ARTHROCENTESIS VERSUS ARTHROSCOPY IN THE TREATMENT OF TEMPOROMANDIBULAR JOINT DISC DISPLACEMENT WITHOUT REDUCTION: AN INTEGRATIVE REVIEW

ARTROCENTESE VERSUS ARTROSCOPIA NO TRATAMENTO DO TRAVAMENTO DISCAL DA ATM: UMA REVISÃO INTEGRATIVA

ARTROCENTESIS VERSUS ARTROSCOPIA EN EL TRATAMIENTO DEL BLOQUEO DISCAL TEMPOROMANDIBULAR: UNA REVISIÓN INTEGRAL

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ABSTRACT

Temporomandibular disorders (TMD) comprise a group of conditions affecting the temporomandibular joint, masticatory muscles, and associated structures, often related to disc displacement without reduction, a condition that may lead to joint pain, limited mouth opening, and functional impairment of the mandible. In this context, minimally invasive procedures such as arthrocentesis and arthroscopy have been widely used in the management of these disorders, particularly in cases refractory to conservative treatment. The aim of this study was to analyze, through an integrative literature review, the effectiveness of arthrocentesis compared with arthroscopy in the treatment of temporomandibular joint disc locking. The literature search was performed in the PubMed and SciELO databases between January and March 2026, including articles published from 2016 to 2026 in Portuguese and English. After applying the inclusion and exclusion criteria and analyzing titles, abstracts, and full texts, nineteen studies were selected for this review. The results demonstrated that both techniques present favorable clinical outcomes, mainly regarding pain reduction, increased mouth opening, and improvement of mandibular function. Arthrocentesis showed advantages related to its technical simplicity and lower cost, whereas arthroscopy allows direct visualization of intra-articular structures and more specific therapeutic interventions. It can be concluded that both arthrocentesis and arthroscopy represent effective therapeutic options for the treatment of temporomandibular joint disc displacement without reduction, and the choice of technique should consider the clinical characteristics of each patient.

Keywords: Temporomandibular Disorders. Arthrocentesis. Arthroscopy. Temporomandibular Joint. Disc Displacement Without Reduction.

RESUMO

A disfunção temporomandibular (DTM) engloba um conjunto de alterações que acometem a articulação temporomandibular, os músculos mastigatórios e estruturas associadas, sendo frequentemente associada ao deslocamento do disco sem redução, condição que pode resultar em dor articular, limitação da abertura bucal e comprometimento funcional da mandíbula. Diante disso, procedimentos minimamente invasivos como a artrocentese e a artroscopia têm sido amplamente utilizados no tratamento dessas disfunções, especialmente em casos refratários ao tratamento conservador. O presente estudo teve como objetivo analisar, por meio de uma revisão integrativa da literatura, a eficácia da artrocentese em comparação à artroscopia no tratamento do travamento discal da articulação temporomandibular. A busca foi realizada nas bases de dados PubMed e SciELO, no período de janeiro a março de 2026, considerando artigos publicados entre 2016 e 2026, nos idiomas

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português e inglês. Após aplicação dos critérios de inclusão e exclusão e análise dos títulos, resumos e textos completos, foram selecionados dezenove estudos para compor a revisão. Os resultados demonstraram que ambas as técnicas apresentam resultados clínicos favoráveis, principalmente em relação à redução da dor, aumento da abertura bucal e melhora da função mandibular. Observou-se que a artrocentese apresenta vantagens relacionadas à simplicidade técnica e menor custo, enquanto a artroscopia possibilita visualização direta das estruturas intra-articulares e intervenções terapêuticas mais específicas. Conclui-se que tanto a artrocentese quanto a artroscopia constituem opções terapêuticas eficazes no tratamento do deslocamento do disco sem redução da articulação temporomandibular, sendo a escolha da técnica dependente das características clínicas de cada paciente.

