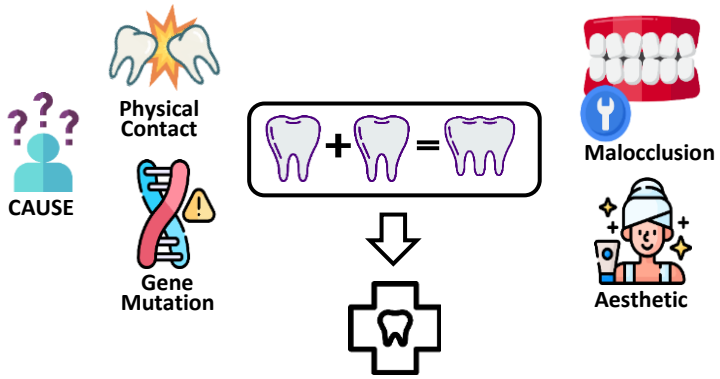
Tooth Fusion in Permanent Dentition and Its Genetic Factor

Wonbin Seo, Yeonjin Ju, Bumjoon Lee, Soyoung Park, Jonghyun Shin, Taesung Jeong, Eungyung Lee
Department of Pediatric Dentistry, Dental Research Institute
Pusan National University Dental Hospital, Yangsan, Republic of Korea

INTRODUCTION

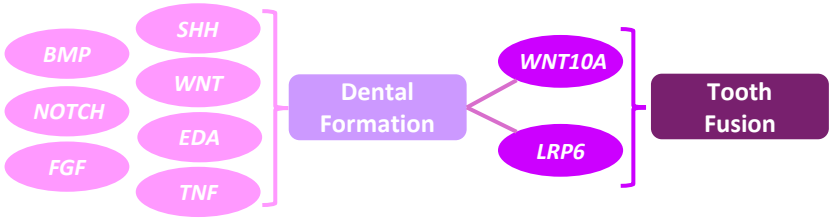
- Fusion, recognized as the union of two separate tooth buds during their developmental stages, manifests in both dentitions, predominantly in the anterior mandibular region, with a higher incidence observed in the incisor and canine teeth.



- This report presents clinical and radiographic images for fused teeth of lower incisor and canine including routine follow ups for eruption.

GENETIC FACTOR

- Dental formation and development in humans commence from the 6th week in utero and extend through adolescence, orchestrated by seven signaling pathways: *WNT*, *BMP*, *FGF*, *SHH*, *EDA*, *TNF*, and *NOTCH*.



- Notably, *WNT10A* represents the most prevalent causative genes associated with non-syndromic tooth agenesis.

CASE PRESENTATION Ⅰ

+1Y 6M

- Patient information
  6Y 9M / M, no underlying disease
- Treatment
  Dissection between #42 and #43
  Extraction of #83 and #42
- Follow-up
  #43 normally erupted after 18 months after the extraction of #42

CASE PRESENTATION Ⅱ

+2Y 8M

- Patient information
  5Y 5M / F, no underlying disease
- Treatment
  Regular check-ups
- Follow-up
  #42, 43 spontaneously erupted without any other developmental anomaly but fusion.

CONCLUSION

- Fused teeth can cause significant aesthetic concerns and malocclusions due to irregular crown and root morphology and misalignment.
- Treatment for such anomalies should encompass a holistic approach, considering the overall oral cavity and occlusion rather than focusing solely on the local developmental abnormality.
- Collaboration between pediatric dentistry and orthodontics in primary and mixed dentition stages is crucial for early detection of dental anomalies and optimizing treatment outcomes.