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Original Research Article

Comparative Outcomes of Arthrocentesis with and without Stabilization Splints in Patients with Disc Displacement without Reduction

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ABSTRACT

Objective: This retrospective study aimed to compare the long-term effectiveness of arthrocentesis alone versus arthrocentesis combined with stabilization splint (SS) therapy in patients diagnosed with disc displacement without reduction (DDwoR).

Materials and Methods: Medical records of 49 patients (57 TMJs) treated between 2018 and 2022 were retrospectively analyzed. Patients were divided into two groups: those who received arthrocentesis only (AO, n=26) and those who received arthrocentesis combined with a stabilization splint (A+SS, n=23). Pain intensity was evaluated using a visual analogue scale (pVAS), and maximum interincisal opening (MIO) was measured at baseline (T0), 1 month (T1), and 12 months (T2) post-treatment. Intragroup and intergroup comparisons were performed using appropriate statistical tests based on data distribution.

Results: Both groups showed significant improvements in pVAS and MIO over time ($p<0.001$). At T1, the AO group demonstrated greater pain reduction ($p<0.05$), while the A+SS group showed greater MIO improvement ($p<0.05$). However, no significant differences were observed between groups at T2 for either parameter ($p>0.05$).

Conclusion: Arthrocentesis alone and in combination with a stabilization splint provided similar long-term outcomes in patients with DDwoR. Although the combined therapy yielded early functional benefits, these advantages were not sustained at the 1-year follow-up. Arthrocentesis appears to be a practical and effective standalone treatment option for DDwoR.

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INTRODUCTION

Temporomandibular disorders (TMD) encompass a group of conditions affecting the temporomandibular joint (TMJ), masticatory muscles, and associated structures. These disorders can be classified as arthrogenic, myogenic, or a combination of both. One of the most common forms of TMD is disc displacement without reduction (DDwoR), which is characterized by restricted mouth opening and significant functional impairment. According to the Diagnostic Criteria for Temporomandibular Disorders (DC/TMD), Disc Displacement Without Reduction (DDwoR) occurs when the articular disc shifts forward and does not return to its normal position during mouth opening.[1] This leads to restricted jaw movement, reduced lateral mobility, and often pain, with the jaw deviating toward the affected side. Unlike disc displacement with reduction, there are no clicking or popping sounds. Epidemiological studies indicate that TMD is more prevalent in females, with hormonal, anatomical, and functional factors contributing to this gender disparity.[2]

The treatment of DDwoR typically begins with conservative methods, including medical and physical therapy, exercises, as well as occlusal

appliances. If these approaches do not provide sufficient relief, minimally invasive procedures such as arthrocentesis may be considered.[3] The primary goal of treatment is not to reposition the displaced disc but rather to alleviate pain and restore mandibular function. Traditionally, stabilization splints have been utilized as an initial conservative approach before progressing to minimally invasive treatments like arthrocentesis.[4] However, a recent systematic review by Al-Moraissi *et al*.[5] emphasized that minimally invasive techniques—particularly arthrocentesis—are significantly more effective than conservative treatments for joint-related TMD. The authors suggest that arthrocentesis may be considered a first-line treatment.

Stabilization splint therapy is widely regarded as a fundamental approach in the management of TMDs.[6,7] The primary objective of managing TMDs with splint therapy is to reestablish a physiological relationship between the mandibular condyle and the glenoid fossa, with proper positioning of the articular disc. This alignment may contribute to the reduction of temporomandibular joint pain and joint sounds, while enhancing mandibular function.[8] Arthrocentesis, on the other hand, is an effective procedure that rapidly eliminates inflammatory components within the joint, restores joint lubrication, and enhances mandibular mobility by removing adhesions.[9-11] While splints have been traditionally utilized before arthrocentesis, emerging evidence supports the simultaneous use of both treatments to maximize therapeutic outcomes.[12,13]

A key question in the management of DDwoR is whether arthrocentesis alone is sufficient for pain relief and functional improvement or if it should be combined with stabilization splint therapy for enhanced results. While some studies[9-11] suggest that arthrocentesis alone can provide significant symptom relief, others[12,13] indicate that combining it with a stabilization splint may lead to better long-term functional outcomes. The lack of consensus on this issue highlights the need for further investigation.