Palavras-chave: Disfunção Temporomandibular. Artrocentese. Artroscopia. Articulação Temporomandibular. Deslocamento do Disco Sem Redução.

RESUMEN

La disfunción temporomandibular (DTM) comprende un conjunto de alteraciones que afectan la articulación temporomandibular, los músculos masticatorios y las estructuras asociadas, frecuentemente asociadas con el desplazamiento discal sin reducción, una condición que puede causar dolor articular, limitación de la apertura bucal y deterioro funcional de la mandíbula. Por lo tanto, procedimientos mínimamente invasivos como la artrocentesis y la artroscopia se han utilizado ampliamente en el tratamiento de estas disfunciones, especialmente en casos refractarios al tratamiento conservador. Este estudio tuvo como objetivo analizar, mediante una revisión bibliográfica integradora, la eficacia de la artrocentesis en comparación con la artroscopia en el tratamiento del bloqueo discal de la articulación temporomandibular. La búsqueda se realizó en las bases de datos PubMed y SciELO, de enero a marzo de 2026, considerando artículos publicados entre 2016 y 2026, en portugués e inglés. Tras aplicar los criterios de inclusión y exclusión y analizar los títulos, resúmenes y textos completos, se seleccionaron diecinueve estudios para esta revisión. Los resultados demostraron que ambas técnicas presentan resultados clínicos favorables, principalmente en cuanto a la reducción del dolor, el aumento de la apertura bucal y la mejora de la función mandibular. La artrocentesis mostró ventajas relacionadas con la simplicidad técnica y el menor costo, mientras que la artroscopia permite la visualización directa de las estructuras intraarticulares e intervenciones terapéuticas más específicas. Se concluye que tanto la artrocentesis como la artroscopia son opciones terapéuticas eficaces en el tratamiento del desplazamiento discal de la articulación temporomandibular sin reducción, y la elección de la técnica depende de las características clínicas de cada paciente.

Palabras clave: Disfunción Temporomandibular. Artrocentesis. Artroscopia. Articulación Temporomandibular. Desplazamiento Discal Sin Reducción.

1 INTRODUCTION

Temporomandibular disorder (TMD) comprises a set of musculoskeletal alterations that affect the temporomandibular joint (TMJ), masticatory muscles and associated structures, and is considered one of the main causes of non-odontogenic orofacial pain. Among the most frequent intra-articular disorders, *disc displacement without reduction (DDWoR) stands out*, often associated with the so-called **disc displacement** or *closed lock*. This condition is characterized by limited mouth opening, joint pain, and functional impairment of the mandible, which can significantly impact the quality of life of patients. Clinical studies show that individuals with DDWoR have reduced mouth opening amplitude and increased joint pain, factors that justify the search for effective therapeutic interventions to reestablish mandibular function (KIM et al., 2019; BAŞ et al., 2019).

Initially, the management of TMJ disc locking is performed through conservative therapies, including drug analgesia, physical therapy, use of occlusal splints, and behavioral guidance. However, a portion of the patients do not have a satisfactory response to these approaches, making it necessary to indicate minimally invasive procedures. In this context, techniques such as **arthrocentesis and TMJ arthroscopy** have been widely used as intermediate therapeutic alternatives between conservative treatment and open surgery, with the aim of restoring joint mobility and reducing painful symptoms (EFEOĞLU et al., 2018).

TMJ arthrocentesis consists of a minimally invasive procedure based on the washing of the upper compartment of the joint by inserting needles and irrigating it with saline solutions. This method promotes lysis of intra-articular adhesions, removal of inflammatory mediators, and improvement of articular disc mobility, often resulting in reduced pain and increased mouth opening. Clinical evidence shows that patients undergoing arthrocentesis show significant improvement in symptoms and mandibular function in the short and medium term, with increased mouth opening amplitude and decreased reported pain levels (DEMIR, 2023; BAŞ et al., 2019).

