The role of diagnostic wrist arthroscopy in suspected scapholunate ligament injury

a cohort study of 324 patients

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Aims

Diagnostic wrist arthroscopy is considered the gold standard for evaluating wrist joint complaints. Although this tool is often used to diagnose and stage scapholunate ligament (SLL) lesions, reports about the possible findings and their clinical relevance are scarce. Therefore, this study describes the patient characteristics, arthroscopic findings, and treatment of patients who underwent diagnostic arthroscopy for suspected SLL injury.

Methods

We conducted a retrospective cohort study of patients who underwent diagnostic wrist arthroscopy due to suspicion of a SLL lesion based on medical history, physical examination, and imaging. We systematically gathered arthroscopic findings and complications.

Results

This study included 324 patients, predominantly male (55%), with a median age of 44 years (IQR 29 to 54) and symptom duration of ten months (IQR 5 to 24). The indication of SLL injury was arthroscopically confirmed in 253 patients (78%). Isolated SLL injuries were found in 92 patients (28%) (Geissler I/II: 32%; III: 37%; IV: 32%). SLL lesions and SLL-associated cartilage damage were discovered in 31 patients (10%). Additional findings were found in 181 patients (56%), such as triangular fibrocartilage complex lesions (36%), lunotriquetral ligament lesions (7%), and radioscaphocapitate ligament lesions (11%). No pathology was found in 20 patients (6%). In 27 patients (8%), complications occurred due to wrist arthroscopy. The most common follow-up surgeries were 3LT (40%), salvage procedures (9%), and ulnar shortening osteotomy (6%).

Conclusion

While diagnostic wrist arthroscopy commonly confirms the suspected SLL lesions and their severity, it often reveals additional pathologies (un)related to the suspected pathology. It is essential to perform the procedure thoroughly to establish all possible pathologies. Determining the appropriate treatment for these additional findings is not always straightforward and needs further investigation.

Take home message

- Wrist arthroscopy often confirms the preoperative diagnosis of scapholunate ligament lesions while frequently detecting additional pathologies.
- The use of four portals enables a more comprehensive assessment, revealing

pathological findings beyond the apparent areas of injury.
- However, arthroscopy cannot differentiate between asymptomatic and symptomatic pathology, posing a risk of overdiagnosis and overtreatment if used as the sole diagnostic criterion.

Introduction

Scapholunate ligament (SLL) lesions are one of the injuries that can occur after a fall on the outstretched hand. The SLL is an essential structure to maintain the stability of the carpal bones in the wrist.[1] When this ligament is injured, the kinematics of the carpal bones might change, mainly resulting in radio dorsal-sided wrist pain, chronic instability if left untreated, and eventually a scapholunate advanced collapsed (SLAC) wrist.[2,3]

Although it might be essential to diagnose and treat a SLL lesion to prevent a SLAC wrist, an accurate diagnosis remains challenging due to the limited sensitivity and specificity of physical examination and imaging methods, such as radiographs or MRI.[4,5] Wrist arthroscopy is referred to as the 'gold standard' diagnostic tool because of its ability to visualize, test, and determine the severity and the precise location of the pathology.[6]

The downsides of this 'gold standard' are less highlighted in the literature. Wrist arthroscopy is invasive, expensive, and involves consequent sick leave. Moreover, complications such as nerve lesions, complex regional pain syndrome (CRPS), or damage to tendons or cartilage occur in around 5% of patients.[7,8] Another downside is that wrist arthroscopies are mainly performed only for diagnostics without direct therapeutic interventions.

The diagnostic value is highly operator-dependent,[9] and limited when performed for non-specific wrist pain.[10] Also, not all abnormalities found by arthroscopy are pathological findings and the cause of the pain, such as anatomical variations or (mild) degenerative changes.[11]

However, despite the common use of arthroscopy, no comprehensive research has been performed based on the pathological changes in the wrist found during arthroscopy in patients. Therefore, the aim of this study is to determine: 1) in how many cases diagnostic wrist arthroscopy can identify the suspected underlying pathology, i.e. SLL lesion; 2) how often and which coexisting findings are found; 3) in how many cases no clear pathology is found; 4) follow-up treatment; and 5) percentages of complications.

