

Arthrocentesis of the temporomandibular joint: a minimally invasive therapy for temporomandibular disorders

Artrocentese da articulação temporomandibular: uma terapêutica minimamente invasiva para os distúrbios temporomandibulares

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Arthrocentesis of the temporomandibular joint is a minimally invasive procedure used to treat arthrogenic temporomandibular joint disorders (TMDs). This technique has proven to be effective and safe, gaining relevance over the years as an alternative to traditional surgical treatment. Arthrocentesis of the temporomandibular joint (TMJ) was initially described¹ in 1991, with the aim of treating severe limitation of mouth opening with pain, especially for patients with disc displacement without reduction.

This technique involves the insertion of needles² or *cannulae*³ into the TMJ, with the aim of promoting washing and removing inflammatory mediators, allowing the release of intra-articular adhesion and promoting an improvement in joint mobility⁴. This procedure is often used in patients who do not respond to conservative therapies, such as drugs and physical therapy⁵. Studies⁶ demonstrate that, compared to non-surgical treatments, arthrocentesis offers greater pain relief and improved joint function in short and long term.

Arthrocentesis is more effective when combined with the injection of substances such as hyaluronic acid or platelet-rich fibrin (PRF)⁷, which help promote joint regeneration and reduce or eliminate pain, in addition to promoting adequate mouth opening⁸. Furthermore, ultrasound-guided techniques have shown promising results, providing greater precision and safety in performing the procedure⁹, especially when performed in the lower compartment¹⁰.

Since its introduction, several modifications to the arthrocentesis technique have been proposed. One of these innovations is the use of single-needle arthrocentesis, which simplifies the procedure and reduces tissue trauma, while maintaining clinical efficacy¹¹. Studies¹² comparing single and double needle techniques suggest that both are effective, with a slight advantage of the double needle technique in terms of more efficient removal of inflammatory mediators. Furthermore, methods that use special devices, such as *cannula* with fused needles, have also been developed to simplify the procedure and improve clinical results^{13,14}.


Although arthrocentesis is a widely accepted procedure with few complications, such as facial edema, pre-auricular hematoma, VII nerve paresis or paralysis, local hemorrhage, unilateral open bite and vertigo, which are transient¹⁵, some challenges still need to be overcome. The main one is the variability in clinical results, which may be associated with factors such as the severity of the disc displacement, the time of development of the condition and the presence of severe intra-articular adhesions¹⁶. Another limitation is related to the ideal irrigation volume, since larger volumes can provide better removal of inflammatory cytokines¹⁷, such as interleukin-6, but also increase the risk of complications¹⁵.

In addition, arthrocentesis may be ineffective in cases of chronic joint dysfunctions with severe disc degeneration, where arthroscopy or more invasive surgical interventions may be necessary⁴. Long-term follow-up is essential to assess the continued efficacy of arthrocentesis and to identify possible recurrences¹⁸.

The future of arthrocentesis looks promising, especially with the advancement of image-guided techniques, such as ultrasound, which provide TMJ visualization and can improve therapeutic results¹⁹. Furthermore, combinations of arthrocentesis with platelet-rich plasma²⁰⁻²² and, mainly, with PRF⁷, are the best options for joint regeneration and to accelerate the healing process^{7,20-22}.

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