

Surgery of the Temporomandibular Joint for Internal Derangements

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ABSTRACT:-

Background: The area of temporomandibular joint (TMJ) surgery has advanced significantly, yet recent years have seen a number of noteworthy failures. Despite the issues, TMJ surgery continues to play a little but crucial part in the treatment of some temporomandibular diseases. An overview of TMJ surgery is provided in this article. It is concluded that the key to a successful conclusion is cautious case selection.

Keywords: Oral Pathology, RadiolEndod Oral, Oral Surgery, Oral Medicine

INTRODUCTION: -

After internal derangement was reintroduced in the 1970s, the importance of surgery in treating TMJ pain and dysfunction was reemphasized. The significance of disc displacement and deformity as the root of TMJ pain and dysfunction attracted attention. In order to reposition and reshape the displaced or malformed disc, many open joint techniques were created. The development of TMJ arthroscopy and, later, TMJ arthrocentesis, as well as the efficacy of less complex operations like adhesion lysis and lavage, have aroused significant concerns concerning the pathosis of internal derangement.

The goal should be to choose the surgical technique with the highest likelihood of success and the lowest morbidity given the additional surgical alternatives available to the surgeon. Currently, a variety of surgical techniques are employed to treat TMJ internal derangement, from straightforward arthrocentesis and lavage to more involved open joint operations. This

article's goal is to review the procedures now employed to treat internal TMJ dysfunction. The procedures that will be examined include modified condylotomy, arthrocentesis, arthroscopy, and arthrotomy (open TMJ surgery). The care of less prevalent TMJ disorders such as ankylosis, development problems, trauma, and neoplasia is without a doubt where surgery is applied. The indications are less obvious and frequently depend on the patient's ability to appropriately describe their symptoms as well as the surgeon's ability to interpret the frequently perplexing clinical findings for the more prevalent illnesses, such as internal derangement and osteoarthritis. Therefore, a patient with internal derangement whose condition does not improve with nonsurgical treatment over a reasonable period of time may be an appropriate candidate for surgical treatment. This patient must also be incapacitated to the point where work and relationships are severely disrupted. It is important to stress that the criteria for surgery do not just include refractory pain but also discomfort that is precisely localised to the TMJ.

Arthrotomy

Although there are many surgical methods for treating TMJ, the most popular method involves making a preauricular incision in the skin fold in front of the ear. When the joint capsule is exposed, the superior joint space is first invaded, and then, if necessary, the inferior joint space. While other surgical procedures only offer a small number of alternatives, an arthrotomy gives the physician an endless range of options, from straightforward joint lavage and debridement to total disc removal. Disk repositioning and discectomy are the procedures that are carried out the most frequently. Recontouring of the articular eminence or condyle during arthroplasty is occasionally required, especially in cases of severe mechanical joint interference and advanced degenerative joint disease.

Arthrocentesis

The simplest and least invasive surgical method is TMJ arthrocentesis and lavage with manipulation. [6] The idea was founded on findings that patients with closed-lock of their TMJs could successfully restore normal range of mouth opening with simple lysis and cleaning of the upper joint area utilising arthroscopy. [8] The effectiveness of this method has called into question the theory that TMJ closed-lock is caused by an aberrant disc location or shape. Instead, it is hypothesised that the limited ability of the mandibular condyle to glide over the articular eminence may be brought on by reversible adhesion of the disc to the glenoid fossa brought on by a vacuum effect of change in synovial fluid. The benefits of TMJ arthrocentesis with lavage include the fact that it is an easy, affordable, minimally invasive surgery with little morbidity that may be completed simply in an outpatient setting. The prognosis for a good treatment outcome must take into account the severity of the closed-lock onset, though. [7]

Arthroscopy

Ohnishi, a 21-year-old Japanese physician, first described arthroscopy of the TMJ in 1975. Intense curiosity in the idea that extended therapeutic applications of arthroscopy may be added to this technique's diagnostic capabilities led to the expansion of the TMJ arthroscopy concept across Europe and the United States a decade later. The equipment-dependent procedure of arthroscopy depends heavily on high-end, sophisticated technology. Even though arthroscopy is a minimally invasive treatment that can be completed without hospitalisation, it is frequently carried out in an operating theatre under general anaesthetic.