This retrospective study aims to compare the one-year treatment outcomes of patients with DDwoR who underwent arthrocentesis alone versus those who received arthrocentesis combined with stabilization splint therapy. Given the limited literature on this topic, assessing differences in pain reduction and functional improvement will help fill this gap and contribute to existing knowledge. The present study hypothesized that the combination of arthrocentesis and stabilization splint therapy will yield better treatment outcomes compared to arthrocentesis alone.

MATERIALS AND METHODS

A retrospective cohort study was conducted to achieve the objectives of this study. The research adhered to the principles outlined in the Declaration of Helsinki and received approval from the Hamidiye Scientific Research Ethics Committee (registration no. 25/286 and decision no. 7/25, respectively). The study population consisted of patients diagnosed with DDwoR and limited mouth opening, as defined by the DC/TMD criteria. These patients underwent arthrocentesis and received treatment at the oral and maxillofacial surgery outpatient clinics of Hamidiye Faculty of Dentistry, University of Health Sciences, between June 2018 and June 2022. All patients gave informed consent before treatment, and all data were obtained from patient medical records.

This retrospective study included patients aged 24 to 58 years who had been diagnosed with DDwoR, as confirmed by magnetic resonance imaging. Eligible cases also fulfilled the diagnostic criteria for arthralgia based on the DC/TMD guidelines and had a pre-treatment pain score of 50 mm or higher on a 100-mm visual analogue scale (pVAS). This pain threshold represented an institutional criterion for determining suitability for arthrocentesis. Pain localization to the lateral pole of the temporomandibular joint was confirmed through clinical palpation. All arthrocentesis procedures were performed by a single oral and maxillofacial surgeon T.T. Although stabilization splint therapy was routinely recommended, it was not implemented in all cases due to patient-specific factors. When used, splints were manufactured and delivered by a prosthodontist C.K.

Patients with a history of prior invasive TMJ treatments (arthrocentesis, arthroscopy, or open joint surgery) were excluded. Likewise, patients with systemic joint diseases or uncontrolled systemic conditions (e.g., rheumatic, autoimmune, hematologic, or oncologic disorders) were excluded. Additionally, pregnant,

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or lactating individuals and those with incomplete or insufficient medical records were not included. Patients who had undergone multiple arthrocentesis procedures, received arthrocentesis with adjunctive injections, or had previously used any type of occlusal splint were also excluded from the study.

The primary independent variable in this study was the treatment approach, categorized as either arthrocentesis only (AO) or arthrocentesis combined with a stabilization splint (A+SS). Although stabilization splints are commonly recommended for the management of DDwoR, many patients do not adhere to this conventional treatment. The main reasons for noncompliance include difficulties in scheduling follow-up appointments and reluctance to wear the splint. As a result, the decision to use a stabilization splint was ultimately based on patient preference.

The primary outcome measure in this study was the severity of pain assessed at the 1-year post-treatment follow-up. Participants reported their perceived joint pain associated with mastication and functional activities using a 100-mm pVAS, where 0 mm represented no pain and 100 mm indicated the most severe pain imaginable. Pain levels were documented at three distinct time points: baseline (T0, pre-treatment), the 1-month follow-up (T1), and the 1-year follow-up (T2).

Secondary outcome measures comprised pain intensity at T1 and maximum interincisal opening (MIO) at T1 and T2. MIO was defined as the interincisal distance (mm) between the upper and lower central incisors at maximum voluntary mouth opening, performed without assistance, irrespective of pain presence. This measurement was obtained using a caliper to ensure precision. The study covariates were limited to the patients' age, ASA status (American Society of Anesthesiologists Physical Status Classification), history of mandibular molar extraction, and duration of symptoms (categorized as < 1 year or ≥ 1 year).

