

FREQUENCY OF EXTRACTIONS OF PRIMARY MOLARS DUE TO CARIES IN CHILDREN IN SOUTHERN JORDAN

¹MOA'TH GHOZLAN

²FAROUK RIHANI

³AYMAN AL-OLAIMAT

⁴MARWAN SHOWAYTER

⁵SARAH ALSROUR

ABSTRACT

The main aim of this study was to assess the frequency of extraction of primary molars because of caries in children in the south of Jordan. 260 children (135 female, 125 male) living in Aqaba and Ma'an in the south of Jordan visited pediatric dental clinic in Princess Haya Military Hospital. They formed the study group.

They were examined for primary molar previously extracted because of caries and the age at extraction time were recorded. 45% of the examined children had at least one primary molar extracted because of caries. 56.4% of them were female, 43.6% were male. Primary lower first molar was the tooth most commonly extracted.

The prevalence of extraction of primary molars due to caries was high in comparison with other studies in other countries.

Key Words: Primary molars, extractions, dental caries.

INTRODUCTION

Primary molars are important in function and occlusion. They bear the responsibility of maintaining space for their successors. So early loss of primary molars has detrimental effects on function, development of dental arches, and occlusion. Also early loss of primary molars may lead to dental rotation, supraeruption of opposing teeth, dental crowding, and impaction of successors.

Causes of early loss of primary molars

- * Trauma: rarely affects primary molars.
- * Periodontal diseases: e.g. Papillon-lefevere syndrome.
- * Orthodontic reasons: e.g. : Serial extraction.
- * Dental caries. Is considered the main cause of loss of primary molars.^{1,2,3}

The early loss of primary teeth affected by dental caries might be due to the fact that many practitioners

elect to extract primary teeth than trying to salvage them.⁹ Also it might be due to the fact that parents do not care about primary teeth depending on the idea that primary teeth will be replaced.⁵ Although this idea is true, and primary teeth will normally be finally replaced, this replacement may take a time long enough to allow many complications of early extraction of primary teeth to occur.

Subsequent effects caused by loss of primary molars are related to the age at which loss occurs "the earlier the loss, the worse the effect".

These effects may include:

Loss of space

There is a general agreement that premature loss of primary teeth usually results in loss of arch space.^{6,7} It is, therefore, important to manage the case after loss of primary molars to prevent related space loss. This may include space analysis, and space maintainer if needed.

Malocclusion

This is due to ectopic eruption of permanent successors, mesial and distal inclination and/ or drifting of the teeth adjacent to the extraction site. Also early extraction of primary molars may lead to myofunctional changes, and changes in vertical dimensions.

Correspondence should be addressed to:

mghuzlan79@yahoo.com

1-3 Moa'th Ghozlan 2 Farouk Rihani 3 Ayman Al-olaimat BDS. JOB. Pediatric dentistry, Jordanian Royal Medical Services

4-5 Marwan Showayter 5 Sarah Alsrouur BDS. JOB. Periodontology, Jordanian Royal Medical Services

Received for Publication: January 11, 2015

Revision Received: February 17, 2015

Revision Approved: February 20, 2015

Diminished masticatory function

Loss of primary molar will make mastication difficult at the extraction side, this will reduce masticatory efficiency, shift the load of mastication to the other side, rendering the site of extraction non-functional, reducing the role of mastication in self-cleansing, and subsequently, plaque accumulation and calculus formation.

Changing the expected time of eruption of the permanent successor

There is acceleration in eruption when primary tooth extracted at time near its exfoliation time because this removes some of the tissues covering the successor tooth, but it causes delayed eruption when primary tooth extracted early because the tissues over the successor become fibromatosed and more difficult to penetrate.

The aim of the study was to assess the frequency of extraction of primary molars due to dental caries in children in the south of Jordan.