These findings demonstrate the importance of arthroscopy in clinical practise, particularly in the treatment of chronic TMJ closed-lock. The effectiveness of straightforward arthroscopic operations like lavage and lysis has called into serious doubt the absolute requirement of repositioning the disc to treat TMJ pain and dysfunction. [6, 7] The pathologic characteristics linked to TMJ pain and dysfunction are also more complex than simple disc displacement and disc deformity, according to arthroscopic observation.

As TMJ arthroscopy has become more and more common, a variety of surgical procedures have been developed, from straightforward lavage and adhesion ablation to electrocautery or laser therapy and suturing of the displaced disc. Despite the complexity of the operations that a skilled arthroscopist can do, the results of the more complicated procedures have not yet been thoroughly examined, especially when compared to straightforward lavage and lysis of adhesions.

Repositioning the disc

Disk repositioning, which was first described by McCarty and Farrar 3 in 1979, is often done when the disc is misplaced but otherwise healthy and free of disease or structural abnormality. Without having to enter the inferior joint region, the disc is relocated and stabilised with sutures in a partial-thickness plication, as described by Hall [4]. In contrast, a full-thickness plication, as described by Dolwick and Sanders [5], involves surgically exposing both joint spaces in order to realign the disc.

In 80% to 94% of patients, clinical investigations have shown a positive outcome in terms of reduced discomfort and increased mandibular function. 90 percent of the 152 patients who underwent TMJ disc relocation between 1984 and 1988 showed improvement (85%), according to Dolwick and Nitzan [13]. However, 4.5% of patients reported a worsening as a result of the surgery, and 5.3% reported no improvement following the procedure. Additionally, it was discovered that most people who did claim an improvement after surgery remained to have discomfort, joint noise, and decreased range of motion symptoms, albeit to a lesser degree than before surgery.

Diskectomy

One of the earliest intraarticular TMJ surgical techniques documented was total disc removal. When the disc is discovered to be sick or structurally impaired due to tears, perforations, or lingering indications of discomfort and dysfunction following prior disc surgery, a diskectomy is performed. For diskectomy surgeries, long-term follow-up data have also been reported. [12, 13] In one study, all 15 patients were reported to be pain-free and to have no subjective symptoms of mandibular dysfunction approximately 30 years after the diskectomy. [11] Another study that reported a long-term follow-up of 30 years following a diskectomy found that 96% of the patients had no post-operative pain and had mouth openings of at least 30 mm. It is evident that individuals who meet specific, clearly defined criteria for treatment can undergo diskectomy without replacement in a safe and effective manner.

Alternative condylotomy

The intraoral vertical ramus osteotomy, which is converted into the modified condylotomy, is a technique used in orthognathic surgery to treat mandibular prognathism. The concept of performing condylar process osteotomies for the treatment of TMDs originated from findings that individuals who had had condylar fractures seldom ever complained of TMJ pain. When there is evidence of a decreasing disc, Nickerson and Veaco devised the modified condylotomy as a treatment for TMJ pain in the 1980s. In a research by Hall et al., 400 patients were studied over a 9-year period, and it was discovered that 90% of them experienced good pain alleviation. Although the procedure itself is straightforward, there is a lengthy recovery phase requiring 3 to 6 weeks of maxillomandibular fixation. The fact that the joint is not penetrated and that a normal disc connection to the condyle is typically achieved provide this method benefits over other procedures.

DISCUSSION:-

For the therapy of internal derangement, many approaches have been proposed over the years, but only a select number have found widespread approval. This circumstance highlights the ongoing lack of knowledge on the genesis, pathophysiology, and natural history of this disorder, as well as the complexity of the behavioural influences on the pain and dysfunction of the patient. Based on published short-term retrospective investigations, surgical treatment of TMJ internal derangement has been shown to be beneficial for lowering discomfort and enhancing range of motion in roughly 80% of patients, regardless of operating approach. The common drawbacks of retrospective clinical trials, such as poorly defined patient groups, observer bias in data collecting, loss of many treated patients to follow-up, and a dearth of control participants, place restrictions on these studies. There are certainly not enough long-term randomized controlled prospective studies.

CONCLUSION:-

TMJ surgery continues to have a little but crucial role in the treatment of some TMJ problems. In order to obtain the intended outcomes of pain alleviation and functional improvement following surgical intervention, appropriate case selection is a necessary condition. The best surgeons to operate on the TMJ are those who uphold the belief that surgery should try to prevent future damage to the joint and who, if possible, use more conservative surgical techniques. On an individual case basis, the advantages and restrictions of any surgical operation are easily ascertainable. The objective is to identify the procedure that has the highest chance of success and the least amount of morbidity.

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