COMPREHENSIVE ASSESSMENT OF STABILITY AND RELAPSE FOLLOWING ORTHOGNATHIC SURGERY FOR MAXILLO MANDIBULAR JAW DISCREPANCIES

By

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Abstract

Background and Objectives: Orthognathic surgery has opened up the opportunity for orthodontists and oral maxillofacial surgeons to work as a team providing treatment to patients with skeletal deformities that were untreatable in the past. To have an ideal and stable result that is both aesthetic and functional, good surgical technique and post-surgical stability are extremely important. Many research clinicians have studied the stability of jaw surgery; however, majority have studied the relapse in the sagittal dimension. A few studies have evaluated the stability in the transverse dimension or the association between transverse surgical changes and sagittal relapse. The aim of this study was to

1) To know the relapse rate post operatively at regular interval of time up to 1 year as follow up.
2) To assess the types of skeletal changes in the maxilla and mandible after surgery.

Method:. Sample of 15 patients were divided into 2 groups. Group 1 comprised of patients who underwent maxillary impaction with mandibular advancement (N – 8). Seven patients (N – 7) who underwent maxillary advancement and mandibular set back were in-group 2. Lateral cephalograms were hand traced at regular intervals for all the cases i .e Pre operative (T1), 1 week post operatively (T2), 6 months follow up (T3) and 1 year follow up (T4). Analysis with "Cephalometrics for Orthognathic Surgery (COGS)" by Burstone et al. Hard tissue analysis was done and the difference between each measurement was noted. The mean was considered based on Dr. Pharande Amol study (Dissertation submitted to Rajiv Gandhi University of Health

Sciences in the year 2006) "Establishing hard and soft tissue norms for orthognathic surgery patients in Indian population, a cephalometric and photographic study. The radiographic material for this study consisted of Lateral Cephalometric (LC) radiographs for each patient. The LC radiographs were taken preoperatively (T1), early postoperatively (T2), 6 months postoperatively (T3) and 1 year (T4) post operatively to analyze skeletal and dental movements.

A standardized natural head position was used while obtaining the LC radiographs. The radiographs were taken with the same equipment, and the same film and focus distance were used. All radiographs were taken at optimal exposure, and anatomic landmarks were clearly visualized. All radiographs were hand-traced and analyzed by single investigator.

Results: The parameters that showed changes in the postoperative phase's i.e. T2 – T3, T2 – T4, T3 – T4 phases are as follows.

Average Ar- Ptm linear movement was significant change in the immediate postoperative phase (T2 – T3).

Horizontal change in N- A measurement showed a significant change in the 6 months to 1 years post operative phase (T3 – T4)

Horizontal change of N – B linear measurement was significant change noticed in the T2 – T4 interval.

Horizontal measurement of N – Pg showed that there was significant change between 6 months to 1-year post operatively (T3 – T4).

Vertical linear measurement of N – ANS, there was a significant alteration noticed T2- T3 (6 months postoperatively) period.

Vertical changes in relation to ANS – Gn, PNS –N showed changes in the postoperative phase i.e. T2 – T3 phase.

Vertical dental and angular changes in relation to L1 – MP showed a positive correlation between the amount of surgical movement and the degree of postsurgical vertical change in the skeletal/ dental component of L1 – MP that showed very high significance.

Horizontal skeletal change in relation to PNS – ANS showed a positive correlation between the amount of surgical movement i.e. impaction/ advancement and the degree of postsurgical horizontal skeletal change of PNS – ANS that showed a significant change in T2 – T3 phase.

Conclusion: The cause of skeletal and dento-alveolar relapse is multi factorial and the interplay between different factors can vary from one patient to another. Postoperative skeletal relapse occurs more so in the early post operative period (6 months). Dento-alveolar changes were still present in the long term, but did not reflect skeletal instability.