

Management of undisplaced or minimally displaced distal radius fractures in adults: immobilization with circumferential casting versus plaster splinting

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ABSTRACT

BACKGROUND: Distal radius fractures (DRFs) are among the most common fractures in adults, with a significant proportion being stable, non-displaced, or minimally displaced. These fractures generally have a low risk of secondary displacement. This study aimed to compare the clinical and radiological outcomes of short-arm circular casting and volar splint application in the conservative treatment of stable distal radius fractures. Additionally, the study evaluated complication rates, patient comfort, and the feasibility of these two immobilization techniques in emergency department settings.

METHODS: This retrospective study reviewed the medical records of 170 patients diagnosed with stable, non-displaced, or minimally displaced distal radius fractures at two emergency departments between January 2020 and January 2023. Fracture stability was assessed using Lindstrom's criteria. Among the participants, 88 patients were treated with short-arm circular casting, while 82 received volar splint application. Immobilization was maintained for four weeks, followed by a six-month follow-up period. Radiographic parameters (radial height, radial inclination, palmar tilt, and articular surface step-off) were measured at baseline and during follow-up visits. Clinical and functional outcomes were assessed using the Quick Disabilities of the Arm, Shoulder, and Hand (qDASH) and Patient-Rated Wrist Evaluation (PRWE) scales. Complication rates and patient satisfaction were also analyzed.

RESULTS: The study included 170 patients (mean age: 46.9±11.4 years). No statistically significant differences were observed between the casting and splint groups in terms of radiological parameters at baseline or six months post-treatment ($p>0.05$). Similarly, clinical and functional outcomes, including qDASH and PRWE scores, were comparable between the two groups ($p>0.05$). Complication rates were 5.7% in the cast group and 4.8% in the splint group, with no significant difference ($p>0.05$). The volar splint technique demonstrated advantages in terms of ease of application and patient comfort.

CONCLUSION: Short-arm circular casting and volar splinting provide equivalent clinical and functional outcomes in the management of stable distal radius fractures. Given its ease of application and greater patient comfort, volar splinting can be considered a practical alternative in emergency department settings, particularly for selected patient populations.

Keywords: Distal radius fracture; stable fractures; short-arm cast; volar splint; conservative treatment.

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INTRODUCTION

Distal radius fractures (DRFs) represent one of the most common fracture types in adults, comprising approximately 17% of all adult fractures. A substantial proportion (between 10% and 35%) of these fractures are nondisplaced or minimally displaced and typically exhibit a low risk of secondary displacement owing to their intrinsic stability.^[1] Short-arm circular cast immobilization is frequently used for the treatment of stable distal radius fractures.^[2] This method is intended to maintain fracture alignment and prevent displacement, malunion, and subsequent functional impairment. However, in cases of initially displaced fractures, a notable risk of re-displacement following circular cast application has been reported, raising ongoing debate regarding the efficacy and appropriateness of this treatment approach.^[3]

Short-arm splinting, a commonly used form of immobilization, offers several advantages, including ease of application, the ability to accommodate edema, and enhanced patient comfort.^[4] Moreover, studies have shown that immobilization with removable wrist splints yields favorable clinical and functional outcomes in the management of stable distal radius fractures.^[5] However, the efficacy of splint applications relative to circular casts, as well as their impact on complication rates and patient satisfaction, has not been clearly established.

In recent years, a growing body of research has focused on identifying the optimal duration of immobilization for distal radius fractures.^[6, 7] Although traditional protocols advocate a minimum of four weeks of immobilization, particularly for displaced fractures, emerging evidence suggests that immobilization may be unnecessary for stable distal radius fractures.^[8] This evolving perspective has raised questions regarding the necessity of rigid immobilization for inherently stable injuries.^[9,10] Within this context, volar splinting, a less restrictive alternative to circumferential casting, has been hypothesized to provide adequate immobilization for the conservative management of stable distal radius fractures. This study aims to compare the clinical and radiological outcomes of short-arm circular casting and volar splinting in the conservative management of stable distal radius fractures. It is hypothesized that volar splinting provides outcomes comparable to those of circular casting in terms of fracture stability, complication rates, and functional recovery, thereby supporting its use as a less restrictive treatment alternative.

