

The Hall Technique For Managing The Carious Primary Molar



Dr. Neena IE

Assistant Professor
Department of Pedodontics

Introduction

The Hall technique is a novel method of managing carious primary molars by cementing preformed metal crowns, also known as stainless steel crowns, over them without local anesthesia, caries removal or tooth preparation of any kind. Clinical trials have shown the technique to be effective, and acceptable to the majority of children, their parents and clinicians. The Hall technique is NOT, however, an easy, quick fix solution to the problem of the carious primary molar. For success, the Hall technique requires careful case selection, a high level of clinical skill, and excellent patient management. In addition, it must always be provided with a full and effective caries preventive programme.

Background

The technique is named after Dr Norna Hall, a general dental practitioner from Scotland, who developed and used the technique for over 15 years until she retired in 2006. Preformed metal crowns (PMCs) have been used for restoring primary molars since 1950, and have become the accepted restoration of choice for the primary molar with caries affecting more than one surface, with a proven success rate as a restoration. Although popular with specialists, many clinicians find PMCs difficult to fit using the conventional approach, which requires the use of local anaesthetic injections and extensive tooth preparation. There is also an issue of potential damage to the adjacent first permanent molar when preparing a second primary molar for a PMC.

To begin with...

A full history and clinical examination, including bitewing radiography, should be carried out.

- There should be no clinical or radiographic signs of pulpal involvement
- The tooth should have sufficient sound tissue left to retain the crown
- Patient co-operation should be such that the clinician should be confident that the crown can be fitted without endangering the patient's airway
- If the patient is at risk from bacterial endocarditis, the tooth should be managed with a conventional restoration.

Assess the shape of the tooth and its contacts. Placing orthodontic separators through the mesial and distal contacts can be very useful when fitting crowns with the Hall technique, especially if the contact points are tight, or there has been loss of mesio-distal width of a tooth due to marginal ridge fracture. It does, though, mean the patient will have to make a second visit. Two lengths of dental floss should be threaded through the separator. The separator should then be stretched taut, and "flossed" through the contact point briskly and firmly until the leading edge only is felt "popping through" the contact point. If the separator is cut by sharp cavity margins, it may be found helpful to pull the separator "up, into & through" the contact area, approaching from the cervical margin. The floss should then be removed, and the patient seen between 3-5 days later for removal of the separator. If the separator appears to have fallen out, the inter-proximal area of the gingiva should be inspected to check that the separator hasn't worked its way below the contact point. Separators are usually brightly coloured to facilitate this.

The procedure

1. Seat the child upright. A gauze swab square can be used to protect the airway by placing it between the tongue and the tooth where the crown is to be fitted. It should extend to the palate and round the back of the mouth in front of the fauces.

Alternatively, use a clean piece of Elastoplast tape to secure the crown. If you are not confident about being able to control the crown at all stages until it is cemented, then do not use the Hall Technique.

2. You should aim to fit the smallest size of crown which will seat. Select one which covers all the cusps, and approaches the contact points, with a slight feeling of "springback". Do not attempt to fully seat the crown through the contact points; they can be very difficult to remove for cementation.
3. Dry the crown, and fill with glass-ionomer luting cement, ensuring the crown is well filled, with no air inclusions.
4. If possible, the tooth should be dried prior to cementation, but otherwise there is no caries removal or tooth preparation of any kind. No local anaesthetic injection is given.

5. If the cavity is large, some cement may be placed within it, just before placing the crown.

6. Place the crown over the tooth.

a) the clinician seats the crown by finger pressure

b) the child seats the crown by biting on it

A combination of these two methods may be necessary or preferred. Some clinicians will seat the crown with firm finger pressure alone. For mandibular teeth, a useful method is to place your thumb on the occlusal surface of the crown, with the four fingers of your hand placed under the border of the mandible to spread the force as you apply firm pressure with your thumb.

For maxillary teeth, the child's head may be supported by the back of the dental chair, or sometimes by placing your other forearm gently on the top of their head to balance the force applied by fitting the crown.

Often, the child will seat the crown themselves by biting it into place. It can be useful to verbally encourage the child to apply the necessary pressure ("Bite hard, like a Tiger!" and to rehearse this before fitting the crown.

Some clinicians partially seat the crown until it engages with the contact points, allowing the finger to be removed without risk of the crown falling off, and the child then being encouraged to bite the crown into place. It must be remembered that your working time with glass ionomer cements is limited, and whatever method is used, you must work smoothly and efficiently. Crowns cannot be seated, no matter how hard you or the child tries, if the cement has started to thicken!

It is crucial that the orientation of the crown relative to the tooth is checked either during, or immediately after, seating the crown. If it is not possible to seat it then it should be removed before the cement sets.

With either technique, excess cement will be extruded from the crown margins, and the taste of this can upset children. In anticipation of this, as soon as the crown is seated, the child should be asked to open their mouth, and the cement wiped off with a cotton wool roll held ready for this purpose. If a gauze swab has been used to protect the airway, this can be used to wipe away excess cement from the lingual/palatal side of the tooth as it is being removed.

If it is obvious that the crown has not seated, and finger pressure fails to seat it, then it should be removed immediately using the large excavator which should have placed within easy reach.

7. Once excess cement has been removed, the child should be asked to bite firmly on the crown for 2-3 minutes, or the crown should be held down with firm finger pressure as an alternative.

8. Remove excess cement, floss between the contacts.



Prevention that works!

There are several ways of helping children reduce the risk of developing further dental decay.

Four very important methods are: 1. Brushing 2. Topical fluoride varnish 3. Fissure sealants 4. Diet advice

Brushing: Fluoridated toothpaste Twice daily

Topical fluoride varnish: Apply 2 to 3 times a year for children you think are at risk of developing caries. Follow manufacturers instructions.

Fissure sealants: Fissure seal all susceptible pits and fissures in children you think are at risk of developing caries

Diet advice: Sugar and sugar containing foods and drinks should be restricted to meal times. Between meals, children should snack on fresh fruit or cheese, and drink milk or water.

Reference:

1. Innes, N.P.T., Stirrups, D.R., Evans, D.J.P., Hall, N. and Leggate, M., 2006. A novel technique using preformed metal crowns for managing carious primary molars in general practice - A retrospective analysis. *British Dental Journal*, 200(8), pp. 451-454.
2. Innes N.P.T., Evans D.J.P., Stirrups D.R., 2006. Clinical pulpal responses to sealing caries into primary molars: 2 year results of an RCT. *Caries Research*, 40: 327.
3. Evans D.J.P., Innes N.P.T., Stirrups D.R., 2006. Longevity of Hall technique crowns compared with conventional restoration for primary molars; 2 year results. *Caries Research*; 40: 327.
4. Evans, D.J.P., Southwick, C.A.P., Foley, J.I., Innes, N.P., Pavitt, S.H., and Hall, N., 2000. The Hall technique: a pilot trial of a novel use of preformed metal crowns for managing carious primary teeth.
5. Innes N.P.T., Evans D.J.P., Stirrups D.R. 2007 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. *BioMed Central Oral Health* 2006
6. Innes N.P.T. An investigation into the Hall Technique; a novel method for managing dental caries in primary molar teeth. PhD. University of Dundee 2007