All arthrocentesis procedures were performed under local anesthesia using a standardized technique, as detailed below. After antisepsis, auriculotemporal nerve anesthesia was applied using 1 mL of articaine hydrochloride (Ultracaine DS, Sanofi Aventis, Istanbul, Turkey), followed by accessing the upper joint space using the method of Nitzan *et al*.[3] A total of 100 mL of isotonic saline was used for lavage. No additional intra-articular agents were administered following lavage. Postoperative treatment included 500 mg amoxicillin, 125 mg clavulanic acid, and 25 mg dexketoprofen trometamol. A soft diet and passive stretching for a week were recommended for all patients.

Hard acrylic stabilization splints were provided and adjusted by the same experienced prosthodontist, following the guidelines of Okeson.[14] The appliances were designed to ensure even contact in centric occlusion, with canine guidance during lateral movements and anterior guidance during protrusion. The splints were delivered to the patients during the week following the arthrocentesis procedure. Patients were advised to wear the splints during sleep and, when feasible, during daytime hours over a 6-month period to promote neuromuscular adaptation to the therapeutic jaw position.

A linear mixed-effects model with random intercepts per joint for VAS (joint-based analysis) and per patient for MIO (patient-based analysis) was used to evaluate overall time-dependent changes and the group × time interaction. Following this evaluation, classical statistical tests were applied to examine specific time-point differences and between-group comparisons in accordance with the objectives of the study. The distribution of continuous variables was assessed using the Shapiro–Wilk test. Categorical data were analyzed using the Chi-square test or Fisher's exact test, as appropriate. Intragroup comparisons of time-dependent continuous variables were performed using repeated-measures ANOVA or the Friedman test, depending on normality. Post hoc pairwise analyses were conducted using Bonferroni-adjusted paired t-tests or Wilcoxon signed-rank tests (adjusted significance threshold $p<0.0167$). Intergroup comparisons were performed using the independent samples t-test or Mann–Whitney U test according to the data distribution. Results were reported as mean ± standard deviation, alongside minimum and maximum values. All statistical analyses were performed using MedCalc Statistical Software (v.12.7.7; MedCalc Software bvba, Ostend, Belgium, 2013). A p-value < 0.05 was considered statistically significant.

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RESULTS

Patient demographics and baseline characteristics are presented in Table 1. A total of 57 TMJs from 49 patients were included in the study, with ages ranging from 24 to 58 years (mean ± SD: 36.7 ± 8.7 years). The AO group consisted of 26 patients (29 joints; 37.9 ± 9.3 years), whereas the A+SS group comprised 23 patients (28 joints; 35.4 ± 7.9 years). Three patients in the AO group and five patients in the A+SS group presented with bilateral joint involvement. The male-to-female distribution was 4/22 in the AO group and 1/22 in the A+SS group. Early follow-up (T1) was conducted at 1 postoperative month (mean ± SD: 1.0 ± 0.0 months), and long-term follow-up (T2) between postoperative months 11 and 14 (mean ± SD: 12.6 ± 1.0 months). No significant differences were found between the groups in baseline demographic variables or follow-up durations (p>0.05; Table 1).

A linear mixed-effects model was used to evaluate overall temporal changes in VAS and MIO. The analysis demonstrated a significant main effect of time for both outcomes (p<0.001). For VAS, no significant time × treatment interaction was observed (p>0.05), indicating that the pattern of pain reduction over time was similar between the AO and A+SS groups. In contrast, MIO showed a significant time × treatment interaction at T1 (p=0.005), suggesting an earlier and more pronounced improvement in mouth opening in the A+SS group. Model-estimated trajectories for VAS and MIO are illustrated in Figures 1 and 2.

