Available online at **www.ijmrhs.com**

ISSN No: 2319-5886

International Journal of Medical Research & Health Sciences, 2018, 7(9): 15-18

A Retrospective Study on Pulpotomized Primary Molars in a Group of Children in Iraq

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ABSTRACT

Objective: *Pulpotomy technique basically consists of removing the coronal pulp and fixing the radicular pulp with a medicament. It is the most widely accepted clinical procedure for treating primary teeth with coronal pulp inflammation caused by caries with no involvement of the radicular pulp. A baseline data for this work is mandatory.* ***Methods:*** *This is a retrospective study conducted in the Department of Pedodontics, College of Dentistry, Baghdad University at 2014-2015 concerning the pulpotomized primary molars. The case sheets records for all children were collected; analyzed, and sorted according to the age groups, gender, tooth type, jaw, side, and the restorative materials used. SPSS version 17 was used for data analysis.* ***Results:*** *The highest percentage was for the age group of 6-9 years. Generally, boys were more than girls in the total sample. The higher percentage was found for pulpotomized primary 2nd molar than the primary 1st molar. There were more mandibular pulpotomized primary molars than maxillary, the right primary molars were pulpotomized more than the left primary molars, and the amalgam was the most used filling material.* ***Conclusion:*** *The percentage for age group 6-9 years was the highest, boys were more, pulpotomized 2nd primary molar was more than 1st primary molar, mandibular molars were higher than maxillary, right more than left, and the amalgam was the most common filling material used.*

Keywords: Pulpotomy, Primary molars, College of dentistry, Pediatric dentistry

INTRODUCTION

Pulpotomy can be defined as complete removal of the coronal portion of the dental pulp, followed by placement of a suitable dressing or medicament that will promote healing and preserve the vitality of tooth [1-3]. It is indicated in the vital tooth with healthy periodontium, restorable tooth and possesses at least 2/3rd of its root length, in addition, the hemorrhage from the amputated side is pale red and is easy to control [2,4]. On the other hand, it is contraindicated if there is evidence of internal resorption, presence of inter-radicular bone loss, existence of abscess and sinus discharge related to the accused teeth, radiographic evidence of calcific globules in pulp chamber, caries penetrating the floor of pulp chamber, tooth close to natural exfoliation time [1,2].

With reference to the age groups, the age group less than 6 years, as found by some researchers, have more pulpotomized primary molars than the age group more than 6 years [5]. Relating to gender distribution, some researchers found that the percentage of boys underwent pulpotomized primary molars were higher than for girls. [5-7]. The percentage of pulpotomized primary 2nd molars (84%) was found to be higher than the 1st molars (78%) [5,8]. Concerning jaw distribution, in a previous study, it was found that the percentage of pulpotomized maxillary molars (89%) was higher than mandibular molars (73%) [8]. On the contrary, another study found that mandibular primary molars that undergo pulpotomy treatment were more than maxillary primary molars [5].

About the side distribution, some studies found that pulpotomized right primary molars were more than left primary molars [5,8]. Pertaining to the filling material, the use of amalgam over zinc oxide eugenol layer in pulpotomized primary molars decreases microleakage [9].

This study aimed to record and sort the work of the Department of Pedodontics in the University of Baghdad, concerning pulpotomized primary molars, and to have a baseline data for future comparison of the achievements.

PATIENTS AND METHODS

This is a retrospective study conducted at the Department of Pedodontics at the College of Dentistry in Baghdad University during 2014-2015 concerning the pulpotomized primary posterior teeth in the undergraduate clinic. The case sheets records for all children who attended were collected from the department archive after the required consent from higher authorities, then reviewed for the presence of pulpotomized primary posterior teeth, which was then classified according to the age groups (2-5 years, 6-9 years, 10-13 years, 14 years), gender (boys or girls), tooth type (1st and 2nd primary molars), jaw (upper or lower), side (left or right), and the restorative materials used (amalgam, composite, semi-permanent restoration or temporary restoration). SPSS version 17 was used for data analysis.

RESULTS

Sample

The distribution of the total sample by age and gender revealed that the highest percentage was for the age group 6-9 years (47.42%). Generally, boys were more (52.49%) than girls (51.97%) (Table 1).

Table 1 Distribution of the total sample by age and gender

Age (Years)	Gender	No	%	Total	
				No	%
2-5 years	Boys	94	7.00%	167	12.44%
	Girls	73	5.44%		
6-9 years	Boys	307	22.89%	636	47.42%
	Girls	329	24.53%		
10-13 years	Boys	288	21.48%	516	38.48%
	Girls	228	17.00%		
14 years	Boys	15	1.11%	22	1.63%
	Girls	7	0.52%		
Total	Boys	704	52.49%	1341	100.00%
	Girls	697	51.97%		

Tooth Type

There was a higher percentage for pulpotomized primary 2nd molars (54.58%) than the primary 1st molars (45.41%). According to gender distribution, the boys were more than girls for both teeth (Table 2).