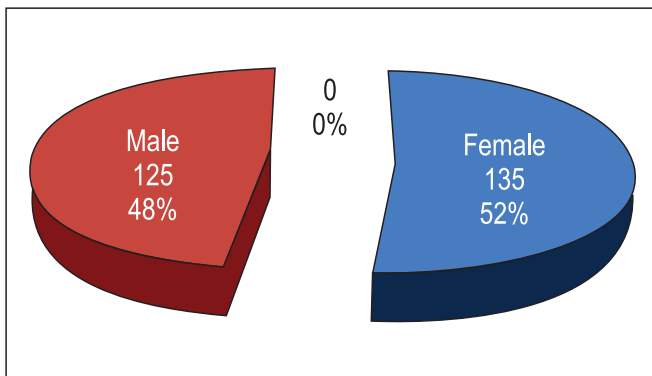


Fig 1: The gender distribution of the children in the sample

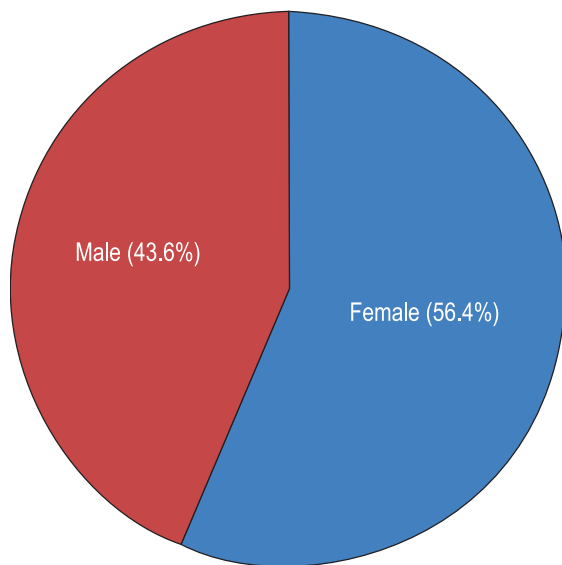


Fig 2: The distribution of extraction of primary molars due to caries according to gender

TABLE 1: AGE DISTRIBUTION OF PATIENTS

Age	Number of patients
4 year	65
5 year	55
6 year	48
7 year	48
8 year	21
9 year	23
Total 260	

TABLE 2: THE NUMBER OF EXTRACTED PRIMARY MOLARS PER PATIENT

Number of extracted primary molars (A)	Number of patients (B)	A*B
0	143	0
1	71	71
2	29	58
3	6	18
4	7	28
5	1	5
6	1	6
7	0	0
8	2	16
260		202

TABLE 3: DISTRIBUTION OF PRIMARY MOLAR EXTRACTATIONS ACCORDING TO THE TYPE OF TOOTH

Tooth	No. of teeth, (%)
Upper Primary First Molar	45 (22.3%)
Upper Primary Second Molar	21 (10.3%)
Lower Primary First Molar	91 (45.1%)
Lower Primary Second Molar	45 (22.3%)

TABLE 4: THE FREQUENCY OF EXTRACTATIONS ACCORDING TO AGE AND GENDER

Age (year)	Male	Female	Male + Female
4	5/34(14.7%)	11/31(35.6%)	16/65(24.6%)
5	10/30(33.3%)	7/25(28.0%)	17/55(30.1%)
6	12/20(60.1%)	12/28(42.9%)	24/48(50.0%)
7	13/21(62.0%)	17/27(63.0%)	30/48(62.5%)
8	5/9(55.6%)	9/12(75.1%)	14/21(66.7%)
9	6/11(54.5%)	10/12(83.3%)	16/23(69.6%)

METHODOLOGY

Two hundred and sixty children between the age of 4-9 year with mean age 5.5 years from Aqaba and Ma'an in the south of Jordan were randomly selected and examined in pediatric dental clinic in Princess Haya Hospital in Aqaba. The previously extracted primary molars due to dental caries, and the age at which the extraction was carried out were recorded.

RESULTS

117(45%) of the examined children had one or more extracted primary molar due to caries.

- * 66 (56.4%) of them were females and 51(43.6%) were males.
- * 202 primary molars had been extracted due to caries in 260 children with an average (0.78) tooth per child.
- * 46(39.3%) of the children with extracted primary molars had more than one extracted primary molar.
- * The most common extracted primary molar was the lower primary first molar.