When all patients were regrouped according to their covariate characteristics, none of these covariates—including ASA status, prior molar extraction, or duration of symptoms—showed a significant effect on postoperative pVAS or MIO at T2 (p>0.05). Age likewise demonstrated no meaningful correlation with the outcomes (p>0.05) (Table 2).

Table 1. Comparison of covariates and demographics between the treatment groups

		Arthrocentesis		Arthrocentesis + Stabilization Splint		
Variables		**N**	**%**	**N**	**%**	**p**
ASA	1	20	76.9%	19	82.6%	0.73†
	2	6	23.1%	4	17.4%	
Prior molar extraction	No	12	46.1%	12	52.2%	0.67⸸
	Yes	14	53.9%	11	47,8%	
Duration of Symptoms	Less than a year	6	20.7%	6	21.4%	0.94⸸
	1 year or more	23	79.3%	22	78.6%	
Arthrocentesis procedures	Bilateral	3	11.5%	5	21.7%	0.45†
	Unilateral	23	88.5%	18	78.3%	
Sex	Male	4	15.4%	1	4.3%	0.35†
	Female	22	84.6%	22	95.7%	
		Mean±SD (Min-Max)	**Mean±SD (Min-Max)**			
Age		37.9 ± 9.3 (24-58)	35.4±7.9 (25-55)	0.33*		
T1		1±0 (1-1)	1±0 (1-1)	N/A – All values are identical		
T2		12.5±1.1 (11-14)	12.7±0.8(11-14)	0.29**		

⸸: Chi-Square test
†:Fisher's exact test
*: Independent samples t-test
**: Mann-Whitney U test
ASA, American Society of Anesthesiologists physical status classification system
T1, 1 month post-operative; T2, 12 month post-operative

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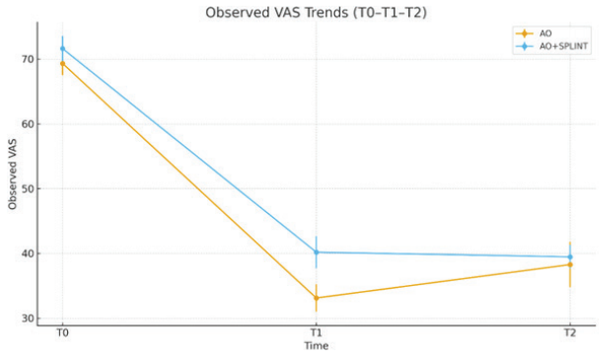


Figure 1. Observed VAS trends across time (T0–T1–T2) in the AO and A+SS groups.

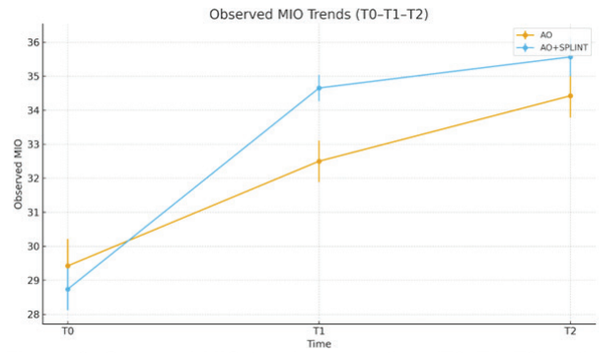


Figure 2. Observed MIO trends across time (T0–T1–T2) in the AO and A+SS groups.

