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Key Words

Distal radius fractures, elderly, aging fracture, casting, ORIF

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Received: 6 August 2023

Accepted: 24 August 2023

Published: 26 August 2023

Citation: A.K. Anwar Hamzath, B.S. Shiva Kumar and Ravi Kumar, 2023. Comparison between Surgical and Conservative Treatment for Distal Radius Fractures in Patients over 40 Years. Res. J. Med. Sci., 17: 303-312, doi: 10.59218/makrjms.2023.1003.1012

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Comparison Between Surgical and Conservative Treatment for Distal Radius Fractures in Patients over 40 Years

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ABSTRACT

Distal radius fractures (DRF) stand out as the most common orthopaedic injuries and frequently hint at underlying osteoporosis. This research aimed to compare non-surgical and surgical treatments in terms of clinical outcomes and life quality in individuals aged 40 and above. A total of 99 patients were divided into two groups. The conservative group, consisting of 49 patients, underwent conservative treatment, whereas the ORIF group, comprising 30 patients, underwent surgery. Clinical and functional outcomes were evaluated using tools such as Short Form 36 (SF36), Modified mayo wrist score (MMWS), disability of the arm shoulder hand (DASH) and visual analogue scale (VAS). Each patient's joint mobility was assessed and compared to their unaffected wrist. Overall scores from SF36, DASH, MMWS and VAS didn't exhibit a significant difference between groups. However, the surgical group showed a notably better outcome in role limitation ($p < 0.05$), while the conservative group had a significantly higher rate of complications ($p < 0.05$). The data from this research aligns with existing studies, indicating that surgical intervention for repairing the radius articular surface doesn't provide clear benefits for older populations. Treatment decisions should be informed by an in-depth fracture evaluation and comprehensive discussions with the patient.

INTRODUCTION

Distal radius fractures (DRF) represent the most common orthopaedic injuries, accounting for one-sixth of fractures presented in emergency departments. Remarkably, about two-thirds of DRFs are displaced, necessitating reduction^[1]. Epidemiological studies illustrate a bimodal age rate curve, with the highest incidence rates in children and the elderly^[2]. Recommendations by the US Preventive Services Task Force and EULAR/EFFORT suggest further evaluation with a dual energy X-ray absorptiometer for patients over 50 years of age^[3]. This is because DRF often signals underlying osteoporosis^[4]. In comprehensive studies, age-adjusted incidence rates range from 73-202 per 100,000 for men and 309-767 per 100,000 for women.

For DRFs, a myriad of surgical interventions are documented in orthopaedic literature, each presenting its own set of advantages and limitations. Currently, the American Academy of Orthopaedic Surgeons has not endorsed any particular treatment approach-either conservative or surgical. Furthermore, they haven't specified a preferred surgical method^[5]. Treatment decisions often hinge on multiple factors including the patient's age, lifestyle, medical history, compliance, functional needs, hand dominance, fracture type, fracture alignment and severity, soft tissue condition and concurrent fractures, among others^[6,7].

Many patients undergo closed reduction and cast immobilization, an affordable option that avoids hospital stays. However, this method often leads to less-than-ideal radiological results and a significant redisplacement rate, which can peak at 40%^[1]. Open reduction internal fixation (ORIF) using the volar locking plate technique stands out as the go-to surgical approach for DRFs. Other surgical choices encompass percutaneous pinning combined with casting and external fixation^[8-10]. Intriguingly, a recent study showed that patients treated with ORIF regained function faster than those with external fixation, although no long-term (2-year) functional benefits were observed^[11].

Our study juxtaposed the primary geriatric treatments, conservative vs. ORIF, analyzing the clinical outcomes. We aimed to ascertain if open reduction internal fixation holds an edge over closed reduction combined with casting.

MATERIALS AND METHODS

Aim of the study: This study aimed to assess the quality of life and clinical outcomes in patients over 65 years of age with distal radius fractures, comparing conservative and ORIF treatments.

Study design: A retrospective review was conducted on 79 patients, all above the age of 40, who underwent treatment for DRF at our institution between January 2018 and December 2022.

