# Supernumerary Tooth #51

## Evidence Based Dentistry Rounds
## Pathology/Radiology

Group 3A-4

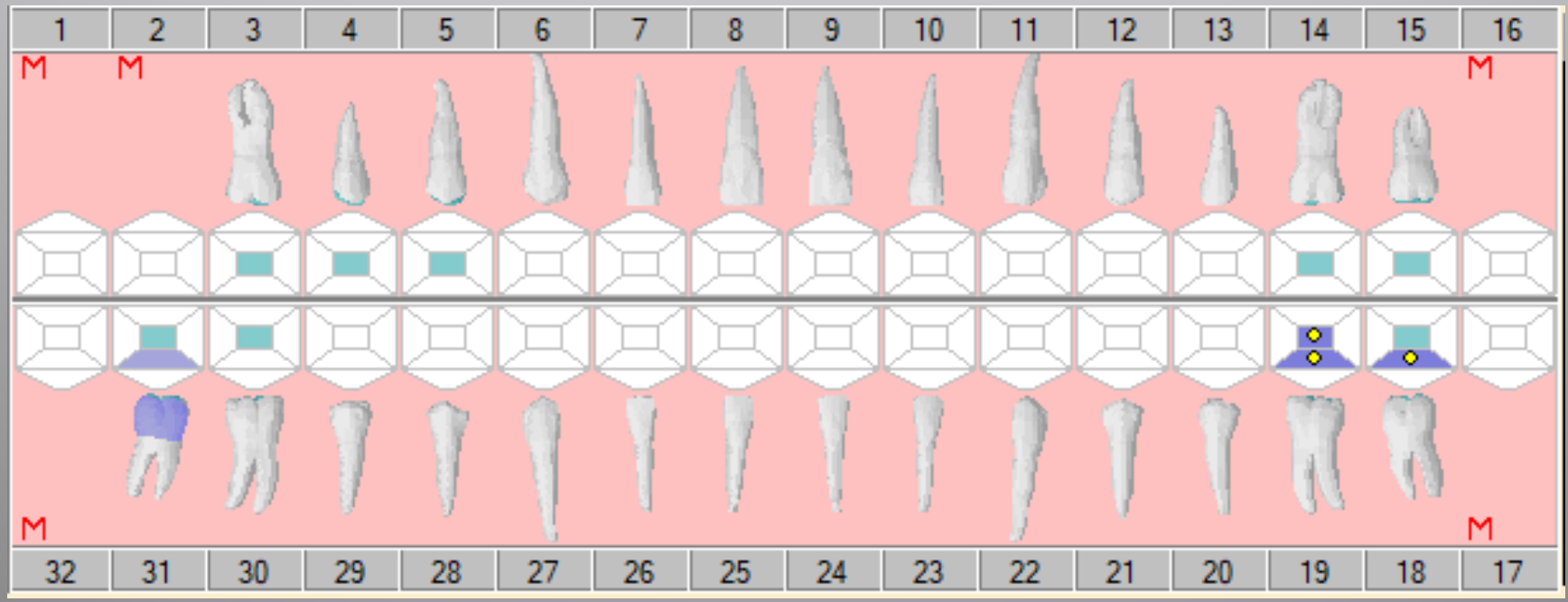
10/7/2020

# Rounds Team

- **Group Leader:** Dr. Grady
- **Specialty Leader:** Dr. Rawal
- **Project Team Leader:** D4 Mason Wistenberg
- **Project Team Participants:** D3 Ale Tomasino-Perez, D2 Michael Druck, D1 Matthew Wilks

# Genine

- 13-year-old female
- Chief Complaint: "I'm here for an exam"



# Medical History

- Non-contributory
  - No medications
  - NKDA
- Healthy 13-year-old

# Dental History

- Regularly seen in pediatric clinic at MUSoD for recalls, preventative tx, and minimal restorative (low caries risk)
- Now being seen in pre-doc clinic