Methods

Study design and setting

We conducted a retrospective cohort study using the medical records of patients who underwent diagnostic wrist arthroscopy at Xpert Clinics, The Netherlands. Xpert Clinics routinely collects data for hand and wrist conditions at 22 specialized treatment centres. When patients undergo treatment here and give informed consent, a secure online system automatically distributes measurements among patients (GemsTracker).[12] In this study, we used the automatically gathered data for the patient characteristics and collected the arthroscopic findings from the medical records.

We conducted this study according to the Strengthening The Reporting of OBservational studies in Epidemiology (STROBE) statement.[13] We obtained ethical approval from our institution's institutional review board, and all patients provided written informed consent.

Table I. Overview of patient characteristics who underwent diagnostic wrist arthroscopy for suspected scapholunate ligament lesion.

Variable	Data (n = 324)
Median age, yrs (IQR)	44.0 (29.0 to 54.0)
Male sex, n (%)	181 (55.9)
Median duration of symptoms, mths (IQR)	9.5 (5.0 to 24.0)
Dominant side affected, n (%)	178 (56.5)
Type of work, n (%)	
None	68 (21.0)
Light	84 (25.9)
Medium	97 (29.9)
Heavy	75 (23.1)
Previous non-surgical treatment, n (%)	230 (71.0)
Previous surgical treatment, n (%)	48 (14.8)
Trauma, n (%)	210 (64.8)
Location of complaints, n (%)	
Midcarpal	24 (7.4)
Radial	149 (46.0)
Radiocentral	151 (46.6)
MRI before arthroscopy, n (%)	77 (23.8)
CT before arthroscopy, n (%)	12 (3.7)
Radiograph before arthroscopy, n (%)	302 (93.2)
Arthroscopy portals, n (%)	
Radiocarpal and midcarpal	264 (81.5)
Radiocarpal	60 (18.5)
Anaesthesia, n (%)	
General anaesthesia	11 (3.4)
Regional with sedation	16 (4.9)
Regional without sedation	397 (91.7)
Tourniquet used, n (%)	256 (79.0)

Patients

We selected patients in this study who: 1) were aged 18 years or older; 2) had radial, radiocarpal, or midcarpal wrist complaints (without any ulnar-sided complaints) and underwent diagnostic wrist arthroscopy for the assessment of the SLL; 3) received arthroscopy between October 2011 and April 2021; and 4) gave informed consent. The diagnosis before arthroscopy was reached by medical history, physical examination, and imaging as requested by the surgeon. We excluded patients if the indication for wrist arthroscopy was not for a suspected SLL lesion, was not clearly stated, or the wrist arthroscopy report was unavailable. We also excluded patients who had previously undergone surgery for SLL lesions or related surgery.

