MANAGEMENT OF FACIAL ASYMMETRIES - CASE SERIES

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Though bilaterally symmetrical face is more a theoretical concept than in real life, gross asymmetries can have a profound effect on esthetics disturbing the patient's social life. Being an orthodontist we will come across several cases of asymmetry from mild to very severe. Management of these cases will be tough as it requires precise diagnosis and multidisciplinary effort. These case series explains varied asymmetry cases with different etiology and treatment plan to emphasize the diversity of these situations.

Key words: Facial asymmetry, Functional appliances, Cross bite, Palatal expansion.

Symmetry according to Stedman's Medical Dictionary is defined as "equality or correspondence in form of parts distributed around a centre or an axis, at the two opposite sides of the body".

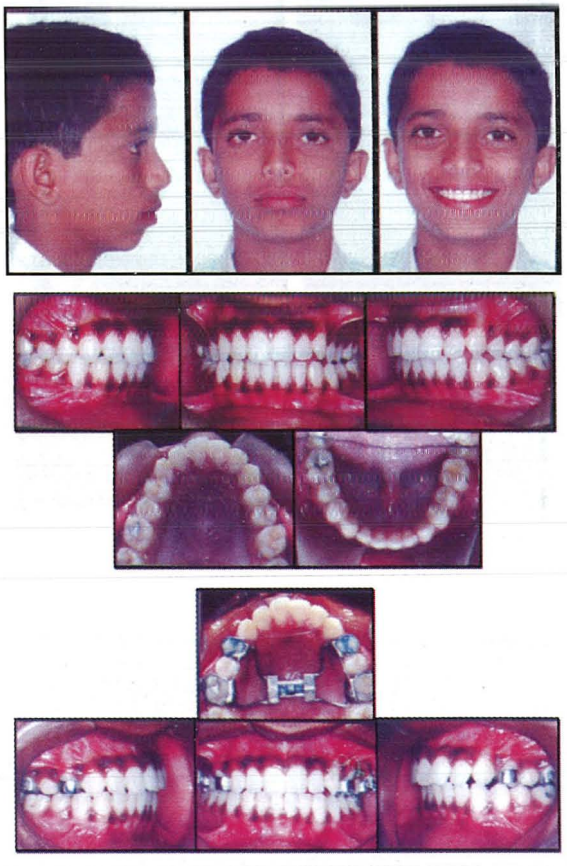
Perfect bilateral body symmetry is largely a theoretical concept that seldom exists in living organisms. Variations in the size, shape and relationship of the dental, skeletal and soft tissue facial structures are common and provide each individual his or her own identity. The right left problems appears everywhere in nature where two congruent but mirror-image types occur.[1] Although a myriad of factors contribute to facial aesthetics, symmetry may be the quintessential ingredient.

Case Report 1: Correction of prematurites

Any patient reporting with shift of the mandible should be examined thoroughly for functional shift, especially, patients in mixed dentition stage. Any premature contact occuring during jaw closure will activate the "**ncuronal avoidance mechanism**", which cause shift of mandible to one side to avoid the interference resulting in asymmetry

A 13yr old growing male patient reported to the Department of Orthodontics, BDCH, Davangere with a chief complaint of forwardly placed upper front teeth and inability to chew efficiently on the left side.

He presented with mesofacial, convex profile, posterior divergence with chin shifted to left. Intra orally he had class I molar relation on right side, posterior cross bite on left side with overjet of 5mm. Lower midline shifted towards left due to functional shift of mandible as a convenience bite to avoid interference from constricted maxilla (thumb sucking habit).