Table 2. Bivariate analyses of the covariates versus pVAS and MIO at T2

		pVAS	p	MIO	p
Variables	**Covariate Group**	**Mean ± Std. Deviation**		**Mean ± Std. Deviation**	
ASA	I	39.36±15.13	0.59*	34.85±2.84	0.59*
	II	36.50±14.54		35.40±3.41	
Prior Molar Extraction	No	39.00±16.27	0.82**	34.92±3.05	0.95*
	Yes	38.75±14.09		34.97±2.87	
Duration of Symptoms	Less than a year	42.50±17.65	0.19**	34.33±2.61	0.42*
	1 year or more	37.89±14.20		35.11±3.01	
Age, year		r = 0.109 (95% CI:-0.15:0.36)	0.42***	r: -0.141 (95% CI:-0.41:0.15)	0.34***

*: Independent samples t-test
**: Mann-Whitney U test
***: Spearman's Rho
ASA: American Society of Anesthesiologists physical status classification system
MIO: Maximum Interincisal Opening
pVAS: Visual Analogue Scale for Pain
T2: 12 month post-operative

Table 3. Comparison between groups in regards of pain and mouth opening

		Arthrocentesis	Arthrocentesis + Stabilization Splint	
Variables		**Mean ± standard dev. Median (Min.-Max.)**	**Mean ± standard dev. Median (Min.-Max.)**	**p**
pVAS (mm)	**T0**	69.3±9.7 70 (50-90)	71.6±10.2 70 (60-90)	0.51*
	T1	33.1±11.5 30 (20-60)	40.2±12.9 40 (20-70)	0.03*
	T2	38.3±18.9 40 (0-70)	39.5±9.7 40 (20-60)	0.67*
	p	<0.001†	<0.001†	
MIO (mm)	**T0**	29.4±4.0 29 (20-35)	28.7±3.0 29 (23-33)	0.51**
	T1	32.5±3.1 32.5(24-37)	34.7±1.8 35 (29-39)	0.02*
	T2	34.4±3.3 34.5(28-41)	35.6±2.7 35 (31-42)	0.22*
	p	<0.001↓	<0.001†	

†: Friedman test
↓: Repeated measures ANOVA
*: Mann-Whitney U test
**Independent samples t-test
T0, Preoperative; T1, 1 month post-operative; T2, 12 month post-operative
p<0.05

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Table 4. Post-hoc analysis of changes in pVAS scores between time intervals

	Arthrocentesis	Arthrocentesis + Stabilization Splint
T0-T1	<0.001	<0.001
T0-T2	<0.001	<0.001
T1-T2	0.245	0.742

Wilcoxon test (adjusted using the Bonferroni correction, p<0.05)
T0, Preoperative; T1, 1 month post-operative; T2, 12 month post-operative.

Table 5. Post-hoc analysis of changes in MIO scores between time intervals

	Arthrocentesis	Arthrocentesis + Stabilization Splint
T0-T1	<0.001*	<0.001
T0-T2	<0.001*	<0.001
T1-T2	0.05*	0.07

Wilcoxon test (adjusted using the Bonferroni correction, p<0.05)
*Paired t-test (adjusted using the Bonferroni correction, p<0.05)
T0, Preoperative; T1, 1 month post-operative; T2, 12 month post-operative

Between-group comparisons of pVAS and MIO values are summarized in Table 3. Preoperatively, VAS scores were similar between the AO (69.3 ± 9.7 mm) and A+SS (71.6 ± 10.2 mm) groups (p>0.05). At T1, pVAS scores were significantly lower in the AO group (p<0.05), whereas no significant difference was detected between the groups at T2 (p>0.05). Preoperative MIO values were also comparable between the AO (29.4 ± 4.0 mm) and A+SS (28.7 ± 3.0 mm) groups (p>0.05). At T1, the A+SS group exhibited significantly greater improvement in MIO (p<0.05), while no significant between-group difference was present at T2 (p>0.05).

Time-dependent changes in both VAS and MIO were statistically significant within each group (p<0.001; Table 3). Post-hoc pairwise comparisons showed significant improvements from T0 to both T1 and T2 (p<0.016). No significant difference was observed between T1 and T2 for either parameter (p>0.016), indicating stabilization of outcomes between early and long-term follow-up (Tables 4 and 5).

