Original Research Article

Acute Temporomandibular Joint Dislocations: Surgical Management

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Received: 28-11-2021 / Revised: 26-12-2021 / Accepted: 09-01-2022

Abstract

Background: Jawbone and your skull are connected by a sliding hinge called the temporomandibular joint. On either side of your jaw, there is a joint. Temporomandibular disorder (TMD), which includes TMJ condition, can hurt your jaw joint and the muscles that move your jaw. **Materials and Methods:** This retrospective study involved a single hospital, a single surgeon, 19 patients, and 23 joint operations carried out over a ten-year period. The study group consisted of patients who met the inclusion and exclusion criteria and had previously undergone surgical correction using hook-shaped miniplates and miniscrews set with or without bone grafts. **Results:** With ages ranging from 32 to 58, there were a total of 12 females (mean age: 41.9 ±12.07 years) and 9 males (mean age: 39.8 ±13.6 years). Prior to surgery, each patient experienced the dislocation for an average of 19.26± 12.6 months. Prior to surgery, the mean maximal mouth opening (without pain) was 17.78 ±2.13 mm (12–25 mm), but it was 32.28± 3.17 mm (27–37 mm) after surgery. Throughout the 8 to 37 month follow-up period, there were no early or late surgical problems. **Conclusion:** The outcomes in this community of Indians are very comparable to those reported from other regions of the world.

Keywords: Hook-shaped miniplates, India, joint dislocation, pseudarthrosis of temporomandibular joint, temporomandibular joint dislocation, temporomandibular joint pain

Introduction

The movements of the mandible required for appropriate speech and mastication are made possible by the temporomandibular joint (TMJ), a complex system of elements. TMJ dislocation is one of many pathophysiologic illnesses referred to collectively as temporom-andibular joint disorders (TMDs), which can be caused by improper function of any component of this dynamic system[1]. The mandibular condyle (the ball) and the glenoid fossa (the socket), which normally form a "ball and socket" anatomic relationship, become dislocated[3-5]. Although anterior dislocation is the most frequent type of TMJ dislocation, accounting for an estimated 95% of cases, dislocation from the fossa can also occur in other orientations.TMJ dislocation requires proper diagnosis and management by the oral and maxillofacial surgeon in order to stop the pathologic development of the disease, despite accounting for only 3% of all joint dislocations in the body, being infrequently encountered in an emergency department setting, and being present in as few as 1.8 percent of symptomatic TMJ patients[6,7]. Unfortunately, there are no clear guidelines or generalizable treatment regimens in the previous or present literature on this illness.This article's goal is to clarify how the aetiology of the disease can inform how it is managed as well as to discuss the disease process in general.

Materials and Methods

The subjects of the present study were 19 patients and 23 joints treated with hook-shaped miniplates with miniscrews between 10 years that were not amenable to conservative care. Since this is a retrospective study using only depersonalised data, institutional review board approval was not required. The case files contained all necessary information. Of the total 19 patients, 12 were female (mean age, 41.9 ± 12.07 years) and the rest 9 were male (mean age, 39.8 ± 13.6 years), ranging from 32 years to 58 years.Prior to surgery, each patient experienced the dislocation for an average of 19.26 ±12.6 months. When conservative and minimum treatments for dislocation did not work, surgical surgery was used as a final resort.

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A radiological examination was carried out after all potential and known relevant etiological variables had been eliminated or addressed. Extremely restricted jaw movement or localised pain when eating, evident dislocation (clinically and/or radiologically), and repeated bouts of TMJ dislocation that interfered with daily activities were all criteria for surgery. Cases in which pseudojoint development had taken place were disregarded because the pathoses varied widely. At the author's centre, the author himself handled every case.Under general anaesthesia, surgery was carried out using Ellis and Zide's preauricular technique[10]. A miniplate was correctly altered to take the shape of a hook, and if extra autologous bone graft was needed, it was prepared, cemented in the glenoid fossa, and then put and screwed into the concave site of the hook-shaped miniplate. A bone dissector was used to raise the periosteum of the articular eminence. The miniplate was positioned so that the hook would prevent aberrant motion but would not interfere with the TMJ's normal function at the anteroinferior region of the articular eminence.This was verified by forcing open the mouth, which prevented the condyle from moving past the articular eminence. The incisions were checked before being closed in layers. The right amount of rest, antibiotics, and nonsteroidal anti-inflammatory drugs were given. In order to avoid any potential arthrosis or pseudokylosis, it was always advised to perform significant postoperative physical therapy. This therapy was started as early as the seventh postoperative day.

Results

The postoperative follow-up period lasted 8 to 37 months. Prior to surgery, the mean maximal mouth openness (12–25 mm) was 17.78± 2.13 mm, and after surgery, it was 32.28± 3.17 mm (27 to 37 mm). Neither early nor late surgical problems existed. Only a small percentage of patients who had discomfort during postoperative physiotherapy were treated pharmacologically. There were no infections or miniplate failures. Every time, there was enough relief, and no recurrence dislocation was seen.One bilateral TMJ dislocation event resulted in 3 weeks of one-sided transient facial paralysis. During follow-up, all cases were at ease while executing the usual range of TMJ mobility, and none of the patients experienced or reported any instances of anomalous jaw "clicking" noise.

Discussion

TMJ dislocations are divided into the following groups anatomically: Type I condylar heads are below the eminence's tip, Type II condylar

heads are in front of the eminence's tip, and Type III condylar heads are elevated above the base of the eminence[11]. The surgical objectives must remain the reduction or restoration of normal TMJ anatomy, improvement of function, and restoration of normal occlusion, with the technique providing no or low morbidity and discomfort (risk of ankylosis) and eradicating the possibility of recurrence[12]. There isn't a single algorithm that is always used to obtain desired results. However, Marqués Mateo et alindicated's therapy protocol and steps are strongly advised[2]. All of the cases in the present cases were also more severe than those predicted by Marqués Mateo et al., but Rattan and Arora studies indicate that they all occurred at younger ages and were more prevalent in females[2,12]. Given that our values are significantly closer to those of the Indian population described by Rattan and Arora, there may be a variation in the research population's features[2,12]. Because of the patients' weak oral histories and potential bias, it was impossible to determine the specific cause of the disease or its etiopathogenesis.The surgical options include open reduction, condylar resection or reduction, increase or decrease in the height of the eminence, removal or repositioning of the meniscus, sometimes extended with coronoidectomy, and/or the type of surgery with hooks. There are also several conservative techniques mentioned[2]. Surgical procedures like capsulorrhaphy, meniscectomy, eminectomy, capsular ligament plication, and shortening are carried out to achieve the goals of surgical management, but they have drawbacks like facial asymmetry and a limited range of jaw movement. In contrast, the present method employed has been proven to be dependable and time-tested, if carried out properly[1]. The presence of a foreign substance in the joint area, potential for incorrect positioning or loss of screw fixation stability, and miniplate fractures are a few potential difficulties, but with good planning, the restriction of jaw movements can be successfully managed. The current set of cases shows that TMJ dislocation occurs just as frequently in India as it does in the rest of the world. The best outcomes would come from case selection, understanding etiopathogenesis, and implementing suitable therapy. The therapy described here offers good long-term relief for the problems indicated, especially when all other conservative treatment options are unsuccessful.

Conclusion

The surgical therapy of a TMJ dislocation at a single centre is described. Effective treatment planning is necessary to reduce problems, and when properly executed, hook with or without graft offers the best, long-lasting outcomes, improving patients' quality of life.

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Conflict of Interest: Nil Source of support: Nil