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Original Research

Assessment of usefulness of MTA in deciduous molars

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ABSTRACT:

Background: Pediatric endodontics deals with pulp therapy of deciduous teeth and immature apex permanent teeth. The present study was conducted to assess efficacy of MTA in primary molars. **Materials & Methods:** 50 children with carious deciduous molar of both genderswere divided into2 groups of 25 each. In group I, MTA was used and in group II, formocresol (control) was used. The patients were recalled and parameters such as pain, mobility, swelling, sinus and change in color was assessed after 1 month, 3 months and 6 months respectively. **Results:** There were 38 males and 22 females in group I and 26 males and 34 females in group II. In group I pain was present in 1 patient at 24 hours only, swelling in 1 patient at 24 hours and change in color in 24 hours in 10 patients. The difference was significant (P<0.05). In group II pain was present in 1 patient at 24 hours only, mobility in 1 patient at 24 hours and change in color in 24 hours in 5 patients. The difference was significant (P<0.05). **Conclusion:** MTA may be effectively used as pulpotomy agent in deciduous molar.

Key words: Deciduous teeth, MTA, pulpotomy

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INTRODUCTION

Pediatric endodontics deals with pulp therapy of deciduous teeth and immature apex permanent teeth. The objective of deciduous teeth endodontic therapy is that of keeping, if possible, teeth active till their normal exfoliation time.Pulpotomized teeth help in maintaining arch integrity by allowing preservation of the teeth that would otherwise be destined for extraction.[1]The current recommendation supersedes the previous pulp therapy guideline2 on the vital pulp therapies in primary teeth with deep caries lesions and does not cover non-vital pulp therapies, pulp therapy for immature permanent teeth, or pulp therapy for primary teeth with traumatic injuries.[2]

MTA have excellent proprieties such as sterility, radiopacity, resistance to moisture, good sealability against bacterial microleakage, and bio-induction.[3] Due these proprieties, it stimulates mechanisms responsible for the bio-remineralization and resolute of periapical disease that can improve treatment outcomes.[4]MTA, with an excellent long- term prognosis, relative ease at which it can be used and with its numerous exciting clinical applications promises to be one of the most versatile materials of this century in the field of dentistry. When the physical and chemical properties of MTA, were described it was found to be biocompatible and its sealing ability was better than zinc oxide eugenol.[5] The present study was conducted to assess efficacy of MTA in primary molars.

MATERIALS & METHODS

The present study comprised of50 children with carious deciduous molarof both genders. Parents' consent was obtained before starting the study.

Demographic data as name, age, gender etc. was recorded. Teeth were divided into2 groups of 25 each. In group I, MTA was used and in group II, formocresol (control) was used. Pulpotomy was done in all teeth in both groupsand were restored with stainless steel crown after 24 hours. The patients were recalled and parameters such as pain, mobility, swelling, sinus and change in color was assessed after 1 month, 3 months and 6 months respectively. Results thus obtained were subjected to statistical

analysis. P value les than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Groups	Group I	Group II
Method	MTA	Formocresol
M:F	10:15	13:12

Table I shows that there 10 boys and 15 girls in group I and 13 boys and 12 girls in group II.