MATERIALS AND METHODS

This retrospective study was conducted in accordance with the Declaration of Helsinki and was approved by the local ethics committee (AEŞH-EK1-2023-499). Patient records from the emergency departments of two distinct hospitals were reviewed for the diagnosis of acute distal radius fractures between January 2020 and January 2023. This study exclusively included patients with stable, nondisplaced, or minimally displaced distal radius fractures. Fractures that were

potentially unstable or required reduction were excluded from the analysis. Stability criteria were established according to Lindstrom's descriptions as follows: dorsal angulation $<15^\circ$, volar tilt $<20^\circ$, radial inclination $>15^\circ$, ulnar variance <5 mm, and articular surface step-off <2 mm.^[11] Inclusion criteria were age ≥ 18 years, fractures not requiring manipulation, isolated upper extremity injuries, absence of a prior wrist fracture history, and compliance with a six-month follow-up period. This study included fractures categorized as Frykman types 1, 3, 5, and 7.

Exclusion criteria were inadequate or low-quality radiographs, fractures with dorsal comminution, concomitant fractures (such as ulnar styloid fractures), pre-existing anatomical deformities, open injuries, fractures requiring reduction, and inability to complete the six-month follow-up.

Circular cast applications (Alban®, Ağaoğlu Medical, Türkiye) were performed by orthopedic and traumatology residents or specialists, whereas volar splints were custom-molded and applied by experienced casting professionals using moldable thermoplastic material (Ilgaz®, Ongun Medical, Türkiye). Casting generally required a higher level of technical expertise and precise application to maintain alignment and ensure appropriate pressure distribution. In contrast, volar splinting was a simpler and more practical technique that could be efficiently applied by trained personnel, particularly in high-volume emergency department settings. Both methods were used to stabilize the wrist in a neutral position of rotation, deviation, and flexion. The volar splint was applied to the volar aspect of the forearm and wrist and secured using an elastic bandage (Fig. 1). In this study, patients were treated at two different institutions. All stable distal radius fractures



Figure 1. Illustration demonstrating immobilization of the wrist in a neutral position using a circular cast (left) and a plaster splint (right).

presenting to the secondary care hospital were managed with volar splints, whereas those admitted to the tertiary care center received circular cast treatment. This allocation reflected institutional practice patterns rather than randomization. All patients were immobilized for a standard period of four weeks.

Regular clinical and radiographic evaluations were performed in both groups before and after treatment. Wrist radiographs were obtained in anteroposterior and lateral views during the initial assessment in the emergency department, as well as at weeks 2 (first follow-up), 4 (termination of immobilization), 8, and 6 months (final follow-up). Radiographic parameters included radial height (mm), radial inclination ($^{\circ}$), dorsal/volar tilt ($^{\circ}$), and articular surface step-off. All radiographs were digitized using Picture Archiving and Communication System (PACS) software (PiViewStar[®]; Infinite Technology, Seoul, Korea). The software included a digital goniometer and additional measurement tools with a precision of 1/1000. This standardization eliminated potential magnification and measurement errors.

Patients were monitored for early complications, such as edema, neurovascular compromise, and signs of compartment syndrome, throughout the follow-up period. Clinical assessments of swelling and vascular status (including capillary refill, skin color, and temperature) were performed at each follow-up visit. However, no quantitative grading system (e.g., circumference measurement or a standardized edema scale) was used to document swelling. In addition, complications such as displacement, complex regional pain syndrome (CRPS), and tendon rupture were recorded during the study period.

At the six-month follow-up, functional outcomes and patient-reported satisfaction were assessed using two standardized instruments. Patient function was evaluated using Quick Disabilities of the Arm, Shoulder, and Hand (qDASH) and Patient-Rated Wrist Evaluation (PRWE) questionnaires. Wrist range of motion was quantified using a goniometer to assess volar and dorsal flexion, radial and ulnar deviation, and pronation and supination. The PRWE scale, comprising 15 items, is a self-administered questionnaire, with higher scores indicating greater functional limitations.^[12] The qDASH, which consists of 11 items, evaluates pain and functional impairment, with higher scores indicating greater functional loss.^[13]

Radiographs obtained at the six-month follow-up were evaluated for fracture union, delayed union, malunion, and degenerative joint changes. Radiographic measurements were independently performed by two orthopedic surgeons, demonstrating excellent interobserver reliability (intraclass correlation coefficient [ICC] >0.90). To ensure consistency, measurements obtained by the more experienced evaluator were used for analysis. Functional outcomes, including range of motion, PRWE, and qDASH scores, were assessed by two additional orthopedic specialists. All evaluators were blinded to treatment group allocation during the assessment process.

