

# Dental Anomalies: Foundational Articles and Recommendations

- Ashkenazi M, Greenberg BP, Chodik G, Rakocz M.** Postoperative prognosis of unerupted teeth after removal of supernumerary teeth or odontomas. *Am J Orthod Dentofacial Orthop.* 2007 May;131(5):61
- Dashash M, Yeung CA, Jamous I, Blinkhorn A.** Interventions for the restorative care of amelogenesis imperfecta in children and adolescents. *Cochrane Database Syst Rev* 2013;6:CD007157.
- Depprich RA, Ommerborn MA, Handschel JG, Naujoks CD, Meyer U, Kübler NR.** Dentin dysplasia type I: a challenge for treatment with dental implants. *Head Face Med.* 2007;3:31. Published 2007 Aug 22. doi:10.1186/1746-160X-3-31
- Gallacher A, Ali R, Bhakta S.** Dens invaginatus: diagnosis and management strategies. *Br Dent J.* 2016;221:383-7.
- Garrocho-Rangel A, Dávila-Zapata I, Martínez-Rider R, Ruiz-Rodríguez S, Pozos-Guillén A.** Dentinogenesis Imperfecta Type II in Children: A Scoping Review. *J Clin Pediatr Dent.* 2019;43(3):147-154.
- Gill DS, Barker CS.** The multidisciplinary management of hypodontia: a team approach. *Br Dent J* 2015;218:143-9.
- Hobkirk JA, Gill D S, Jones S P, Hemmings K W, Bassi G S, O'Donnell A L, Goodman J R.** Hypodontia: a team approach to management. Wiley-Blackwell. 2011
- Kana A, Markou L, Arhakis A, Kotsanos N.** Natal and neonatal teeth: a systematic review of prevalence and management. *European journal of paediatric dentistry*, 2013-03, Vol.14 (1), p.27-32
- Krug R, Volland J, Reich S, Soliman S, Connert T, Krastl G.** Guided endodontic treatment of multiple teeth with dentin dysplasia: a case report. *Head & Face Medicine.* 2020;16(1):27.
- Leith R, O'Connell AC.** Selective Reduction of Talon Cusps- A Case Series. *J Clin Pediatr Dent.* 2018;42(1):1-5.
- Patel M, McDonnell ST, Iram S, Chan MF.** Amelogenesis imperfecta - lifelong management. Restorative management of the adult patient. *Br Dent J.* 2013 Nov 8;215(9):449-57.
- Pousette Lundgren G, Karsten A, Dahllöf G.** Oral health-related quality of life before and after crown therapy in young patients with amelogenesis imperfecta. *Health Qual Life Outcomes.* 2015 Dec 10;13:197.
- Pousette Lundgren G, Wickström A, Hasselblad T, Dahllöf G.** Amelogenesis Imperfecta and Early Restorative Crown Therapy: An Interview Study with Adolescents and Young Adults on Their Experiences. *PLoS One.* 2016 Jun 30;11(6):
- Smail-Faugeron V, Picou Rollin J, Muller Bolla M, Courson F.** Management of non-syndromic dens evaginatus affecting permanent maxillary central incisors: a systematic review. *BMJ Case Rep* 2016. doi: 10.1136/bcr-2016-216672.
- Venezie RD, Vadiakas G, Christensen JR, Wright JT.** Enamel pretreatment with sodium hypochlorite to enhance bonding in hypocalcified amelogenesis imperfecta: case report and SEM analysis. *Pediatr Dent* 1994; 16: 433-436.

## Background

Amelogenesis Imperfecta (AI) refers to a group of genetic disorders affecting dental enamel. Diagnosis of AI is commonly based on phenotype, medical and family histories. Clinical features associated with AI may include: sensitivity, calculus, post-eruptive breakdown, aesthetic concerns, reduction of vertical dimension, difficulties eating, increased caries risk, reduced bond strength, delayed eruption or failure of eruption, pre-eruptive coronal resorption and anterior open bite.

Dentinogenesis Imperfecta (DI) is a group of autosomal dominant conditions characterized by defective formation of dentine, affecting the primary and permanent dentitions. Shield's classic classification defined this group of disorders into: Type 1: DI associated with osteogenesis imperfecta (OI); Type 2: DI not associated with OI; Type 3: rare DI with thin coronal and radicular dentine and severe attrition leading to pulpal abscess. Dentin dysplasia is an autosomal-dominant trait, affecting both primary and secondary dentitions. The affected teeth are characterized by short or total absence of roots, obliterated pulp chambers, and peri-apical radiolucencies.

