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Automatic Irrigation Arthrocentesis in TMJ Disorders: A Case Report

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Abstract

The hinge-type synovial joint that joins the mandible to the rest of the skull is called the temporomandibular joint (TMJ). It is, more precisely, an articulation between the condylar process of the mandible and the mandibular fossa and articular tubercle of the temporal bone. The most typical non-dental cause of orofacial pain is temporomandibular disorders (TMD). In patients with disc displacement without reduction, arthrocentesis is an effective treatment to decrease or eliminate pain, increase the maximal interincisal distance, and eliminate temporomandibular (tmj) joint effusion. When patients' pain does not improve with traditional conservative measures, arthrocentesis can be used in place of more invasive procedures.

Keywords: arthrocentesis, temporomandibular joint (TMJ)

Introduction

Arthrocentesis is a medical procedure conducted to retrieve synovial fluid from the joints, either for diagnosing a disease or alleviating painful or troublesome symptoms. In 1991, Nitzan, Dolwick, and Martinez1 introduced the arthrocentesis technique, which has proven to be a highly efficient and minimally invasive approach for addressing various temporomandibular joint (TMJ) disorders.[1,2]

It is a straightforward and highly effective technique for reducing joint pain and improving mouth opening range in patients experiencing a closed lock of the temporomandibular joint.[3]

It consists of washing the superior compartment of the TMJ without direct visualization. using a biocompatible material, like saline, the washing process helps dilute the local allogenic substances and releases the joint disc by dissolving adhesions that were created between the

disc's surfaces and the mandibles fossa as a result of the irrigation processe's hydraulic pressure. [1,4]

Yura et al[3] validated that hydraulic pressure, when adequately applied during upper joint space irrigation, effectively releases adhesions.

When performed correctly, this procedure is generally quite safe, with minimal complications and only a limited set of contraindications.

Aim

The article aims to study the efficacy of hand irrigation arthrocentesis in TMJ disorders

Materials Needed

For performing the procedure, two-21-gauge needle, Local anaesthetic agent, 2 ml syringe, Ruler, Marker, Physiodispenser, kidney tray ,20 ml syringe,100ml NS (normal saline) are required.

Figure 1: Depicts the materials required for irrigation arthrocentesis of TMJ disorder

Technique

The initial mark was placed 10 mm from the tragus and 0.5 mm below the line, using a point traced from the corner of the eye to the tragus. Markings for the second point were placed 1 mm below the line and 20 mm from the tragus.

To enlarge the upper joint space, a 5 ml saline solution injection was made using a 21-gauge needle that was inserted into the superior joint compartment from the initial location. After manually verifying that the upper joint space had been adequately irrigated, a second needle with the same diameter as the first one was inserted from the second location.

After connecting the irrigation pump's silicon tubing to the first needle, 100 millilitres of saline was automatically irrigated under high pressure in less than two minutes.

Figure 2: Depicts the pre-op maximum mouth opening which is 30 mm

Figure 3: Depicts the canthotragal line (holmlund-hellsing line)

Figure 4: Depicts the step where a 5 ml saline solution injection was made using a 21-gauge needle that was inserted into the superior joint compartment from the initial location

Figure 5: Depicts the step in which 100 millilitres of saline was automatically irrigated under high pressure in less than two minutes

Figure 6: Depicts automatic irrigation using physiodispenser

Figure 7: Depicts the post-op mouth opening of the patient ,which is 35 mm

Case Report

Male patient, 20-year-old, reported to sree balaji medical college and hospital needing medical attention for mouth opening restriction and temporomandibular joint pain. The patient was then referred to sree Balaji dental college and hospital, pallikaranai for further management. There was no recorded pertinent medical condition. The patient had bilateral pain in the joint for the past one month and was not been able to open his mouth completely. On examining the patient clinically, the maximum mouth opening was found to be 30 mm with no deflection of jaw to either side. Lateral movements of the jaw were also found to be normal, with no painful excursion. The patient was requested to take a TMJ tomogram. The patient's response to conservative measures, such as the use of a customised physical therapy, splints, a soft diet and anti-inflammatory medications, was found to be poor. Therefore, a second-year post-graduate student pursuing oral and maxillofacial surgery performed a TMJ arthrocentesis. Clinically, there was no more pain after the arthrocentesis, and the maximum mouth opening increased to 35mm. Patient was advised to follow soft food diet for two days. Immediate Post operative follow up done in 24 hours. There were no reported complications.

Discussion

TMJ dysfunction is frequently treated with TMJ arthrocentesis. When arthrocentesis was performed automatically with a physiodispenser under high pressure, it was more effective than when it was performed manually with a 20 ml syringe under low pressure.

Result

The mouth opening of the patient was increased from 30 mm to 35 mm in first post-operative follow up review, and pain was reduced drastically.

Conclusion

TMJ arthrocentesis seems to be a straightforward, less invasive, affordable, and very successful procedure. It's a technique that offers substantial clinical advantages with few side effects. Because of these advantages,

arthrocentesis is a suitable therapeutic option for individuals with TMJ disorders who are not improving with nonsurgical treatments and conservative treatments.

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