Technique Tips – Fitting Hall Crowns

The Hall Technique is a method for managing carious primary molars. The decay is sealed under preformed metal crowns without local anaesthesia, tooth preparation or any caries removal. There is good evidence that, if caries is effectively sealed from the oral environment, the bacterial profile in the caries will change, resulting in it losing its cariogenic potential so that the lesion does not progress.

Clinical trials have shown the Hall Technique to be effective, and acceptable to the majority of children, their parents and clinicians.

Indications include teeth with:

- Proximal (Class II) lesions, cavitated or non-cavitated with no pulpal involvement;
- Occlusal (Class I) lesions, cavitated if the patient is unable to accept a partial caries removal technique or a conventional restoration (Figure 1);
- Hypomineralized/hypoplastic primary molars (Figure 2).

Contra-indications include teeth with:

- Signs or symptoms of irreversible pulpitis, or dental sepsis;
- Clinical or radiographic signs of pulpal involvement, or periradicular pathology;
- Crowns that are so broken down that they would be considered unrestorable with conventional techniques.

Figure 1. Cavitated occlusal (Class I) lesions.

Figure 2. Hypomineralized/hypoplastic primary molars.

Step 1: Assessment

Assess the tooth shape, contact points and the occlusion. If the child has tight or broad contact points, it is useful to place orthodontic separators through the mesial and distal contacts. This technique will require two appointments: the initial appointment for placing the separator and second appointment, 3–5 days later, for removal of the separator and placing the crown.Two lengths of dental floss should be threaded through the separator (Figure 3). The separator should then be stretched taut and 'flossed' through the contact point briskly (Figure 4) and firmly until only the leading edge is felt 'popping through' the contact point (Figure 5). The floss should then be removed. Alternatively, mosquitoes needle holders can be used instead of floss in the same way.

Step 2: Choosing a crown

Make sure the airway is protected, for example, by using gauze swab and ensuring that the child is sitting more upright when trying and seating the crown. Select different sizes of crowns until you find one which covers all the cusps, and approaches the contact points, with a slight feeling of 'spring back'. Aim to fit the smallest size of crown that will seat. Do not fully seat the crown or it will be difficult to remove!

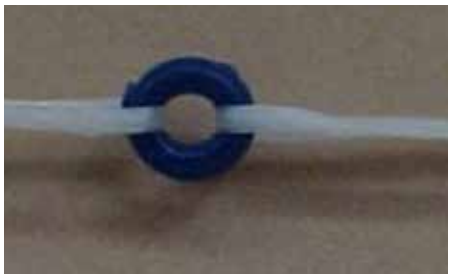

Figure 3. Two lengths of dental floss threaded through the separator.

Step 3: Cementing the crown

Some operators use topical anaesthetic around the ginigvae to increase comfort when seating the crown, but this is personal preference. Before cementing, dry the inside of the crown using the end of a cottonwool roll. Load the crown generously (it should be at least two-thirds full) with a glass ionomer luting cement, eg *Aquacem*. Fill the crown from the base upwards and ensure that there is cement around all the walls, being careful to avoid air blows and voids. Place the crown over the tooth.

Fully seating the crown is important. There are two main methods of seating the crowns:

1) The clinician seats the crown by finger pressure;

Figure 4. Brisk flossing through the contact point.

Figure 5. Only the leading edge is felt 'popping through' the contact point.

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2) The child seats the crown by biting on it (or use a combination of both).

It is often useful for the child to bite down on the crown on a cottonwool roll to ensure that it is fully seated (Figure 6). Remember to remove excess cement and floss between the contacts (Figure 7). Blanching on the gingivae usually disappears within minutes (Figure 8).

Tips

- Make sure that the child is on board with the treatment and knows what the crown looks like: a 'shiny silver helmet' or 'princess crown';
- Before cementing, tell the child it will feel a bit 'tight' or 'pushy' at first;
- Warn the parent that the crown will be high in the bite, but that this will no longer bother the child within 2–3 days.

Further reading

1. Innes NP, Evans DJ, Stirrups DR. The Hall Technique; a randomized controlled clinical trial of a novel method of managing carious primary molars in general dental practice: acceptability of the technique and outcomes at 23 months. *BMC Oral Health* ; **7**: 18.
2. Innes NPT, Stirrups DR, Evans DJP, Hall N, Leggate M. A novel technique using preformed metal crowns for managing carious primary molars in general practice – a retrospective analysis. *Br Dent J* 2006; **200**(8): 451–454.
3. Ricketts DN, Kidd EA, Innes N, Clarkson J. Complete or ultraconservative removal of decayed tissue in unfilled teeth. *Cochrane Database Syst Rev* Jul 19; (3): CD003808.
4. Evans DJP, Innes NPT, Stirrups DR. Longevity of Hall Technique crowns compared with conventional restoration for primary molars; 2 year results. *Caries Res* 2006; **40**: 327.

Figure 6. Child biting down on the crown on a cottonwool roll to ensure that it is fully seated.

Figure 7. Flossing between the contacts.

Figure 8. Blanching on the gingivae usually disappears within minutes.