Statistical Analysis

Statistical analyses were conducted using SPSS version 25 (IBM Corp., Armonk, NY, USA). The Kolmogorov-Smirnov test was used to evaluate data distribution. Comparisons of normally distributed continuous variables between the two groups were performed using the independent samples t-test, with statistical significance defined as $p < 0.05$. Nominal variables were assessed using the chi-square test or Fisher's exact test, depending on the data format. Subgroup comparisons across the four predefined categories (cast with nondisplaced fractures, cast with minimally displaced fractures, splint with nondisplaced fractures, and splint with minimally displaced fractures) were conducted using multivariate analysis of variance (MANOVA). The effect size, as determined by Cohen's d , was 0.45, indicating a moderate difference between the groups. Additionally, a power analysis conducted on 170 data points demonstrated a statistical power of 0.9, confirming that the analyses had sufficient sample size and reliability.

RESULTS

A total of 170 patients were included in this study, comprising 88 patients in the cast group and 82 patients in the splint group. As presented in Table 1, no significant differences were observed between the two treatment groups in terms of demographic variables, including age, sex, hand dominance, and smoking status ($p > 0.05$). Similarly, no statistically significant differences were found in demographic characteristics between the nondisplaced and minimally displaced fracture groups.

Radiological assessments yielded comparable results for both treatment groups when baseline measurements were compared with those recorded six months post-treatment. No statistically significant differences were observed between the initial and six-month measurements for radial height, radial inclination, palmar tilt, or articular surface step-off ($p > 0.05$). Table 2 presents the detailed radiological findings. The rate of loss of reduction in minimally displaced fractures was 3.5% ($n=2$) in the cast group and 5.6% ($n=3$) in the splint group; however, this difference did not result in significant variations in clinical or radiological outcomes ($p=0.386$).

At the six-month follow-up, clinical and functional evaluations included qDASH and PRWE scores, as well as measurements of joint range of motion. No statistically significant differences were observed in functional outcomes between the cast and splint groups. The qDASH and PRWE scores were comparable between the two groups ($p > 0.05$), and no differences were observed in joint range of motion, including flexion, extension, pronation, and supination (Table 3). Comparison of the nondisplaced and minimally displaced fracture subgroups also revealed no statistically significant differences in functional outcomes.

The complication rates during the six-month post-fracture follow-up were 5.7% ($n=5$) in the cast group and 4.8% ($n=4$)

Table 1. Comparison of demographic characteristics between the study groups

	Cast (n=88)	Splint (n=82)	p-value
Age (years)	45.6±10.3	48.5±12.6	0.086
Sex (Male/Female)	32/56	27/55	0.638
Dominant side injured (Yes/No)	56/32	54/28	0.762
Frykman classification			0.519
Type 1	38	38	
Type 3	23	15	
Type 5	17	15	
Type 7	10	14	
Displacement (Minimal/None)	57/31	54/28	0.967
Smoking status (Yes/No)	29/59	34/48	0.251

Table 2. Comparison of initial and final radiological measurements according to treatment modality (cast vs. splint) and fracture displacement type (nondisplaced vs. minimally displaced)

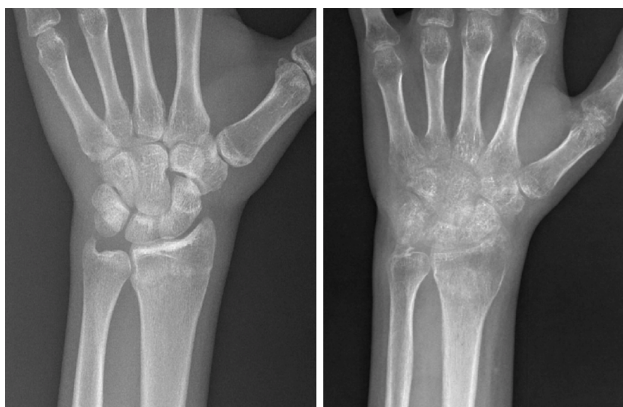
Parameter (unit)	Cast		Splint		p-value
	Nondisplaced (n=57)	Minimally Displaced (n=31)	Nondisplaced (n=54)	Minimally Displaced (n=28)	
Radial Inclination (°)					
Initial	23.41±2.74	23.15±1.90	23.69±2.15	24.08±1.85	0.420
Final	22.97±3.58	23.14±1.91	23.09±3.06	24.08±1.85	0.400
Radial Height (mm)					
Initial	12.33±1.64	12.26±1.32	12.07±1.75	12.44±1.70	0.755
Final	11.98±2.02	12.39±1.45	11.64±2.33	12.43±1.70	0.244
Palmar Tilt (°)					
Initial	11.21±1.66	11.35±1.68	11.48±1.45	11.54±1.42	0.754
Final	10.96±1.98	11.32±1.68	11.07±2.22	11.50±1.42	0.628
Articular Step-off (mm)					
Initial	0.16±0.37	0.19±0.40	0.17±0.38	0.14±0.36	0.960
Final	0.21±0.45	0.19±0.40	0.22±0.42	0.14±0.36	0.869