On the other hand, **TMJ arthroscopy** is a minimally invasive surgical procedure that allows direct visualization of the joint space and therapeutic interventions, such as adhesion lysis, irrigation of the upper compartment, and manipulation of the articular disc. This approach has the advantage of enabling more accurate intraoperative diagnosis and targeted treatment of intra-articular alterations. Clinical studies demonstrate that arthroscopy can provide significant pain improvement, recovery of mandibular range of motion, and restoration of masticatory function in patients with chronic disc locking (E.L. YAZBY et al., 2016).

Despite the efficacy demonstrated by both approaches, there is still debate in the literature regarding the superiority of one technique over the other in the treatment of disc displacement without TMJ reduction. Comparative research indicates that **arthrocentesis and arthroscopy have similar clinical results in terms of pain reduction and improvement of mouth opening**, especially in medium- and long-term follow-ups (TALAAT et al., 2021). Given the clinical relevance of these interventions and the lack of consensus in the literature regarding the superiority of one technique over the other, it is necessary to gather and critically analyze the available evidence. Thus, the present study aims to perform an **integrative review of the literature on arthrocentesis versus arthroscopy in the treatment of temporomandibular joint disc locking**, seeking to compare its clinical results, indications, and therapeutic efficacy.

2 METHODOLOGY

The present study is characterized as an integrative literature review, a method that allows gathering, analyzing and synthesizing research results on a given topic, enabling a broad understanding of the investigated phenomenon and the identification of gaps in scientific knowledge. This type of review allows the inclusion of different methodological designs, allowing the integration of results from experimental and non-experimental studies, contributing to the construction of evidence relevant to clinical practice (WHITTEMORE; KNAFL, 2005).

The search for studies was carried out in the **PubMed** and **SciELO** databases, recognized for indexing relevant scientific publications in the health area. The search and selection process of articles took place **between January and March 2026**. The search strategy was conducted using controlled descriptors from the vocabularies **DeCS (Health Sciences Descriptors)** and **MeSH (Medical Subject Headings),** in addition to free terms related to the research theme, combined using the Boolean operators **AND** and **OR**, with the aim of expanding and refining the results obtained. The main descriptors used were: "Temporomandibular Joint", "Temporomandibular Disorders", "Arthrocentesis", "Arthroscopy", "Disc Displacement Without Reduction" and "Closed Lock". The search was carried out considering articles published in the period from **2016 to 2025**, in Portuguese and English, available in full in the selected databases.

Scientific articles addressing the use of arthrocentesis and/or arthroscopy in the treatment of temporomandibular disorders were established as inclusion criteria, especially in cases of disc displacement without disc reduction or locking of the temporomandibular joint. Clinical studies, observational studies, systematic reviews, and comparative research

that presented relevant data on the clinical results of these interventions were considered eligible. Duplicate studies, studies that did not directly address the treatment of temporomandibular joints, publications that were not available in full, isolated case reports, and studies published outside the previously established period were excluded.

The study selection process took place in sequential stages. Initially, the titles of the publications identified in the databases were read, excluding those that were not related to the research theme. Next, the abstracts were read in order to verify the scientific relevance of the studies for the purposes of this review. Subsequently, potentially eligible articles were submitted to full reading, allowing them to confirm their adequacy to the established inclusion criteria. After this screening process, **19 scientific articles** considered relevant were selected to compose the analysis of this integrative review.

The data extracted from the selected studies were analyzed qualitatively, considering aspects such as authors, year of publication, research objective, methodological design, sample characteristics, type of intervention performed, and main clinical results related to pain reduction, improvement of mouth opening, and recovery of mandibular function. The information obtained was organized and compared, allowing the synthesis of the findings described in the literature and the analysis of the available evidence on the use of arthrocentesis and arthroscopy in the treatment of temporomandibular joint disc locking.