Graph I Distribution of patients

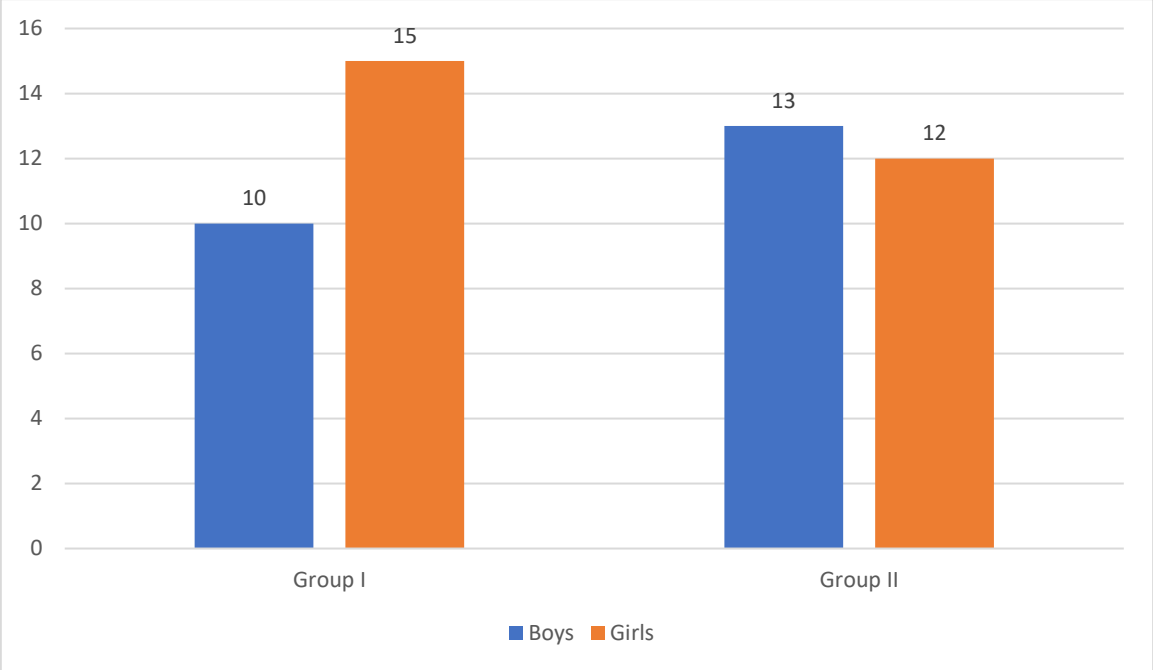

Table II Assessment of clinical parameters in group I

Parameters	24 hours	1 month	3 months	6 months	P value
Pain	2	0	0	0	0.05
Mobility	1	0	0	0	0.21
Swelling	1	0	0	0	0.21
Sinus	0	0	0	0	-
Change in color	11	0	0	0	0.01

Table II shows that in group I pain was present in 2 patients at 24 hours only, mobility in 1 at 24 hours, swelling in 1 patient at 24 hours and change in color in 24 hours in 11 patients. The difference was significant (P<0.05).

Table III Assessment of clinical parameters in group II

Parameters	24 hours	1 month	3 months	6 months	P value
Pain	3	0	0	0	0.01
Mobility	2	0	0	0	0.05
Swelling	1	0	0	0	0.21
Sinus	0	0	0	0	-
Change in color	14	0	0	0	0.01

Table III shows that in group II,pain was present in 3 patients at 24 hours, mobility in 2 patients at 24 hours, swelling in 1 patient and change in color in 24 hours in 14 patients. The difference was significant (P<0.05).

DISCUSSION

MTA has demonstrated to be a very versatile and extremely reliable material.The elective indication of this material is in procedures that regard permanent teeth that have not yet reached complete maturation, in particular, in apexogenesis therapies and direct capping procedures as the material, thanks to its biocompatibility and stability on a long- term basis, allows you to preserve interested elements vitality without having to perform further endodontic therapies.[6]In apexification cases, which imply the apical stop, it translates into an important time-saving

procedure that lets you predict therapy in a secure way Its applications in the deciduous teeth are still not yet widely used in daily clinical practice due to its high cost compared to commonly used materials.[7]Researchshows how the use of MTA in pediatric dentistry means a smaller pulp or periapical tissues inflammation compared to commonly used materials guaranteeing a higher predictable therapeutic result on a short and long basis.[8]The present study was conducted to assess efficacy of MTA in primary molars.

We found that there 10 boys and 15 girls in group I and 13 boys and 12 girls in group II.Tebbeb et al[9] found that physiological root resorption is a known phenomenon for deciduous teeth with uncertain etiologic factors. The initiation of root resorption could be due to the injury or the infection of the pulp. The physiological, esthetic, and functional consequences of treating primary teeth without permanent successors make it a unique challenge. The presentstudypresent the treatment, and long-term follow-up of a case in mineral trioxide aggregate (MTA) was used in the pulpectomy of a nonvital primary molar with no permanent successor in a 14-year-old child. The treatment was root canal treatment and total obturation using MTA. Follow-up examinations were done and showed a radiographic healing of the periapical radiolucency and resorption of mesial root. Furthermore, the tooth was asymptomatic and clinically functional.

We observed that in group I pain was present in 2 patients at 24 hours only, mobility in 1 at 24 hours, swelling in 1 patient at 24 hours and change in color in 24 hours in 11 patients. Kettering et al[10] in his case chose maintaining the mandibular left second primary molar with missing successor premolar as long as possible before extraction and replace it with an implant. This choice was based on the young age of the patient, absence of any malocclusion, or arch-length deficiency. Hence, a conventional pulpectomy, gutta-percha obturation, and reconstruction of the crown were done. Regular follow-up appointments were planned to re-evaluate pulpal pathology, ankylosis, and infra-occlusion. Six-month follow-up showed a complete resorption of the roots, and gutta-percha cones were fixed in the bone.

We found that in group II, pain was present in 3 patients at 24 hours, mobility in 2 patients at 24 hours, swelling in 1 patient and change in color in 24 hours in 14 patients.Caicedo et al[11]observed the tissue response when mineral trioxide aggregate (MTA) was used.Ten primary teeth had direct pulp caps and 11 had a pulpotomy with MTA. The teeth were restored and then clinically reviewed monthly for five months and before extraction. Radiographs were taken prior to treatment, after one month and prior to extraction. After extraction, the teeth were examined histologically and the responses to treatment were assessed.One pulpotomy and two pulp capping cases had postoperative pain and signs of pulp degeneration. Radiographs showed no root resorption, no periodontal pockets and no furcation radiolucencies. No cases had draining sinuses or increased mobility. Most pulps responded favourably from a clinical perspective although a variety of responses were noted histologically--normal odontoblasts, irregular odontoblasts, intra-pulpal calcifications, dentinal bridges, cementum formation, internal resorption, inflammatory infiltrate and pulp necrosis.

CONCLUSION

Authors found thatMTA may be effectively used as pulpotomy agent in deciduous molar.

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