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Relationship between the Space Loss in the Both Jaws according to the Position and the Number of the Premature Extracted Teeth

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Abstract: ***There is a difference depending on the number and the position of the prematurely extracted teeth in the dental arch. The aim of the study is to determine the relationship between space loss in the both dental aches according to the number and the position of the extracted teeth. Material and methods: We studied 90 children 6 to 9 years old with premature loss of one or more primary teeth divided into three groups according to the severity of the orthodontic deformation. We used two biometric methods for the purpose of the study -the Moyers method and measured the mesial and distal movement of the adjustment teeth by drawing perpendicular lines towards the middle line. Results: We determined that the average amount of space lost is 1,31 mm for the upper and 1,44 for the lower jaw.The lack of space is more significant when second primary molars are extracted, because of the movement of the first permanent molars. According to the position and the combination of extracted teeth in each jaw in the distal area, the results show that the greatest space loss occur when there are two adjacent tooth lost on the lower jaw. There is also statistically difference when contralateral teeth in the lower jaw absent.***

Keywords: premature extraction, prophylactics, deciduous teeth, loss of space

1. Introduction

A number of authors that study space loss problem agree that there is a difference depending on the number and the position of the prematurely extracted teeth in the dental arch (1,2,3,5,6). Some think, that the space loss is bigger in the upper jaw (5,6), others, think that the space loss is bigger in the lower jaw (1,2).

The aim of the study is to determine the relationship between space loss in the both dental aches according to the number and the position of the extracted teeth.

2. Methods and Materials

We investigated 90 children 6 to 9 years old with premature loss of one or more primary teeth were examined. The children were divided into three groups according to the severity of the orthodontic deformation. Petrunov's classification was used for this purpose. (2).

1) Patients with one or more teeth lost less than 2 month before the examination, without any orthodontic problems .(1group)
2) Patients with premature teeth loss more than 6 month before the examination and without severe orthodontic problems.(2 group)
3) Patients with premature teeth loss more than 6 month before the examination with severe orthodontic problems (II and III class according to Angle).(3 group)

Two biometric methods were used for the purpose of the study.If there was more than one extracted tooth, and there was no contralateral teeth for control the Moyers method was used. (4). When there is a single tooth loss and the contralateral side is present we use biometric methods on stone casts. The mesial and distal movement of the adjustment teeth is measured by drawing perpendicular lines towards the middle line. In order to do the examination perpendicular lines from corresponding contralateral teeth points medial and distal to the defect were drawn. We found medial and distal movement of some teeth adjustment to the extraction site according to the contralateral control side, as well as medio-distal disalligment in cases of bilateral loss of symmetrical lateral teeth(5).

3. Results and Discussion

Table 1 represents the children from the third group (more than 6 month after extraction) have average two missing teeth, unlike the other two groups that had average one tooth lost. This is related to the presence deformation and bad oral hygiene and disturbed chewing, as well as lack of parents care.

Table 1: The average number of premature loss teeth in the tree groups

Group	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Group 1	1,033	,072	,890	1,177
Group 2	1,100	,072	,956	1,244
Group 3	2,000	,072	1,856	2,144

We studied the amount of space loss according to the type of the tooth lost.(fig.1)

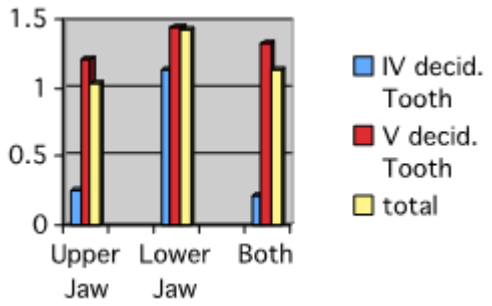

Figure 1: Loss of space according to the type of the prematurely extracted primary tooth and it's position in the upper of the lower jaw.

The results presents that there is insignificant loss of space when first upper primary molars are lostandthere is a statistically significant difference in the lack of space when first or second upper molars are prematurely extracted. In the lower jaw the space loss again is smaller when the first molars are extracted compared to the loss of space after the extraction of the second primary molars and there is not statistically significant difference. It means that the lack of space is more significant when second primary molars are extracted, because of the movement of the first permanent molars.

The average amount of space lost is 1,31 mm for the upper and 1,44 for the lower jaw, that confirms the lack of statistically significant difference. (fig.1). Northway and Park made the same conclusions. They found that the difference in space loss between the both jaws is minimal (5,6) and this differs from Lin and all that found that the space loss in the lower jaw is significantly bigger. (1,2).

Table 2 represents the results showing the space loss according to the position and the combination of extracted teeth in each jaw in the distal area.

Table 2: The average amount of a lack of space according to the teeth position and their combination

Position	combination	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Upper Jaw	One missing tooth	,793	,239	,317	1,269
	Adjacent teeth	3,000	,456	2,094	3,906
	Contralateral	3,200	,576	2,054	4,346
Lower Jaw	One missing tooth	1,129	,231	,669	1,589
	Adjacent	4,200	,408	3,390	5,010
	contralateral	3,143	,487	2,174	4,111

The results presents that in both jaws the loss of space caused by the premature extraction of one tooth is insignificant, compared to the loss of two or more teeth where we determined a statistically significant difference.(P=.000) The results show that the greatest space loss occur when there are two adjacent tooth lost on the lower jaw. There is also statistically difference when contralateral teeth in the lower jaw absent. This is due to the fact that lower jaw is mobile and have concave Spee curvature. This leads to bigger inline of the teeth towards the extraction site. In the upper jaw this differences are similar, but expressed in a lesser extent. It could be because of the different upper jaw's bone structure and the lack of expressed Spee curve.

When we are talking about the lower jaw, there is statistically significant difference between the space lost when adjacent or contralateral teeth are lost. It means that the movement of the teeth is equal in the both sides. In the upper jaw there is not statistically significant difference in the same situation.

4. Conclusion

The obtained results give us a reason conclude when there are adjacent primary teeth lost prematurely the space loss is bigger in lower jaw than in the upper this means that when we have adjacent teeth lost in the lower jaw the use of space maintainer not later than 2 month is obligatory. But it does not mean that in other cases primary prophylaxis can be neglected.

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