

Non-Syndromal Facial Asymmetry

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Introduction

Absolute facial symmetry of the two halves of the face is of very rare occurrence and some degree of right/left variation is not an exception but a rule. Although each person shares with the rest of the population, many characteristics, there are enough differences to make each human being a unique individual. Variations in the size, shape and relationship of the dental, skeletal and soft tissue facial structures are important in providing each individual with his or her own identity. The point at which “normal” asymmetry becomes “abnormal” cannot be easily defined and is often determined by the clinician’s sense of balance and the patient’s perception of the imbalance[1,2]. Widespread asymmetry is determined by careful and systematic examination of each facial area. It is helpful to have a full-face photograph and postero-anterior cephalogram taken in the natural head position with the jaw at rest rather than the tooth together position[2]. The analysis of the face as viewed from the front is more qualitative than quantitative. The analysis of the photograph is directed not only to assessment of whether or not there is any asymmetry but to the determination of the site and magnitude of that asymmetry [3]. The position of the maxillary and mandibular dental midlines with respect to each other as well as to that of the full-face along with the pattern of occlusion scheme determines the severity of asymmetry necessitating usage of orthodontic appliances and/or orthognathic surgical procedures.

Case Report

A 24 year old female reported to Department of Dental Surgery of a Medical College with complaint of deviated lower face and occasional clicking sound in the left TM joint. History revealed the patient to be a progeny of miscegenous and non-consanguineous parents who were asymptomatic and did not have noticeable craniofacial anomalous syndromes.

On extra-oral examination, an obvious facial asymmetry of the mandibular third with deviation of chin to right with a convex profile and excessive exposure of lower lip was noticeable. Bilateral temporomandibular joint and condylar movements were within normal limits without any clicking or grating noise. The mentolabial sulcus and the nasolabial sulcus were flattened. Intra-oral examination revealed an adequate inter-incisal mouth opening of 35mm. There was an anterior open-bite deformity of 4mm, with deviation of mandibular midline to the right by 7mm. There was a Angle's class I relation of molars on the right with a class III relation on the left and cross bite of right maxillary premolars and anterior teeth. Cephalometric analysis was done in both lateral and postero-anterior views, which revealed SNA: 84°, SNB : 82°, ANB:2° and there was asymmetry in the lower third of the face. Study models were obtained from impressions and articulated after rotating the mandibular cast arbitrarily in a transverse plane to achieve maximum intercuspation, thereby correcting the deviated midline and the left side class III relation to Class I. Surgical splint was fabricated over the occlusal surfaces of maxillary and mandibular teeth in the new corrected occlusal relation. The patient was operated under general anaesthesia with intra oral bilateral sagittal split osteotomy, transverse rotation and reposition. Rigid internal fixation was done using titanium plates and screws. Haemostasis was achieved and wound was sutured with absorbable vicryl after placing an extra-oral drain bilaterally.

Extra oral pressure dressing was kept for 72 hours and maxillo-mandibular fixation with eyelet wires was maintained for a period of 4 weeks. Post-operative recovery and healing period was uneventful and satisfactory. There was no neurological deficit but the anterior open-bite was not corrected completely. Post-operative occlusion was stable and satisfactory and cephalometric analysis after 4 months revealed marked improvement in midline shift and chin deviation.

Discussion

Asymmetry in the face and dentition is a naturally occurring phenomenon. In most cases facial asymmetry

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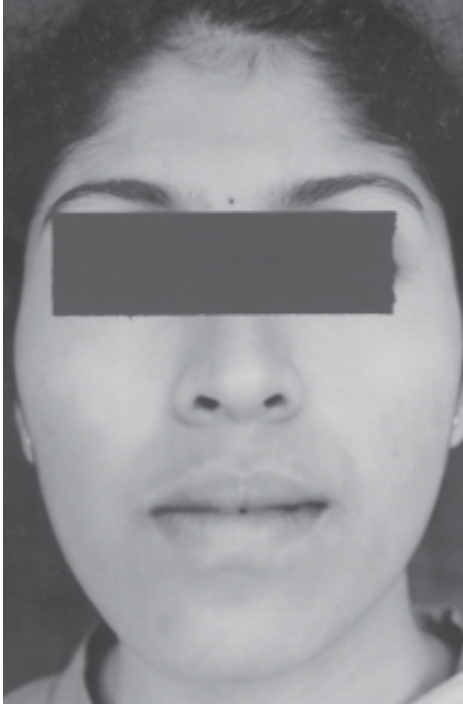