in the splint group. The incidence of complications did not differ significantly between the two groups ($p=0.386$). In the cast group, two patients experienced fracture displacement, two were diagnosed with complex regional pain syndrome, and one required carpal tunnel release surgery. Among patients diagnosed with CRPS, one individual had a history of hand numbness related to neuropathic sensitivity, while another demonstrated a predisposition to microvascular complications attributable to a history of tobacco use (Fig. 2). The splint group reported three cases of fracture displace-

ment and one instance of rupture of the extensor pollicis longus (EPL) tendon. In cases of nondisplaced fractures, no subsequent displacement was observed (Fig. 3). As previously described, displacement findings were limited to minimally displaced fractures. These events were not significantly associated with clinical or functional outcomes. Patients with displacement were aged 64 and 60 years in the cast group and 68, 66, and 45 years in the splint group. A 45-year-old patient with displacement underwent surgical intervention, whereas the remaining patients were managed conservatively.

Table 3. Comparison of joint range of motion and patient-reported outcome measures (DASH and PRWE) at the 6-month follow-up across subgroups defined by treatment modality (cast vs. splint) and fracture displacement type (nondisplaced vs. minimally displaced)

Parameter (unit)	Cast		Splint		p-value
	Nondisplaced (n=57)	Minimally Displaced (n=31)	Nondisplaced (n=54)	Minimally Displaced (n=28)	
Range of Motion (°)					
Flexion	62.65±8.70	60.87±8.15	62.83±9.75	60.82±9.12	0.637
Extension	44.53±9.92	43.48±7.74	46.39±6.93	46.68±6.08	0.279
Radial Deviation	18.09±2.82	17.97±2.73	18.61±3.47	18.46±3.73	0.758
Ulnar Deviation	21.25±2.71	21.68±2.80	21.26±2.34	22.21±2.44	0.346
Supination	69.72±4.40	68.61±3.62	68.56±3.42	68.43±3.32	0.301
Pronation	81.16±3.76	81.77±4.59	80.72±3.63	81.68±4.35	0.609
Patient-Reported Outcomes					
PRWE	12.18±5.72	12.94±4.45	11.15±4.64	10.86±4.54	0.280
DASH	13.56±6.78	13.94±6.21	13.34±6.42	13.01±6.79	0.955

**Figure 2.** Posteroanterior radiographs of a Frykman type III non-displaced distal radius fracture showing the initial stable fracture (left) and diffuse demineralization consistent with complex regional pain syndrome (right) at the third-month follow-up after four weeks of immobilization.**Figure 3.** Posteroanterior radiographs of a Frykman type I distal radius fracture showing initial immobilization with a volar splint (left) and the six-month follow-up image demonstrating complete radiographic healing (right).

DISCUSSION

In this study, the clinical and radiological outcomes of circular casting versus volar splint application in the management of stable, nondisplaced, and minimally displaced distal radius fractures revealed that both techniques provide safe and effective treatment options. Comparable complication rates and functional outcomes support the viability of both approaches in the conservative management of stable fractures. This study evaluated Frykman types 1, 3, 5, and 7 fractures, with stability assessed according to Lindstrom criteria. The Frykman classification provides a framework for categorizing fracture patterns; however, incorporating additional factors such as age, dorsal comminution, angular deformity, and ulnar styloid fracture may enhance the prediction of instability.^[14] Patients with ulnar styloid fractures were excluded from our study due to their association with distal radioulnar joint instability, which can adversely affect treatment outcomes.^[15] Given the heightened risk of instability associated with ulnar styloid fractures involving the basal fragment, our objective was to obtain a more homogeneous patient cohort.

