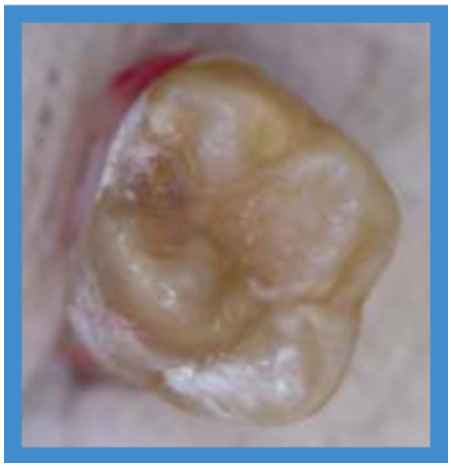
INFORMATION ABOUT MOLAR HYPOMINERALISATION

What is molar hypomineralisation?
Molar hypomineralisation is a condition affecting the first adult molar teeth and occasionally the adult incisor teeth. Molar hypomineralisation is a developmental condition that affects teeth that are forming during the last trimester of pregnancy and the first four years of life.

Enamel on these teeth has marked areas with less mineral than unaffected enamel. Children with molar hypomineralisation often complain that these teeth are sensitive to cold or touch and the teeth may decay very quickly.



Extracted tooth affected by molar hypomineralisation.

Causes
The causes of hypomineralised teeth are unclear although several factors that occur in the first four years after birth may be responsible. Family tendency may play a role but environmental rather than genetic factors are more likely to be responsible. Various causes such as oxygen starvation combined with a low birth weight, respiratory problems, calcium and phosphate metabolic disorders, or high fevers during early childhood may contribute. Antibiotic use in early childhood has been suggested as a cause but it is difficult to distinguish if the antibiotic or the illness was responsible.

Clinical problems

1. Hypomineralised enamel contains up to 21% less mineral, hence it is **softer** than unaffected enamel. This means the enamel may be more likely to break off under normal biting forces than normal enamel.

2. Sticking filling materials to defective enamel is difficult because the strength of the bond is significantly reduced. Fillings tend to **fall off** or new decay forms quickly at their edges due to the poor bond.

3. As the enamel is **porous**, many affected teeth are highly sensitive. (This may be seen if your child avoids very hot and cold foods, or the teeth are too sensitive to brush thoroughly.) This sensitivity makes local analgesia (numbing) difficult to achieve and many children continue to have pain during drilling.

4. Many affected children are **extremely anxious** as a result of having to undergo a significant amount of dental work at a young age, tooth sensitivity or previous experience of pain during drilling.

5. **Cosmetic** concerns may arise when the front teeth are affected by developmental defects.

Yellow arrow points to hypomineralised defect on adult front tooth which may be noticeable and of concern to the child's appearance.

"The complex care involved in treating such children must address their behaviour and anxiety, aiming to provide a durable restoration under pain-free conditions"

This brochure has been prepared by Drs Fiona Ng and Karen Kan.
The authors gratefully acknowledge the editorial contributions made by Dr Kelly Oliver and Emeritus Professor Louise Brearley Messer. (October 2010).

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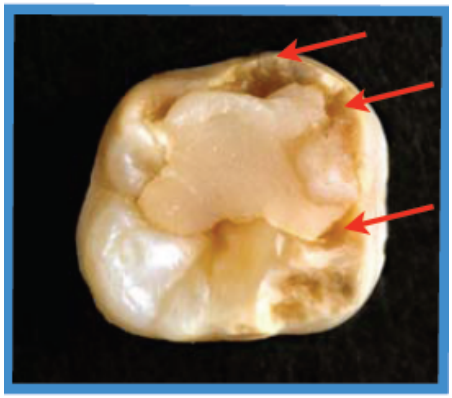
Restorative options

Adhesive white fillings or sealants

White fillings can be placed now, but the weak enamel may continue to break off (see red arrows), resulting in sensitivity and new decay. The tooth will require constant monitoring and adding of filling material when the weak enamel breaks off. Eventually the tooth may require a silver crown to be placed under general anaesthesia.

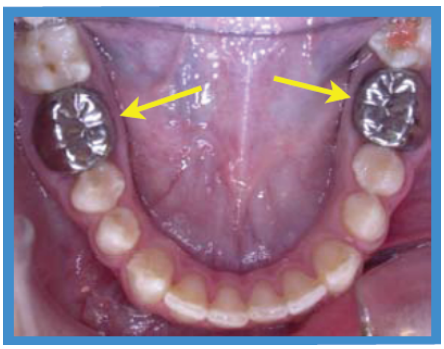


Arrows indicate areas of enamel that have sheared off after filling has been placed on defect.

A recent study showed that fillings and sealants in hypomineralised teeth have over three times a greater likelihood of needing re-treatment than fillings or sealants on children with normal enamel. The shorter life-span of these fillings and need for frequent retreatments has been associated with the development of dental fear and anxiety.

Stainless steel crowns

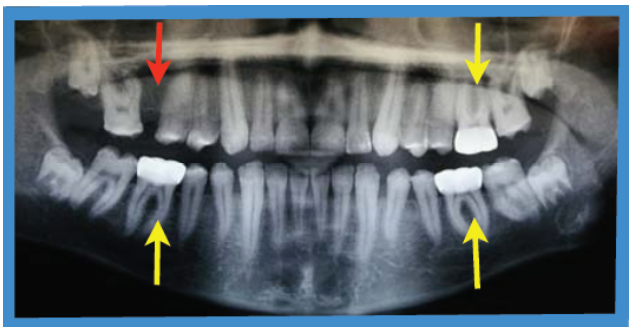
These are pre-made silver crowns (see yellow arrows) which cover the whole tooth, protecting it from further breakdown due to biting forces, acid attack, decay, and sensitivity. They are the treatment of choice for teeth with large defects, particularly if they are already chipped or broken.



Properly placed, stainless steel crowns can preserve these molars until adulthood when your child is ready for permanent crowns. Permanent crowns, in either gold or porcelain fused to metal, will be placed by a general dentist or prosthodontist (crown and bridge specialist) and may require replacement as your child ages.

Extractions

If there is crowding in your child's mouth, an orthodontist (braces specialist) may suggest extraction of the defective molars instead of other healthy teeth to make space to help the crowding. Extractions may also be suggested if the defective molars are broken or the nerves are infected by deep decay.



Red arrow indicates the extraction site of one permanent first molar (top left of x-ray) and yellow arrows indicate the stainless steel crowns on the other three permanent first molars in a child with molar hypomineralisation.

An early orthodontic consultation is often suggested to establish the long term management plan for your child. If your child is very young (6 to 8 years), one of the above restorative options may be required in the meantime while we await eruption of other permanent molars, or the correct timing for extractions. Another general anaesthetic may be required if there is a second phase of treatment (for example timed extractions).

Preventive management

Hypomineralised enamel is very susceptible to decay and acid attack. An assessment of your child's diet should be carried out and appropriate recommendations made for dietary changes. In cases where tooth-brushing is difficult due to sensitive teeth, the following oral hygiene strategies may be helpful:

- Brush affected teeth gently with a fluoride containing desensitising toothpaste
- Apply Tooth Mousse TM Plus daily

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