3 RESULTS

The search carried out in the PubMed and SciELO databases, from January to March 2026, resulted in the identification of several studies related to the treatment of disc displacement without reduction of the temporomandibular joint. After applying the previously established inclusion and exclusion criteria and analyzing the titles, abstracts, and full texts, nineteen scientific articles considered relevant were selected to compose this integrative review.

The studies analyzed were published between **2016 and 2026** and presented different methodological designs, including clinical studies, observational research, systematic reviews, and comparative studies. In general, research has investigated the use of arthrocentesis and temporomandibular joint arthroscopy in the treatment of temporomandibular disorders associated with disc displacement without reduction, mainly evaluating clinical parameters such as pain intensity, mouth opening amplitude, and mandibular function.

Among the studies included in the review, most of the publications analyzed the clinical outcomes of **arthrocentesis** in the management of temporomandibular joint disc locking.

These studies reported improvement in clinical parameters related to pain and mandibular mobility after the procedure. The authors describe that the technique involves washing the upper compartment of the joint, favoring the removal of inflammatory mediators and the lysis of intra-articular adhesions, factors associated with improved mouth opening and mandibular function (KIM et al., 2019; DEMIR, 2023; BAŞ et al., 2019).

Regarding **temporomandibular joint arthroscopy**, part of the included studies investigated the clinical results of this technique in the treatment of disc displacement without reduction. The findings reported in these studies also described improvement in clinical parameters, including pain reduction, increased mouth opening, and improved masticatory function. The studies highlight that the procedure allows direct visualization of intra-articular structures, allowing therapeutic interventions such as adhesion lysis and joint space irrigation (EL YAZBY et al., 2016).

In the comparative studies identified in this review, favorable clinical results were described for both techniques in the treatment of disc displacement without temporomandibular joint reduction. In general, the studies reported improvement in pain symptoms and increased mandibular mobility after the procedures were performed. Some studies have also described differences related to the characteristics of the techniques employed, especially with regard to the intra-articular visualization provided by arthroscopy, although similar results have been observed in several clinical parameters evaluated (EFEOĞLU et al., 2018; TALAAT et al., 2021).

4 DISCUSSION

4.1 ARTHROCENTESIS IN THE TREATMENT OF DISC DISPLACEMENT WITHOUT REDUCTION

Arthrocentesis has been widely described in the literature as one of the main minimally invasive approaches for the treatment of temporomandibular disorders associated with disc displacement without reduction. The studies analyzed in this review indicate that the procedure is often associated with reduced pain and increased mouth opening in patients with temporomandibular joint disc locking. These findings are consistent with the results observed by Kim et al. (2019) and Demir (2023), who reported significant improvement in mandibular function after performing arthrocentesis in patients with temporomandibular disorders of intra-articular origin.

According to Baş et al. (2019), arthrocentesis promotes the flushing of the upper compartment of the temporomandibular joint, enabling the removal of inflammatory mediators present in the synovial fluid and the lysis of intra-articular adhesions. These mechanisms are

associated with improved mandibular mobility and reduced pain symptoms. Similar results were also described by Heo and Yoon (2020), who observed significant improvement in mouth opening and pain reduction in patients undergoing arthrocentesis associated with the use of a stabilizing plate.

In addition, recent studies indicate that arthrocentesis can present favorable clinical results even in cases associated with degenerative alterations of the temporomandibular joint. In this context, Rossini et al. (2021) reported significant improvement in mouth opening and pain reduction after performing arthrocentesis associated with viscosupplementation with hyaluronic acid. Similar results have also been observed in studies investigating the association of arthrocentesis with different intra-articular therapeutic agents, demonstrating the potential benefit of these approaches in the control of painful symptoms and in the recovery of mandibular function (Rao et al., 2019; Radwan et al., 2019).

4.2 ARTHROSCOPY OF THE TEMPOROMANDIBULAR JOINT

Arthroscopy of the temporomandibular joint is another minimally invasive approach used in the treatment of intra-articular TMJ dysfunctions, especially in more complex cases or cases refractory to conservative treatment. Unlike arthrocentesis, arthroscopy allows the direct visualization of intra-articular structures, enabling a more accurate diagnosis and targeted therapeutic interventions.