The literature indicates that stable distal radius fractures have received less attention than unstable fractures, with recent discussions primarily focusing on the duration of immobilization.^[7] Traditional guidelines recommend 4-6 weeks of immobilization; however, recent studies suggest that shorter durations may be sufficient. The risk of fracture redisplacement is highest within the first two weeks and subsequently decreases to approximately 7–8%.^[16,17] Recent research emphasizes reduced immobilization durations, with growing evidence supporting three weeks as sufficient.^[18]

The four-week immobilization period used in this study was

selected to balance the risk of early fracture redisplacement with the need to minimize adverse outcomes, such as wrist stiffness and restricted range of motion associated with prolonged immobilization. This decision also reflected standard institutional practice at both participating centers, ensuring protocol consistency across study groups. While our findings demonstrated the clinical and radiological effectiveness of a four-week duration, future comparative studies are warranted to evaluate whether shorter immobilization periods can provide equivalent outcomes, particularly in carefully selected patients with stable fractures, adequate bone quality, and low comorbidity.

Nondisplaced and minimally displaced distal radius fractures are typically classified as cohorts with a low risk of secondary displacement due to their inherent stability. Research suggests that fractures are stable and can be effectively managed with conservative treatment in the absence of dorsal comminution, with radial shortening <2 mm, lateral displacement <2 mm, and a dorsal tilt angle not exceeding 10°. [19] The initial degree of displacement is a critical factor influencing the risk of early displacement. [20]

Roth et al. [2] reported no displacement, surgical intervention, or malunion in any of the 82 nondisplaced distal radius fractures. Leone et al. [21] highlighted that elderly patients exhibit a greater risk of instability, indicating the need for enhanced monitoring in this demographic.

In the present study, no loss of reduction was observed in nondisplaced fractures; however, displacement was identified in five patients with minimally displaced fractures. Notably, four of these cases involved patients over 60 years of age, suggesting that advanced age may significantly influence fracture stability. Although nondisplaced distal radius fractures are generally considered stable, a redisplacement rate as high as 30% has been reported in minimally displaced fractures, particularly in the presence of dorsal comminution and advanced age. [22] The exclusion of fractures with dorsal comminution in the present study may explain the lower displacement rates observed. The findings indicate that the risk of displacement persists in minimally displaced fractures, emphasizing the need to consider patient characteristics, such as age, during stability assessments and underscoring the importance of a thorough follow-up protocol. Moreover, it is essential to acknowledge that satisfactory clinical outcomes can still be achieved in older patients, even in the presence of displacement. [23]

Research indicates that pain complaints are comparable between patients receiving splint treatment and those undergoing cast treatment, with similar rates of redisplacement in both groups. [5] Studies on displaced and reduced distal radius fractures report significant displacement rates for both techniques; however, they emphasize that splinting and casting demonstrate comparable effectiveness in limiting further displacement. [3,4] A clear consensus on the optimal method of immobilization for stable fractures is lacking; however, some

studies suggest that cast immobilization may be unnecessary for preventing redisplacement and may primarily serve to manage pain. [19] Some studies have suggested that more flexible immobilization techniques, such as elastic bandaging, provide comparable stability and may potentially enhance functional outcomes. [10] Future studies evaluating the use of splints and shortened immobilization periods for nondisplaced or minimally displaced distal radius fractures may help optimize treatment protocols and contribute to improved patient comfort and compliance.

Research suggests that junior physicians and less experienced medical personnel frequently exhibit insufficient knowledge of fracture diagnosis, reduction criteria, and immobilization techniques when managing distal radius fractures in emergency departments. [24,25] The application of a volar splint, characterized by its rapid and uncomplicated implementation by skilled plaster technicians, offers a distinct advantage in the high-pressure environment of busy emergency departments; however, it may also entail certain disadvantages, including the risk of loosening. In contrast, circular cast application generally requires the involvement of orthopedic and traumatology residents or specialists, as well as a meticulous and seasoned approach, to prevent complications such as edema, vascular compromise, and nerve compression resulting from overly tight application. This study demonstrated that volar splint immobilization is as effective as circular casting in the management of stable distal radius fractures, yielding comparable clinical and radiological outcomes. Therefore, emergency medicine practitioners may consider volar splinting a viable alternative to circular casting in routine clinical practice.

Several limitations should be acknowledged in this study. The retrospective design inherently limits methodological rigor compared with prospective studies. A six-month follow-up is generally considered sufficient for evaluating functional outcomes; however, patients lost to follow-up after the immobilization period due to perceived improvement may have influenced the radiographic outcomes. The emergence of various complications during an extended follow-up period cannot be excluded. Given that radiographic changes in older patients do not consistently correlate with functional outcomes, conducting analyses in more homogeneous age groups may be advantageous. Additionally, analyzing the relationship between bone mineral density and positional loss, and incorporating these data into future studies, may yield valuable insights.