Inclusive criteria:

- Aged over 40 years
- Radiologically confirmed non-exposed distal radius fracture, with or without an accompanying ulnar styloid process fracture
- Absence of other hand or upper limb fractures

Exclusion criteria:

- Presence of an open wound
- Concurrent fractures of the scaphoid or other carpal bones
- Pathological fractures

Nine patients were excluded from the study due to non-compliance with follow-up, not meeting the required criteria, or not providing consent. Fractures were classified based on their radiographic features and articular involvement as per AO guidelines into:

- Extra-articular
- Partially articular
- Articular^[12].

Of the 79 patients, they were divided into two treatment groups:

- The conservative treatment group, comprising 49 patients
- The ORIF (surgical) group, consisting of 30 patients (Table 1)

In this study, 79 individuals aged 40 and above were examined. These participants were divided into two distinct groups: 49 in the conservative treatment group and 30 in the ORIF surgical group. The average age at the time of trauma for the surgical group was 65.76±10.164 (ranging between 45-71 years), while for the conservative group, it was 55.20±8.556 (ranging between 50-93 years) (Table 1 and Fig. 1).

Out of the 79 participants, 38 (48.1%) were male and 41 (51.9%) were female. Fractures were categorized based on radiographic features and articular involvement into types A1, A2, A3, B1, B2 and B3.

Within the conservative group, according to AO guidelines:

- 24 patients (48.98%) had type A fractures
- 20 patients (40.82%) had type B fractures
- 5 patients (10.20%) had type C fractures

In contrast, among the surgical group:

- 14 patients (46.67%) had type A fractures
- 14 patients (46.67%) had type B fractures
- 2 patients (6.67%) had type C fractures

These classifications are detailed in Table 1.

Table 1: Demographics characteristics

Characteristics	ORIF		Conservative		p-value
	No.	Percentage	No.	Percentage	
Number	30	38.00	49	62.00	
Age	65.76±10.164		55.20±8.556		<0.001
Gender					
Male	17	56.67	21	42.86	0.255
Female	13	43.33	28	57.14	
Classification					
A	14	46.67	24	48.98	0.996
A1	8	26.67	13	26.53	
A2	4	13.33	7	14.29	
A3	2	6.67	4	8.16	
B	14	46.67	20	40.82	
B1	6	20.00	6	12.24	
B2	5	16.67	10	20.41	
B3	3	10.00	4	8.16	
C	2	6.67	5	10.20	
C1	0	0.00	1	2.04	
C2	1	3.33	2	4.08	
C3	1	3.33	2	1.08	

AO: AO classification principles, "A": Extra-articular, "B": Partially articular and "C": Articular

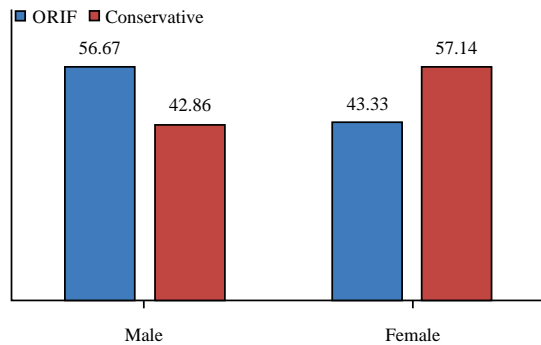


Fig. 1: ORIF vs conservative

Interventions: Patients treated conservatively underwent immobilization with a long cast, while those who received surgical treatment were fitted with a splint. Every fracture initially underwent a closed reduction. Radiographic examinations took place after a week for the conservative group to check the stability of the reduction. If there was evidence of reduction loss, the patients underwent another reduction or the cast was wedged. After removing the arm section of the cast, the forearm segment was retained for three more weeks to facilitate pronosupination movements. At the end of six weeks, the cast was removed and patients embarked on a functional wrist movement rehabilitation regime.

