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EVALUATION OF SKELETAL AND OCCLUSAL CHARACTERISTICS IN CASES OF CONGENITALLY ABSENT MAXILLARY LATERAL INCISORS



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• Introduction

Hypodontia is defined as developmental absence of at least one tooth which is very common in maxillary lateral incisor. The prevalence of maxillary missing lateral incisor (MMLI) is 1-2% which is responsible for 20% of all missing teeth. Increased knowledge of causes and clinical manifestations of cases with this situation can be helpful in their diagnosis and treatment planning. The aim of the present study was to determine dental and skeletal features of patients with missing of maxillary lateral incisors.

• Materials and Methods

The material consisted of pre-treatment dental casts and lateral cephalograms of 26 non-syndromic orthodontic patients (12 males and 14 females) with unilateral or bilateral congenitally missing maxillary lateral incisor. This sample was collected from documents of the patients who were treated in Orthodontic Department of Tehran University of medical science. The diagnosis of a lateral agenesis was made on the basis of dental pantomograms with attention to patient interview for no history of extraction in upper maxillary region. The mean ages of the subjects was 17.5 ± 3.2 yr.

The control group consisted of plaster casts and lateral cephalograms of 35 subjects (16 males and 19 females) of the same age ranged with normal class I occlusion that maxillary lateral incisors had erupted normally.

The following parameters were obtained from the dental casts using a digital caliper with an accuracy of 0.01 mm:

- Maxillary and mandibular intercanine width (UICW and LICW)
- Maxillary and mandibular intermolar width (UIMW and LIMW)
- Overjet (OJ) and overbite (OB)
- Missing or anomalous teeth:

The other parameters obtained from hand-traced lateral cephalograms included: Sella-Nasion-A (SNA) angle, Sella-Nasion-B (SNB) angle, ANB angle and Wits' analysis.

Results

Eight subjects out of 26 patients with MMLI had bilateral missing and from 18 subjects with unilateral missing, 66.67% (12 subjects) had lateral missing on the right quadrant of maxillary arch.

The number of subjects with anomalous or other teeth missing was significantly greater in the lateral missing group. Five subjects had generalized microdontia and two others had impacted tooth (one of them was impaction of maxillary canine and the other was the second mandibular premolar in an bilateral MMLI case with remained second deciduous molar). Lateral missing in 9 samples were accompanied with absence of some other teeth—mostly mandibular second premolar

	MMLI Mean(SD)	Control Mean(SD)	Sig.*
LIMW (mm)	47.57(3.85)	47.16(4.11)	0.73
UIMW (mm)	50.13(3.32)	49.15(3.26)	0.34
LICW(mm)	24.86(2.66)	26.30(2.38)	0.03*
UICW(mm)	27.99(3.69)	33.45(2.59)	0.00*
OJ (mm)	1.55(2.28)	2.67(1.63)	0.04*
OB(mm)	1.92(2.01)	1.25(1.95)	0.25
SNA(degree)	79.44(3.32)	80.65(3.43)	0.20
SNB(degree)	78.13(4.58)	76.90(3.61)	0.25
ANB(degree)	1.30(3.26)	3.74(.97)	0.00*
Wits(mm)	-2.57(5.46)	0.15(2.42)	0.03*

*. The mean difference is significant at the 0.05 level.

MMLI: maxillary missing lateral incisor; mm: millimeter; SD: standard deviation

Conclusion

- Some dental anomalies like impaction, microdontia and tooth aplasia were more common in MMLI cases.
- Both upper and lower ICW significantly decreased in MMLI group.
- Patients with MMLI showed smaller overjet, ANB angle and Wits that can make them predispose to Class III malocclusion