

Long-term results of surgical release of de Quervain's stenosing tenosynovitis

Alexander Scheller · Ralph Schuh · Wolfgang Hönle ·
Alexander Schuh

Received: 30 July 2008 / Accepted: 18 August 2008 / Published online: 28 October 2008
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Abstract The management of de Quervain's disease (DD) is nonoperative in the first instance, but surgery should be considered if conservative measures fail. We present the long-term results of operative treatment of DD. From July 1988 to July 1998, 94 consecutive patients with DD were treated operatively by a single surgeon. There were 80 women and 14 men. Average age at the time of operation was 47.4 years (range 22–76). The right wrist was involved in 43 cases, the left in 51 cases. All operations were done under tourniquet control with local infiltration anaesthesia using a longitudinal incision and partial resection of the extensor ligament. There were six perioperative complications, including one superficial wound infection, one delayed wound healing, and four transient lesions of the radial nerve. A successful outcome was achieved in all cases with negative Finkelstein's test. Simple decompression of both tendons and partial resection of the extensor

ligament with a maximum of 3 mm can be recommended in operative treatment of DD with excellent long-term results.

Résumé Le traitement de la maladie de de Quervain (DD) est un traitement non opératoire en première intention, néanmoins la chirurgie peut être nécessaire en cas d'échec. Nous présentons les résultats à long terme du traitement chirurgical de la maladie de De Quervain, de juillet 1988 à juillet 1998, 94 patients consécutifs présentant une maladie de De Quervain ont été traités chirurgicalement par un seul chirurgien. Il s'agissait de 80 femmes et de 14 hommes., l'âge moyen à l'intervention était de 47,4 ans (de 22 à 76). Le poignet droit était atteint dans 43 cas et le poignet gauche dans 51 cas. Toutes les opérations ont été conduites avec un garrot et une anesthésie locale, le traitement ayant constitué en une incision longitudinale permettant une résection partielle du ligament extenseur. Il y a eu 6 complications peri-opératoires incluant une infection superficielle, un retard de cicatrisation et 4 lésions transitoires du nerf radial. Un bon résultat a été observé dans tous les cas avec un test de Finkelstein négatif. La simple décompression des tendons et la résection partielle au maximum de 3 mm du retinaculum dorsal du carpe permet d'avoir un bon résultat et peut être recommandé dans le traitement des maladies de De Quervain avec une excellent résultat à long terme.

A. Scheller · W. Hönle
Department of Orthopedic Surgery, Neumarkt Clinic,
92318 Neumarkt, Germany

R. Schuh · A. Schuh
Orthopädische Gemeinschaftspraxis,
Weiden, Germany

A. Schuh
Research Unit Orthopedics and General Surgery,
Neumarkt Clinic,
92318 Neumarkt, Germany

A. Schuh (✉)
Research Unit, Teaching Hospital of the University
of Erlangen–Nuremberg,
Nürnberg Str. 12,
92318 Neumarkt i.d. OPf., Germany
e-mail: Alexander.Schuh@klinikum.neumarkt.de

Introduction

Stenosing tenovaginitis of the abductor pollicis longus (APL) and extensor pollicis brevis (EPB) in the first extensor compartment of the wrist has been recognised since De Quervain reported the condition in 1895 [1, 5]. Despite great interest in the condition, its aetiology and pathology remain uncertain. In histopathology, de Quervain's

disease (DD) is not characterised by inflammation, but by thickening of the tendon sheath and most notably by the accumulation of mucopolysaccharide, an indicator of myxoid degeneration. These changes should be pathognomonic of DD. It has been suggested that DD is more likely a result of intrinsic, degenerative mechanisms rather than extrinsic, inflammatory ones [4]. In the last few years several authors have reported a relationship between de Quervain's disease (DD), pregnancy, and lactation [3]. The management of DD is nonoperative in the first instance, but surgery should be considered if conservative measures implemented for four to six months fail [3]. Release of the first dorsal compartment by simple incision [6] for chronic de Quervain tenosynovitis is considered a simple procedure. However, its complications include volar subluxation of abductor pollicis longus and extensor pollicis brevis, radial sensory nerve injury including scarring and adhesions of the nerve, and inadequate decompression and reflex sympathetic dystrophy [6]. To our knowledge there are no reports on long-term results of surgical release of DD. We present the long-term results of operative treatment of DD performed by a single surgeon.

