

Stability of surgical counterclockwise mandibular advancement in patients with high mandibular plane angle

Abstract

Background: The purpose of this study was to evaluate stability after counterclockwise surgical advancement to correct mandibular deficiency in patients with high mandibular plane angle (MPA) covering the dental, skeletal and surgical aspects.

Materials and Methods: The sample comprised 27 consecutively treated patients. All subjects had undergone surgical treatment between 1970 and 2014 in Netherlands and were followed for 1 year. Clinical and radiological data were obtained and compared 1 month before surgery (T0); 6 weeks after surgery (T1), 1 year after surgery (T2), and long term follow-up (T3) with an average time of 20 years postoperative. In addition, cephalometric values of the MPA were also recorded and compared based on the type of performed surgery.

Results: Twenty-seven patients (26 female and 1 male) who had mandibular deficiency with MPA value over 35 degrees (high angle) were included. Seven patients had a single jaw procedure, 20 patients had bilateral sagittal split osteotomy (BSSO) combined with Le Fort I osteotomy, and 14 patients had additional genioplasty procedure. Statistical analysis revealed a significant difference between MPA values and T0, T1, T2, and T3 ($p < 0.05$) in skeletal and dental aspect. Moreover, a significant difference was found between MPA value T0, T1, T2, and T3 ($p < 0.05$) in double surgery, but no significant difference was found in single surgery.

Conclusions: Counterclockwise surgical advancement to correct mandibular deficiency in patients with a high mandibular plane angle showed remodeling to the initial position of the MPA. Furthermore, this technique also showed less stability in patients who underwent double surgery than in patients who underwent single surgery.

Keywords: Counterclockwise, dental and skeletal, mandibular plane angle, mandibular deficiency.