

# CDH CASE PRESENTATION

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5<sup>TH</sup> YEAR BDS

## CASE 1-INFRAOCCLUSION

- This is the preferred term for submerged or ankylosed teeth
- It describes teeth that have failed to achieve or maintain their occlusal relationship to adjacent and opposing teeth
- 1-9% MALE = FEMALE
- Primary > Permanent
- Mandibular first primary molar most frequently affected

The incidence of infra occlusion is 1-9% and there is an equal incidence in males and females. It is more common in the primary dentition, but is also associated with a higher incidence of absent permanent successors.

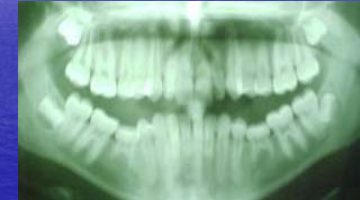
## Katie Guest

- Female patient age 14
- No relevant medical history
- DPT shows patient age 12
- Congenitally absent lower second premolars
- Lower second primary molars not infraoccluded
- No root resorption apparent



The DPT shows that there are no permanent lower second premolars present. In Europeans, the lower second premolar is the most commonly congenitally absent tooth after the 8's. There is a higher incidence of infra occlusion associated with missing permanent successors, but the lower deciduous molars are at the same occlusal level as the other deciduous teeth at this stage and therefore not yet infra occluded. There is no root resorption of the lower second primary molars apparent ( compare to lower first primary molar).

- Pt attends age 14
- c/o that her teeth are sinking
- No other complaints
- Clinically, teeth have high percussion sound when tapped with mirror
- DPT shows lower second primary molars in infraocclusion
- Small amount of root resorption has occurred
- All other teeth present



When this patient first presented to me she was aged 14. Her primary complaint was that she felt that her teeth were sinking and that she was worried they would disappear under the gum. Clinically, the teeth were visible in the mouth and had been treated previously with ceramic onlays. They were obviously at a lower occlusal level than the other teeth. When tapped with a mirror handle, there was a high percussion sound compared with other teeth. This is sign that the teeth had become ankylosed.

A DPT was taken which showed the infraoccluded primary molars to be just below the contact points of adjacent teeth. A small amount of root resorption has taken place. All other teeth are present and in good condition. There is moderate crowding in both jaws. A set of study models were taken and an orthodontic assessment carried out.

## ANKYLOSIS

- These teeth may have become ankylosed
- Thought to be due to an imbalance in the normal pattern of resorption and repair in primary teeth
- Trauma and infection have been suggested as precursors
- Most likely cause here is congenitally absent lower permanent second premolars
- If the teeth are ankylosed they will be more difficult to remove, and may require minor oral surgery
- Teeth may become reincluded

This is supported by the sound emitted when tapped. The high percussion sound results from the lack of normal periodontal ligament, which usually provides a shock absorber, as instead the roots are encased in dense bone. Ankylosis can sometimes be obvious from the radiograph as a fuzzy area around the periodontal ligament space, although this is not the case here.

Trauma or infection, can cause ankylosis of mainly permanent teeth, as a result of external replacement resorption, but that is not the case here. The most likely cause is the fact that there is no permanent successor tooth. This means that there is no pressure on the roots of the primary teeth to cause physiological root resorption, and the teeth have not been naturally exfoliated. The deciduous molars are thus retained in the jaws, and the other teeth have erupted naturally, leaving them in an infra occluded position.

At present the teeth are slightly below the contact point which may also make them more difficult to remove. Continued growth of the patient may cause the teeth to become reincluded, that is completely covered by soft tissues, and therefore necessitate a surgical removal. This particular patient is coming to the end of her growth spurt and so is at less of a risk from this occurring.

## TREATMENT OPTIONS

- Accept retained deciduous teeth but monitor regularly with clinical visits, radiographs and study models
- Place an extra coronal restoration such as an onlay to attempt to bring teeth into occlusion
- Remove teeth, surgically if required and then:
  - close the spaces
  - open/retain the spaces for a partial denture or resin bonded bridges
  - or when growth has ceased, conventional bridges or implants

## TREATMENT PROVIDED

- The patient had already had ceramic onlays placed by a previous student
- Patient did not wish to have teeth extracted
- Although an orthodontic opinion was sought, patient did not wish to have orthodontics
- Discussed at length and decided to monitor submergence of teeth with regular appointments, using radiographs and study models

## CASE 2-ENAMEL HYPOPLASIA

- C T
- Aged 10
- No relevant medical history
- c/o white patches on teeth
- No other complaints



This patient presented with her mother and they were both concerned about the appearance of the anterior teeth. The tooth that was causing the most concern was the upper left central incisor.

A clinical examination revealed well demarcated white and brownish areas on both upper centrals and lower laterals, the most severe defect being on the upper left central. The defects were hard to probe. There were no defects on the posterior teeth and no other problems. Oral hygiene was good.