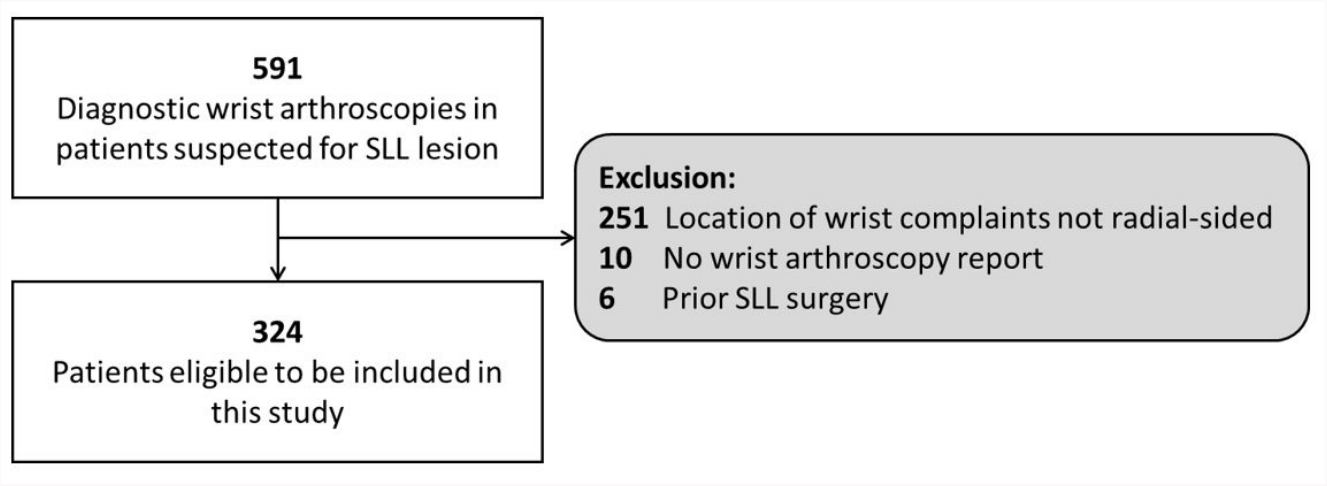

Fig. 1
Flowchart of patient selection. SLL, scapholunate ligament.

Table II. Arthroscopic findings in patients with traumatic radial-sided wrist pain, suspected for scapholunate ligament lesion, categorized in groups according to the found pathology.

Findings	Data, n (%)
Group A: the expected SLL injury corresponding to the clinical complaints	123 (38)
Group A1: isolated SLL lesion	92 (28)
Group A2: SLL lesion with associated cartilage damage	31 (10)
Group B: besides the expected SLL injury, an additional non-related finding, such as damage to another ligament	130 (40)
Group C: not the suspected SLL injury but other additional findings, so instead of a SLL lesion, a TFCC lesion, for example	51 (16)
Group D: no findings	20 (6)

SLL, scapholunate ligament; TFCC, triangular fibrocartilage complex.

Arthroscopy

All wrist arthroscopies in our study were performed by hand surgeons classified as level III to IV, according to the system developed by Tang and Giddins.[14] The patient is positioned supine, and the wrist is placed under traction. For visualization and instrumentation of the radiocarpal joint, the 3-4, 4-5, or 6 R portals are used, while the midcarpal radial (MCR) and midcarpal ulnar (MCU) portals are used for the midcarpal joint. The arthroscope has a diameter of 1.9 mm and is an Arthrex (USA) product. All findings during the arthroscopy are recorded using a standardized reporting format in the medical records. Additionally, we collected data concerning the type of anaesthesia used, the application of tourniquets, and which portals were employed.

Outcome measures

Patient-specific characteristics were derived from the previously described database. These data included age, sex, hand dominance, operated hand, workload, and duration of complaints. Complaint-specific data, such as previous treatment, location of complaints, indications for arthroscopy, imaging, prior trauma, arthroscopic findings, and complications were derived from the electronic patient files.

All arthroscopic findings were recorded, including pathology of SLL, lunotriquetral ligament (LTL), radioscaphocapitate ligament (RSL), triangular fibrocartilage complex (TFCC), damage of the cartilage, synovitis, and ganglion. Geissler[15] and Palmer[16] grades were used for SLL/LTL staging and TFCC staging, respectively. The occurrence and location of cartilage damage were reported but not graded.

Subsequently, arthroscopic findings were categorized into five groups. Group A contains arthroscopic findings that matched the indication: isolated SLL lesions (Group A1) or SLL lesions with SLAC-associated cartilage damage (Group A2). We considered damage to the scaphoid fossa, scaphoid, capitate, lunate, and lunate fossa as SLAC-associated damage. Patients were placed in Group B if additional non-related damage was found besides the expected SLL injury, such as injury to another ligament. In Group C, no suspected SLL injury was found, but other additional findings, such as a TFCC lesion, were found. Last, Group D contains the arthroscopies that yielded no pathological findings.