Fig. 1 : Pre operative frontal photograph

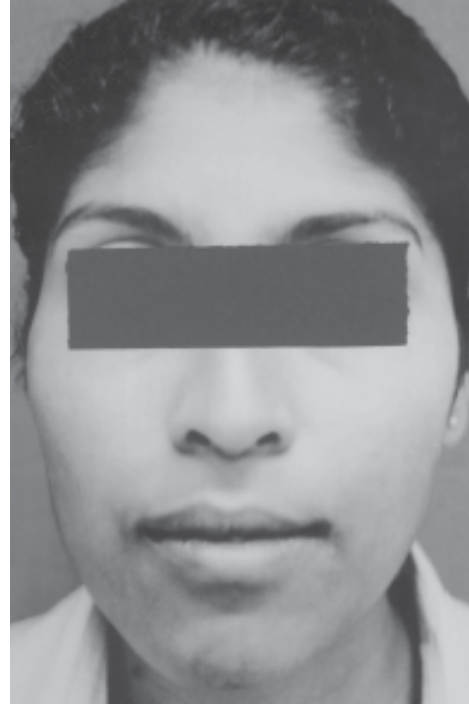


Fig. 3 : Post operative frontal photograph

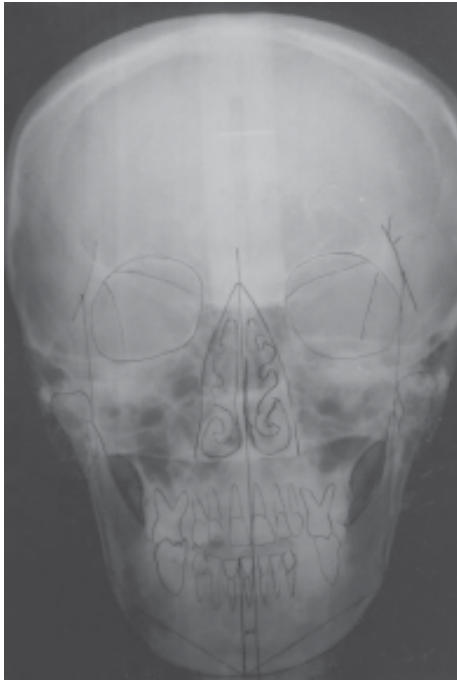


Fig. 2 : Pre operative postero-anterior cephalogram

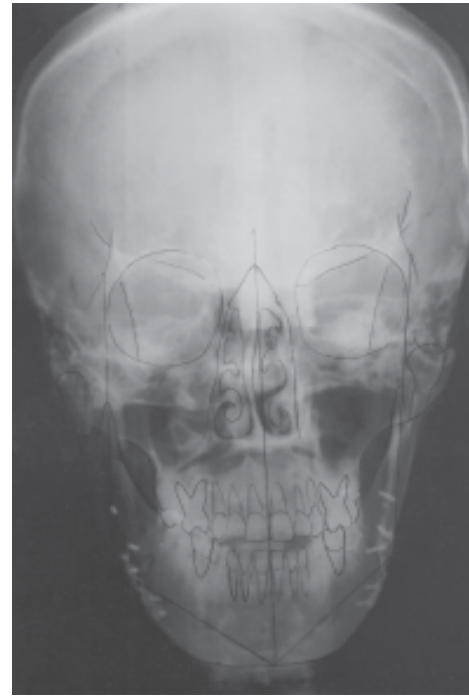


Fig. 4 : Post operative postero-anterior cephalogram

can only be detected by comparing homologous parts of the face. The etiology of asymmetry includes-

- Genetic or congenital malformations, e.g. hemifacial microsomia and unilateral clefts of the lip and palate.
- environmental factors, e.g. habits and trauma.
- functional deviations, e.g. mandibular shifts as a result of tooth interference.

Asymmetries can be classified according to the structures involved into true skeletal asymmetries of the

facial structures including the mandible and /or maxilla; dental asymmetries in one or both arches; ill-proportioned muscle size and functional shifts of the mandible during closure or opening. A combination of these factors may be present. In diagnosing facial and dental asymmetries, a thorough clinical examination and radiographic survey are necessary and include: evaluation of the dental midlines; vertical occlusal evaluation and transverse and antero-posterior occlusal evaluations; transverse skeletal

and soft tissue evaluation [4]. Only severe asymmetries or with associated functional impairment should be treated. The treatment depends on the cause and time of appearance. Bilateral Sagittal Split Osteotomy of the mandible is the most commonly performed mandibular orthognathic procedure. Performed properly, this technique allows for versatile, accurate and expeditious correction of mandibular disharmonies [5].

Relapses, hindering the stability of the result can be thwarted by over-correction, different means of splinting and postoperative kinesitherapy [6,7]. The case described was managed by bilateral sagittal split osteotomy since the dental malocclusion was due to the rotation of mandibular dento-alveolar segmentation in the transverse plane taking the mandibular body and the chin to the right. By mobilizing the body free from the ramus and repositioning in the optimum possible occlusion scheme, the midlines both dental and chin could be corrected. Titanium mini bone plate fixation followed by four weeks inter-maxillary fixation resulted in a stable outcome.

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