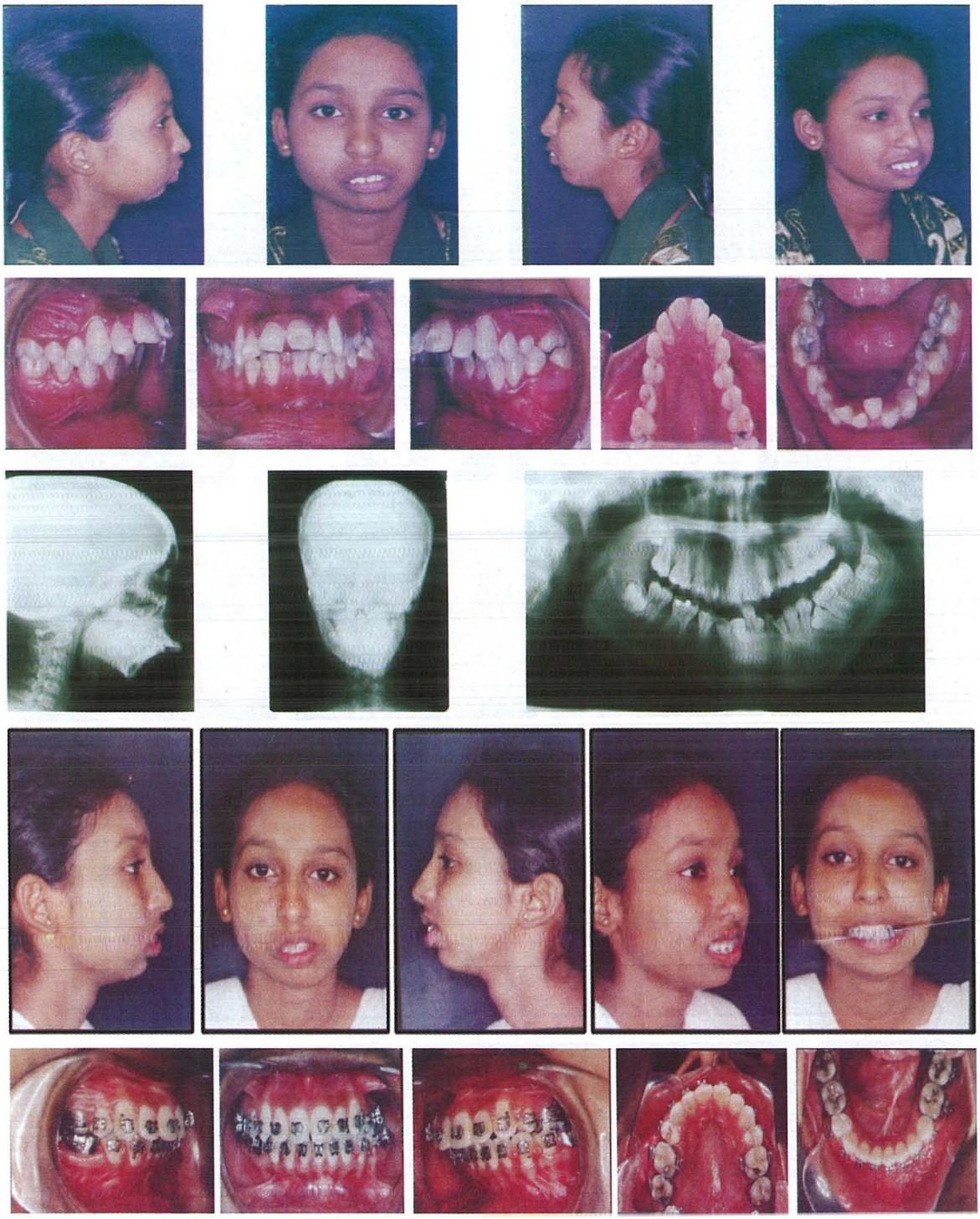


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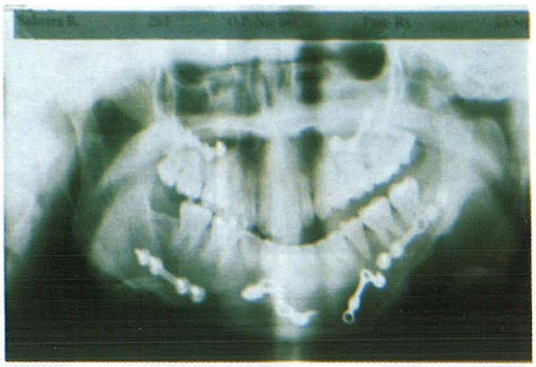
Case Report 2



