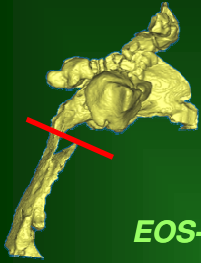


CT AND MRI 2D, 3D, 4D INVESTIGATIONS TO ENT RESPIRATION INHIBITION EFFECTING MAXILLARY GROWTH REDUCTION

Poster No. 458SP



EOS-June 2011

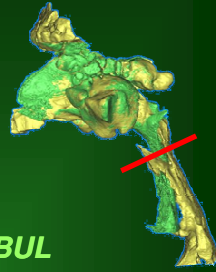
Nicolaos Spyropoulos
Greece

Fritz Watzlaw
Frankfurt
Germany

Prof. Dr. Gerhard Polzar
KKU, Bidingen
Germany

Dr. Dr. Wolfgang Kater
Bad Homburg
Germany

Dr. Rolf Davids
Bad Homburg
Germany



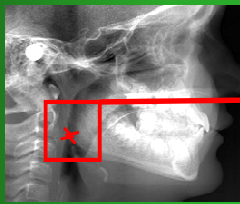
ISTANBUL

Objectives: Does pharyngeal airway restriction affect the growth of the maxilla? Which findings can be ascertained? Is there a relation between the extent of obstruction and the developmental disorders of the maxilla?

Materials and Methods: The narrowest transversal area of the pharynx is measured with transversal MRI image. The results are compared to the transversal width of the maxilla and its pathological findings.

In totally 124 patients got to be investigated with MRI respiratory imaging. All Patients with class II okklusion, open bite or tonsillectomy or orthodontic pretreatment have been excluded so that these patientgroup could not adulterate the result.

EXAMPLE:



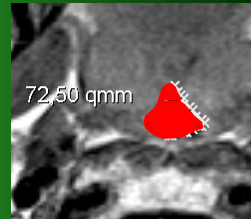
CEPH



MRI



MRI



M. Michelle, 6,11 Jahre; beidseitig Kreuzbiss: 53-16,22
Circumferenz der Tonsillen: 4 mm
Hypertrophie der Tonsillen
Fläche der engsten Stelle: 72,5 mm²

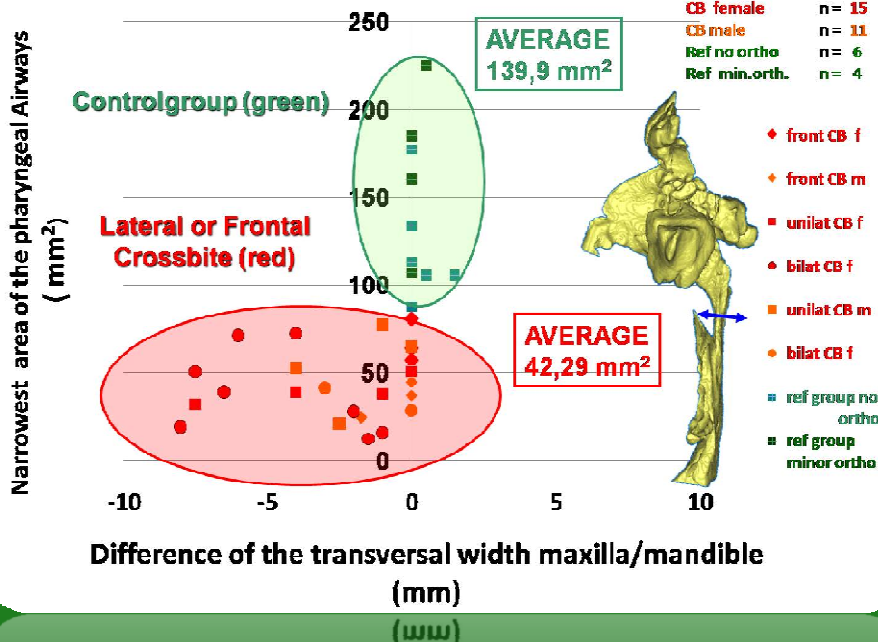
Result: square footage of $42,29 \text{ mm}^2$ at the pharyngeal isthmus. The values range from 12 mm^2 to 80 mm^2 . The analysis of 26 Patients with frontal or lateral crossbite as a sign of minor maxillary growth had an average $42,29 \text{ mm}^2$. Female patients had lower values than male. The reference control group of 10 Patients with regular developed maxilla and no ENT findings or anamnesis had distinct better pharyngeal areas with measured values from 87 mm^2 to 225 mm^2 . The square footage on this control-group was totally different to the group with reduced maxillary growth and had $139,9 \text{ mm}^2$.



Upper:

3D cranium with
superposition of
the airways

PAS - Isthmus mm^2 in MRI



Tab. 1
Pharyngeal
airway-Isthmus
Tonsillaris Polzar

The control-group (green) have no intersection with the crossbite-group. There is a noticeable correlation between the obstruction of the pharyngeal airways and the underdevelopment of the maxilla indicated in the anatomic disproportion of a frontal or lateral crossbite

Discussion:

It is obvious that pharyngeal obstruction effect maxillary development disorders which result in lateral or frontal cross bite or canine shortage of space. Every patient with a verified pharyngeal obstruction had one of these pathological findings. Even though it could not be prove that there will exist a closely coherence between the measure of the transversal width and the narrowness of the pharynx, this study verifies the association between respiratory obstruction and maxillary growth inhibition.

Conclusion: The study proves the thesis that respiratory obstruction induce developmentally disorders of the maxilla. There is a very high incidence evidence between pharyngeal respiratory insufficiency and maxillary growth inhibition. This fact should get more attention to the medical indication of early orthodontic treatment and early ENT investigations.

J. Polzar