

## Original Research

### Assessment of different methods of obturation in primary molars

<sup>1</sup>Chhaya Sharma, <sup>2</sup>Rajat R Khajuria, <sup>3</sup>Rishav Singh

<sup>1</sup>Senior Lecturer, Deptt of Pedodontics, Kothiwal Dental College, Moradabad, Uttar Pradesh, India;

<sup>2</sup>Assistant Professor, Deptt of Dentistry, GMC, Doda, Jammu and Kashmir, India;

<sup>3</sup>Senior Resident, Deptt of Pedodontics, RIMS, Ranchi, Jharkhand, India

#### 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 length), 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

Received: 19 November, 2021

Accepted: 25 December, 2021

**Corresponding author:** Chhaya Sharma, Senior Lecturer, Deptt of Pedodontics, Kothiwal Dental College, Moradabad, Uttar Pradesh, India

**This article may be cited as:** Sharma C, Khajuria RR, Singh R. Assessment of different methods of obturation in primary molars. J Adv Med Dent Scie Res 2022;10(1):164-166.

#### INTRODUCTION

Primary teeth are the best space maintainers and hence should be preserved and retained as long as possible. Pulpotomy of primary teeth is indicated when the inflammation of the pulpal tissue involves the radicular pulp or when nonvital tooth is diagnosed.<sup>1</sup> Pulpotomy helps in preserving a pulpally involved primary tooth by extirpating the diseased pulp associated with microorganism and debris from the canal and obturating with an antibacterial resorbable filling material.<sup>2</sup> 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.<sup>3</sup> 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.<sup>4</sup> Obturation should be done by almost ideal material with technique that is best suited.<sup>5</sup> 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.<sup>6</sup> 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.<sup>7</sup> 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 length), 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**

Groups	Group I	Group II	Group III
Method	disposable syringe	lentulo spiral	past inject method
Number	30	30	30

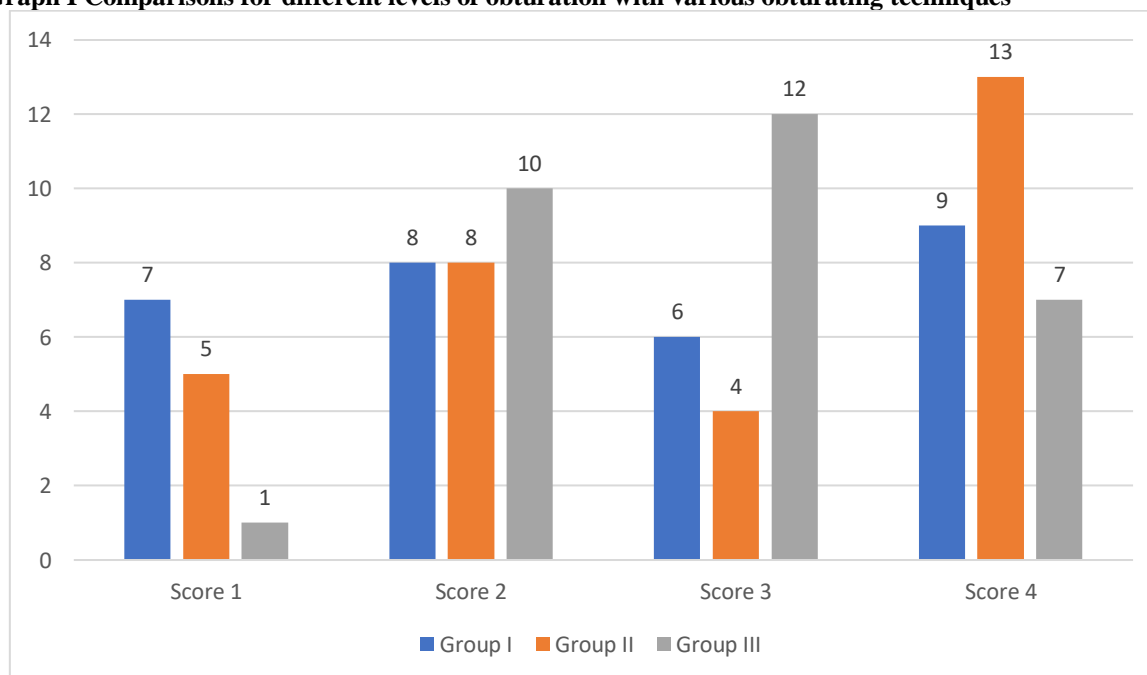
Table I shows that group I teeth had disposable syringe, group II had lentulo spiral and group III had past inject method for obturation.

