

Can the Use of the Hall Technique be Acceptable Treatment in Pediatric Dentistry?

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Received: February 23, 2022; **Published:** July 27, 2022

Abstract

This technique is a non-invasive treatment for carious primary molar teeth. Caries are sealed and then stainless steel crowns have covered those teeth. No injections or using dental turbines is needed to excavate caries. It is one of the orientated strategies for managing dental decay.

The technique has an evidence-based showing that it has been acceptable to children, parents, and some dentists recently. Parents prefer this technique over standard restoration techniques, due to the ease of application and overall patient comfort since young patients don't have to undergo oral injections. However, there are some indications and contraindications to use this technique that could restrict the use of this method.

Keywords: *Noninvasive Treatment; Carious Primary Molar; SS Crown; No Injection; Caries Excavation*

Introduction

The Hall Technique is named after Dr. Norna Hall who has developed this simplified technique [1]. The crown is simply cemented over the carious primary molar, with no application of local anesthesia, removing caries, or any kind of tooth preparation with dental turbines. The technique is accomplished in 2 sessions.

The Hall Technique has the potential for young children to accept this technique, and they reduce their anxiety associated with dental treatment. Besides, behavioral management is easier with this technique. Tooth extractions and extensive treatment are significantly reduced. In conjunction with a preventive program, there is no need for hospital admissions for dental treatment under general anesthesia.

Published data from Dr. Hall's practice records has revealed that the Hall technique might have similar survival rates to conventional restorative options [1] that are being used in pediatric dentistry nowadays.

The goal of this technique is to increase the child's compliance as local anesthesia is eliminated and the dentist comforting. Besides caries sealing, the child will have a less unpleasant dental experience in his early life, and it is expected to return for other treatment in the future [2].

The Hall Technique has been included in a guideline of the Scottish Dental Clinical Effectiveness Program [3]. It seems it has promoted changes in decay management of primary teeth from the invasive traditional approach to the less invasive management of tooth caries [4-8].

The technique is not suited for every tooth [9]; however, it could be an effective method of managing decayed primary molars. Furthermore, the survival of SS crowns is high whether provided using the Hall technique or traditional preparation but the application of the Hall technique should be restricted to some cases.

Indications and contraindications

However there appears to be a high level of confidence in the effectiveness of the Hall Technique for managing primary molars with carious lesions, but there are some indications and contraindications related to this technique.

Indication

Hall Technique stainless steel crowns (SSC) are indicated for primary molars in the following situations [10-13]:

- Proximal carious lesions.
- Restoration of fractured primary molars.
- In primary molars that may be affected by developmental problems (in cases of enamel hypoplasia, dentinogenesis imperfecta, Amelogenesis imperfecta, MIH).
- In patients who are at high risk of developing caries.
- To protect and restore teeth that may have extensive tooth erosion, attrition, or abrasion.
- As support for some dental appliances such as space maintainers.
- In patients with special needs.
- In patients with partially submerged primary molars to maintain the mesiodistal space.

Contraindications

Hall Technique stainless steel crowns are contraindicated in the following instances [10,11,12,14]:

- Allergic patients to nickel.
- Radiographic or clinical evidence or sign and symptoms of irreversible pulpitis or pulpal necrosis.
- Resorption of more than half of the root of the primary tooth or the close time of the permanent tooth eruption.
- Un-restorable tooth with a PMC (preformed metal crown) due to badly damaged the crown.

Advantages and disadvantages of the Hall technique

Clinical trials have shown this technique to be effective, but there are advantages and disadvantages that dentists should consider before starting the Hall technique.

Advantages [15-17]:

- Report of positive experiences during and after treatment
- 97% success rate
- Very low failure rate
- Does not require local anesthetic or caries removal
- Lifespan is the same as that of an intact primary tooth
- Protection of the weakened residual tooth structure
- The technique sensitivity or the risk of making errors during application is low
- Good long term cost-effectiveness
- Reduction of tooth extraction and extensive treatment
- Desensitization of children to dental procedures, and building their confidence.

Disadvantages [15,16]:

- Metallic appearance
- Not applicable for partially erupted teeth
- Failure rate of the technique due to a periodontal abscess or peri-radicular abscess
- Requirement of 2 visits sessions; use of orthodontic separators; soreness in that area.

Literature Review

Despite the HT is considered to be the golden method in managing the multi-surface carious primary molar in the UK [18], there are some reactions to its place in pediatric dentistry that indicate they are opposed to it completely [19-21]. However, this technique has many advocating for this treatment method [15,22,23]. The disagreement about this method is correlated with the application of this technique.

Interestingly, the comparison between the clinical methods applied in the USA and the UK showed the discrepancies of different opinions of the parties.

In 2011, the president of the AAPD expressed that “while we may not have agreed with our British and Scottish colleagues on every approach we all agreed that we would benefit by seeing how others practice” [24], and “Can we imagine informing our parents that we are placing a crown over an untreated, decayed tooth”[25]?

In December 2014, an article was released in the USA that supported the use of HT in dental practice. In this clinical research, the authors found that most SSCs placed with the HT and SSCs placed with the traditional technique were successful [15].

Despite the technique has become very popular in the UK and New Zealand, but there is still controversy about applying it in the UAE and the Persian Gulf countries Regions [26].

It seems that HTPMCs have high acceptability among children and parents in the UK and New Zealand [27,28].

Page and colleagues in their study indicated that parents believe in the longevity of the HTPMCs compare to conventional restorations, and they are happier with their children's appearance [28].

Another recent investigation suggests that the majority of children, parents, and pediatric dentists preferred the Hall technique to conventional restorations [29]. The reason was that they found that children's behavior was more acceptable compared to the conventional technique [22].

HT is applied in dentistry for more than a decade. Several studies have indicated the effectiveness of the technique, but its practice is still limited to pediatric dentists [30].

General dentists appear that they are unsure about adopting this approach and they are not willing to perform HT. This might be due to a difference of opinion about teaching this technique with operative dentistry in schools, where removing the caries is the essential prerequisite of any restoration [30].

Conclusion

This is a good method for managing carious or hypoplastic primary molars using SSCs. It involves cementing the crown onto the tooth with GIC, without the use of local anesthesia, caries removal, or crown reduction. This technique is not an easy and immediate solution to the problem of the carious primary molars; however, the technique is not applied to every tooth, but it is being popular with most parents. A dentist must have careful case selections, a high level of clinical judgment, and also good patient management.

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Volume 21 Issue 8 August 2022

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