To gain insight into how the arthroscopic findings influenced the choice for follow-up surgery, we report all interventions during arthroscopy and all surgeries within one year after diagnostic wrist arthroscopy.

Table III. Arthroscopic findings in patients with radial-sided wrist pain, suspected for scapholunate ligament lesion, categorized in groups according to the scapholunate ligament Geissler stage.

Findings	Total n = 324, n (%)	No SLL lesion n = 71 (22%), n (%)	Geissler I/II n = 66 (20%), n (%)	Geissler III n = 82 (25%), n (%)	Geissler IV n = 105 (32%), n (%)
Cartilage damage	116 (36)	26 (37)	19 (29)	23 (28)	48 (46)
Scaphoid fossa	78 (24)	13 (18)	11 (17)	16 (19)	38 (36)
Scaphoid	51 (16)	8 (11)	8 (12)	7 (8)	28 (27)
Capitate	31 (10)	8 (11)	5 (8)	7 (8)	11 (10)
Lunate	38 (12)	10 (14)	6 (9)	9 (11)	13 (12)
Lunate fossa	34 (11)	10 (14)	7 (10)	6 (7)	11 (10)
Triquetrum	12 (3)	2 (3)	3 (5)	3 (4)	4 (4)
Hamate	11 (3)	3 (4)	0 (0)	4 (5)	4 (4)
Synovitis	125 (39)	36 (51)	28 (42)	28 (34)	33 (31)
Ganglion	16 (5)	6 (8)	3 (5)	5 (6)	2 (2)
LTL lesion	23 (7)	6 (8)	7 (11)	5 (6)	5 (5)
RSL lesion	37 (11)	6 (8)	9 (14)	5 (6)	17 (16)
TFCC lesion					
Traumatic	60 (19)	15 (21)	7 (11)	18 (22)	20 (19)
Palmer 1A	12 (4)	1 (1)	1 (2)	3 (4)	7 (7)
Palmer 1B	10 (3)	2 (3)	2 (3)	5 (6)	1 (1)
Palmer 1C	2 (1)	2 (3)	0 (0)	0 (0)	0 (0)
Palmer 1D	36 (11)	10 (14)	4 (6)	10 (12)	12 (11)
Degenerative	58 (18)	19 (27)	8 (12)	10 (12)	21 (20)
Palmer 2A	13 (4)	4 (6)	3 (5)	4 (5)	2 (2)
Palmer 2B	15 (5)	5 (7)	1 (2)	2 (2)	7 (7)
Palmer 2C	29 (9)	10 (14)	4 (6)	4 (5)	11 (10)
Palmer 2D	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Palmer 2E	1 (0)	0 (0)	0 (0)	0 (0)	1 (1)

LTL, lunotriquetral ligament; RSL, radioscapholunate ligament; SLL, scapholunate ligament; TFCC, triangular fibrocartilage complex.

Complications were extracted from the electronic patient files. We noted all deviations from the expected recovery due to the arthroscopic procedure or postoperative care within three months after arthroscopy or until follow-up surgery.

Statistical analysis

The outcomes of this study were analyzed by using descriptive statistics. The distribution of continuous data was assessed with histograms and QQ plots. Normally distributed data were reported as means with SD and skewed data as medians with IQR. Categorical variables were summarized using numbers and percentages. Analyses were performed using R v. 4.3.1 (R Foundation for Statistical Computing, Austria).

Results

In total, 591 patients underwent diagnostic wrist arthroscopy for a suspected SLL lesion at our clinic. Of these patients, 324 met the inclusion criteria (Figure 1).

Patient characteristics

The characteristics of the included patients are described in Table I. Patients had a median age of 44 years (IQR 29 to 54). More than half of the patients (56%) were male, and the median duration of complaints was ten months (IQR 5 to 24). A traumatic injury to the wrist was reported by 210 (65%) of all patients. Most patients were previously treated non-surgically (71%), and some were treated surgically (15%) for wrist pathology unrelated to the SLL. Radiocarpal and midcarpal arthroscopy was performed in 264 patients (82%), with only radiocarpal portals used in the remaining cases. This was because midcarpal arthroscopy was not technically feasible in some patients, or was not considered necessary by the hand surgeon.