Surgical intervention for patients in the surgical group was carried out within a week post-trauma. Surgery was recommended for patients with complicated fracture patterns, signified by post-reduction radial shortening exceeding 3 mm, a dorsal tilt over 10 degrees, or intra-articular displacement or step-off greater than 2 mm, as per guidelines^[13]. The surgical outcomes, both intraoperative and postoperative, were evaluated using radiography. After the surgery, a splint was applied to the forearm. This was followed by two weeks of immobilization and another two weeks dedicated to therapy. The rehabilitation regimen comprised flexibility exercises,

wearing an elastic compression sleeve, massages, passive joint movement and functional training in self-care, home management, work, community participation and leisure activities.

Follow-ups, both clinical and radiological, were scheduled for all patients at intervals of 1, 3 and 12 months.

Clinical assessment: At the half-year mark, every patient's clinical and functional results were evaluated. This evaluation involved comparing the range of motion (ROM) in the injured wrist to that of the unaffected, opposite wrist. Three distinct questionnaires were employed:

- The modified mayo wrist score (MMWS) gauged wrist functionality
- The disability of the arm shoulder hand (DASH) assessed any associated impairments
- The short form 36 (SF36) was used to gauge the patients' overall quality of life

Additionally, the visual analogue scale (VAS) provided further insights into wrist functionality and comfort levels.

The comparative analysis between the two groups revealed no statistically significant differences. This was consistent across the DASH scores, MMWS, VAS and measurements of flexion, extension, as well as radial and ulnar deviations.

Short form 36 (SF36) and quality of life: The SF-36v2 Health Survey is a comprehensive health questionnaire that encompasses 36 queries, yielding a detailed profile of an individual's functional health and overall well-being^[14]. The survey is structured to offer insights into both physical and mental health using eight distinct scales and two summary measures grounded in psychometric principles. Additionally, a preference-based health utility index is derived from it.

This survey is versatile in its applications. It can be administered to any adult group, whether patients or the general population. Common uses include screening individuals, monitoring treatment outcomes, gauging disease impact and comparing treatment benefits.

The questionnaire consists of 36 preset questions divided into eight key areas:

- Physical Functioning (PF)
- Role Limitations due to Physical Health (RP)
- Bodily Pain (BP)
- General Health Perceptions (GH)
- Vitality (VT)
- Social Functioning (SF)
- Role Limitations due to Emotional Issues (RE)
- General Mental Health (MH)

Scores derived from this survey range from 0 to 100, with higher scores indicating better health and overall functionality of the participant^[15].

Disability of the arm, shoulder and hand score (DASH): The disability of the arm, shoulder and hand score (DASH) is a self-reported questionnaire designed to measure physical function and symptoms in individuals with musculoskeletal disorders of the upper limb^[16]. This tool encompasses 30 items, each offering up to five response options.

The questionnaire's structure is as follows:

- 21 items address the difficulty experienced in performing certain tasks
- 5 items focus on symptoms: two items pertain to pain, while the others probe numbness, stiffness and weakness

The remaining four items individually gauge social function, work function, sleep quality and self-confidence regarding the upper extremity.

The scoring for DASH ranges between 0 and 100, with higher scores indicating a more severe disability or impairment. To illustrate, a perfectly functional, healthy wrist would score closer to 0, while a completely incapacitated wrist would approach a score of 100.

The unique strength of the DASH score lies in its ability to encapsulate the patient's perspective of their upper extremity, considering it as an integrated functional unit rather than isolated joints or segments^[16].

Modified mayo wrist score (MMWS): The modified mayo wrist score (MMWS) is a well-established evaluative tool employed to gauge wrist functionality

and its eventual recovery after treatment^[17]. The scoring system encompasses a total of 100 points, distributed across several functional and subjective criteria.

Here's a breakdown:

- **Grip strength:** The strength of the patient's grip, when compared to the opposite, unaffected side, can earn up to 25 points
- **Flexion/extension arc:** The range of movement, particularly the active flexion and extension arc of the wrist in comparison to the uninjured side, accounts for another 25 points
- **Resumption of activities:** The capacity to return to regular work or daily activities fetches an additional 25 points
- **Pain rating:** This is a subjective measure based on the patient's self-report. Evaluators assign points as follows:
 - **No pain:** 25 points
 - **Mild pain:** 20 points
 - **Moderate pain:** 10 points
 - **Severe pain:** 0 points

Higher scores are indicative of better wrist function and less pain:

- **Outstanding results:** 90-100 points
- **Good results:** 80-89 points
- **Fair results:** 65-79 points
- **Poor results:** 0-64 points

The MMWS is valuable because it offers both objective and subjective insights. It compares the injured wrist's function against the contralateral, healthy limb, providing a clear picture of therapeutic outcomes and recovery progression^[18].