DISCUSSION

This retrospective study compared one-year outcomes of arthrocentesis alone versus arthrocentesis combined with stabilization splint therapy in patients with DDwoR. It was initially hypothesized that combining splint therapy would yield superior long-term pain relief and functional improvement. However, both treatments provided comparable improvements in pain intensity and mouth opening, leading to rejection of the hypothesis. These results indicate that arthrocentesis alone ensures sustained clinical benefits, suggesting it as an effective long-term option for DDwoR management.

DDwoR is a complex TMD characterized by pain and limited mouth opening, often requiring multimodal treatment. At one month, patients treated with arthrocentesis alone showed faster pain reduction, while those with arthrocentesis and conventional splint therapy had greater MIO improvement. This reflects their differing mechanisms: arthrocentesis reduces inflammation by flushing inflammatory mediators, whereas splints enhance function by optimizing condylar position. The less pronounced short-term pain reduction in the A+SS group may reflect factors extrinsic to the arthrocentesis procedure itself—such as inconsistent adherence to splint use, early splint-adaptation discomfort, or transient occlusal alterations—which could transiently diminish the immediate analgesic benefits expected from lavage. Such early distinctions highlight the potential for individualized treatment strategies, allowing clinicians to prioritize rapid pain relief or functional recovery based on clinical needs.

Hoşgör *et al.*[4] compared four non-surgical treatments-arthrocentesis, splint therapy, medication, and laser therapy—among TMD patients, including DDwoR cases. No significant differences in MIO or pain were found at six months, but arthrocentesis produced the greatest MIO increase, emphasizing its potential superiority for improving mouth opening.

In the present study, both treatment groups underwent arthrocentesis, with one group additionally receiving splint therapy. Given the biomechanical rationale behind splint therapy—reducing joint pressure, stabilizing the condyle, and protecting the articular surfaces—an additive or synergistic effect when combined with arthrocentesis might be expected. However, several studies challenge this assumption. Alpaslan *et al.*[11] reported that in DDwoR patients, arthrocentesis alone effectively improved pain,

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and mouth opening, with no additional benefit from the inclusion of hard or soft splints. Similarly, Tatlı *et al*.[9] compared three groups—arthrocentesis alone, splint therapy alone, and a combination of both—and found that while treatments involving arthrocentesis yielded comparable outcomes, the splint-only group was significantly less effective in improving both MIO and pain. This aligns with other studies, reinforcing the idea that splint therapy does not provide additional benefit when combined with arthrocentesis.[15,16] Instead, the evidence suggests that arthrocentesis alone plays a central role in symptom relief.

Nagori *et al*.[17] in 2019 and Dawoud *et al*.[18] in 2024 both conducted systematic reviews and meta-analyses examining the effectiveness of splint therapy in the management of TMDs, but their research questions and conclusions diverge significantly. Nagori *et al*.[17] specifically investigated whether adding splint therapy after arthrocentesis improves clinical outcomes in TMD patients. Analyzing six studies, they found no statistically significant difference in pain reduction or maximum mouth opening between patients treated with arthrocentesis alone versus those who also received splint therapy. They suggested that splints may not provide additional benefit but emphasized that more high-quality randomized controlled trials are needed to confirm this. In contrast, Dawoud *et al*.[18] compared arthrocentesis alone to occlusal splints as standalone treatments for disc displacement without reduction. Their meta-analysis of six studies with 343 participants found that arthrocentesis resulted in a significant improvement in maximum mouth opening but only a non-significant trend toward pain reduction compared to splint therapy. However, due to substantial heterogeneity between studies, a high risk of bias, and a lack of double-blind randomized controlled trials, they concluded that definitive clinical recommendations cannot yet be made. While Nagori *et al*.[17] questioned the necessity of splints after arthrocentesis, Dawoud *et al*.[18] demonstrated that arthrocentesis may be superior to splints in improving maximum mouth opening but with limited evidence supporting its superiority for pain relief. Both studies highlight the ongoing uncertainty in TMD management and reinforce the need for more rigorous clinical trials to establish clearer treatment guidelines.

