Morphologic determinants in the etiology of class III malocclusions: a review

Singh GD.


Abstract

Morphospatial disharmony of the craniomaxillary and mandibular complexes may yield apparent mandibular prognathism, but Class III malocclusions can exist with any number of aberrations of the craniofacial complex. Deficient orthocephalization of the cranial base allied with a smaller anterior cranial base component has been implicated in the etiology of Class III malocclusions. Whereas the more acute cranial base angle may affect the articulation of the condyles resulting in their forward displacement, the reduction in anterior cranial size may affect the position of the maxilla. As well, intrinsic skeletal elements of the maxillary complex may be responsible for maxillary hypoplasia that may exacerbate the anterior crossbite seen in the Class III condition. Conversely, with an orthognathic maxilla, condylar hyperplasia and anterior positioning of the condyles at the temporo-mandibular joint may produce an anterior crossbite. Aside from the skeletal components, soft tissue matrices, particularly labial pressure from the circumoral musculature, may influence the final outcome of craniofacial growth of a child skeletally predisposed to Class III conditions. Indeed, as some Asian ethnic groups demonstrate an increased prevalence of Class III malocclusions, it is likely that the skeletal components and soft tissues matrices are genetically determined. Presumably, the co-morphologies of the craniomaxillary and mandibular complexes are likely dependent upon candidate genes that undergo gene-environmental interactions to yield Class III malocclusions. The identification of such genes is a desirable step in unraveling the complexity of Class III malocclusions. With this knowledge, the clinician may elect an early course of dentofacial orthopedic and orthodontic treatments aimed at preventing the development of Class III malocclusions.

Copyright 1999 Wiley-Liss, Inc.

PMID: 10462736
DOI: 10.1002/(SICI)1098-2353(1999)12:5<382::AID-CA9>3.0.CO;2-0
[Indexed for MEDLINE]