Pain evaluation VAS (visual analogue scale): The Visual Analogue Scale (VAS) is a straightforward and widely adopted tool designed to measure pain intensity^[19]. It operates as a unidimensional measure capturing pain levels on a continuum.

The scale typically presents as a straight line, where one end is labeled "no pain" (equivalent to 0 points) and the other "pain as bad as it could be" or "unbearable pain" (which corresponds to 10 points).

Patients indicate their current level of pain by placing a mark along this line, where the position of the mark indicates the intensity of their pain. The distance from the "no pain" end to the mark then provides a quantitative measure of the patient's pain, with longer distances indicating greater pain.

Due to its simplicity and adaptability, the VAS is a preferred tool in various clinical and research settings to gauge pain across diverse patient groups.

Radiographic evaluation: Following the cast application, standard antero-posterior and lateral radiographs of the wrist joint were taken in the emergency room for the conservative cohort after one week of immobilization.

Statistical analysis: Continuous data are presented using means and standard deviations. The t-test was employed to compare the clinical evaluation both before and after the operation. The chi-square test was used to assess the uniformity between the two groups regarding age, gender, side of injury and complications. A p-value of 0.05 was set as the threshold for statistical significance. All statistical analyses were conducted using the 2016 GraphPad Software (GraphPad Inc, La Jolla, CA, USA).

RESULTS

Sample: A retrospective review was conducted on 50 cases of distal radius fractures involving patients aged 45 and above. The average follow-up period for these patients was 14.3 ± 2.3 months, ranging from 12-17 months. When the injury occurred, the conservative group had an average age of 46 ± 8.1 years, while the surgical group's average age was 43 ± 7.3 years, with age ranges from 35-48 years. Females notably outnumbered males in both groups, constituting 73% of the surgical group and 75% of the conservative group.

Based on the AO classification:

In the surgical group:

- 8 out of 39 patients (20.5%) had type A fractures.
- 15 patients (38.46%) had type B fractures
- 16 patients (41%) had type C (intraarticular) fractures

In the conservative group:

- 19 out of 52 patients (36%) had type A fractures
- 21 patients (40%) had type B fractures
- 12 patients (23%) had type C fractures

Clinical assessment: When evaluating the range of motion (ROM) of the injured wrist in comparison to the unaffected contralateral wrist, 19 out of 27 patients who underwent surgery regained between 75% and

99% of their original ROM. Similarly, 33 patients in the conservative treatment group achieved this range. Upon examining radial and ulnar deviation, flexion and extension between the two groups, no significant difference was observed between those who underwent surgery and those who did not, with a $p = 0.82$.

Based on assessments of the DASH scores, MMWS, VAS and the degrees of flexion, extension and radial and ulnar deviation, there were no statistically significant differences between the two groups (Table 2).

Short form 36 (SF36) and quality of life: The overall results from the SF-36 questionnaire showed no statistically significant difference between the two groups (Table 2). However, a significant difference was noted on the role limitations due to physical health (RP) scale, with a p-value of 0.03. Although, the SF-36 scores pertaining to social and physical activities displayed noticeable differences between the two groups with the surgically treated (ORIF) group showing better outcomes the differences weren't statistically significant. Specifically, the ORIF group had an average score of 67.41 ± 25.74 for social activity and 22.15 ± 24.95 for physical activity, while the conservative group scored 44.09 ± 33.54 and 47.27 ± 36.9 , respectively.

Disability of the arm, shoulder and hand score (DASH): For the DASH score, the mean for the ORIF group was 22.15 ± 24.95 , while the conservative group had a mean of 29.39 ± 17.96 . Analysis revealed no statistically significant differences between these scores ($p = 0.44$).