# Radiographs

# Radiographs

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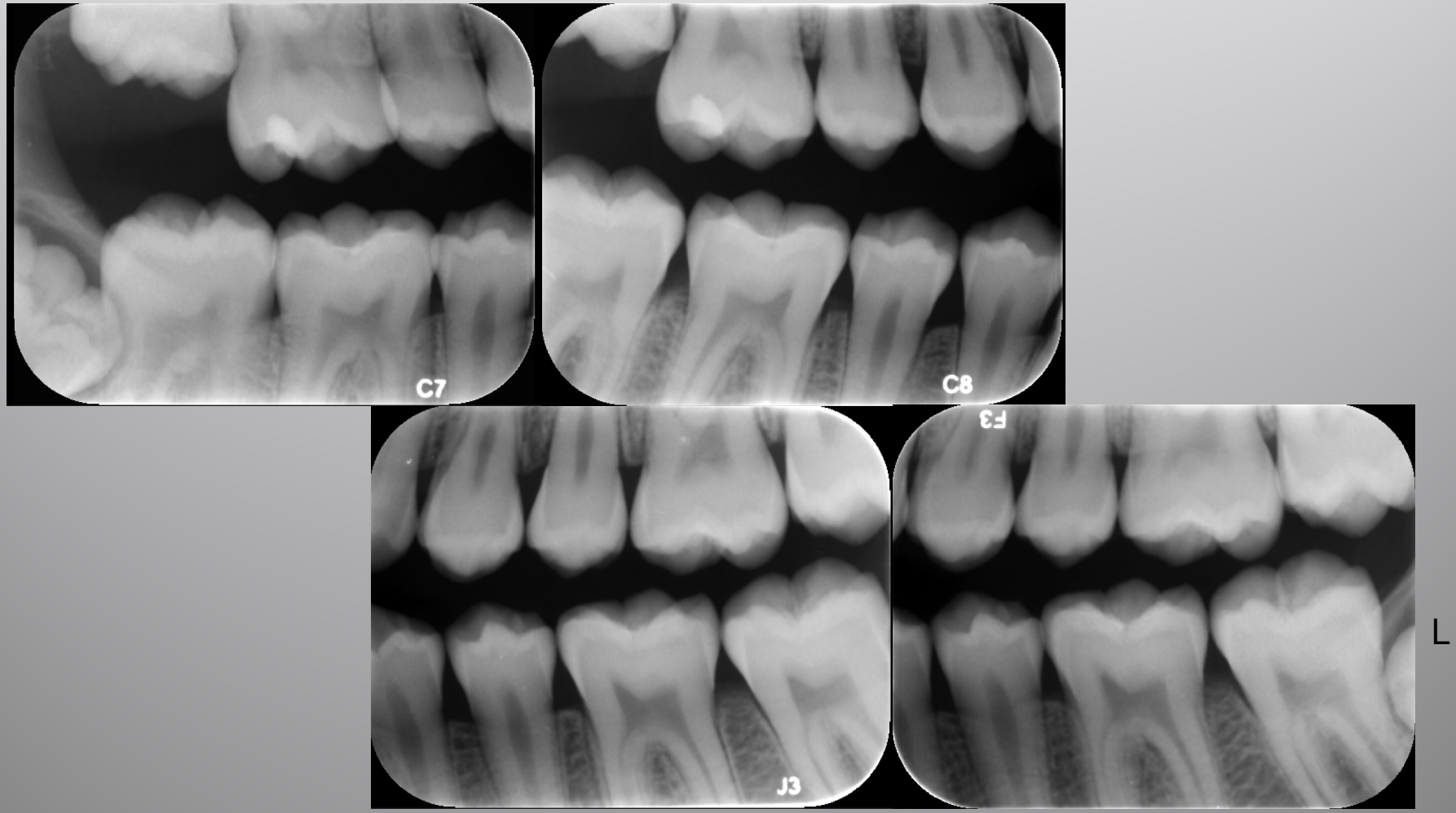


