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Single puncture arthrocentesis of temporomandibular joint

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Abstract. The investigation into the involvement of vitamin D in the pathogenesis and prevention of type 2 diabetes has garnered widespread scholarly attention. Notably, vitamin D receptors are discernible in pancreatic beta cells and immune cells. In addition to its established function as the primary regulator of calcium absorption, vitamin D exerts influence on the activity of calcium-associated endopeptidases in beta cells, facilitating the conversion of proinsulin to insulin and augmenting insulin production. Within peripheral insulin target tissues, vitamin D governs insulin action through the modulation of calcium homeostasis. Further, vitamin D exhibits pronounced immunosuppressive properties. Noteworthy is the potential implication of vitamin D deficiency in the etiology of type 2 diabetes, manifesting in the inhibition of insulin secretion and enhancement of glucose tolerance. The article underscores the imperative for comprehensive research and clinical trials elucidating the multifaceted roles of vitamin D and calcium in maintaining a robust physiological framework. Insightful findings from studies conducted in Uzbekistan and globally underscore a prevailing inadequacy in the dietary intake of calcium and vitamin D among diverse populations, taking into account geographical, ethnic, and physiological variances. Emphasis is placed on the critical significance of sustaining optimal levels of calcium and vitamin D for skeletal health, particularly in the context of osteoporosis prevention and treatment.

Keywords: Vitamin D, calcium, type 2 diabetes, insulin, glucose tolerance, menopause, postmenopause, osteoporosis

Abstract

The Temporomandibular joint (TMJ) is usually affected by many diseases referred to as temporomandibular joint diseases (TMDS). These disorders are accompanied by pain, restriction and deviation in the mandibular range of motion, TMJ sounds, headaches, and facial pain. Among these internal disorders and TMJ osteoarthritis, the most common are diseases. These range from normal mouth opening and pressing to varying degrees of pain and limited mouth opening and loss of functional activity.

When conservative methods used to treat these conditions fail, TMJ surgery becomes inevitable. Surgery in this region is associated with morbidity and is fraught with many risks. Most often, surgery does not give the expected results. This treatment involves watering the upper joint compartment with substances, releasing adhesions, and washing out inflammatory substrates encourage pain and improve function. In the traditional procedure, a double puncture technique was used for two needle arthrosentesis.

Key words:. Single puncture arthrocentesis, single puncture arthrocentesis of temporomandibular joint, temporomandibular joint internal derangement

Introduction:

Arthrocentesis is a method of irrigating the temporomandibular joint (TMJ) with a therapeutic agent. It is usually performed by double puncture with two needles into the Joint Space. A number of studies have shown that the arthrocentesis of the upper section of TMJ can be a very effective method for restoring the maximum opening and normal functioning of the mouth. Nevertheless, the classic two-needle technique has some limitations, such as low tolerance and difficulty in performing it in the presence of adhesions within the joint. The use of a single puncture method for fluid injection and aspiration can have some advantages in terms of execution time, tolerance, and drug retention compared to the traditional two needle method.

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MATERIALS AND METHODS

This study was conducted in the Department of oral and maxillofacial surgery, Udaipur Darshan Dental College and hospital. This study involved 64 patients aged 20-30 who were diagnosed with TMD. The approval of the Ethics Committee was obtained for the study.All cases were clinically and radiologically examined with appropriate consent before the procedure.Patents were selected for the study that met the following criteria.Typical clinical picture of pain in the lower jaw movement in the TMJ region.Limitation of mouth opening is 30 mm or less.There is a vocal click during various mandibular movements.Mandibular deviation when opening the mouth.Magnetic resonance imaging (MRI) findings indicating internal degradation of TMJ.Pain assessment was performed using Visual analog scale (VAS) and assessed 1-10 (Emshoff Rudiger)The mouth opening was measured using a digital vernier calliper.

-Exclusion criteria
-Medically impaired patients.
-Traumatic arthritis.
-Production of the device

The device for arthrocentesis is produced using two 18-caliber needles soldered along a long axis using orthodontic Solder and a divergent Angle made near its housing for ease of use (Figure) Soldering is carried out in the most proximal part, which does not have to be inserted into the tissues. The device is then sterilized by autoclaving according to the standard protocol.

Results:

Statistical analysis was carried out for 64 patients using paired t-test. The intensity of the pain was assessed before and after treatment using VAS. The average pain on the first visit was 5.25 ± 3.59. The mean and standard deviation (SD) on day 91 was found to be 0.25 ± 0.63. Many of the patients reported a decrease in pain more than half of the previous value, and two patients reported only a moderate decrease. The result is statistically very important, it is checked by a T-test by a paired student, as shown inThe increase in oral opening was calculated for each patient on Day 1, 3, 15, 45 and at the end of day 91. In 8 patients, the oral opening increased significantly from 12 mm. In 9 patients, the mouth remained the same with adequate opening, but was treated for other symptoms. The average increase of 7.87 mm, SD 7.21 mm, was determined using student's paired t-test and was deemed statistically critical. ($t = 4{,}483$, $P < 0{,}001$)

There was a significant clinical improvement in deviation. For each patient, the decrease in deviation is calculated, and the average improvement is 1.18 with 1.15 SD. Paired student

The effect of treatment for pressing was solved on the basis of the ratio of improvement at the end of treatment. On the first visit, the average click was 0.85, SD 0.37, and on the 91-day follow-up, 0.40 with 0.51 SD. The mean drop was 0.45 ± 0.51.

Conclusions:

The mouth opening has improved significantly.In terms of pain, 96% achieved postoperative pain reduction.The click was found to be reduced by almost 85%.Lateral movement towards the unaffected joint is significantly improved.Arthrocentesis has come to the conclusion that TMJ is effective in treating internal disorders and restoring its function. Thus, one puncture arthrocentesis is a minimally invasive, simple, inexpensive and highly effective procedure that can be performed under local anesthesia. A study with a larger sample size and long-term follow-up is guaranteed.

The use of single puncture technique has some advantages:

-Reduced time of execution.
-The use of a single needle is easier to perform as controlling two ports is cumbersome.
-As the procedure involves single puncture it is minimally traumatic.

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