

ECTOPIC ERUPTION

R. TANNEN DDS

INCIDENCE

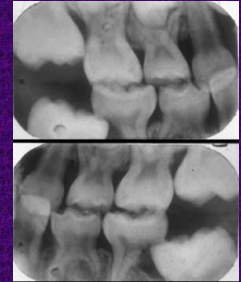
- a developmental disturbance in the eruption pattern of the permanent dentition
- Most often associated with maxillary first permanent molar, mandibular lateral incisor and maxillary permanent canine
- Ectopic eruption of first permanent molars occurs in 0.75% of the general population; more common in children with cleft palate (aapd guidelines), most common in maxilla, most common ectopically erupting tooth (proffit)
- Ectopic eruption of maxillary permanent canines occurs in 1.5-2% of the population
- Maxillary incisors are impacted / erupt ectopically due to the presence of supernumerary teeth in 2% of the population
- Mandibular lateral incisors also commonly show ectopic eruption pattern, most common in mandible

ETIOLOGY

1. Maxillary teeth are larger than normal
2. Maxilla is smaller than normal
3. Maxilla is positioned further posteriorly than normal in relation to the cranial base
4. Angulation of the erupting maxillary permanent first molar is abnormal
5. Delayed calcification of some affected first permanent molars

First Permanent Molar

- Molar that presents with part of its occlusal surface clinically visible and part under the distal portion of the primary second molar
- Suspected in asymmetric eruption is noted
- Diagnosed via Panoramic and/or bitewing radiographs in the early mixed dentition



First Permanent Molar

- A portion of the erupting 1st molar resorbs the distal root of the primary 2nd molar and is inhibited from erupting by the distal portion of the primary molar
- Two types
 - Self-correct/ "jump"; 66% of cases molar jumps or moves distally and erupts into correct position
 - Impacted/ "hold"; most likely to occur when can see part of the occlusal surface and the mesial portion is under the distal part of the primary molar



Usually no pain/discomfort unless a communication develops between the oral cavity and the pulpal tissue of the primary molar causing an abscess

Mandibular Lateral Incisors

Erupting incisor resorbs all/portion of the primary canine root

Transitional crowding develops from primary to permanent dentition or there can be a true arch length deficiency

Diagnosis generally made when see early canine exfoliation often accompanied by midline shift to the side of ectopic eruption

If both mandibular canines are lost, the permanent incisors can tip lingually, reducing the arch circumference, increasing apparent crowding

Mandibular Lateral Incisors

Lingual eruption of permanent incisors

10% prevalence

Cause not well established

- abnormal pattern of resorption
- lower incisor tooth buds from lingual to the primary incisors and may not migrate facially

Maxillary Canines

1. 1.5-2% of the population
2. suspect when the canine bulb is not palpable or when asymmetric canine eruption is evident
3. canine erupts from a more medial position in the dental arch with a more mesial horizontal path causing a greater risk of lateral incisor resorption
4. Panorex shows abnormal inclination/overlap of canine with lateral incisor

Maxillary Canines

- Need both panorex and periapical / occlusal films to accurately diagnose.



TREATMENT OF ECTOPIC MOLARS

- 3-6 month evaluation period best initial therapy
- GOALS:
 - move the ectopically erupting tooth away from the tooth it is resorbing
 - allow it to erupt
 - retain primary second molar



TREATMENT OF ECTOPIC MOLARS

- If a small amount of movement is needed and the molar is not clinically visible a 20-mil. Brass wire can be placed around the contact point between the permanent molar and the second primary molar
- Wire is tightened every two weeks; causing compression of the PDL and the molar is forced distally until it can slip past the primary molar.
- Can use a steel spring clip if there is minimal resorption of the primary molar; can be difficult to place if contact point is below the CEJ of the primary molar
- Elastomeric ligatures can be used with careful observation



TREATMENT OF ECTOPIC MOLARS

- Band second primary molar and apply a distal force to the permanent molar via
 - Helical spring
 - Elastomer
- Occlusal surface of the permanent molar must be visible
 - A small ledge of resin/metal button bonded to the occlusal surface
 - Occlusal surface serves as the point of force application
 - End of spring can be bonded directly to the impacted tooth