Arthroscopic findings

An overview of all arthroscopic findings is presented in Tables II and III. Out of the 324 performed arthroscopies, the indication of an SLL injury was confirmed by arthroscopy in

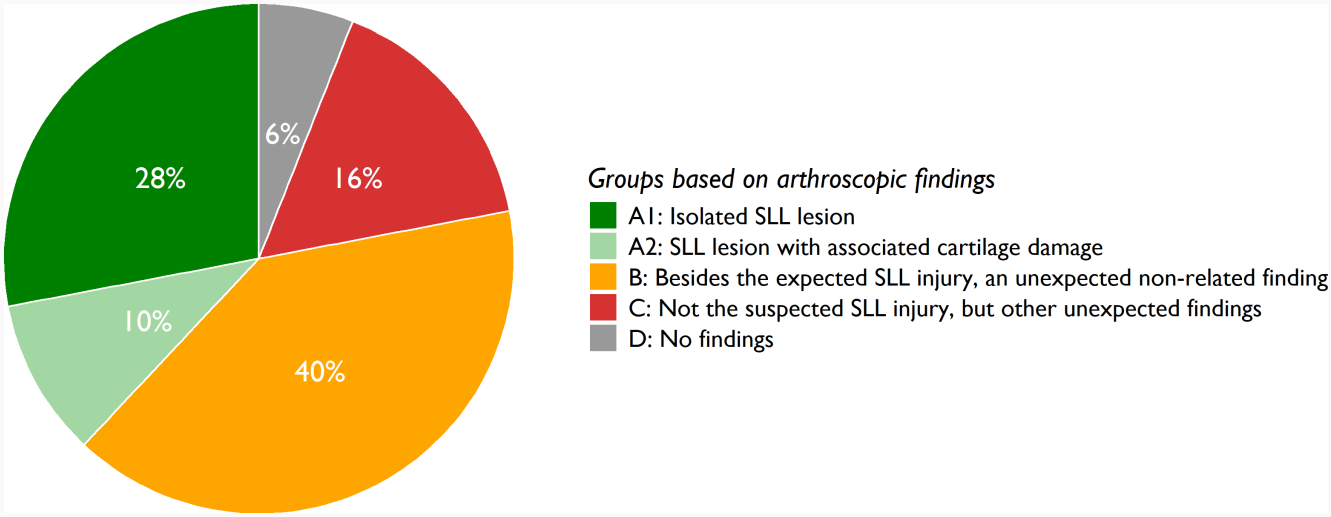

Fig. 2
Arthroscopic findings in patients with radio dorsal-sided wrist pain, suspected for scapholunate ligament (SLL) lesion, categorized in groups according to the found pathology (%).

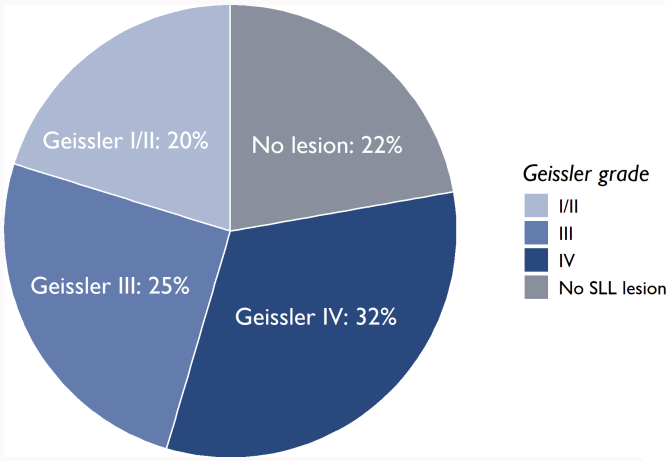

Fig. 3
Arthroscopic findings in patients with radio dorsal-sided wrist pain, suspected for scapholunate ligament (SLL) lesion, concerning the aspect of the scapholunate ligament lesion, categorized according to the Geissler classification (%).

