Gaziosmanpaşa Üniversitesi Tıp Fakültesi Dergisi 2015;7 (2): 148-154

Olgu Sunumu **Bıçakçı ve ark.**

Ağız Solunumunun Kraniofasial Yapı Üzerine Etkileri: Monozigot İkizler, Bir Olgu Sunumu

The Effect of Mouth Breathing on Craniofacial Structure: A Case Report of Monozygotic Twins

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Özet

Bu vaka raporunda farklı solunum paternlerine sahip monozigot ikizlerin kraniofasial yapıları sunulmaktadır. Monozigot ikizlerin karaniofasial yapılarının karşılaştırılmasında, tıbbi ve dental hikayeler, intraoral ve ekstraoral muayene sonuçları, radyografik ve otorinolaringolojik bulgular değerlendirilmiştir. Bu vaka raporu, kraniofasial gelişim üzerinde kalıtım dışında etkili faktörler de bulunabileceği hipotezini desteklemektedir.

Anahtar Kelimeler: monozigot ikizler, ağız solunumu, kraniofasial yapı.

Abstract

In the present report, a pair of monozygotic twins with different breathing pattern is presented. Medical and dental history, extraoral and intraoral examinations, radiological and otorhinolaryngological findings were used to detect the dissimilarity. This case report claims the hypothesis that heredity is not the sole controlling factor on the craniofacial structure.

Key Words: monozygotic twins, mouth breathing, craniofacial structure

Introductıon

Craniofacial growth pattern could be effected by multiple factors such as breathing pattern (1), ethnicity (2), hormonal disturbance (3), nutrition, trauma (4), behaviors and congenital abnormalities. Among these factors, heredity is the most important however not the sole controlling factor on craniofacial structures.

Nasal breathing ensures proper muscular action motivating adequate facial growth and bone development (5). For a well balanced craniofacial structure, nasal breathing is assumed as one of the most important factor by many investigators.

Rhinitis, nasal septum deviation, adenoid and tonsil hypertrophy, nasal traumas, congenital nasal deformities, foreign bodies, polyps, and tumors may restrict nasal breathing (6-8). However the effect of mouth breathing on craniofacial structure has been widely debated.

Several negative effects due to mouth breathing on vertical, sagittal and transversal directions of craniofacial structures are mentioned in the literature. Bimaxillary retrognatism, reduced transverse maxillary dimensions (9) excessive molar tooth eruption (10) clockwise rotation of growing mandible, open bite tendency (11,12) head posture disturbance could be defined as these effects.

The present case report exerts to reveal the etiology of different craniofacial morphology in a pair of monozygotic twins and to emphasize the importance of environmental factors.

Case Report

Twin A and B at age of 16 years and 5 months were referred to our clinic with a chief compliant of dental crowding. (Figure 1a, 1b, 1c, 1d) It was understood that twin B has mouth breathing, twin A confirmed this statement and gave information about her snoring. No other medical problem or history of trauma was stated.

Figure 1a: Frontal view of twin A, b:Laterral view of twin B, c:Frontal view of twin B, d:Lateral view of twin B.

Figure 1a.

Figure 1b.

Figure 1c.

Figure 1d.

Figure 2a: An ortopantomograph of twin A, b: An ortopantomograph of twin B.

Figure 2a.