TREATMENT OF ECTOPIC MOLARS

- Appliance evaluated every two weeks
- Acts quickly because of minimal root development of the permanent molar



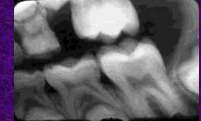
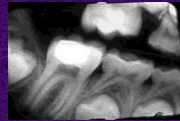
SPRING DISTALIZER



HALTERMAN APPLIANCE

TREATMENT OF ECTOPIC MOLARS

- Occasionally need to remove primary molar because of extensive root resorption caused by the permanent molar
- Loss of arch length is certain
- Need to plan treatment for impending space loss



TREATMENT OF ECTOPIC MOLARS

- If "5" is/are congenitally missing or extraction being considered because of crowding, reduction of arch length is advantageous
- To maintain space can use a distal shoe
 - Does not regain
 - Disadvantages.....

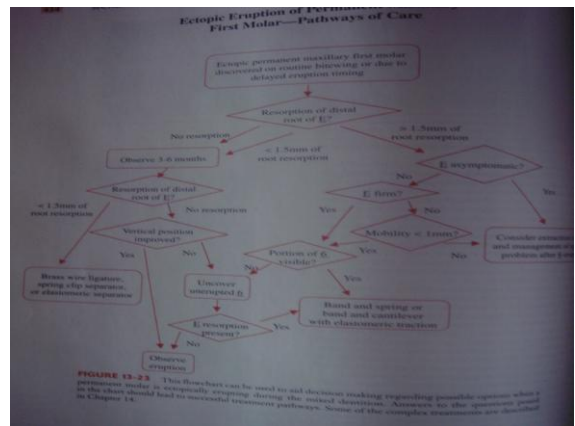


TREATMENT OF ECTOPIC MOLARS

- Allow permanent molar to erupt and then regain space with space regaining appliance
- Hold space with space maintainer once have adequate space for premolar to erupt



TREATMENT OF ECTOPIC MOLARS



TREATMENT OF ECTOPIC LATERAL INCISORS

- Usually an early indication of crowding
- May only be the result of aberrant tooth positioning
- If causes resorption and exfoliation of both primary canines, the incisors will tip lingually decreasing arch length
- Whether loss of primary canines unilateral or bilateral need to be considered in space analysis**
 - Determine if there is an arch length discrepancy

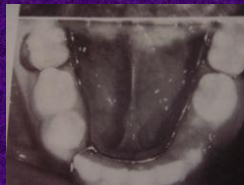


TREATMENT OF ECTOPIC LATERAL INCISORS

GOALS

1. To prevent midline shift
 2. To prevent further crowding
- Can place a lingual arch with a soldered spur distal to the lateral incisor to hold the midline if there is adequate space and the incisors are in good position
 - If midline has shifted the contralateral canine can be extracted to prompt spontaneous midline correction (there will be space loss)
 - If space loss from lingual incisor tipping cannot be tolerated a lingual arch should be placed following canine extraction
 - If there is sufficient crowding to contraindicate space maintenance or if incisors are too protrusive to be maintained in this position no lingual arch should be placed after extractions

TREATMENT OF ECTOPIC LATERAL INCISORS



TREATMENT OF IMPACTED/ECTOPICALLY ERUPTING CANINES

- Early diagnosis and treatment can lessen the severity of impaction
- May stimulate eruption of the canine
- Extraction of the primary canine indicated when canine bulge cannot be palpated in the alveolar process and there is radiographic overlapping of the canine with the formed root of the lateral incisor in the mixed dentition
- Even if diagnosed later (age 11-16) primary canine extraction can lessen the severity of permanent impaction (as long as canine is not horizontal)... 75% will erupt
- Bonded orthodontic treatment normally is required to create space or align the canine



TREATMENT OBJECTIVES

- MANAGEMENT OF ECTOPICALLY ERUPTING MOLARS, CANINES, AND INCISORS SHOULD RESULT IN IMPROVED ERUPTIVE POSITIONING OF THE TOOTH
- IN CASES WHERE NORMAL ALIGNMENT DOES NOT OCCURE, SUBSEQUENT COMPREHENSIVE ORTHODONTIC TREATMENT MAY BE NEEDED TO ACHIEVE APPROPRIATE ARCH FORM AND INTERCUSPATION.