The Hall Technique: The novel method in restoring the carious primary molar that is challenging old concepts. A new tool in the general dentist’s toolbox?

By Dr. Iyad Hussein

Introduction

Primary molar dental caries in childhood is a disease of epidemic proportions that affects all modern societies. Despite a World Health Organization (WHO) pledge in 1981 to render 50% of 5-6 year old children caries-free by 2000 (1), many developing countries remained off target to date. In the UAE, a survey showed that less than 18% of 5 year old children were caries-free (2). In comparison, 45% of 6 year-old and 68% of 3-year-old children in Sweden were noted to be caries-free (3, 4) and recent surveys in England showed that 86% of 5 year olds were free from obvious caries (5). The size of decay as a problem in a society is often expressed as “dmft” (decayed, missing & filled teeth) and is well established as the key measure of caries experience in dental epidemiology. The UAE regions dmft index ranged from 3.8 in Ajman to 6.6 in Dubai (2).

while the England dmft figure average was a mere 0.48 (5). This highlights countries/social inequalities where primary dental caries is concerned.

Conventional management of the carious primary molar

Primary tooth decay management represents a challenge for those who dentally care for children, whether they are general dental practitioners (GDPs) or specialists in paediatric dentistry. For the past 5 decades, the dental literature in the USA and Europe had advocated treating the deep carious primary molar using the conventional “drill and fill” philosophy. That is, give local anaesthesia (LA) to the tooth, drill the carious tissue out (often after placing a rubber dam-Figure 1) using a high and slow speed drill (Figure 2), and fill the tooth. Give restorative materials (often a preformed stainless steel crown or SSC) after carrying out pulp therapy (Figure 5). Although aesthetic crowns are available for primary teeth, they are very expensive and the SSC remains the crown of choice for the carious primary molar (6,7).

This relatively complex treatment is demanding for all parties involved; the dentist, the parent but especially the child and the parents’ ties involved: the dentist, the nurse, the parents and the child. It is well known that the larger proportion of caries in primary teeth, they are very expensive and the SSC remains the crown of choice for the carious primary molar (6,7).

In essence there was no dental management of the carious primary molar that is challenging old concepts. A new tool in the general dentist’s toolbox?

The Hall technique: “Sealing in” the caries

In 2007 a new technique took the paediatric dentistry world by storm. It recommended a simple way in managing early enamel and dentinal decay in the primary molar using a SSC: it was named the Hall technique (8). This technique involved no local anaesthesia, no rubber dam, no drilling and took place in a child friendly play manner. In essence there was no dental caries removal at all from the carious lesion. The technique relied on sealing the carious lesion in situ cutting off its supply of sugary substrate, thus altering the lesion’s bacterial plaque ultimately leading to the arrest of the caries process in the tooth. The Hall technique involves the placement (i.e; using LA and drills) of a sealing material which is embodied by the “Hall technique” (8-10).

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Figure 6) need for crown preparation (see

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Multiple SSCs using the Hall
teachnique could be placed in

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Discussion

The Hall technique was named

after Dr. Norma Hall, a Scottish
dentist who worked as a salaried

-ment in a remote high dental
caries risk area (Scottish West-

-ern Isles) north west of the UK.

As she faced a high proportion of

children with dental caries (dram

-oft of Scotland was around 2.54 at

-the time), and was not a special-

-ty meeting in Edinburgh (UK)
in the same year (2000)

The British Society of Paediat-
ic Dentistry UK national con-

ference meeting in Edinburgh

(England) in the same year (2000)

reported very high levels of sat-

isfaction. In addition, the team of

Dundee Dental School research-

ers shared their findings with

the British Society of Paediat-
ic Dentistry UK national con-

ference meeting in Edinburgh

(England) in the same year (2000)

The 2007 study (8) was a pro-

-ective split mouth randomized

-ontrol study that recruited 152

child patients aged between

5-10 all of whom had two

matched dental carious lesions.

Each child acted as his/her own

-rol. The two lesions each

-ild had were similar to the les-

-s that highlighted the in the example
given above (Figure 4a); there

were no clinical or radiographic

signs of pulpal pathosis. One le-

sion was randomly treated using

the Hall technique and the other

was randomly treated conven-

-tional (mostly by glass iono-

mer cements). Seventeen GDPMs

treated these patients under the

auspices of the paediatric den-

istry team at Dundee University.

Can You See

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UK was profound (12), the team of

Dundee University research-

-ers (Innes et al) undertook it
upon themselves to investigate

this technique by employing

the most robust methods of evi-

dence- based dentistry; namely

a prospective randomized con-

-trolled clinical trial and first pub-

lished their results in 2007 (8).

This study formed the pivotal

-event that made this technique

a “school of thought” in paed-

iatric dentistry by its own right.

Because of the importance of

this study, it will be discussed fur-

ther below.

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There was a mixed international reaction to the development of this interesting debate within successful outcomes to those SSCs. The technique was similar in its success to what actually occurs in the conventional study and the relevance of the latter study was not clinical. The criticism centered on the success of the Hall technique, in vitro laboratory studies

Conclusion

The Hall Technique appears to be more suitable for all paediatric dentists as compared to the conventional treatment method. It is now being taught as part of the mainstream; it is now taught formally in the undergraduate curriculum at the Royal College Surgeons of Edinburgh and other dental schools worldwide. Due to dento-alveolar compensation, features is that it can be used in general dental practice by GDPs, where most the children are treated. The reader is asked to compare Figure 3(c & d) to Figures 4(a & b). The bite may be opened slightly following placement of a Hall SSC, but it corrects itself due to dento-alveolar compensation.

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Figures 4(a) & 5: A patient treated by the author received 2 SSCs using the hall technique. No LA, rubber dam, caries removal or drills were used. They remained free from clinical and radiographic signs and symptoms of pain or sepsis. Compare with figures 3(c & d). Tosi 74 was extracted as it was not restorable.

Table 1. Indications and contra-indications of the Hall technique.

<table>
<thead>
<tr>
<th>Indications</th>
<th>Contra-indications</th>
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<td>Tooth 74 was extracted as it was not restorable.</td>
<td>The caries lesion needs to be detected early enough before it causes pulpal symptoms, emphasizing the importance of early diagnosis using clinical examination coupled with bitewing studies in Paediatric Dentistry.</td>
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<td>The reader is asked to compare Figure 3(c &amp; d) to Figures 4(a &amp; b). The bite may be opened slightly following placement of a Hall SSC, but it corrects itself due to dento-alveolar compensation.</td>
<td>The teeth are restored with a modified crown after performing them. The tooth was to be extracted at a very early stage, for it to be sealed in the Hall technique. The crown could be fitted with minimal inconveniences to the patient, especially if the child is familiar with the technique. The crown would not have any for the SSC placed.</td>
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