Assessment of different methods of obturation in primary molars

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ABSTRACT:
Background: Primary teeth are the best space maintainers and hence should be preserved and retained as long as possible. The present study was conducted to assess different methods of obturation in primary molars. Materials & Methods: 90 deciduous teeth were divided into 3 groups. Group I teeth had disposable syringe, group II had lentulo spiral and group III had past inject method for obturation. Scores were graded as less or equal to half the root (score 1), more than half the root length (score 2), optimal filing (score 3) and filling extruding from the apex (score 4). Results: Score 1 was seen in 7, 5 and 1, score 2 in 8, 8 and 10 teeth, score 3 in 6, 4 and 12 teeth and score 4 in 9, 13 and 7 teeth in group I, II and III respectively. The difference was significant (P< 0.05). Conclusion: Past inject was the most successful technique for obturation of primary teeth.

Key words: Obturation, Primary teeth, Past inject

INTRODUCTION
Primary teeth are the best space maintainers and hence should be preserved and retained as long as possible. Pulpectomy of primary teeth is indicated when the inflammation of the pulpal tissue involves the radicular pulp or when nonvital tooth is diagnosed.1 Pulpectomy helps in preserving a pulparly involved primary tooth by extirpating the diseased pulp associated with microorganism and debris from the canal and obturating with an antibacterial resorbable filling material.2 The ultimate goal of pulpectomy is to achieve good hermetic seal which depends on various factors such as good biomechanical preparation, types of obturating material used and achievement of minimum voids.3 Obturation of the canal creates a fluid tight seal along the length of the root from the coronal opening to the apical system and eliminating all portals of entry between the periodontium and the root canal system.4 Obturation should be done by almost ideal material with technique that is best suited.5 However, obturation depends on cost effectiveness of carrier which is used to carry the material to the canal, ease of obturation, control and manipulation of material for successful outcome.6 Commonly used techniques for obturation of primary canals are conventional manual incremental lateral condensation by tuberculin syringe, amalgam pluggers, navi tip, disposable injection technique, hand-held, rotary lentulospiral, jiffy tubes, and endodontic pressure syringe, past inject etc.7 The present study was conducted to assess different methods of obturation in primary molars.

MATERIALS & METHODS
The present study comprised of 90 deciduous teeth. The sample was randomly divided into 3 groups. The primary tooth single sitting pulpectomy was performed in all cases after administration of local anaesthesia and placement of a rubber dam. The procedure involved cavity preparation, removal of all carious tooth structure, preparation of a straight line access, extirpation of pulpal debris from the root canal using files, and copious irrigation with normal saline. The working length was maintained 1 mm short of the apex while preparing the canals with Hedstrom files (30-35 sizes) using a pullback motion. The root canals were thoroughly irrigated with...
sodium hypochlorite; saline solution was used as the last irrigating medium. The root canals were then dried using absorbent paper points inserting them 1 mm short of the radiographic apex. For obturation, group I teeth had disposable syringe, group II had lentulo spiral and group III had past inject method for obturation. Postoperative evaluation was done for quality of canal obturation, presence of voids using postoperative radiographs following obturation of teeth. Scores were graded as less or equal to half the root (score 1), more than half the root length (score 2), optimal filing (score 3) and filling extruding from the apex (score 4). Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Distribution of teeth

<table>
<thead>
<tr>
<th>Groups</th>
<th>Group I</th>
<th>Group II</th>
<th>Group III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method</td>
<td>disposable syringe</td>
<td>lentulo spiral</td>
<td>past inject method</td>
</tr>
<tr>
<td>Number</td>
<td>30</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>

Table I shows that group I teeth had disposable syringe, group II had lentulo spiral and group III had past inject method for obturation.

Table II Comparisons for different levels of obturation with various obturating techniques

<table>
<thead>
<tr>
<th>Groups</th>
<th>Group I</th>
<th>Group II</th>
<th>Group III</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score 1</td>
<td>7</td>
<td>5</td>
<td>1</td>
<td>0.01</td>
</tr>
<tr>
<td>Score 2</td>
<td>8</td>
<td>8</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Score 3</td>
<td>6</td>
<td>4</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Score 4</td>
<td>9</td>
<td>13</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

Table II, graph I shows that score 1 was seen in 7, 5 and 1, score 2 in 8, 8 and 10 teeth, score 3 in 6, 4 and 12 teeth and score 4 in 9, 13 and 7 teeth in group I, II and III respectively. The difference was significant (P< 0.05).

DISCUSSION

Primary teeth are the treasured property of a baby. In children, milk teeth play a vital position for consuming, phonetics, esthetics and additionally as a space maintainer for permanent teeth. This goal can be achieved by vital and non-vital pulp therapy procedures. In vital tooth therapy coronal portion of the pulp is removed whereas in nonvital or irreversible pulpitis cases complete pulp is removed followed by placement of suitable material inside the canal. Ultimately pulpectomy with hermatic seal is the ideal way to prevent primary teeth. Hermatic seal can be achieved by good biomechanical preparation, type of obturating material used and with minimum voids. The present study was conducted to assess different methods of obturation in primary molars. We found that group I teeth had disposable syringe, group II had lentulo spiral and group III had past inject method for obturation. Gandhi et al assessed and compared the efficacy of different obturating

Graph I Comparisons for different levels of obturation with various obturating techniques
methods used in primary teeth. 41 patients aged four to nine years with a total of 60 teeth were selected. Out of the 60 teeth, 32 were primary mandibular first molars and 28 were primary mandibular second molars, the sample was randomly divided into three groups. Disposable syringe, lentulo spiral and past inject were used for obturation. Postoperative evaluation was done for; quality of canal obturation, presence of voids using postoperative radiographs following obturation of teeth. Among the three groups of the study, past inject exhibited the maximum number of optimally filled canals. Maximum number of underfilled canals was found with lentulospiral, and the maximum number of overfilled canals was seen with disposable syringe. Least number of voids was observed in canals filled with the past inject technique and disposable syringe.

We found that score 1 was seen in 7, 5and 1, score 2in 8, 4 and 10 teeth, score 3 in 6, 4 and 12 teeth and score 4 in 9, 13 and 7 teeth in group I, II and III respectively. Deonízio et al13 reported that the 15,000 rpm speed was more effective in filling the apical third and 5,000 rpm speed was more effective in filling the cervical and middle thirds in their study utilizing lentulospiras at different speeds for filling the root canal with calcium hydroxide paste. In a retrospective study by Fuks AB et al14, Endoflas was used as a filling material. The resorption of the material was limited to the excess extruded extraradicularly and it does not get depleted intraradicularly. The over pushing of the root canal filling material in primary teeth is unavoidable in some cases because of the thin dentinal walls of the root canals towards the inter-radicular areas, which may give way during filing of root canals. Dandashi MB et al15, also found in their study that the disposablesyringe system produced fewer voids as compared to the lentulospiral.

CONCLUSION
Authors found that past inject was the most successful technique for obturation of primary teeth.

REFERENCES