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# Radiographic Findings

- Supernumerary #51

# Periodontal Charting

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| | | B | | | | | | | | | | | | B | | | BOP |
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| | | 2 2 3 | 2 1 2 | 2 1 2 | 2 2 2 | 1 1 2 | 2 1 2 | 2 1 2 | 2 1 2 | 2 1 3 | 2 1 2 | 2 1 2 | 2 2 2 | 3 1 2 | | | P.D. |
| | | 0 0 0 | 0 1 0 | 0 0 0 | 0 0 0 | 0 0 0 | 0 0 0 | 0 0 0 | 0 0 0 | 0 0 0 | 0 0 0 | 0 0 0 | 0 0 0 | 0 0 0 | | | FGM |
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| | 5 5 5 | 5 5 5 | 4 4 4 | 5 5 5 | 5 5 5 | 4 4 4 | 4 4 4 | 4 4 4 | 4 4 4 | 4 4 4 | 4 4 4 | 5 5 5 | 5 5 5 | 5 5 5 | | | MGJ |
| | 1 1 2 | 2 1 2 | 2 1 2 | 2 1 2 | 2 1 2 | 1 1 1 | 1 1 1 | 1 1 1 | 1 1 1 | 1 1 1 | 1 1 2 | 2 1 1 | 2 1 2 | 2 1 3 | | | CAL |
| | 2 1 2 | 2 1 2 | 2 1 2 | 2 1 2 | 2 1 2 | 1 1 1 | 1 1 1 | 1 1 1 | 1 1 1 | 1 1 1 | 1 1 2 | 2 1 1 | 2 1 2 | 2 1 3 | | | P.D. |
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| 32 | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | | |
| | 0 0 0 | 0 0 0 | 0 0 0 | 0 0 0 | 0 0 0 | 0 0 0 | 0 0 0 | 0 0 0 | 0 0 0 | 0 0 0 | 0 0 0 | 0 0 0 | 0 0 0 | 0 0 -1 | | | FGM |
| | 2 2 2 | 2 1 2 | 2 1 2 | 2 1 2 | 2 1 1 | 1 1 1 | 1 1 1 | 1 1 1 | 2 1 2 | 2 1 2 | 2 1 2 | 2 1 2 | 2 1 2 | 2 1 2 | | | P.D. |
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| | | B B B | B | B | B | | | | | | | | | | | | BOP |
| | P P P | P P P | P P | P P | P P | P P | P P | P P | P P | P P | P P | P P P | P P P | P P P | | | PLAQUE |
| | | | | | | | | | | | | | | | | | FURCA |
| | | | | | | | | | | | | | | | | | MOBILITY |

# Problem List

- Caries
- Home care
- Other (supernumerary tooth)

# Clinical Findings

- Moderate plaque accumulation
  - Associated with poor at-home oral hygiene
- Current findings
  - Sealants on #3, #4, #5, #14, #15, #18, #19, #30, #31
  - B resin on #31
- Caries on #18 B, #19 O/B

# Specific Findings

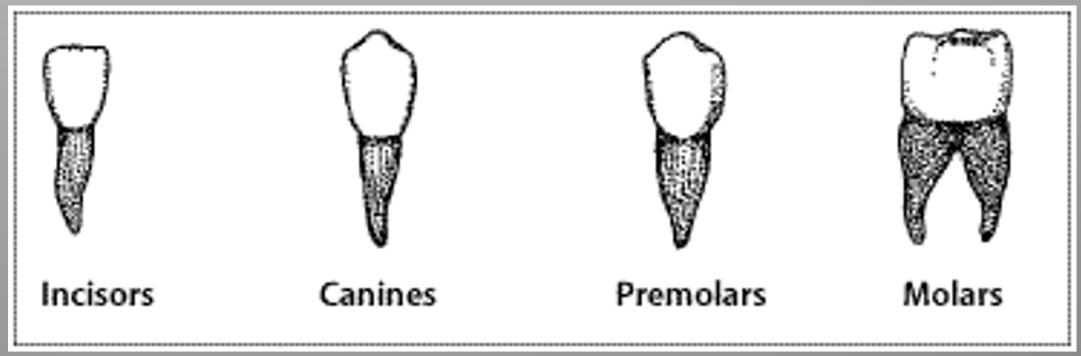
- Unerupted #2 with #15 fully erupted into occlusion
- **Clinical question:** How often do supernumerary teeth present with pathology?
  - Histological evidence of cyst formation found in 4-9% of cases

