

Undiagnosed intrusion of a maxillary primary incisor tooth: 15-year follow-up

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Trauma to the human anterior primary dentition results in luxation injuries in 62–69% of the cases.^{1,2} The most common forms of injury to the anterior primary dentition are intrusion and extrusion.³ When there is complete intrusion of the primary tooth into the alveolar bone, the only way to differentiate between intrusion and avulsion is by radiographic examination.⁴

The following report describes a case in which an intruded primary tooth remained undiagnosed for 11 years. At age 12 the intruded primary tooth was discovered and diagnosed as a mesiodens. Further examination and treatment disclosed that the so-called mesiodens was an intruded primary tooth.

Case Report

A 12-year-old female presented at a dental office for routine orthodontic treatment. On radiographic

examination a panoramic radiograph (Fig 1) revealed a radiopaque, tooth-like structure between the apices of the central incisors which was diagnosed as a mesiodens. When a cephalometric radiograph was taken to aid in orthodontic treatment planning, it was noted that the tooth-like structure was situated on the buccal cortical plate of the maxillae. As this structure was not causing any discomfort to the patient nor did it interfere with the treatment planned, it was left for observation and follow-up during the orthodontic treatment.

The orthodontic treatment was completed uneventfully within 2½ years. At age 16, approximately 3½ years posttreatment, the patient started complaining of discomfort and pressure in the area of the nasal spine. A periapical radiograph revealed a radiopaque structure between the apices of the central incisors (Fig 2) with no other associated pathology.

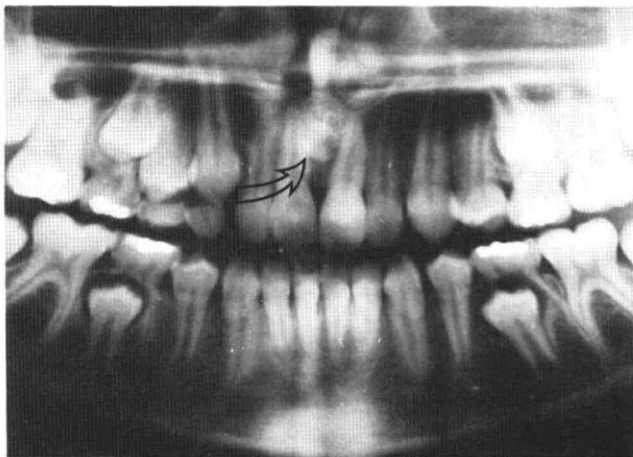


FIG 1. Panoramic radiograph of the patient at age 12 years showing a radiopaque tooth-like structure between the roots of the central incisors.

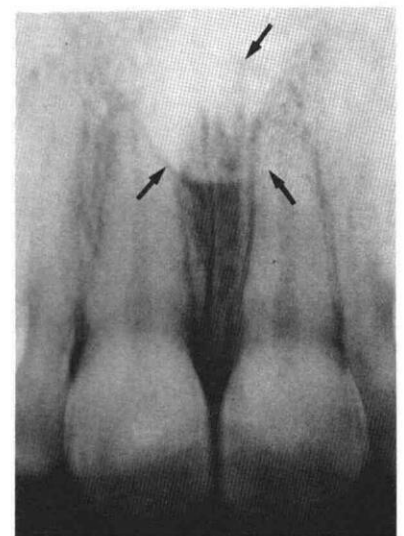


FIG 2. A periapical radiograph of the central incisors showing the presence of a tooth-like structure at the apices. The incisors show normal root formation and an intact periodontium.

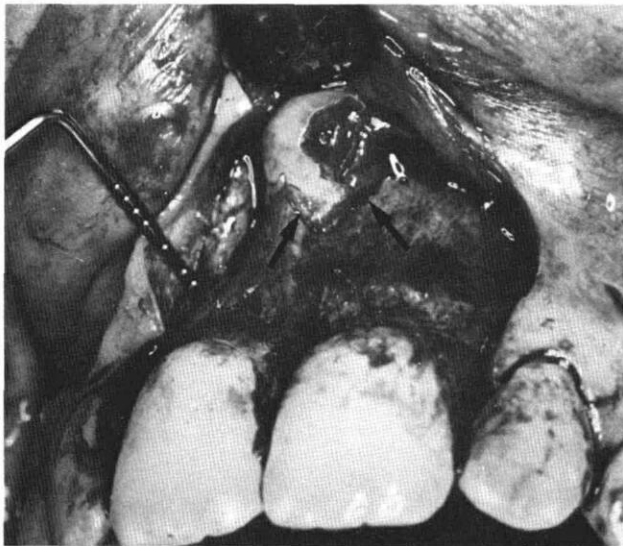


FIG 3. Surgical exposure of the tooth shows the resorbed crown of a primary tooth.