Case Report 3

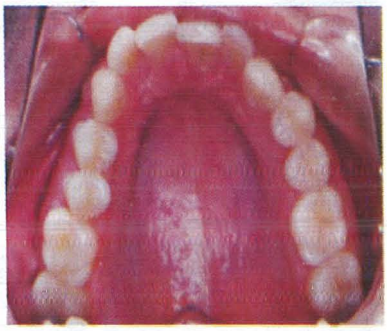




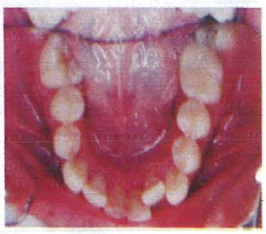



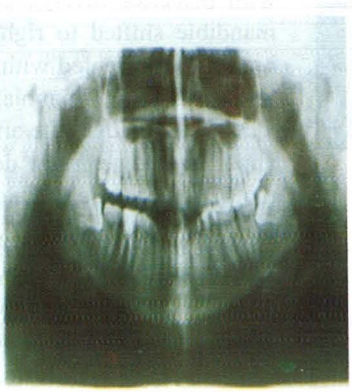

Case Report 4



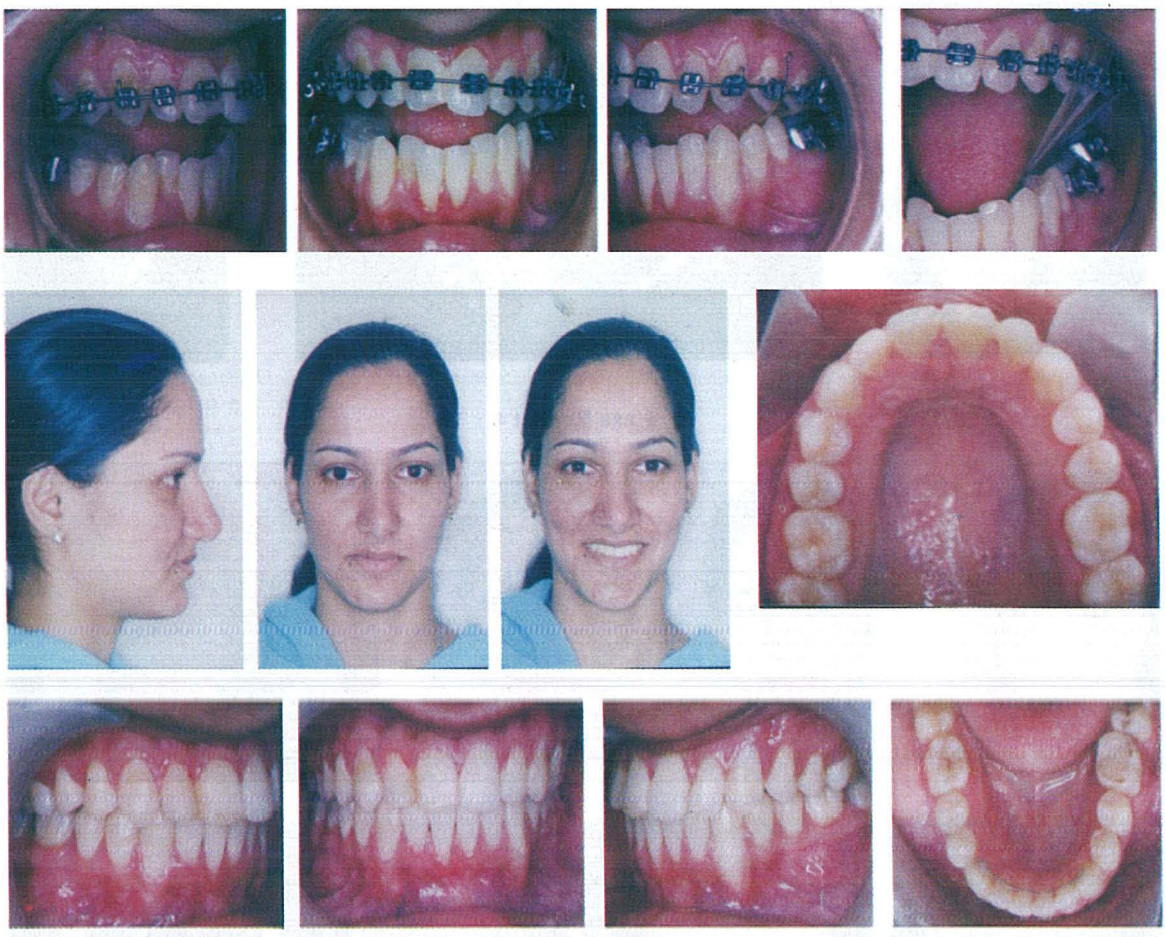






Treatment plan decided was to go in for Rapid maxillary expansion with HYRAX appliance. Expansion not only addresses the correction of the cross bite but also corrects the functional shift of the mandible by removing the occlusal interference.

The intraoral photographs taken after 8 months post expansion shows the correction of cross bite and the midline. Such an early intervention is advantageous in intercepting functional shift from developing into a skeletal deviation.



Case Report 2: Growth modulation

Patient aged 7yrs prepubertal female patient reported to our department with a complaint of facial asymmetry, her history revealed that because of a trauma at an younger age (4yr) her right condyle had ankylosed(fibrous) for which Gap arthroplasty of right TMJ was attempted.

She presented with mesofacial, convex profile with posterior divergence. Asymmetric face with mandible shifted to right side was evident. Intra orally she presented with Class I molar relation on left side and End-on molar relation on the right side, with edge-to-edge bite and cross bite in relation to upper and lower right deciduous canine and first molars. Lower midline had shifted to right by 3 mm.