Modified mayo wrist score (MMWS): For the MMWS, the ORIF group had a mean score of 66.25 ± 20.01 and the conservative group had a mean score of 60.9 ± 18 . Statistical analysis showed no significant differences between the groups ($p = 0.51$).

VAS (visual analogue scale) for pain evaluation: Pain evaluation using the VAS showed no significant differences between the two groups ($p = 0.60$).

Complications: As outlined in Table 3, a total of 30 adverse events (33% of the patients) were reported. Among these, 7 complications (7.7% of patients)

Table 2: Clinical outcomes

	ORIF	Conservative	Mean difference	p-value
DASH	20.13 ± 4.862	19.98 ± 5.360	0.154	0.898
MMWS	72.67 ± 6.789	71.84 ± 7.195	0.830	0.613
VAS	2.93 ± 0.907	2.82 ± 0.972	0.117	0.596
Flexion	77.67 ± 7.279	76.33 ± 9.507	1.340	0.510
Extension	69.83 ± 6.086	69.90 ± 6.574	0.065	0.965
Radial deviation	16.83 ± 4.044	16.12 ± 3.855	0.711	0.437
Ulnar deviation	25.67 ± 4.686	23.16 ± 7.048	2.503	0.089

Table 3: Complications

Complaints	ORIF		Coservative		Total	
	No.	Percentage	No.	Percentage	No.	Percentage
Arthritis	0	0.00	3	6.12	3	3.80
CRPS	2	6.67	0	0.00	2	2.53
CTS	1	3.33	0	0.00	1	1.27
Deformity	0	0.00	2	4.08	2	2.53
LOR	0	0.00	6	12.24	6	7.59
Loss of reduction	0	0.00	1	2.04	1	1.27
Pain	1	3.33	0	0.00	1	1.27
NIL	26	86.67	37	75.51	63	79.75
Total	30		49		79	

were observed in the surgical (ORIF) group and 23 complications (25.3% of patients) were observed in the conservative group.

As detailed in Table 3, out of the total patient cohort, there were 16 adverse events reported, representing 20.25% of the patients. The breakdown shows that the conservative group accounted for 12 of these complications, making up 75% of the reported events. In contrast, the ORIF group had 4 complications, which is 25% of the total adverse events.

DISCUSSIONS

Distal radius fractures (DRFs) are common in elderly patients but there is no consensus among orthopedic surgeons on the best treatment approach, whether surgical or non-surgical^[13]. For those aged 65 and above, there isn't concrete evidence suggesting superiority of one treatment over the other^[20]. Preventing such fractures is possible by addressing osteoporosis through dietary measures and medications, including vitamin D, calcium, bisphosphonates and recombinant human parathyroid hormone (PTH)^[21]. When deciding on a treatment course, it's crucial to consider the patient's overall health goals and preferences^[22]. Handling DRFs in osteoporotic bone is challenging, whether treated conservatively or surgically. Specifically, patients with reduced bone density, especially in the early postmenopausal phase, show signs of trabecular bone degradation leading to weaker bone strength^[23].

Research on osteoporotic distal radius fractures (DRFs) has delved into their functional and radiological outcomes. Some studies indicate that osteoporosis adversely affects the outcomes of DRFs when treated with open reduction and internal fixation (ORIF) due to complications from the low bone mass density of the distal radius^[24]. These complications include the loss of fixation and late displacement of the bone. Meanwhile, other studies have emphasized the link between osteoporosis in the elderly and fixation loss^[25]. When deciding on treatment, it's essential to consider the significant cost differences of the available treatments^[9]. Surgical treatment goals aim at specific anatomical criteria like reduced radial shortening and specific degrees of radial inclination. If patients

refuse or aren't suitable candidates for surgery, immobilization using a cast remains the sole option^[26,27]. For those opting for surgery, the typical procedure involves internal fixation using a locking plate and open reduction. For younger, active patients, maintaining articular congruity is of utmost importance as it closely relates to functional outcomes^[28,29].