Examination of a second cephalometric radiograph, taken after the orthodontic treatment was completed, confirmed the presence of the tooth-like structure as seen 2½ years earlier.

It was decided to surgically remove the structure. With the aid of a local anesthetic a full thickness periosteal flap was raised to expose an irregular tooth-like structure (Fig 3). It was separated easily from the cortical plate leaving a shallow depression in the bone. The incision wound was closed using interrupted sutures and healing was uneventful. Closer inspection of the structure revealed a deciduous tooth crown which had undergone irregular resorption (Fig 4).

On questioning the parents of the patient it was revealed that the patient had had a fall at age 10 months. As a result of the fall one of her primary incisors was "lost." She was examined immediately after the accident by her dentist who found no pathology. Healing followed rapidly and uneventfully.

Discussion

Because of the root anatomy of the maxillary primary incisor and its relationship to the developing permanent tooth, intrusive luxation of the primary tooth often results in perforation of the thin cortical plate by the primary tooth root.³

In the present report the pathway taken by the primary tooth must have been through the buccal plate so that the entire tooth came to lie buccal to the cortical plate just below the nasal spine. The lack of damage to the permanent incisors also indicates that the path of intrusion did not affect the developing permanent tooth. It has been reported that

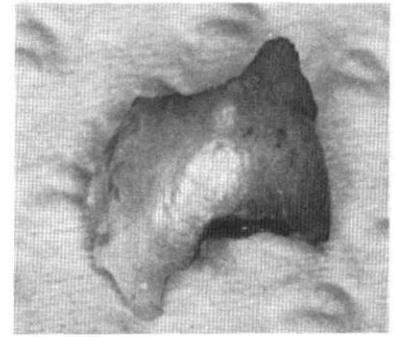


FIG 4. View of the partially resorbed primary tooth crown immediately after its removal.

trauma resulting in this type of intrusion often results in damage to the permanent tooth germ.^{4,5} However, at the age of 10 months when the injury is said to have occurred, the root of the primary central incisor usually has undergone one-half to two-thirds of its development and the permanent tooth germ is only in the very earliest stages of its development;⁶ thus, trauma to the permanent incisor is less likely to have occurred.

The cause of the sudden discomfort at age 16 probably was due to a sharp edge of the tooth, resulting from the resorption and irritating the covering tissues.

Two conclusions can be drawn from this case. It is important to take a radiograph at the time of trauma to insure that the primary tooth is indeed lost and not intruded. Also, a tooth that comes to lie buccal to the cortical plate in a subperiosteal position does not become incorporated into the developing maxilla, but rather is pushed forward in front of the growing jaw.

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1. Andreasen JO: Etiology and pathogenesis of traumatic dental injuries. A clinical study of 1298 cases. *Scand J Dent Res* 78: 329-42, 1970.
2. Andreasen JO, Ravn JJ: Epidemiology of traumatic dental injuries to primary and permanent teeth in a Danish population sample. *Int J Oral Surg* 1:235-39, 1972.
3. Andreasen JO: *Traumatic Injuries Of The Teeth*, 2nd ed. Copenhagen; Munksgaard, 1981 pp 151-202.
4. Andreasen JO, Sundstrom B, Ravn JJ: The effect of traumatic injuries to primary teeth on their permanent successors. I. A clinical and histologic study of 117 injured permanent teeth. *Scand J Dent Res* 79: 219-83, 1971.
5. Ravn JJ: Developmental disturbances in permanent teeth after intrusion of their primary predecessors. *Scand J Dent Res* 84: 137-41, 1976.
6. Davis JM, Law DB, Lewis TM: *An Atlas of Pedodontics*, 2nd ed. Philadelphia; WB Saunders Co, 1981 pp 2-17.