# Diagnosis

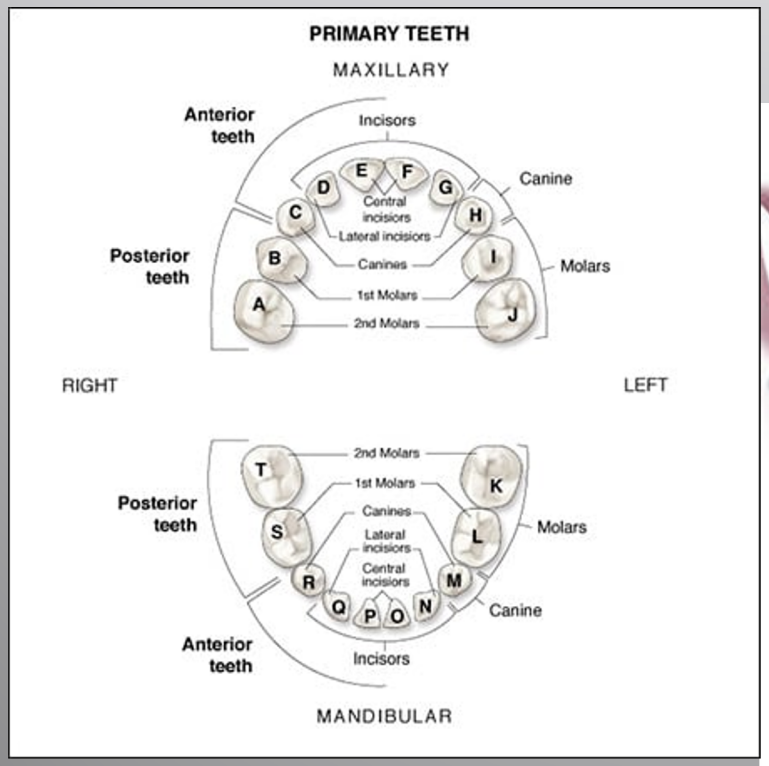
- Supernumerary #51 paramolar
- Biopsy: Stromal alteration with mucin and slight fibrosis

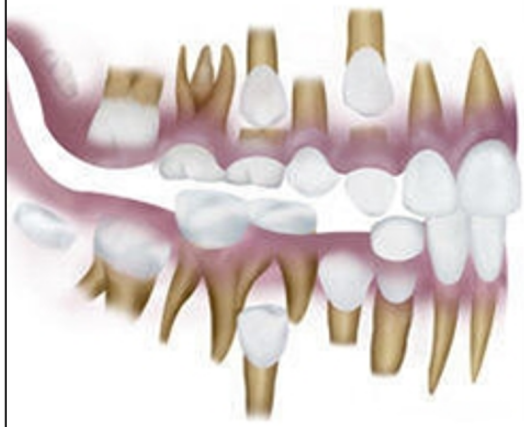
# D1 Basic Science: What is the tooth morphology process?

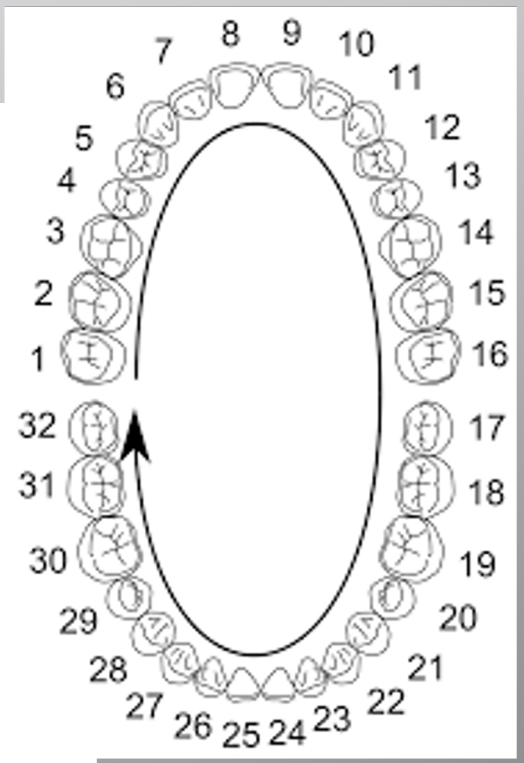
- Primary dentition normally from until age 6
  - Central incisor, lateral incisor, canine, and two molars per quadrant
- Mixed dentition from 6-12
  - Making room for permanent dentition
- Permanent dentition common around age 12
  - Now two premolars and additional molar per quadrant