Malalignment of distal radial fractures can lead to complications such as wrist deformity, lasting discomfort, post-traumatic arthrosis and suboptimal wrist function. In younger patients, it's often recommended to opt for an ORIF procedure to ensure the articular congruity and proper radial length are restored^[30]. However, there is limited literature supporting the anatomical restoration of the radial articular surface and length in the elderly. Intriguingly, studies by Young and Rayan^[31] suggest that radiological outcomes, which pertain to the alignment and positioning of the bones on imaging, don't necessarily correlate with functional outcomes, patient satisfaction, or the return to usual activities^[32].

The goal of the retrospective study was to ascertain the real-world benefits of surgical intervention for distal radius fractures in the elderly. The study utilized a holistic approach by incorporating quality-of-life assessments, specific measurements for the wrist and upper arm, as well as range of motion (ROM) assessments in the follow-up process. It's hypothesized that a distal radius fracture has the potential to negatively impact the functionality of the entire upper limb, either temporarily or permanently^[13]. This is of particular concern for older individuals who are more susceptible to decreases in mobility and subsequent reductions in quality of life due to health complications. Beyond the immediate effects of the fracture, patients also face potential challenges like carpal tunnel syndrome, complex regional pain syndrome, bone misalignment and post-traumatic arthritis, all of which can complicate recovery^[15].

In the study, there wasn't a significant difference observed in the overall patient outcomes between the group that underwent surgery and the group that was treated conservatively. This aligns with findings from other recent randomized trials on the same topic^[5]. However, one area that showed a notable difference in

terms of quality of life was "role limitations due to physical health problems" (RL), with those in the conservative treatment group scoring worse. This difference can be better understood when considering the overall health status of the patients rather than just the fracture itself^[30]. Many patients in the conservative group opted out of surgery due to pre-existing poor health conditions such as Parkinson's disease, Alzheimer's disease, diabetes, heart failure and senile dementia. This accounts for the slight variance in the SF36 overall scores (mean difference: 13.28) and provides insight into the more pronounced disparity in the RL values. A significant portion of patients in the conservative group declined the ORIF surgery based on their perceptions of their overall health status.

The most extensive randomized trial on distal radius fractures (DRF) in the elderly had to be terminated because of low recruitment rates. However, results from the ORCHID trial, after a three-month follow-up, showed no significant clinical differences between the groups treated with surgery and those treated conservatively. This outcome aligns with the findings of the aforementioned study^[6].

Toon *et al.*^[9] conducted a comparison between open reduction and internal fixation (ORIF) and non-operative treatment for intra-articular distal radius fractures. Although the surgical group had superior radiographic results, these did not translate into better functional outcomes when evaluated based on DASH and MAYO wrist scores, strength, pain scores and certain range of motion measurements. However, contrasting results are seen in other studies. Martinez-Mendez *et al.*^[33] found that elderly patients who underwent surgery for an articular DRF had better clinical outcomes. The definitive long-term relationship between anatomical and articular restoration and clinical improvement in individuals over 65 years remains uncertain.

No significant difference was noted in the visual analog scale (VAS) score between the surgical and conservative treatment groups for distal radial fractures. However, the sources of wrist pain were distinct for each group. Surgical patients primarily experienced pain at the surgical incision site due to device irritability, while those in the conservative treatment group experienced pain resulting from post-traumatic arthritis.

There was a marked difference in the incidence of complications between the two groups: 25% in the surgical group and 75% in the conservative group. Surgical interventions carry potential risks of complications regardless of the fixation method used. Specifically, according to the findings of Yamamoto *et al.*^[34], tendon irritation or tenosynovitis

is the second most common complication (21%) linked to the use of volar locking plates and is also the second most cited reason (14%) for plate removal.

Both the original trauma and subsequent surgery can potentially cause neural damage. This damage can occur immediately or manifest later as a result of irritation from the implanted device. In addition to neural complications, patients are also at risk of infection, loss of reduction, intra-articular implantation of the device, compartment syndrome, malunion and nonunion. Furthermore, after either conservative or surgical treatment of distal radius fractures (DRFs), patients may develop complex regional pain syndrome^[6].