Hypodontia is defined by the absence of one or more teeth, with exception of the third permanent molars. Clinical conditions associated with hypodontia

may include conical teeth, microdontia, delayed eruption, ectopic eruption, ankylosis, and submerged primary teeth, tooth wear of primary teeth and reduced alveolar development. Issues often include aesthetics, compromised chewing function, and negative psychosocial impact.

Supernumerary teeth are teeth or tooth-like structures in addition to the normal number of primary and permanent teeth. Associated features may include: delayed or failed eruption of permanent teeth, crowding, rotation or ectopic position of permanent teeth, root malformations, cyst formation of unerupted supernumerary teeth.

Dens evaginatus are cusp-like formations that contain enamel, dentine and occasionally pulp. Dens invaginatus is defined by the growing of enamel, dentine and pulp complex into the pulpal space.

Natal teeth are present at birth and neonatal teeth erupt within the first 30 days of life. The majority of natal and neonatal teeth represent the early eruption of primary teeth. Complications include irritation or trauma to infants' tongues, sublingual ulceration, laceration of the mother's nipples, and aspiration of the teeth.

## IAPD Recommendations

**1.** Management of amelogenesis imperfecta in permanent teeth may include:

**a.** Management of tooth sensitivity.

Consensus-based statement › Global agreement 89%

**b.** Use of aesthetic procedures such as whitening, composite, or ceramic veneers.

Consensus-based statement › Global agreement 72%

**c.** Early interventions with composite restorations, veneers, and stainless steel, cast metal or ceramic crowns.

Consensus-based statement › Global agreement 74%

**2.** Management of dentinogenesis imperfecta in permanent teeth may include: Early intervention with composite restorations; stainless steel, cast metal or ceramic crowns, and overdentures to prevent loss of vertical dimension.

Consensus-based statement › Global agreement 89%

**3.** Management of dentin dysplasia in permanent teeth may include:

**a.** Conventional endodontic is often challenging or not possible in teeth with total obliteration of root canals and pulp chambers.

Consensus-based statement › Global agreement 78%

**b.** Oral rehabilitation with removable prosthetics after extractions, or bone grafting and a sinus lift may be required for implant placement at the appropriate age.

Consensus-based statement › Global agreement 89%

**4.** Management of the clinical conditions associated with hypodontia in permanent teeth may include:

**a.** Placement of composite restorations; stainless steel, cast metal or ceramic crowns and veneers to manage conical, microdont teeth and tooth wear.

Consensus-based statement › Global agreement 83%

**b.** Removable prosthetics, resin retained bridges, over-dentures, tooth autotransplantation and/or dental implants for replacement of missing teeth.

Consensus-based statement › Global agreement 77%

**5.** Management of supernumerary teeth may include:

**a.** Monitoring with periodic radiographic exams if there are no associated complications and if orthodontic treatment is not planned.

Consensus-based statement › Global agreement 82%

**b.** Removal of the supernumerary tooth (teeth) with or without surgical exposure if not aligned in the arch or needs orthodontic intervention.

Consensus-based recommendation › Global agreement 78%

**6.** Management of dens evaginatus may include:

**a.** Monitoring and placement of fissure sealant, if there are no associated complications.

Consensus-based statement › Global agreement 83%

**b.** Selective progressive reduction of the dens evaginatus to prevent complications. Pulp exposure and pulp protection must be considered.

Consensus-based statement › Global agreement 87%

**c.** Excision of dens evaginatus if complications are present. The possibility of pulp exposure must be considered.

Consensus-based statement › Global agreement 72%

**7.** Management of dens invaginatus may include:

**a.** Placement of fissure sealants and monitoring if the tooth is vital.

Consensus-based statement › Global agreement 89%

**b.** Caries removal and adequate restoration if carious.

Consensus-based statement › Global agreement 95%

**c.** Depending on patient cooperation, root canal treatment if the pulp becomes necrotic.

Consensus-based statement › Global agreement 85%

**8.** Management of natal and neonatal teeth may include:

**a.** Extraction if the tooth is supernumerary, excessively mobile, or interfering with breastfeeding.

Consensus-based statement › Global agreement 83%

**b.** If possible, covering the incisal portion of the tooth with composite resin or smoothing the incisal edge if the tooth interferes with breastfeeding.

Consensus-based statement › Global agreement 70%