speech, esthetics and prevention of space loss. Also, an accidental premature removal of an overlying primary tooth would have delayed eruption of the permanent successor further owing to the formation of a dense overlying bone, necessitating yet another surgical procedure to hasten its eruption.

Treatment initiated during an early mixed dentition stage is beneficial as it hastens permanent tooth eruption. The highly vascular periapical tissues provide the necessary eruptive force, minimizing the need for future extensive orthodontic therapy. It has been observed that spontaneous eruption of teeth occurs within 16-18 months of removal of a supernumerary tooth.[10] Treatment initiated when the roots have matured, necessitates surgical and/or orthodontic extrusion of the tooth apart from space regainers to regain the lost space caused by tilting of adjacent erupted teeth. In the index case, it was hence, decided not to resort to immediate surgical intervention and the treatment deferred till the early mixed dentition stage. Studies have shown that most of the grade 1 intruded primary teeth (when more than 50% of the crown is visible) re-erupt with few complications.[9] Hence, it was decided to manage intrusive luxation injury conservatively too, by monitoring tooth eruption.

CONCLUSION

In conclusion, an impacted, inverted mesiodens in primary dentition causing an axial rotation of the underlying permanent tooth germ is very rare. The present case was discovered accidentally on a radiograph following intrusive luxation of a primary predecessor. Early mixed dentition is advised for surgical removal.

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