CANINE IMPACTION

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Impacted tooth: completely or partially unerupted and is positioned against another tooth or bone or soft tissue so that its further eruption is unlikely. (Archer, 1975)

**Impacted tooth** is one that fails to erupt and will not attain its anatomical position beyond the chronological eruption date even after its root completion.

**Impacted**
Condition of being firmly lodged (impacted in alveolar bone) so it is prevented from erupting.

**Ectopic eruption**
Located away from the normal position.
Canines play a role in functional occlusion and form the foundation of an esthetic smile.

Therefore, any factors that interfere with the normal development of canines and their eruption can have serious consequences.
Development of canine
4-6 months; (calcification) begins high in the maxilla
6 years; Crown completed
10 years; Palpable high in the buccal vestibule
11-13 years Eruption
(Mandibular: 9.5 years)
14 - 15 years Root completed

Four factors govern the Eruption of permanent canines into normal position
1. Position of tooth bud in bony Crypt.
2. Path of eruption.
3. Amount of space available for canines in the arch.
4. Shape and position of lateral incisors
Classification of impacted canine

Maxillary canine
- Buccal
- Palatal

Mandibular canine
- Buccal
- Lingual

Classification of palatally impacted canine

- Based on two variables:
  1. Transverse relationship of the crown of the tooth to the line of dental arch which may be
     a. Close
     b. Distant (nearer the midline)
  2. Height of the crown of the teeth in relation to the occlusal plane which may be
     a. High
     b. Low
The prevalence of impacted maxillary canines varies and is 1% to 3%, with a palatal location 85% of the time and a labial location 15% of the time.

- Unlike buccal displacement of maxillary canines, palatal displacement of maxillary canines, and the frequent ensuing impaction, most often occurs in cases in which adequate perimeter arch space exists.
- Twice as common in females as it is in males.
- The incidence of canine impaction in the maxilla is more than twice that in the mandible.
- Of all patients who have impacted maxillary canines, 8% have bilateral impactions.
ETIOLOGY OF IMPACTED CANINE

Localized factors
(a) Discrepancies in tooth size-arch length (crowding),
(b) Absence of maxillary lateral incisor,
(c) Prolonged retention or early loss of the deciduous canine
(d) Abnormal position of the tooth bud (hereditary)
(e) The presence of an alveolar cleft, (hereditary)
(f) Ankylosis,
(g) Cystic or neoplastic formation,
(h) Dilaceration of the root (trauma),

Canine impaction
Generalised causes
(a) Endocrine deficiencies,
(b) Febrile diseases,
and
(c) Irradiation.
GUIDANCE THEORY
Canine erupts along the root of lateral incisors, which serve as a guide, and if the lateral incisor is absent or malformed, the canine will not erupt.

GENETIC THEORY
Genetic factors are primary origin of palatally displaced maxillary canine and include other possibly associated dental anomalies, such as missing or small lateral incisor. Given the strong hereditary influence in palatal canine displacement, there are those who believe that heredity is the direct cause and dismiss other relationships as secondary or as similarly linked hereditary factors. In other words, the palatal canine is another link in the chain of genetically linked phenomena..
Clinical Signs of Maxillary Canine Impaction
1. Failure to palpate canine bulge in buccal vestibule by 10 years
2. Immobility of the deciduous canine
3. Palatal bulge indicating possible underlying canine
4. Increased mobility, non-vital central or lateral incisors
5. Inadequate space within the dental arch for canine eruption
6. Flared lateral incisors – can also be normal
7. Asymmetry of eruption

Impacted maxillary canines in individuals > 40 years susceptible to ankylosis
SEQUELAE OF IMPACTED CANINE

- Labial or lingual malpositioning of impacted tooth
- Migration of neighbouring teeth and loss of arch length
- Internal resorption or external root resorption of impacted or neighbouring tooth
- Dentigerous cyst formation
- Infection particularly with partial eruption
- Referred pain
Clinical evaluation

Inspection -
- Non-appearance of permanent canine clinically by its eruption age.
- Presence of antimere.
- Presence of anterior spacing for a long period.
- Persistent median diastema.
- Abnormal morphology of lateral incisor or presence of peg laterals.
- Improper angulations of adjacent teeth

Palpation-
Bulge of permanent Canine could be palpated buccally above the deciduous canine 2-3 yrs before its eruption.
- It should be palpated deep above attached gingiva in the sulcus where mucosa reflects.
- Deciduous canine should be checked for mobility.
- Palpation should be done in abnormal locations after getting clue from inspection.