Table IV. Relationship between radiograph and arthroscopic findings regarding the scapholunate ligament.

		Radiograph	
		Suspected for SLL lesion, n (%)	**Not suspected of SLL lesion, n (%)**
Arthroscopy	**No SLL lesion found**	False positive: 30 (9.9)	True negative: 33 (10.9)
	SLL lesion found	True positive: 177 (58.6)	False negative: 62 (20.5)
	Geissler I/II	37 (12.3)	24 (7.9)
	Geissler III	54 (17.9)	23 (7.6)
	Geissler IV	86 (28.5)	15 (5.0)

SLL, scapholunate ligament.

253 patients (78%) (Figures 2 and 3). In 92 patients (28%), an isolated SLL injury was found (Group A1, Table II), categorized as Geissler I/II: 32%; III: 37%; and IV: 32%. Of all SLL injuries, 177 (70.0%) were seen as such on preoperative radiographs (Table IV). Radiographs more often recognized the SLL lesion if the Geissler grade was higher.

SLL injuries combined with SLAC-associated cartilage damage were found in 31 patients (10%) (Group A2, Table II). The prevalence of damage to the scaphoid and scaphoid fossa was higher in combination with a Geissler IV SLL lesion (Table III). Damage of the cartilage (SLL lesion-associated as well as non-associated) was found in 116 patients (36%). Among the patients with cartilage damage, 78% had a SLL injury, while 6% had no ligament injuries. The same proportion of additional findings was seen in every Geissler SLL stage (Table III).

In 130 patients (40%), a SLL lesion was found with additional findings (Group B), including TFCC lesions (65%), RSL lesions (24%), and LTL lesions (13%). Of the 51 patients (16%) without SLL pathology (Group C), 67% had a TFCC lesion. The most prevalent TFCC lesions were Palmer 1D and 2C (Table III). No pathology was found during arthroscopy in 20 patients (6%) (Group D).

Treatment during and following arthroscopy

During arthroscopy, 99 patients (30.6%) had one or more arthroscopic interventions, such as ganglion removal (3.1%), synovectomy (24.1%), or TFCC debridement (20.4%). In a separate session following arthroscopy, 188 patients (58.0%) underwent surgical treatment within one year, with three-ligament tenodesis performed most frequently (39.8%) (Table V). The proportion of patients undergoing surgery increased with the severity of the Geissler grade. Some patients underwent salvage procedures (9.3%), based on the destructed cartilage (SLAC wrist) found during arthroscopy. Last, in the minority, the incidental findings during arthroscopy led to surgical

Table V. Surgical interventions within one year after diagnostic wrist arthroscopy, categorized in groups according to the scapholunate ligament Geissler stage.

Treatment	Total	No SLL lesion	Geissler I/II	Geissler III	Geissler IV
	n = 324, n (%)	n = 71 (22%), n (%)	n = 66 (20%), n (%)	n = 82 (25%), n (%)	n = 105 (32%), n (%)
Three-ligament tenodesis	129 (39.8)		13 (19.7)	44 (53.7)	72 (68.6)
Dorsal capsular reinforcement	7 (2.2)	1 (1.4)	4 (6.1)	2 (2.4)	
Salvage procedures	30 (9.3)	4 (5.6)	4 (6.1)	10 (12.2)	13 (12.4)
Proximal row carpectomy	11 (3.4)	1 (1.4)	1 (1.5)	4 (4.9)	5 (4.8)
Four corner arthrodesis	3 (0.9)	1 (1.4)	1 (1.5)		1 (1.0)
Radioscapholunate arthrodesis	2 (0.6)	1 (1.4)			1 (1.0)
Radial stylodectomy	7 (2.2)	1 (1.4)			3 (2.9)
Wrist arthrodesis	3 (0.9)			2 (2.4)	1 (1.0)
Wrist denervation	4 (1.2)		1 (1.5)	1 (1.2)	2 (2.0)
Removal dorsal wrist ganglion	3 (0.9)	2 (2.8)		1 (1.2)	
Synovectomy	2 (0.6)	1 (1.4)			1 (1.0)
Correction osteotomy radius	2 (0.6)	2 (2.8)			
TFCC repair	10 (3.1)	1 (1.4)	4 (6.1)	2 (2.4)	3 (2.9)
Ulnar shortening osteotomy	19 (5.9)	8 (11.3)	3 (4.5)	2 (2.4)	6 (5.7)
LTL reconstruction	3 (0.9)	2 (2.8)			1 (1.0)
Other	6 (1.9)	1 (1.4)	1 (1.5)	3 (3.7)	1 (1.0)
Total	188 (58.0)	23 (32.4)	22 (33.3)	56 (68.3)	87 (82.9)

