



The Long Term Outcome of Mandibular Orthognathic Surgery

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Summary

A retrospective study was performed to assess the treatment outcome following mandibular orthognathic surgery at an average follow up of 12.9 years (range 7 to 24 years) in 24 patients, in the Oral and Maxillofacial Surgery Unit (OMSU), The University of Adelaide. This study shows generally a good level of outcome measured by cephalometric, study models and psychological profile assessments for this long term evaluation of dentofacial surgical patients.

The investigation in this study involved a detailed assessment of the following:

1. Cephalometric evaluation of long term skeletal relapse using a series of lateral head radiographs for twenty patients. Comparative analyses were undertaken to determine the differences in relapse between single jaw osteotomy (n=9) and bimaxillary osteotomy (n=11). Additional examination of the data was also assessed to determine the effect of gender, surgeon's experience and postoperative time on the observed relapse.
2. The final postoperative occlusion using study models and the oral health status of all samples using the decayed, missing and filled permanent teeth (DMFT) index.
3. Patient perception, psychosocial status and satisfaction of treatment outcome. This was investigated using psychological and social questionnaires (IBQ, BIQ, SF-36) reflecting the patient's experience following surgery.
4. The perception of aesthetic improvement of soft tissue profiles. This involved construction of profile silhouettes from Pre- and long-term postoperative cephalograms. The facial profile changes were investigated by a panel that consisted of lay Omanis, lay Australians and professional surgeons and orthodontists.

The patients' response rate for participation in this study was low (11%). This reflected the difficulty in locating patients 7 to 24 years after treatment.

The study sample that was investigated for skeletal relapse was similar in age and type of surgery to the total group but with a greater male predominance.

The study showed that the mean horizontal long term relapse was 3.1 mm (39%, $p < 0.0009$) and 2.3 mm (32%, $p < 0.0004$) measured at pogonion and B point, respectively. The mean vertical movement of the mandible and its subsequent relapse was minimal and statistically not significant. There was no statistical difference in long term relapse between single and bimaxillary cases, or between males and females. There was a better postoperative stability for patients managed by a more experienced surgeon compared to a group of 3 less experienced surgeons. The majority of relapses occurred in the early stages following the surgery.

Analysis of study models showed that 20 out of 24 patients had satisfactory dental occlusions. The final postoperative occlusal stability was independent of the observed skeletal relapse. This reflects the need for postoperative clinical monitoring by observation of both the dental occlusion and cephalometry.

The majority of patients maintained a good standard of oral health. Eighteen out of twenty four patients (75%) were caries-free and maintained the same number of teeth before and after surgery.

Patients who demonstrated signs of abnormal illness behaviour and abnormal body image were more likely to be dissatisfied with the surgical outcome. Psychosocial functioning in the long-term review was generally similar to that of the normal population when investigated by the SF-36 health survey questionnaire.

The overall aesthetic facial profile improvement was perceived at 11.6 years following surgery by different evaluator panels ($p= 0.0048$). Significant improvement was detected following bimaxillary correction of class III malocclusions ($p< 0.0001$) and after bimaxillary correction of Class II malocclusion ($p= 0.0002$), when combined with genioplasty advancement.

This study confirms that orthognathic surgery when evaluated many years later is stable and generally with a good outcome from both the patient and the clinicians perspective.

SIGNED STATEMENT

This thesis is submitted in partial fulfilment of the requirements for the degree of Doctorate of Clinical Dentistry. I, Mohammed AlAjmi declare that the text of this thesis contains no material which has been accepted for the award of any other degree or diploma in any university, and to the best of my knowledge contains no material previously published by another person except where due reference is made in the text.

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Date.....

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