The absence of additional benefit from splint therapy is somewhat unexpected, as splints are traditionally considered a key component of TMJ stabilization and symptom relief. These findings suggest that while splint therapy may have a role in TMD management, its utility in the context of arthrocentesis remains uncertain. One possible explanation is that the lavage and mechanical effects of arthrocentesis already provide sufficient symptom relief, leaving little room for splint therapy to contribute further. Alternatively, splint therapy may be more beneficial in specific subgroups of TMD patients rather than serving as a universal adjunct to arthrocentesis. For instance, Correa-Silva *et al*.[19] demonstrated that while pain relief was similar between arthrocentesis-only and splint-only groups, mouth opening was greater in the splint-only group, particularly among patients with DDwoR, reducible disc displacement, and intermittent locking. Ghanem *et al*.[20], however, presented contradictory findings in bruxism patients with acute intermittent closed lock: arthrocentesis alone led to symptom relapse (30% success), whereas combining it with splints maintained improvements (90% success). This discrepancy may result from differing patient profiles, as bruxism increases joint loading, potentially enhancing splint effectiveness. Bruxism was not evaluated in the present study due to diagnostic limitations. Manfredini *et al*.[21] note that self-reports, tooth wear, and palpation are insufficient for diagnosis, advocating a multidimensional approach including electromyography or polysomnography. Machon *et al*.[22] assessed four treatments for unilateral TMJ osteoarthritis and found improvement rates of 80% (arthrocentesis + splint), 70% (arthrocentesis), 60% (splint), and 30% (rest therapy). Although combined therapy seemed most effective, statistical comparisons were absent, limiting interpretation.

Although Altaweel *et al*.[13] did not include a standalone arthrocentesis group, they compared four treatment groups: stabilization splint, distraction splint, and their respective combinations with arthrocentesis. While they reported better short-term outcomes for the combined treatments, no significant differences were observed among the groups at the six-month follow-up. In the long term, this study challenges the notion that arthrocentesis is superior to splint-based treatments, suggesting that splint therapy alone

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may be sufficient without the need for additional arthrocentesis. Conversely, in the present study, no standalone splint group was included, limiting the comparison to arthrocentesis alone versus arthrocentesis combined with splint therapy, in which similar long-term treatment outcomes were observed. When considering both studies together, it remains unclear whether arthrocentesis alone or splint therapy alone is sufficient. However, as Tatlı *et al*.[9] demonstrated, arthrocentesis-based treatments provided significantly better pain relief and functional improvement compared to splint therapy alone. These results suggest that, although both treatments are individually effective, arthrocentesis may represent a more practical therapeutic option owing to its simplicity, minimal requirement for patient compliance, and shorter treatment duration. This notion is further supported by Wang *et al*.[23] who concluded that the conventional splint therapy following arthrocentesis did not lead to significant improvements in pain reduction or mouth opening capacity, reinforcing the efficacy of arthrocentesis as a standalone intervention. Nonetheless, before definitive conclusions can be drawn, randomized controlled trials directly comparing all treatment modalities within the same study are needed.

A key strength of this study is its exclusive focus on a single TMD, which allows for a homogeneous study population and more precise interpretation of outcomes. The application of standardized treatment protocols and consistent follow-up intervals enhances the internal validity of the findings. Furthermore, this study contributes to a still limited body of literature directly comparing arthrocentesis alone versus its combination with splint therapy. However, the retrospective design introduces inherent limitations such as selection bias and recall bias. Patient adherence to splint use was self-reported and may have been overestimated, as individuals tend to underreport noncompliance. The absence of a splint-only group and the relatively small, predominantly female sample may also limit the generalizability of the results. Although Nitzan's technique recommends Ringer's lactate, saline solution was selected for its greater clinical availability, lower cost, and comparable biocompatibility in the present study (Saline: 286 mOsm/L; Ringer's lactate: 273 mOsm/L).[3,24] Studies show no significant clinical outcome differences between saline and Ringer's lactate, with equivalent improvements regardless of solution, thus, saline is a safe, effective, and economical alternative.[25]

