

remain elusive. Chapters 23, 24, and 25 look at the role of extra-corporeal lithotripsy and salivary gland endoscopy. Caution is advocated to see if the minimally invasive approaches produce results the equal of the standard, more invasive treatments. Finally, a discussion about the possibility of not removing the submandibular gland, in an effort to avoid surgical complications, is concluded with a series of incisive questions from the audience, which raise the possibility of future problems this approach may lead to.

Overall, this is an excellent book, from a wide range of experts in the field of salivary gland disease. It should be a mandatory inclusion in every maxillofacial specialist registrars' personal library, and should make its way into all departmental or hospital collections.

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An Atlas of the Transverse Dimensions of the Face

Ahmed Basyouni and Surender Nada
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In the analysis of facial aesthetics, and as individuals in day to day life, we are generally more conscious of our face from the front as in a mirror, and for centuries, mathematicians as well as artists have examined the face and head from the frontal perspective, rather more than from the profile view. It may therefore be regarded as somewhat surprising that the investigation of the dental skeletal relationship of the craniofacial region tends to use lateral rather than postero-anterior (PA) cephalometry.

In my own clinical practice there are occasions when it is extremely important to me to have a transverse perspective on the facial structures. Not only in cases where there is unilateral or bilateral crossbite but also cases where there is nasal obstruction with mouth breathing and tendency to "the long face syndrome", cases where rapid maxillary expansion (RME) is an option, cases where there is asymmetry, either skeletal or dento-alveolar. Research indications might include cases where the degree of transverse expansion of the arches is to be measured, relapse measurement in the transverse dimension, transverse growth rate (longitudinal) and the

estimation of gender differences during growth in millimetres and/or ratios. These are just a few indications for PA cephalometry and where the information provided in this Atlas may prove invaluable.

Historically, among the limitations of the PA cephalogram, as well as the general lack of interest and experience in investigating the transverse dimension are:

1. The absence of archival data pertaining both to normative and to orthodontically or surgically treated subjects
2. Difficulty in reproducing head posture and orientation of the head such that the transporionic axis is perpendicular to the central ray
3. Landmark identification difficulties
4. Absence of commonly used reference planes for the assessment of vertical and horizontal symmetry.

This Atlas goes a long way towards addressing many of these traditional limitations by the production of normative data. It is unfortunate, however, that no technical details regarding the image acquisition are given, and that the previous publications containing this information are unlikely to be accessed by anyone except the PA cephalometric enthusiast. The need to search for relevant technical details could unfortunately, prejudice PA cephalo-phobes further, against the numerous clinical and research applications of the image format.

One of the major applications for the use of the PA cephalogram is the measurement of asymmetry. Perfect symmetry is the theoretical concept which is rarely, if ever, found in biological systems or organisms. Having said that, however, there has been a revival in interest in symmetry with an implied correlation between craniofacial asymmetry, attractiveness and fertility. In clinical practice however because of inherent asymmetry in the human body and human face, symmetry should be thought of as a spectrum between perfect symmetry through normal or physiologic asymmetry to pathologic asymmetry such as that seen in certain craniofacial abnormalities.

It is important clinically to identify asymmetry as being dental, skeletal or soft tissue, and one of the major difficulties in measurement of asymmetry is identification of a midline reference plane which would be assumed as the biological midline. Because of the difficulty in identifying this, it may be regarded as more satisfactory to compare the magnitude of various independent left and right sided parameters without the use of such a midline reference plane. While the measurement

and comparison of left and right sided linear measurements, angular measurements and ratios would be useful, it is important to have adjunctive data regarding norms for these parameters. This is where an Atlas of the Transverse Dimensions of the Face becomes so valuable.

It is important to highlight the source of these data, and to say that, while this rare dataset represents a very commendable effort over a long time period, it is not universally applicable. The 30 male and 30 female subjects aged 5 through 18 years that emerged after strict selection criteria were applied, were from Northern and Western European origin, and belonged to families of the middle and upper socio-economic classes in Denver, Colorado, USA. They were also a selected sample in that they had received no orthodontic treatment and those for whom the longitudinal data was complete or almost complete in terms of the yearly longitudinal records were used. This imposes obvious limitations in the generalisability of the results as there are undoubtedly ethnic or racial differences in the transverse dimensions of the

face. In the presentation of the data, absolute size at 18 years of age was regarded as 100% and the data is presented as the means, separately for males and females, of their annual incremental growth.

Summary: Despite the foregoing, this textbook is an atlas, and although the sample size and sample composition imposes limitations of the generalisability of the data, the well-presented graphs and charts are likely to be clinically useful for those involved in the management of severe craniofacial anomalies. I would recommend that it is available as a reference book in all such treatment centres. Furthermore, the investigation of symmetry in a clinically 'normal' sample is to be commended, in light of the current morphogenetic interest in craniofacial asymmetry, and researchers in the field will wish to study or consult the data. It is however doubtful if this text will be used as the definitive PA cephalometric normative dataset, as the data are clearly of considerably greater relevance for individuals of Northern or Western European descent.

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