In the surgical group from our study, wrist pain was the most common complication, affecting 5.5% of patients. This was followed by carpal tunnel syndrome (CTS), which occurred in 2.2% of patients, attributed to irritation from the surgical device, totaling 6 instances. Other complications in the surgical group included persistent wrist pain in 3.3% of patients and incision site pain in 2.2%. For those who developed CTS due to the surgical device, treatments included carpal tunnel release procedures and the removal of the surgical plate. In the conservative treatment group, which also included type A fractures, there was a notably high risk of subsequent displacement, observed in 13.2% of the patients.

A significant risk of secondary displacement exists in patients with Distal Radius Fractures (DRFs) who initially receive conservative treatments like closed reduction. This observation is corroborated by multiple studies. Mulders *et al.*^[1] retrospective study found that 40% of DRF patients who initially underwent closed reduction later required additional surgeries due to secondary displacement. Similarly, the ORCHID trial by Bartl *et al.*^[6] noted a substantial conversion rate from conservative to surgical treatments resulting from displacement issues with the initial closed reduction. However, even with this shift to surgical intervention, the outcomes for those in the "conversion group" were not adversely impacted.

The conservative treatment of distal radius fractures (DRFs) carries a notable risk of subsequent complications, with post-traumatic wrist arthrosis being the second most common adverse event, affecting 10% of this cohort. Literature suggests that the persistence of an articular step-off in the distal radial articular surface, following a DRF, significantly increases the risk of developing radiocarpal arthritis^[34,35]. Long-term follow-up studies indicate that such articular incongruities, such as step-offs or an increased dorsal tilt, can alter the distribution and magnitude of pressures on the joint, which in turn can lead to cartilage damage and

eventual osteoarthritis^[33]. This theory is further strengthened by the findings of Fitoussi *et al.*^[36], where it was observed that patients who healed with a congruent joint had a much lower rate of radiographic evidence of arthritis (only 11%) compared to a whopping 91% of those with any degree of radiocarpal joint articular incongruity.

There appears to be a disparity between clinical symptoms and radiographic findings in patients with wrist osteoarthritis (OA). A study by Erhart *et al.*^[37] revealed that individuals with significant radiographic evidence of wrist OA reported relatively mild pain. Furthermore, the degree of arthritis, as depicted on the radiographs, did not correlate with the patient-reported disabilities of the arm, shoulder and hand (DASH) scores. This disconnect suggests that the presence of radiographic wrist OA does not necessarily translate into subjective complaints or functional limitations for the patient. The incongruence between radiographic findings and patient-reported outcomes might also elucidate why there wasn't a significant difference in the modified mayo wrist score (MMWS) and DASH scores between the conservative and surgical groups, even when the conservative group had a markedly higher incidence of post-traumatic arthritis (PA).

CONCLUSION

The best approach for treating distal radius fractures in older individuals remains uncertain, with one option being ORIF using a plate and screw. When deciding on a treatment plan, it's crucial to make a thorough assessment of the fracture and engage in an open dialogue with the patient, considering both their physical and mental health and their daily functional needs. To determine a universally accepted best practice for this common injury that affects the elderly's quality of life, larger randomized studies are necessary. Such research could pave the way for a treatment algorithm that aids medical decision-making.

LIMITATIONS OF STUDY

Nature of the study: It was retrospective, which means it relied on past records and data. Retrospective studies are generally considered to have less robustness than prospective studies due to potential biases and the reliance on pre-existing data.

Single-center design: The study was conducted in just one center. This limits the generalizability of the results as the findings may be specific to the patient population or practices of that particular center.

Irregular sample size: The surgical sample size was not consistent or uniform, which can impact the validity and reliability of the results.

Bias in patient selection: A significant portion of the conservative group consisted of patients who, although advised surgery, declined it due to preexisting health conditions like Parkinson's, Alzheimer's and cardiovascular diseases. This could skew the results as their reasons for opting for conservative treatment weren't solely based on the fracture but also on their overall health condition. This might introduce a selection bias, as these patients might have different outcomes than those who declined surgery purely based on the fracture or other unrelated reasons.

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