CONCLUSION

This study demonstrated that both arthrocentesis alone and arthrocentesis combined with stabilization splint therapy yielded comparable long-term improvements in pain reduction and functional outcomes in patients with DDwoR. The addition of a stabilization splint did not confer any significant advantage over arthrocentesis alone in long-term symptom relief. These findings support the growing body of evidence that arthrocentesis can be an effective standalone intervention, particularly for patients seeking a minimally invasive, time-efficient treatment. Future randomized controlled trials with larger sample sizes and inclusion of splint-only and combination arms are warranted to establish definitive clinical guidelines.

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AUTHORSHIP CONTRIBUTIONS

T.T. and C.K. : Both authors contributed significantly to the surgical and medical practices, concept, design, data collection and processing, analysis and interpretation, literature search, and writing in this study.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

CONFLICT OF INTEREST STATEMENT

The authors declare that they have no conflicts of interest relevant to the content of this article.

Ethics statement: This study was conducted in accordance with the principles of the Declaration of Helsinki and approved by the Hamidiye Scientific Research Ethics Committee of the University of Health Sciences (Approval No: 25/286; Decision No: 7/25, Meeting Date; 27.03.2025). Informed consent for treatment and use of anonymized medical data for research purposes was obtained from all patients prior to procedures.

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None.

Redüksiyonsuz Disk Deplasmanı Olan Hastalarda Stabilizasyon Splinti ile ve Splintsiz Artrosentez Uygulamalarının Karşılaştırmalı Sonuçları

ÖZET

Amaç: Bu retrospektif çalışmanın amacı, redüksiyonsuz disk deplasmanı (RDD) tanısı alan hastalarda artrosentezin tek başına uygulanması ve artrosentez ile birlikte stabilizasyon splint (SS) tedavisi kombinasyonunun uzun dönem etkinliğini karşılaştırmaktır.

Gereç ve Yöntemler: 2018–2022 yılları arasında tedavi edilen 49 hastaya (57 TMJ) ait tıbbi kayıtlar retrospektif olarak incelendi. Hastalar sadece artrosentez uygulananlar (AO, n=26) ve artrosentezle birlikte stabilizasyon splinti uygulananlar (A+SS, n=23) olmak üzere iki gruba ayrıldı. Ağrı şiddeti görsel analog skala (pVAS) ile, maksimum interinsizal açıklık (MIA) ise tedavi öncesi (T0), 1 ay (T1) ve 12 ay (T2) sonrası ölçüldü. Grup içi ve gruplar arası karşılaştırmalar, veri dağılımına uygun istatistiksel testlerle yapıldı.

Bulgular: Her iki grupta da zaman içinde pVAS ve MIA değerlerinde anlamlı iyileşmeler gözlendi ($p<0.001$). T1'de, AO grubunda ağrı düzeyinde daha fazla azalma görülürken ($p<0.05$), A+SS grubunda MIA artışı daha belirgindi ($p<0.05$). Ancak T2 zaman noktasında, her iki parametre açısından gruplar arasında anlamlı fark bulunmadı ($p>0.05$).

Sonuç: Artrosentezin tek başına uygulanması ve artrosentezin stabilizasyon splinti ile birlikte uygulanması, RDD hastalarında benzer uzun dönem sonuçlar sağlamaktadır. Kombine tedavi kısa vadede fonksiyonel faydalar sunsa da, bu avantajlar 1 yıllık takipte kalıcı olmamıştır. Sadece artrosentez, RDD tedavisinde pratik ve etkili bir tedavi seçeneği olarak değerlendirilebilir.

Anahtar Kelimeler: Artralji; Eklem hastalıkları; Oklüzal splintler; Temporomandibuler eklem

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