Cephalometrics : Class II skeletal bases with ANB of 10°,vertical growth pattern with proclined lower incisors. Grummon's analysis revealed menton point shifted 5mm towards right side from midsagittal plane.

Treatment plan

The etiology could be summarized as that the altered environment (ankylosis and surgery) had deviated the normal growth of the mandible resulting in asymmetry (mandible shifted to right). As the patient presented in a growing age, we decided to intervene at this juncture by reestablishing the normal environment by artificial means (growth modulation) that can stimulate the normal mandibular growth and attain the symmetry of the face.

A **modified Frankel II** type of an appliance was used. Asymmetric advancement of the mandible was done, to coincide the midlines. The occlusal rests on the upper right posterior teeth were avoided allowing them to erupt, while providing the occlusal rest on the left side prevented these teeth from eruption. This differential eruption helped in the ramal and alveolar growth on right side which was deficient to begin with.

Modified frankel II- Hybrid appliance

Frankel was the appliance of choice because, in any other tooth borne appliances with asymmetric advancement, the patient might find it difficult to posture the mandible into the acrylic indentations. While in Frankel, the Lingual shield of Frankel would help posture the mandible in desired position without much discomfort.

Case Report 3: Surgical correction

A 16yr old post pubertal female patient came with a chief compliant of forwardly placed upper front teeth. She had a history of injury to her lower jaw at the age of 1 ½ years, resulting in ankylosis of left condyle, for which she underwent condylectomy at the age of 4yrs. As a complication of surgery there was an injury to the facial nerve on the left side resulting in facial palsy (lower motor neuron injury to facial nerve).

She presented with mesofacial, convex profile, posterior divergence, deficient mandible, severe lip trap, facial asymmetry with chin shifted to left side. Only right TMJ was palpable and mandible shifting to left on opening.

Intraorally –full complement of dentition was present except 35, with proclined upper incisors and crowded lower anterior teeth. Molar relation was class I on right side, Class II on left side. Overjet of 11mm and deep overbite was present. Lower dental midline had shifted to left by **5mm.**

Cephalometrics: Class II skeletal bases with ANB of 10°, vertical growth pattern. Grummon's analysis revealed mandibular shift to left by 9mm. OPG – revealed absence of condyle on left side and impacted 35 due to insufficient space.

Treatment plan

Orthodontic phase: Extraction of second premolars on right side was done to attain class II molar relation and first premolars on left side to correct the midline.

Surgical treatment plan: Le fort I differential impaction of maxilla to correct the occlusal cant and differential advancement of mandible along with centering and advancement genioplasty to correct the facial asymmetry.

Surgical procedure-Le fort I Osteotomy

Surgical cuts placed for greater bone removal on right side for differential superior repositioning. Bone plating done after differential superior repositioning (5mm on right side, 1mm on left side)

Bilateral sagittal split ramus osteotomy with differential mandibular advancement and vertical reduction with advancement and centering genioplasty.

Post Treatment

The cant of occlusal plane had been corrected, but mild asymmetry still remained which probably was because of her soft tissue changes secondary to the facial palsy.

Case Report 4: Orthodontic camouflage

"Function determines the form", is one of the most commonly heard notion. This patient is one such example. A 20yrs/female came to our department with the chief compliant of irregularly placed upper and

lower front teeth. She presented with mesofacial, straight profile, straight divergence, deep mento labial sulcus with mandible deviated towards right side.

Intra orally- she had Class I molar relationship on right side. Posterior scissors bite on left side. With cross bite of central incisors and canines in 1st and 4th quadrant. The scissors bite might have developed due to a functional shift, which on prolonged duration had created a **sensory engram** and led to the permanent deviation of the mandible to the right side.

Cephalometrics: Class I skeletal base with an average growth pattern with mild proclined upper incisors.

Treatment plan

Non extraction PEA mechanotherapy with **bite through elastics on left side** along with **expansion of lower lingual arch** to correct scissors bite. Posterior bite block was also provided on right side to avoid interference.

Post treatment

Although intra orally the asymmetry was corrected by correcting scissors bite and by achieving ideal molar and canine relation, mild amount of facial asymmetry was still evident, which could have been handled by a simple surgical procedure of centering genioplasty for which the patient did not agree. If this case was handled in an early age, the developing functional shift could have been intercepted preventing a skeletal asymmetry.

Conclusion

Presentation of cases with asymmetries can be very diverse in terms of etiology, type, location, severity, age of reporting and patient acceptance and cooperation. Any case of asymmetry even very mild should be subjected to thorough examination and investigation to ascertain the cause and its effects. Management of these asymmetries should be tailored to each patient to fit their need and severity. Identification of etiology, well planned treatment strategy and meticulous execution can bring back the symmetry to any asymmetrical face.

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