DISCUSSION

It is evident that despite the wide progress in dental preventive and treatment measurements in pediatric dentistry, dental caries still causes destruction of primary dentition leading to loss of such teeth.

This actually is not unexplainable, because many parents are still unaware about the importance of primary teeth and usually ask for their extraction rather than preservation.

Unfortunately many general dental practitioners, both in public or private sector, despite their awareness of the importance of primary dentition, usually try to avoid dealing with pediatric dental patients even in the case of simple treatment, and sometime they offer only an advice for the parents: "these are milk teeth and are going to shed away".

This can lead parents to neglect seeking treatment for their kids' teeth, making their oral health worse and eliminate any chance for preserving the primary teeth.

According to this study, the prevalence of extraction of primary molars due to caries was 45% by patients, this is higher than many other studies. Cavalcanti {16.5%}.⁴ Julia Caldas et al {28.9%}.² Ockell {4.1%}.³ Ahmad {16.5%}.⁸

Lower primary first molar was the primary molar most commonly extracted due to caries, this coincides

with what was reported by Alsheneifi in USA¹, and Ahmed in India.⁸ And they referred this to earlier eruption of first molar than second molar, and easier food accumulation in the lower jaw. Also this was referred by Al-Amoudi to the low success rate of root canal treatment in the primary first molar.⁹ Also there is a general belief that in comparison with primary second molar, the loss of first primary molar has less effect, if any, at space condition in the jaw.

Females were more prone to lose primary molars by caries than males. This has been previously explained by Madlena¹⁰ and by Northway who thought it by hormonal and genetic differences.¹¹ The rate of extraction of primary molars due to caries increases with age 24.6 at the age of 4 year, up to 69.6% at the age of 9 year.

So, it is recommended to increase the awareness of oral health of children by educating parents, caregivers, medical staff and even general dental practitioners about the importance of primary dentition, and oral hygiene in the primary dentition stage.

REFERENCES

- 1 Al sheneifi T, Hughes CV. Reasons for dental extraction in children. *J Pediatric Dent* 2001; 23(2): 109-12.
- 2 Julia Caldas, Erica Calvano. Early primary tooth loss: Prevalence, Consequence, and treatment. *Int J Dent, Recife*, 10(3): 126-30.
- 3 N. Mansour Ockell, M. Bagesund. Reasons for extractions, and treatment preceeding caries-related extractions in 3-8 year-old children. *Eur Archives of Paediatric Dentistry*, 2010; 11(3): 122-30.
- 4 Leite-Cavalcanti A, de Alencar CR, Bezerra PK, Granville-Garcia AF. Prevalence of early loss of primary molars in school children in Campina Grande, Brazil. *Pak Oral Dent J*. 2008; 28: 113-16.
- 5 Cardoso L, Zembruski C, Fernandes DS, Boff I, Pessin A. Evaluation of prevalence of precocious loss of deciduous molars. *Braz Res Pediatr Dent Integr Clin*. 2005; 5: 17-22.
- 6 Northway WM, Wainright RL, Demirjian A. Effects of premature loss of deciduous molars. *Angle orthod*. 1984; 54(4): 295-29.
- 7 Rao AK, Sarkar S. Changing in the arch length following premature loss of deciduous molars. *J Indian Soc Pedod Prev Dent* 1999; 17(1): 29-32.
- 8 S. Syed Shaheed Ahmad, Venngopal N, Reddy et al. Prevalence of early loss of primary teeth in 5-10 years old school children in Chidambaram town. *Contemp. Clin Dent*. 2012; Jan-Mar; 3(1): 27-30.
- 9 AlAmoudi N. The prevalence of crowding, attrition, midline discrepancies and premature tooth loss in the primary dentition of children in Jeddah, Saudi Arabia. *Journal of Clin Pediatric Dent* 1999; 24(1): 53-58.
- 10 Madlena M, Hermann P, Jahn M, Fejerdy P. Caries Prevalence and tooth loss in Hungarian adult population: results of a national survey. *BMC Public Health* 2008; 64-83.
- 11 Northway WM, Wainright RW. DE space ... a realistic measure of changes in arch morphology: Space loss due to unattended caries. *J Dent Res* 1980; 54(10): 1577-80.