# D1 Basic Science: What is the tooth morphology process?





# D2 Pathology: What is the pathology behind a supernumerary tooth?

***Supernumerary tooth:***

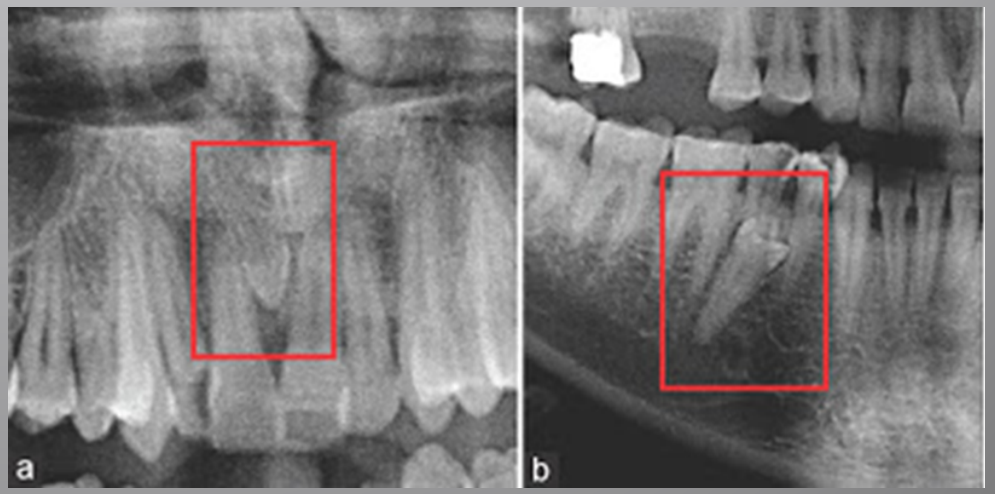
*"A supernumerary tooth is one that is additional to the normal series and can be found in almost any region of the dental arch."*

***Most common:*** *mesiodens, distomolar*

***Secondary to:*** *Ehlers-Danlos syndrome, cleidocranial dysplasia, CLP, etc.*

***formed from:***

*"local, independent, conditioned hyperactivity of the dental lamina"*



# D2 Pathology: What is the pathology behind a supernumerary tooth?

***Complications of:***

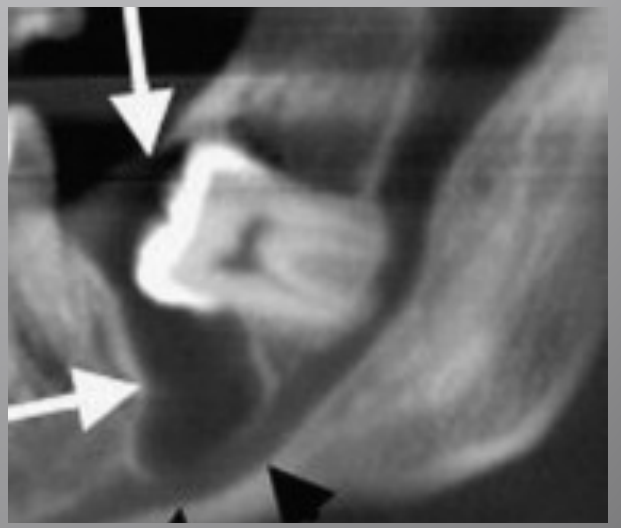
*Eruption, exfoliation, crowding, cysts*

***Dentigerous cysts:***

*Forms between enamel layers in unerupted teeth*

***Radicular cysts:***

*Forms from rests of Malassez in periapical region*



# Citations


Demirturk, Husniye, “Periapical Lesions”. DEIN 7220 Lecture.

Garvey, M. et al. “Supernumerary Teeth -An Overview of Classification, Diagnosis and Management” *J Can Dent Assoc*, 1999

Hacking, Craig et al. “Dentigerous cyst” *Radiopaedia* *https://radiopaedia.org/articles/dentigerous-cyst?lang=us#:~:text=A%20dentigerous%20cyst%20is%20formed,at%20the%20cementoenamel%20junction%205*

Jiang, Qian et al. “Dentigerous cysts associated with impacted supernumerary teeth in the anterior maxilla.” *Experimental and therapeutic medicine* vol. 2,5 (2011): 805-809. doi:10.3892/etm.2011.274

# D3: PICO - Clinical Question

- What is the relative risk of no treatment versus extraction of a supernumerary tooth?