Another limitation is demographic variability. Although age, sex, and osteoporosis status were similar between the groups, this may have limited the ability to detect clinically meaningful differences. These demographic factors are well known to influence fracture stability and functional recovery, particularly in elderly or osteoporotic patients, and should be carefully considered in future studies. Finally, the lack of standardization of immobilization protocols between the two centers should be acknowledged. Orthopedic residents or specialists applied circular casts in a tertiary care hospital,

whereas trained cast technicians administered volar splints in a secondary care setting. This discrepancy in practitioner profiles may have introduced variability in the technical application of immobilization. However, it also reflects real-world clinical conditions, in which treatment strategies differ based on institutional resources and available expertise. Therefore, although this methodological variability should be considered when interpreting the results, it highlights the practical feasibility of volar splinting in high-volume, resource-constrained clinical settings.

CONCLUSION

This study demonstrates that circular casting and volar splint application yield comparable clinical and functional results in the management of stable, nondisplaced, or minimally displaced distal radius fractures. Both methods represent safe and effective treatment options. In the emergency department context, the ease of application and patient comfort associated with volar splinting support its use as a suitable alternative in appropriately selected patient populations

Ethics Committee Approval: This study was approved by the Ankara Etilik City Hospital Ethics Committee Ethics Committee (Date: 27.09.2023, Decision No: AEŞH-EKI-2023-499).

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ORİJİNAL ÇALIŞMA - ÖZ

Yetişkinlerde nondeplase veya minimal deplase distal radius kırıklarının yönetimi: Sirküler alçı ile plaster splint uygulaması arasındaki immobilizasyon karşılaştırması

AMAÇ: Distal radius kırıkları, erişkinlerde en sık görülen kırıklar arasında yer almakta olup, büyük kısmı stabil, kaymamış veya minimal kaymış özellik göstermektedir. Bu çalışma, stabil distal radius kırıklarının konservatif tedavisinde kullanılan kısa kol dairesel alçı ve volar splint uygulamalarının klinik ve radyolojik etkinliğini karşılaştırmayı; ayrıca, bu iki yöntemin komplikasyon oranları, hasta konforu ve uygulanabilirliği üzerindeki etkilerini değerlendirmeyi amaçlamaktadır.

GEREÇ VE YÖNTEM: Ocak 2020 ile Ocak 2024 tarihleri arasında, iki farklı hastanenin acil servislerinde tanı alan stabil, kaymamış veya minimal kaymış distal radius kırığı olan hastaların kayıtları retrospektif olarak incelendi. Kırıkların stabilitesi Lindstrom kriterlerine göre değerlendirildi. Çalışmaya dahil edilen 170 hastadan 88'ine kısa kol dairesel alçı, 82'sine ise volar splint uygulandı. Her iki grup da dört hafta boyunca immobilize edildi ve hastalar altı ay süreyle takip edildi. Radyolojik ölçümler (radial yükseklik, radial inklinasyon, palmar tilt ve eklem yüzeyi basamağı) düzenli aralıklarla değerlendirildi. Klinik ve fonksiyonel sonuçlar, Quick Disabilities of the Arm, Shoulder, and Hand (qDASH) ve Patient-Rated Wrist Evaluation (PRWE) ölçekleri ile belirlendi. Komplikasyon oranları ve hasta memnuniyeti de karşılaştırıldı.

BULGULAR: Toplamda 170 hasta (ortalama yaş: 46.9 ± 11.4 yıl) çalışmaya dahil edildi. Radyolojik parametreler açısından alçı ve splint grupları arasında başlangıç ve altı aylık takiplerde anlamlı bir fark tespit edilmedi ($p > 0.05$). Klinik ve fonksiyonel değerlendirmelerde qDASH ve PRWE skorları her iki grupta benzerdi ($p > 0.05$). Komplikasyon oranları açısından gruplar arasında anlamlı bir fark bulunmadı (alçı grubu %5.7, splint grubu %4.8; $p > 0.05$). Splint grubu, uygulama kolaylığı ve hasta konforu açısından avantaj sağladı.

SONUÇ: Stabil distal radius kırıklarının konservatif tedavisinde kısa kol dairesel alçı ve volar splint uygulamaları benzer klinik ve fonksiyonel sonuçlar sunmaktadır. Bununla birlikte, volar splint uygulaması, acil servislerde uygulama kolaylığı ve hasta memnuniyeti açısından etkili bir alternatif olarak değerlendirilebilir.

Anahtar sözcükler: Distal radius kırığı; kısa kol alçı; konservatif tedavi; stabil kırıklar; volar splint.

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