

Cephalometric Assessment of Craniofacial Structures in Patients with Cleft Lip and Palate

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Is clefting of the palate exclusively a local defect? MOSS, 1956

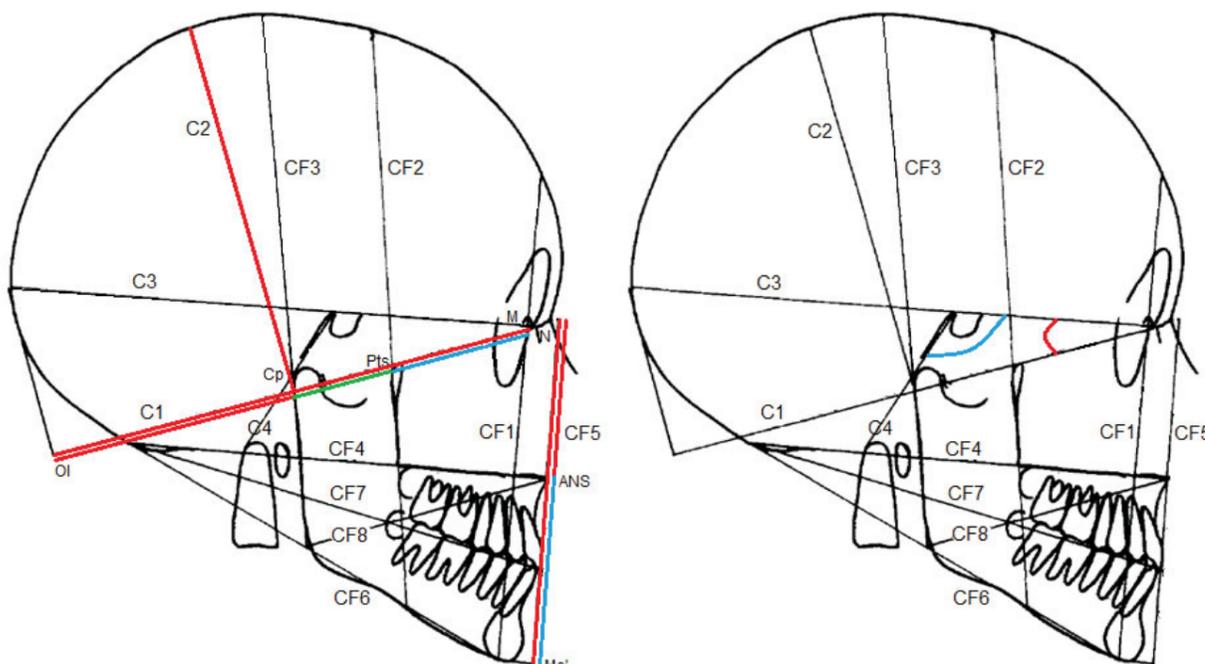
Delaire Whole Skull Analysis not only studies the facial bony structures, but also the cranium and craniospinal articulation. DELAIRE et. al., 1981

Aim: The aim of this study is to describe the craniofacial architecture of post-pubertal patients with cleft lip and palate by using Delaire whole skull analysis along with the more commonly used analysis by Segner and Hasund.

Materials and methods: For this retrospective study, 177 cephalometric X-Ray films (focus film distance 4m, format 23.5x29.5cm) from a group of patients (114 male, 63 female) of the former Wolfgang Rosenthal Clinic Thallwitz were analyzed. Patients were treated according to the concept of late palate closure (hard palate closure at 4-7 years of age). The X-ray films were scanned with a VIDAR Diagnostic Pro Advantage (Vidar Systems, Herndon, United States) and evaluated in Onyx Ceph (Image Instruments, Chemnitz, Germany) with the cephalometric analyzes by 1) Segner and Hasund, and 2) Delaire (whole skull analysis).

Results: In patients with cleft lip and palate, changes of the viscerocranium were accompanied by statistically significant changes to different dimensions of the neurocranium.

Discussion: The Delaire analysis provides a comprehensive description of sagittal and vertical craniofacial proportions (HAYNES, CHAU, 1993). Since inaccuracies in analytical tracings of cephalometric radiographs are unavoidable, the results must always be seen in the context of clinical diagnostics (DELAIRE et al., 1981).



| | |
|-------|----------------------------|
| red | reduced in cleft patients |
| green | no statistical difference |
| blue | enlarged in cleft patients |

Analysis by Segner/Hasund:

retroposition of maxilla und mandibula
vertical basal open relation

SNA $76^\circ \pm 5.9$, **SNB** $76^\circ \pm 4.9$;

reference value: $82^\circ / 80^\circ$

ML-NSL $38^\circ \pm 7.7$;

reference value: 28°

Analysis by Delaire:

reduced cranial height
short craniofacial baseline
reduced anterior cranial base angle
enlarged posterior cranial base angle
vertical midface deficits

C2 $97\text{mm} \pm 5.3$;

reference value: 133mm

C1 $154\text{mm} \pm 6.9$;

reference value: 162mm

C3C1 $19.7^\circ \pm 2.9$;

reference value: 21°

C3C4 $120.5^\circ \pm 6.1$;

reference value: 117°

N'-ANS/CF5 $44\% \pm 2.7$

ANS-Me'/CF5 $56\% \pm 2.7$;

standard relation: 45% / 55%

Conclusions: Cleft lip and palate along with late-closure corrective surgery may cause complex effects on the entire craniofacial architecture including, but not limited to the facial region. In these patients, the use of a whole skull analysis could benefit clinical assessment.

Delaire, J., Schendel, SA., Tulasne, JF.: An architectural and structural craniofacial analysis: a new lateral cephalometric analysis. *Oral Surgery, Oral Medicine, Oral Pathology* 1981, 52(3), pp. 226-238.

Moss, M L.: Malformations of the skull base associated with cleft palate deformity. *Plastic and Reconstructive Surgery* 1956, 17(3), pp. 226-234.

Haynes, S., Chau, M.: Inter-and intra-observer identification of landmarks used in the Delaire analysis. *The European Journal of Orthodontics* 1993, 15.(1), pp. 79-84.