LTL, lunotriquetral ligament; SLL, scapholunate ligament; TFCC, triangular fibrocartilage complex.

Table VI. Complications within three months after wrist arthroscopy or until follow-up surgery.

Complications	Details, n (%)
Scar hypersensitivity	4 (1.2)
Prolonged stiffness	4 (1.2)
No access to midcarpal portal possible/no view	3 (0.9)
Adverse event pain medication (celebrex)	3 (0.9)
Haematoma	3 (0.9)
Hypoesthesia dorsal skin of the wrist	3 (0.9)
Ganglion	2 (0.6)
Superficial wound infection	2 (0.6)
Extensor indicis proprius tendon rupture	1 (0.3)
Ulnar neuropathy	1 (0.3)
Complex regional pain syndrome	1 (0.3)
Total	27 (8.3)

treatment, for example TFCC repair (3.1%) or ulnar shortening osteotomy (5.9%).

Complications

Of all patients, 27 (8.3%) experienced a complication within three months after wrist arthroscopy (Table VI). One patient developed CRPS. No other patients required further treatment.

Discussion

Wrist arthroscopy is frequently used to diagnose suspected SLL injuries. Although often considered the gold standard, there has is a lack of large clinical studies regarding the arthroscopic findings. In this study, we evaluated the arthroscopic findings in patients with clinical suspicion of a SLL lesion based on medical history, physical examination, and imaging, and the occurrence of complications.

The suspected SLL lesion was confirmed in most of the patients. Interestingly, additional findings were also found in more than half of the patients. These additional findings were unrelated to the SLL Geissler stages. Over one-third of the patients had a TFCC lesion. Only a small proportion (6%) of arthroscopies yielded no findings. Of all patients, 8.3% had a complication due to the procedure.

In this study, we have seen that in 273 patients (78%), SLL injury is confirmed with diagnostic wrist arthroscopy. We are unaware of studies describing the arthroscopic findings in patients suspected of SLL lesion, making it difficult to compare our results. As expected, Geissler IV SLL lesions were more often accompanied by scaphoid (fossa) cartilage damage due to the disturbed wrist kinematics and sequence of cartilage

deterioration.[3,17,18] For Geissler grades I to III, the SLAC-related cartilage damage prevalence did not differ.

Due to the secondary stabilizers, SLL lesions are not always recognized on static or dynamic radiographs.[2,19] Unexpectedly, arthroscopy revealed more severe lesions (Geisler grade IV) that were undetectable on preoperative radiographs. This finding underscores the value of arthroscopy in diagnosing and staging SLL lesions, and assists hand surgeons in choosing the most suitable treatment approach.

Additional findings during arthroscopy were common in our study. Some studies describe findings in patients with distal radius fractures[15,20–24] and post-traumatic wrist injuries.[25] These studies also demonstrated that arthroscopy reveals more damage to the ligaments and cartilage than expected. Andersson et al[25] and Lindau et al[22] reported that cartilage damage rarely occurs on its own but is often accompanied by ligamentous injury, which is also supported by our study. In contrast to our expectation, damage to other ligaments was unrelated to the severity of the SLL lesion.