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

Groups	Group I	Group II	Group III	P value
Score 1	7	5	1	0.01
Score 2	8	8	10	
Score 3	6	4	12	
Score 4	9	13	7	

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).

**Graph I Comparisons for different levels of obturation with various obturating techniques**



**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.<sup>8,9</sup> In vital tooth therapy coronal portion of the pulp is removed where as in nonvital or irreversible pulpitis cases complete pulp is removed followed by placement of suitable material inside the

canal.<sup>10</sup> ultimately pulpectomy with hermetic seal is the ideal way to prevent primary teeth. Hermetic seal can be achieved by good biomechanical preparation, type of obturating material used and with minimum voids.<sup>11</sup>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<sup>12</sup> assessed and compared the efficacy of different obturating

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, 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. Deonízio et al<sup>13</sup> 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 lentulospirals at different speeds for filling the root canal with calcium hydroxide paste. In a retrospective study by Fuks AB et al<sup>14</sup>, 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 al<sup>15</sup>, also found in their study that the disposable syringe 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

1. Bawazir OA, Salama FS. Clinical evaluation of root canal obturation methods in primary teeth. *Paediatr Dent.* 2006;28(1):39-47.
2. Yacobi R, Kenny DJ, Judd PL, Johnston DH. Evolving primary pulp therapy techniques. *J Am Dent Assoc.* 1991;122:83-85.
3. Bhandari SK, A, Prajapati U. Root canal obturation of primary teeth: Disposable injection technique. *J Indian Soc Pedod Prev Dent.* 2012;30:13-18.
4. Deveaux E, Dufour D, Boniface B. Five methods of calcium hydroxide intracanal placement: an in vitro evaluation. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod.* 2000;89(3):349-55.
5. Oztan MD, Akman A, Dalat D. Intracanal placement of calcium hydroxide: A comparison of two different mixtures and carriers. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod.* 2002;94(1):93-97.
6. Memarpur M, Shahidi S, Meshki R. Comparison of different obturation techniques for primary molars by digital radiography. *Paediatr Dent.* 2013;35(3):236-40.
7. Jha M, Patil SD, Sevekar S, Jogani V, Shingare P. Paediatric obturating materials and techniques: a review. *J Contemp Dent.* 2011;1(2):27-32.
8. Rewal N, Thakur AS, Sachdev V, Mahajan N. Comparison of Endoflas and zinc oxide eugenol as root canal filling materials in primary dentition. *J Indian Soc Pedod Prev Dent.* 2014;32:317-21.
9. Fuks AB, Eielman E, Pauker N. Root canal filling with Endoflas in primary teeth: a retrospective study. *J Clin Paediatr Dent.* 2002;27(1):41-46.
10. Subba Reddy W, Shakunthala B. Comparative assessment of three obturating techniques in primary molars: An in vivo study. *Endodontology.* 1997;9:13-16.
11. Guelmann M, McEachern M, Turner C. Pulpectomies in primary incisors using three delivery systems: an in vitro study. *J Clin Paediatr Dent.* 2004;28: 323-26.
12. Gandhi M, Tandon S, Vijay A, Kalia G, Rathore K. Clinical assessment of various obturating techniques for primary teeth: A comparative study. *Journal of clinical and diagnostic research: JCDR.* 2017 Jul;11(7):48.
13. Deonízio MD, Sydney GB, Batista A, Estrela C. Root canal filling with calcium hydroxide paste using Lentulo spiral at different speeds. *Dental Press Endodontics* 2011;1(1):58-63.
14. Fuks AB, Eielman E, Pauker N. Root canal filling with Endoflas in primary teeth: a retrospective study. *J Clin Paediatr Dent.* 2002;27(1):41-46.
15. Dandashi MB, Nazif MM, Zullo T, Elliott MA, Schneider LG, Czonstkowsky M. An in vitro comparison of three endodontic techniques for primary incisors. *Paediatr Dent.* 1993;15:254-56.