# D3: PICO - Clinical Question

- P: Patients with supernumerary teeth
- I: Extraction
- C: Retainment
- O: Long term consequences

# PICO Formatted Question

In patients with supernumerary teeth, how does extraction compared to retainment lead to long term consequences?

# Clinical Bottom Line

- Treatment of choice for a supernumerary tooth: extraction

# Search Background

- Date of Search: September 29, 2020
- Database used: PubMed
- Search Strategy/ Keywords: Supernumerary teeth, eruption rate, risk, supernumerary, surgical intervention, early and delayed intervention

# Search Background

- MESH terms used:
  - Tooth, Supernumerary / diagnosis, Supernumerary / etiology, eruption

# Article 1: "Impacted supernumerary teeth-early or delayed intervention: decision making dilemma?"

Gupta, S., & Marwah, N. (2012). Impacted supernumerary teeth-early or delayed intervention: decision making dilemma?. International journal of clinical pediatric dentistry, 5(3), 226–230. https://doi.org/10.5005/jp-journals-10005-1173

- Study Design: Case Series
- Study Need/ Purpose:
  - Evaluated advantages and disadvantages of early and delayed intervention

# Article 1 Synopsis

- 4 separate cases of supernumerary teeth in the anterior maxilla
  - 2 early intervention
  - 2 delayed intervention
- Early intervention
  - Advantage: capitalize on spontaneous eruptive potential
  - Disadvantage: damage to adjacent teeth, psychological effects on young child
- Delayed intervention
  - Advantage: child maturity, preservation of developing permanent tooth bud
  - Disadvantage: reduced eruptive forces of adjacent teeth, loss of arch space, midline shift

# Article 1 Selection

- Evaluated the advantages and disadvantage of early vs delayed treatment
- Parent perspective

# Article 2: "Supernumerary teeth causing delayed eruption--a retrospective study."

Mitchell L, Bennett TG. Supernumerary teeth causing delayed eruption--a retrospective study. Br J Orthod. 1992 Feb;19(1):41-6. doi: 10.1179/bjo.19.1.41. PMID: 1562577.

- Study Design: Retrospective Study: Case Series
- Study Need/ Purpose:
  - Discussed different managements of supernumerary teeth when they are interfering with eruption:
    - Removing the supernumerary tooth only
    - Removing the supernumerary tooth and the bone that is over the unerupted tooth
    - Removing the supernumerary tooth and the bone that is over the unerupted tooth with or without placing a bonded attachment or ligature for orthodontic traction

# Article 2 Synopsis

Methods:

- 96 patients (62 male, 34 female)
- 120 teeth total (111 maxillary central incisors, 5 lateral incisors, 2 canines, 1 mandibular incisor, 1 premolar)
- Study only included patients that had undergone a supernumerary tooth removal that was delaying a permanent tooth from erupting.

# Article 2 Synopsis

Results:

- In all cases the supernumerary tooth was extracted
- In 57 cases more than 1 supernumerary was found
- Type of supernumerary was determined whenever possible:
  - 20 conically shaped
  - 70 tuberculates
  - 8 supplemental teeth
  - 3 odontomas
- In 96 of the unerupted teeth, the supernumerary was palatally positioned
- 77 teeth erupted spontaneously
  - Median time from removal of supernumerary to appearance of associated permanent tooth: 16 months
  - 14 were associated with a conical supernumerary
  - 47 with a tuberculate
  - 4 with a supplemental
  - 1 with an odontome
  - 11 not possible to classify
- 21 teeth were exposed during supernumerary removal
- 4 permanent teeth were extracted due to failing to erupt after supernumerary removal
- 17 unerupted teeth needed a second operation in order to be exposed
  - Median time from removal of supernumerary to appearance of associated permanent tooth: 30 months

# Article 2 Synopsis

Conclusion:

- If enough time and space was given, eruption of the permanent tooth will occur in the majority of cases after the supernumerary has been removed.