Table 2 Pulpotomized primary molars according to gender

Tooth	Gender	No	%	Total	
				No	%
primary 1st molar	Boys	58	24.16%	109	45.41%
	Girls	51	21.25%		
Primary 2nd Molar	Boys	71	29.58%	131	54.58%
	Girls	60	25.00%		
Total	Boys	129	53.75%	240	100.00%
	Girls	111	46.25%		

Jaw Distribution

There were more mandibular pulpotomized primary molars (67.5%) than maxillary pulpotomized primary molars (32.5%). At the same time, when distribution of the sample was estimated according to teeth there were more pulpotomized mandibular primary 1st molars (28.75%) than maxillary primary 1st molars (16.66%) and more pulpotomized mandibular primary 2nd molars (38.75%) than maxillary primary 2nd molars (15.8%) as shown in Table 3.

Table 3 Pulpotomized first and second primary molar in upper and lower jaws

Tooth	Jaw	No	%	Total	
				No	%
Primary 1st Molar	Upper	40	16.66%	109	45.41%
	Lower	69	28.75%		

Primary 2nd Molar	Upper	38	15.80%	131	54.58%
	Lower	93	38.75%		
Total	Upper	78	32.50%	240	100.00%
	Lower	162	67.50%		

Side Distribution

The results in Table 4 showed the pulpotomized primary molars according to side and jaw, the right primary molars were pulpotomized more (59.16%) than the left (40.83%), furthermore the pulpotomized right primary molars were more in the lower jaw (38.33%) than that in the upper jaw (20.83%).

Table 4 Pulpotomized primary molars according to side and jaw

Side	Jaw	No.	%	Total	
				No	%
Left	Upper	28	11.66%	98	40.83%
	Lower	70	29.16%		
Right	Upper	50	20.83%	142	59.16%
	Lower	92	38.33%		
Total		240	100.00%	240	100.00%

Filling Materials

Amalgam was found to be the most common filling material used for pulpotomized primary molars (65.83%) than composite (3.75%) or semi-permanent restoration (11.25%) in addition to temporary filling (19.16%) (Table 5).

Table 5 Filling material used for pulpotomized primary molars according to gender

Material	Gender	No.	%	Total	
				No	%
Amalgam	Boys	84	35.00%	158	65.83%
	Girls	74	30.83%		
Composite	Boys	5	2.00%	9	3.75%
	Girls	4	1.66%		
Semi- permanent restoration	Boys	16	6.66%	27	11.25%
	Girls	11	4.58%		
Temporary filling	Boys	24	10.00%	46	19.16%
	Girls	22	9.16%		
Total		240	100.00%	240	100.00%

DISCUSSION

The systematic archive is mandatory for all types of work, especially in governmental institution and Scientific Centre as the College of Dentistry, University of Baghdad. This study showed that the age group 6-9 years had a higher percentage than other age groups, which may be explained as the age group of 6-9 years, are more aware of the importance of primary teeth and may cooperate more likely in the dental clinic.

Concerning the gender, more pulpotomized primary molars were found in boys than in girls and this agree with other studies, which may be attributed to more concern of girls about their health and appearance than boys [5-7].

The results of the present study showed that the 2nd primary molar was the most frequently pulpotomized tooth, which is similar to the finding of two previous studies [5,8], which can be explained by the anatomical characteristics of the 2nd primary molar of deeper pits and fissures and more distinct grooves than 1st primary molar which make it more liable to dental caries than the 1st primary molar [10].

Regarding the arch distribution, the mandibular primary molars were pulpotomized more than maxillary molars, this is in agreement with the results of some researchers but disagree with another researcher who reported more pulpotomized maxillary primary molars [5-8]. This result can be attributed to easier technical dental work in the lower jaw than the upper jaw that most dental students prefer especially when it is not associated with a complaint.

The result of this study showed that the amalgam was the most appropriate filling material used after pulpotomy procedure than other types of materials, which is in agreement with a previous study who stated that using of amalgam as a filling material will decrease the microleakage, also we can say that most of the dentist prefer amalgam over another type of materials because of its durability, less technique sensitive than composite, and its easy technique [9].

CONCLUSION

The highest percentage was for the age group of 6-9 years. Generally, boys were more than girls, there was a higher percentage for pulpotomized primary 2nd molar than the 1st primary molars, there were more mandibular pulpotomized primary molars than maxillary, right primary molars were pulpotomized more than left primary molars, and the amalgam was the most common filling material used for pulpotomized primary molars.

DECLARATIONS

Conflict of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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