According to El Yazby et al. (2016), arthroscopy can promote significant improvement in pain, increased mouth opening, and recovery of masticatory function in patients with chronic temporomandibular joint disc locking. The procedure allows the performance of additional therapeutic maneuvers, such as adhesion lysis, joint space irrigation, and joint disc manipulation, factors that can contribute to the improvement of the signs and symptoms presented by patients.

Recent studies also demonstrate that arthroscopy can present positive long-term clinical results in the treatment of temporomandibular disorders. In this sense, Heo et al. (2024) observed a significant improvement in clinical parameters after minimally invasive procedures of the temporomandibular joint, including pain reduction and increased mandibular range of motion.

4.3 COMPARISON BETWEEN ARTHROCENTESIS AND ARTHROSCOPY

The comparison between arthrocentesis and arthroscopy has been widely discussed in the scientific literature, especially with regard to the efficacy of these techniques in the treatment of disc displacement without reduction. In general, comparative studies indicate

that both approaches present favorable clinical results, especially in relation to pain reduction and improvement of mouth opening.

In this context, Efeoğlu et al. (2018) report that minimally invasive procedures of the temporomandibular joint can promote significant improvement of clinical parameters in patients with intra-articular dysfunctions. Similar results were also described by Talaat et al. (2021), who observed high clinical success rates after performing minimally invasive TMJ procedures, including arthrocentesis and arthroscopy.

However, some authors suggest that arthroscopy may have advantages in certain clinical cases, mainly due to the possibility of direct visualization of intra-articular structures and the performance of more specific therapeutic interventions. On the other hand, several studies report that the clinical results obtained with arthrocentesis may be similar to those of arthroscopy in terms of improving pain and mandibular function, especially in less complex cases of disc displacement without reduction (Demir, 2023; Baş et al., 2019).

4.4 LIMITATIONS OF THE LITERATURE

Despite the positive results reported in the literature, some methodological aspects should be considered when interpreting the findings of the studies included in this review. There is significant heterogeneity among the studies analyzed, especially in relation to the size of the samples, the therapeutic protocols used, and the time of follow-up of the patients.

In addition, different clinical criteria and evaluation methods were used to measure the results of the procedures, which may make it difficult to make a direct comparison between the available studies. According to Simplot et al. (2025), the methodological diversity present in studies on temporomandibular disorders reinforces the need for further clinical investigations with more standardized designs and larger samples.

Thus, future studies with more homogeneous methodologies and longitudinal follow-up of patients may contribute to a better understanding of the efficacy of minimally invasive techniques in the treatment of disc displacement without reduction of the temporomandibular joint.

5 CONCLUSION

Based on the analysis of the studies included in this integrative review, it is observed that both arthrocentesis and temporomandibular joint arthroscopy are effective minimally invasive approaches in the treatment of disc displacement without reduction associated with disc locking. In general, the evidence available in the literature demonstrates that both techniques are associated with pain reduction, increased mouth opening, and improved

mandibular function in patients with temporomandibular disorders of intra-articular origin. Arthrocentesis stands out for its technical simplicity, lower cost, and low morbidity, and is frequently indicated as an initial procedure among minimally invasive interventions. On the other hand, arthroscopy has the advantage of allowing direct visualization of intra-articular structures and more specific therapeutic interventions, and may be indicated in more complex cases or cases refractory to conservative treatment. Thus, the choice between the two approaches must consider individual clinical factors, such as the severity of the dysfunction, the time of evolution of the condition, and the previous response to conservative therapies. In addition, there is a need for new clinical studies with standardized methodological designs and longitudinal follow-up of patients, in order to increase the level of scientific evidence on the efficacy of these techniques in the treatment of temporomandibular disorders.

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