Degenerative TFCC lesions (Palmer 2) were found in 18% of patients, aligning with literature that commonly reports this degeneration in asymptomatic patients over 35.[11] In addition, we also found traumatic TFCC lesions (Palmer 1), mostly type 1D (11%). These traumatic TFCC lesions were unexpected and probably hidden by the dominant pain on the radial side. This additional finding could pose a clinical dilemma: whether to treat only the SLL lesion, or combine it with repairing the (asymptomatic) traumatic TFCC lesion.

In our study, in 20 patients (6%), no pathology was found during arthroscopy. In contrast with our results, Mohamadi et al[10] reported a high percentage of negative findings (78%) in patients undergoing diagnostic wrist arthroscopy without preoperative diagnoses, such as those with non-specific complaints. This suggests that having a preoperative diagnosis is important to limit the number of negative wrist arthroscopies.

This study demonstrates that treatment decisions were guided by arthroscopic findings. The added value of arthroscopy lies in its ability to detect or rule out injuries, stage them, and inform subsequent treatment decisions. In total, 58% of patients proceeded to surgery, with a higher frequency among those with severe SLL lesions. However, not all patients with SLL lesions wanted surgical interventions. The classification of the SLL injury and the identification of coexistent findings led to dorsal capsular reinforcement, SLL reconstruction, or salvage procedures, which could not have been determined with certainty prior to arthroscopy. However, one should be wary when making treatment decisions based on the unexpected findings, since not all abnormalities have to be of clinical relevance.

In our study, 8.3% of patients showed a different clinical recovery than expected or a complication, which is slightly higher than previously published research (4.7% to 6.0%).[7,8] This may be attributed to the inclusion of complications arising from both the operative setting (tourniquet) and the postoperative care (adverse events from pain medication). A vast majority of the complications were mild, self-limiting, and required no further treatment. However, we also observed more serious complications such as hypoesthesia, a tendon rupture of the extensor indices proprius, and CRPS. This demonstrates that wrist arthroscopy is a surgical procedure with a complication risk and should not be considered a minimal invasive diagnostic tool.

Strengths and limitations

This study has several strengths. It adds to the knowledge gap on the arthroscopic findings in patients preoperatively diagnosed with a SLL lesion. A large patient population was included, and the subsequent treatment and related complications were described.

Our study also had limitations. First, this is a retrospective study, for which we had to rely on the surgeons to keep accurate medical records. However, this is considered accurate due to a standardized report template noting the arthroscopic findings. Furthermore, the data are based on daily care with no standardized diagnostic protocol. This means that the diagnostic process, the reason for the chosen arthroscopy, and how the arthroscopy was performed, depended on the hand surgeon and the patient. However, all the surgeons involved are expert hand surgeons with European Board of Hand Surgery certification.[26]

One-quarter of the arthroscopies were only performed in the radiocarpal joint. This could lead to an underestimation of the additional findings and SLL lesions. Finally, the interpretation of the arthroscopic findings depends on the surgeon,[9,27] which remains a procedure limitation.

To conclude, in this study, the diagnostic wrist arthroscopy often confirmed the preoperative diagnosis, but additional findings were seen in many cases. While providing direct visualization of cartilage, wrist arthroscopy faces challenges in differentiating between normal degenerative changes and symptomatic pathology, particularly as there is no opportunity to compare the symptomatic wrist directly with the contralateral asymptomatic wrist. This difficulty can result in overdiagnosis and overtreatment if decisions are made solely based on arthroscopic findings. Additionally, coexistent pathologies complicate the diagnosis and selection of appropriate treatments. The comprehensive visualization made possible through wrist arthroscopy using four portals is beneficial, as it enables assessment beyond the more obviously affected areas, which might mask other substantial but less symptomatic pathologies. It is important to obtain a good medical history, physical examination, and imaging from patients, and only perform the arthroscopy with a differential diagnosis. This way, we limit the negative findings and complications. Future research could focus on the treatment of other identified pathologies and how to prevent overtreatment.

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Ethical review statement

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