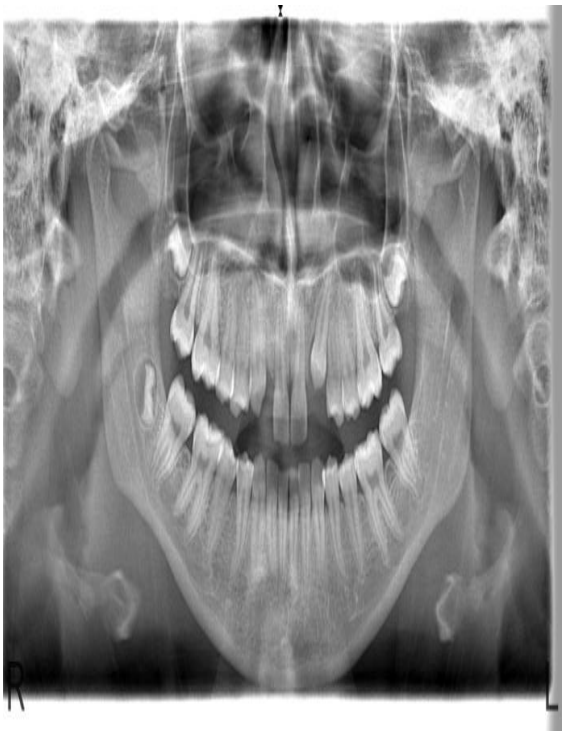

Figure 2b.

Figure 3. Cephalometric Analysis of Twins.

	Twin A	Twin B
SNA	83,7°	81,9°
SNB	80,1°	80,2°
ANB	3,6°	1,7°
Pn- A	1 mm	-3 mm
Pn- Pog	-3 mm	-8 mm
WITS	-4 mm	-5 mm
N- A -Pog	6,8°	3,4°
SN- GoGn	34,8°	37,4°
FMA	30°	33°
Y- Axis	68°	68°
U1/ PP	111,2°	112,4°
IMPA	81°	80°

Intraoral clinical and radiological examinations revealed that they had class I malocclusion and maxillary permanent lateral incisors were absent. Twin B had also unerupted maxillary left canine and lower left third molar was not detected. (Figure 2a, 2b) Otorhinolaryngological examination were performed and revealed the following results: both twin A and B had adenoid vegetations and mucoid secretion among the airway. The nasal septum of twin B was deviated significantly. This significant deviation was considered the possible reason of mouth breathing and snoring by the otorhinolaryngologist.

The lateral cephalometric analyses showed considerable differences in craniofacial structure and head posture between twins. (Figure 3)

Discussion

It was stated that dentofacial morphology could be effected dramatically by the environmental factors depending upon their duration, magnitude and time of occurrence. Among these factors, breathing pattern is one of the most investigated issues. For a well balanced craniofacial structure, nasal breathing is assumed to play an important role by many investigators.

Oral respiration alters balanced pressure created by orofacial muscles which causes disrupted development of craniofacial structure. It was considered that, duration of oral respiration, magnitude of obstruction and age of patient are major contributor factors which may lead dentofacial alteration. If mouth breathing occurs during a period of active growth, due to breathing pattern adenoid face type might be arisen. Such patients characteristically manifest a vertically long lower third facial height, narrow alar bases, lip incompetence, a long and narrow maxillary arch, and a greater than normal mandibuler plane angle (13). Beside that traits, such patients have also maxillo-mandibular retrusion (1,7,14). retroclination of maxillary and mandibular incisors, V shaped maxillary arch.

Because of structural similarities, perhaps monozygotic twins are the best samples in order to evaluate the effects of environmental factors over dentofacial structures. Results obtained from monozygotic and dizygotic twins revealed that while craniofacial morphology could be affected by hereditary (15) facial growth is under control of both heredity and environmental factors (16). Neither heredity nor environmental factors are the sole controlling factor on the craniofacial structure.

There was discrepancy at the cephalometric patterns of twins especially in the vertical direction. Both twin A and B were normal interval but twin B have much

greater value at about vertical measurements. There was 1.8 degree discrepancy between SNA angles which show the position of maxilla according to the anterior cranial base. Likewise the position of twin B's maxilla and more retrognathic in relation to the nasion perpendicular line. In addition to that the anterioposterior positions of twin A and B'S mandible according to S-N line were in normal range. However twin B's mandible was retrognatic to the true vertical line. When comparison was done about SN- GoGn and FMA angles which exhibit the vertical direction of mandible, measurements presented that twin B has increased values to the A.

Conclusion

In summary, craniofacial morphology is determined by the combination of genetic and environmental factors. This case report provides evidence to support that opinion.

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