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A new art of rectangular wiring fixation technique in advancement genioplasty: A case report

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Abstract

Genium is considered to be as highly esthetic part of the maxillofacial region. The recent trends habituate protrude chin as a part of better esthetic. Various techniques of genioplasty has been published in literatures including versatile fixation techniques like rigid & non-rigid fixations. Several types of plating & wiring system have been enrolled to achieve the objective. We present a new rectangular wiring fixation technique for the stability of advance genial segment for improvement of better esthetic & function. Our technique provides better constancy with ab advantage of reduction in operating time, less cost & reduction in the armamentarium placed within the body.

Keywords: Genioplasty, advancement, augmentation, orthognathic surgery, fixation

Introduction

Approximately twenty percentage of the population is affected by dentofacial deformities which showcase innumerable degrees of functional & esthetic compromise ^[1] Orthognathic surgery & orthomorphic surgery have different variant for treatment protocol. Genioplasty is completely an esthetic based treatment as compared to other orthognathic surgeries which includes occlusion as their prime considered factor. Orthognathic surgery as the name suggest includes a meticulous combination of dental & jaw deformities whereas deformities requiring genioplasty is a true cut jaw deformity. Amongst the various orthognathic surgeries performed around the globe genioplasty is one of the most widely performed surgical procedure used for correcting chin deformities. It is used to describe the miscellaneous facial profile concerns starting from orthognathic surgery in conjunction to a facial symmetrical balancing procedure assisting with soft tissue contour & chin enhancement for these undergoing elective facial surgeries.

Case report

A 17 years old male patient presented to us with complaint of unaesthetic appearance due to backwardly placed lower jaw. On clinicoradiographic examination occlusion of patient was stable and chin was found to be recessive. An advancement genioplasty was planned under general anesthesia. After performing the advancement non-rigid fixation was preferred to stabilize the segment for which rather than keeping two wires on the lateral segment a single long wire was preferred. Four holes were made for stabilizing the segment, two holes are on the mobile segment and two holes on the stable segment same as performed during non-rigid fixation by two wires. A single long wire was passed from the superior aspect to the inferior aspect of the stable segment on the left side. Then the wire was passed from the inner aspect to inferior aspect of the mobilize segment on the same side. Now the wire is passed from the inferior aspect to inner aspect on the mobile segment of the right side. Then lastly the wire will be passed from the inferior aspect to superior aspect of the stable segment. The mobilize segment is kept in a desired position and wire is completely tightened which make a complete stable segment by rectangular technique [Figure-1].

Discussion

Genioplasty is used to address numerous facial concern from a facial balancing procedure. Before keeping a knife on the patient for operating chin deformities it's a matter of utmost

importance to properly to evaluate the frontal & profile clinical features & radiographic analysis to attain correct diagnosis & planned treatment protocol. It is always a controversial topic to decide whether to go for a rigid or nonrigid fixation to provide better stability, the literature proves both provide same outcome. The effect of wire or the miniplate fixation on the mandibular stability is assessed by various authors. Osseous genioplasty through an intraoral approach introduced by Richard Trauner & Hugo Obwegeser almost six decades ago ^[2, 3]. Since than numerous modifications have been done in genioplasty like augmentation, advancement, sliding, M-shaped, W-shaped, T-shaped, propeller, sagittal split, chin shield etc. Osseous genioplasty not only includes the movement of the segment but also includes grafting with bone, chin contouring, alloplastic implant placement & chin augmentation with fat or filler injection ^[4-6]. Some authors have advocated the use of a computer generated chin template to improve surgical accuracy in genioplasty ^[7]. Some also recommend use of prebend titanium plate, using three dimensional rapid prototyping model & surgical cutting & drilling guides for genioplasty ^[8]. Foundation screw is also used but occasional ability to palpate is its potential limitation ^[9]. Genioplasty can also be used to alleviate obstruction sleep apnea either in isolation or in combination with other procedure ^[10].

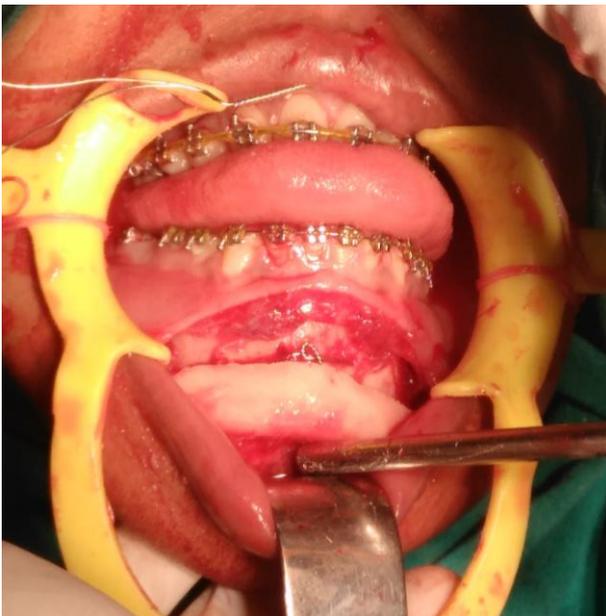


Fig 1: Genioplasty Non-rigid Rectangular Wiring Fixation

Conclusion

The osseous genioplasty is not as complicated as surgeon thinks. It is a highly versatile procedure that can expand the esthetic surgical armamentarium of an oral and maxillofacial surgeon. It can have performed quickly with minimum number of instruments and steps. In conclusion, genioplasty with the use of artistic rectangular wiring technique is a simple yet effective method to aid fixation in osseous genioplasty. It provides excellent stability with function and esthetic.

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