Material and methods

From July 1988 to July 1998, 94 consecutive patients with DD were treated operatively by the same surgeon (R.S.). Five patients had bilateral DD. There were 80 women and 14 men. Six patients had a history of rheumatoid arthritis. The average age at operation was 47.4 years (range 22–76). The right wrist was involved in 43 cases, the left in 51 cases. All patients included in the study had clinical evidence of DD with a positive Finkelstein test [7], and a thickened retinaculum of the first dorsal compartment. All the diagnoses were made by R.S. Indication for operative release of DD was disease duration longer than three months and unsuccessful treatment with one or maximum two steroid injections with 1 ml betamethasone (6 mg) and 4 ml of 1% lidocaine [8, 15].

Surgical technique

All operations were done under tourniquet control with local infiltration anaesthesia under outpatient conditions. A longitudinal incision (3–4 cm length) was made over the first compartment. The radial sensory nerve branches and veins were identified and protected. The composite sheath of the abductor pollicis longus and extensor pollicis brevis was identified and partially resected. The tendons then were identified and the compartment was explored for anatomical variations. If a septum was present it was also excised.

If there was tenosynovitis, tenosynovectomy was also performed. If there was a ganglion within the first compartment it was resected. Next, we performed partial resection of the extensor ligament with a maximum of 3 mm. The tourniquet was then deflated and haemostasis established. The skin was closed with a running 4.0 non-absorbable monofilament suture, and a dressing was applied. Movement was encouraged immediately. No splint was used postoperatively.

Five patients died, three patients were lost at latest follow-up in the year 2008. In these cases the medical records were evaluated in respect to their latest clinical findings. In that way we were able to follow-up all cases after an average of 15.7 years (range 10–20). Clinical evaluation was performed using a patient-based scoring system where 1=no symptoms, normal hand activities; 2=mild pain, normal hand activities; 3= moderate pain, reduced hand activities; and 4=severe pain, no work activities [3]. Additionally, Finkelstein's test was performed at latest follow-up.

Results

There were six perioperative complications, including one superficial wound infection, one delayed wound healing, and four transient lesions of the sensory branch of the radial nerve. A successful outcome defined as absence of triggering and pain, both subjectively and on examination, was achieved in all cases. All patients had complete relief of symptoms and returned to their normal daily activities. Finkelstein's test was negative in all cases. There were no sensory deficits of the superficial radial nerve. Four patients had mild pain but normal function of the hand not related to the operative procedure. In all cases a cosmetically acceptable scar could be found.

Discussion

The evaluation and treatment of de Quervain's tenosynovitis has evolved since the description by de Quervain in 1895. Nonoperative treatment was felt early on to be unsuccessful, with surgical operative decompression of the first dorsal compartment being uniformly recommended [3, 14, 15]. Meanwhile, several authors published anatomical variations of the first extensor compartment. The accurate injection of triamcinolone into the sheath of both the extensor pollicis brevis and abductor pollicis longus tendon was considered very effective for DD in a recent study [13]. According to Zingas [17], the extensor pollicis brevis compartment was often missed in injections. Currently, our concept is an accurate injection technique into the

sheath of both the extensor pollicis brevis and abductor pollicis longus tendon, once or twice, with a high success rate. Other authors advocated the use of an immobilisation splint involving rigid fixation of the thumb in relative abduction, allowing time for the tenosynovitis in the first dorsal compartment to resolve [14]. As our personal experiences with splints in DD were not as encouraging, we abandoned this concept over twenty-five years ago. In the cases with recurrent DD following injection therapy, we recommend surgical release without a splint. In 1981, Belsole [2] reported 36 complications in 19 patients after release of the first extensor compartment for de Quervain disease. Of these 36 complications, eight were related to subluxation of the tendon, eight to injury of the nerve, and seven to inadequate decompression [2, 6]. As a sequel, several authors proposed compartmental reconstruction which should prevent subluxation of tendons of the first compartment [2, 6, 9, 11, 12]. A septum between the abductor pollicis longus tendon and the extensor pollicis brevis (EPB) tendon in the first extensor compartment is frequently encountered during surgical treatment of de Quervain's disease. In 1998, Yuasa [16] postulated that de Quervain's disease is secondary to EPB entrapment. In those cases with a septum, it should be sufficient to decompress only the EPB subcompartment. The most important complication is inadequate decompression found in cases with a septum when only the APL tendon is decompressed and the EPB tendon remains compressed [3, 10, 16]. Volar tendon subluxation can occur after conventional surgery and can cause chronic tenosynovitis when the hand is used for manipulative activities requiring wrist flexion and pinch. This is a rare but serious complication. This complication can be avoided by incising the retinaculum on its dorsal aspect to create a volar-based restraining flap [9]. In our study, we could not find any complications, especially no subluxations of the tendons; therefore, we recommend simple decompression of both tendons and partial resection of the extensor ligament without reconstruction of the first compartment with excellent long-term results.

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