# Article 2 Selection

Discussed different managements of a supernumerary tooth when it is interfering with eruption:

- Removing the supernumerary tooth only
- Removing the supernumerary tooth and the bone that is over the unerupted tooth
- Removing the supernumerary tooth and the bone that is over the unerupted tooth with or without placing a bonded attachment or ligature for orthodontic traction

# Article 3: "Impacted supernumerary teeth: a survey of 50 cases."

- Study Design: Case Series
- Study Need/ Purpose:
  - Emphasized the importance of early supernumerary tooth removal when it is interfering with normal tooth eruption.
  - Discussed complications that can result from supernumerary removal, which were minimal.

# Article 3 Synopsis

Methods:

- 50 patients
  - Ranging from: 16 months to 17 years
- Total: 57 impacted supernumerary teeth
- Patients were referred to Children's Hospital of Pittsburgh for surgical removal
- Patients were classified based on age and type, shape, and location of the supernumerary tooth

# Article 3 Synopsis

Results:

- 30% of samples had various degrees of interfering with eruption
- Relative to the dental arch:
  - 80% were in a lingual position
  - 6% were in a labial position
  - 8% were in alignment
- 6% of the sample had ectopically erupting supernumerary teeth. All of which occurred in patients with cleft palate
  - 2 of which erupted into nasal cavity
  - 1 erupted into posterior palate
- Surgical complications consisted of:
  - Perforation into nasal cavity
  - Delayed eruption of adjacent permanent teeth
  - A diastema

# Article 3 Synopsis

Conclusion:

- Supernumerary teeth: one of the most significant dental anomalies present in both the primary and early mixed dentition.
- In this study, 50 patients were studied before, during and after the surgical removal of their supernumerary teeth.
- Overall, early removal of these teeth is recommended when they are:
  - Interfering with the normal path of tooth eruption
  - Appear inverted or rudimentary
  - Associated with pathological conditions
- Complications related to removal are not frequent and are typically minor.

# Levels of Evidence

- ☐ **1a** – Clinical Practice Guideline, Meta-Analysis, Systematic Review of Randomized Control Trials (RCTs)
- ☐ **1b** – Individual RCT
- ☐ **2a** – Systematic Review of Cohort Studies
- ☐ **2b** – Individual Cohort Study
- ☐ **3** – Cross-sectional Studies, Ecologic Studies, "Outcomes" Research
- ☐ **4a** – Systematic Review of Case Control Studies
- ☐ **4b** – Individual Case Control Study
- ☒ **5** – Case Series, Case Reports
- ☐ **6** – Expert Opinion without explicit critical appraisal, Narrative Review
- ☐ **7** – Animal Research
- ☐ **8** – In Vitro Research

# Strength of Recommendation Taxonomy (SORT)

| | |
|---|---|
| ☐ | **A** – Consistent, good quality patient oriented evidence |
| ☐ | **B** – Inconsistent or limited quality patient oriented evidence |
| ☒ | **C** – Consensus, disease oriented evidence, usual practice, expert opinion, or case series for studies of diagnosis, treatment, prevention, or screening |

# Conclusions: D3

- With the literature search conducted and due to the patient's supernumerary impeding the eruption of #2, it was planned to be extracted.

# Conclusions: D4

Sometimes the obvious answer to us, is not so obvious to the patient or patient's guardian

Communication is KEY!

EXT of #51 was indicated

# Discussion Questions

- What are the indications to retain a supernumerary tooth rather than EXT?
- How common are supernumerary teeth and are there any common dental anomalies likely associated with them?
- Where are supernumerary teeth most commonly found?
- What precautions need to be taken when removing a supernumerary tooth?
- Are supernumerary teeth worth as much as regular teeth when traded to the tooth fairy?

# Citations


- Awang MN, Siar CH. Dentigerous cyst due to mesiodens: report of two cases. *J Ir Dent Assoc* 1989; 35:117-8.
- Hogstrom A, Andersson L. Complications related to surgical removal of anterior supernumerary teeth in children. *ASDC J Dent Child* 1987; 54:341-3.
- Levine N. The clinical management of supernumerary teeth. *J Can Dent Assoc* 1961; 28:297-303.
- Primosch RE. Anterior supernumerary teeth — assessment and surgical intervention in children. *Pediatr Dent* 1981; 3:204-15.