## Causes of enamel hypoplasia

- Amelogenesis imperfecta
- Systemic upset during neonatal period or childhood
- Excessive fluoride intake
- Trauma to the primary dentition, particularly intrusive and avulsion injuries
- Longstanding peri apical infection of primary teeth
- Idiopathic

These are associated with a single gene mutation which follow the autosomal dominant, autosomal recessive pattern of inheritance. There are approx 14 different types of amelogenesis imperfecta, and some can present as localised areas of mild decalcification such as this.

Examples of systemic upset that may cause this type of defect are; endocrine disturbances such as hypoparathyroidism, infections such as rubella, drugs such as thalidomide, or nutritional deficiency such as rickets. The severity of the enamel defect is related to the severity of the illness, and the position of the defect will follow a chronological pattern of when the systemic upset took place.

Excessive fluoride ingestion may cause fluorosis. This may occur from excessive chronic ingestion of fluoride from natural sources such as water, or from overdose of fluoride supplements or toothpastes. The severity of disruption in amelogenesis is again related to the levels of fluoride ingested during tooth development. Excessive fluoride consumption is known to cause opaque white and brownish discoloration, such as that that is seen here.

Long standing periapical or periradicular infection of primary teeth is known to cause changes in the underlying tooth germ which may present as a discrete area of enamel hypoplasia.

Idiopathic, if no reasonable explanation for the defect can be found, then it is said to be idiopathic.

## TREATMENT OPTIONS

- Accept
- Acid pumice microabrasion
- Localised composite resin veneer
- Composite resin veneer
- Porcelain veneer
- Full coronal coverage restoration

The full coverage restoration would probably not be considered on this case, because of the mild nature of the defect. They are used for severe mottling and hypoplasia, but can only be placed in adults as the children have an immature gingival contour and their large pulp horns make pulp exposure likely.

## DIAGNOSIS AND TREATMENT

- There was no history of trauma, infection, childhood illness, excessive fluoride intake or family tendency
- Diagnosis: idiopathic hypoplasia
- Acid pumice micro-abrasion attempted
- There was minimal improvement

The first line treatment for this patient was acid pumice micro abrasion. This is normally tried first as it is the least destructive treatment and it is well tolerated by children, and can produce good results. It tends to work best for fluorotic lesions, and lesions with brown discoloration. The abrasion was carried out under rubber dam with lots of bicarbonate to protect the gingivae. A slurry of pumice and 18% hydrochloric acid was used in a rubber cup on a slow hand piece. The upper left central incisor was treated ten times, which is the maximum recommended.

Unfortunately there was minimal improvement with this technique, and so we decided to move on to the next line treatment.

## OUTCOME

- A localised composite veneer restoration was attempted
- This involved removing a minimal amount of enamel from the affected area
- And placing a colour matched composite under rubber dam to attempt to mask the defect
- This was the end result and the patient was happy



As the preparation was only minimal, there was no need for LA. I found that a small brush dipped in bonding agent here was very useful in simply brushing on the composite, enabling it to be blended evenly. The localised composite veneer may become stained and may need replacing at a later stage. It was decided to accept the mild areas of hypoplasia on the other anterior teeth.

## CASE 3-Another use of composite...

- This 11 year old male patient was referred in by his own dentist
- The patient had sustained a fall in the playground and fractured his upper incisor teeth
- The dentist had attempted incisal edge composites but they had not been successful



## TREATMENT AND OUTCOME

- Reattempted incisal edge composites
- Used rubber dam to achieve optimal moisture control
- Was careful not to overbuild the restorations, to keep the occlusion free
- The result is shown here and the patient was happy
- Patient was discharged back to his own dentist



Neither fracture had caused pulpal involvement, and the teeth were both vital. It is important to restore the teeth however as the exposed dentinal tubules may promote a pathway for thermal, chemical and bacterial irritation to the pulp. Restoration of crown morphology also helps to stabilise the position of the tooth in the arch, and maintains aesthetics.

# SUMMARY

This presentation has shown a few of the more interesting cases that I have seen and treated.

Although I did no active treatment on the infraocclusion case, I was able to experience it clinically and would know how to treat it in future. I also feel that I put both my patient and her mother at ease because we took her concerns seriously and gave a wide range of treatment options. The patient and mother were happy to have no active treatment, but were pleased that the case would be reviewed regularly.

The other two patients show two uses of composite, a widely versatile material because of its bonding strength and colour variety. I feel that it made me more confident in the use of rubber dam, and also reiterated its importance in achieving a good result with composite.

The localised composite veneer case also taught me that you should start with the easiest, least traumatic and destructive procedure. This allows the child to become familiar to you as a dentist and prepares them for more complex procedures. In this case the first technique did not have good results but the second procedure did.

In conclusion, I feel that I have experienced a good range of cases, and look forward to developing my skills further as a clinician.