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Original article

Results of surgical treatment of De Quervain's tenosynovitis: 80 cases with a mean follow-up of 9.5 years

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ABSTRACT

Introduction: Surgery is indicated in De Quervain's tenosynovitis only after failure of medical treatment, often due to individual anatomical variants. We use Le Viet's technique, to avoid tendon instability. The aim of the present study was to evaluate long-term results, with the hypothesis that this surgical technique is reliable, providing lasting results.
Patients and methods: All patients operated on between 1993 and 2015 were included, and results were assessed by telephone questionnaire at a minimum 1-year's follow-up. Surgical technique was systematically as described by Le Viet, with subcutaneous fixation of the retinaculum flap. Any anatomical variants were specified. In 26 cases, a concomitant pathology was treated in the same step. In addition to demographic data, the study looked for: pain on VAS, functional impairment, tendon dislocation, and satisfaction.
Results: There were no intra- or immediate postoperative complications. Of the 89 patients, 74 (80 wrists) were successfully recontacted: 68 women and 6 men, with a mean age of 48.5 years (range, 19–71 years). The 15 patients lost to follow-up showed initial progression comparable to the rest of the population. A supernumerary septum was found in 50 cases, and an abductor pollicis longus tendon with multiple slips in 35 cases. There were no recurrences. Functional impairment was absent in 68 wrists, moderate in 8 and significant in 4, including 3 with associated diseases. Mean VAS was 0.76 (range, 0–10). No patients reported tendon dislocation or neuroma. Patients were very satisfied in 72 cases, satisfied in 6 and dissatisfied in 2 cases with associated diseases.
Discussion: Results in the present series, with a mean follow-up of 9.5 years, were favorable, with total regression of functional impairment in 85% of cases and a satisfaction rate of 97.5%. There were no cases of tendon dislocation, neuroma, or recurrence. Residual problems were all related to associated diseases, whether pre-existing or with subsequent onset.
Conclusion: Le Viet's technique gives reliable, lasting results without complications or recurrence.
Level of evidence: IV, retrospective study.

1. Introduction

De Quervain's tenosynovitis involves stenosis of the first compartment of the extensors through which the abductor pollicis longus and extensor pollicis brevis tendons run. It is an osteofibrous compartment in contact with the radius, and may show anatomic variants [1,2] inducing disease onset. Histologically, De Quervain's tenosynovitis is not an inflammatory disease as such, but rather a thickening of the tendon sheath with mucopolysaccharide accumulation, resulting from intrinsic degenerative rather than inflammatory mechanisms. The thickening causes impingement between container and contents, inducing pain and impaired wrist and thumb motion. Treatment is primarily medical, with orthoses to immobilize the wrist and thumb, anti-inflammatory medication and injections. First-compartment corticosteroid injection is the reference treatment [3,4]; however, in case of non-response at 3-6 months, surgical decompression should be considered, avoiding repeated injection, which would lead to subcutaneous dystrophy [5].

Supernumerary septa and tendons with multiple slips are known to contribute to non-operative treatment failure in some patients [6,7]. In such cases, surgical release of the first compartment is effective, but may lead to complications, and especially abductor pollicis longus and extensor pollicis brevis tendon subluxation [8]. De Quervain's original surgical technique used a longitudinal approach with pulley incision, which usually relieved

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pain, but incurred a risk of complications, and notably of tendon subluxation and scar tissue dystrophy and adherence. At our center, we use the technique described by Le Viet in 1992 [9], with a horizontal approach that limits scar-related complications, and subcutaneous fixation of the retinaculum flap to reduce the risk of secondary tendon instability.

There are very few reports of long-term results of surgical release in De Quervain's tenosynovitis [8]. The aim of the present study was to assess long-term results in a homogeneous series of De Quervain's tenosynovitis patients all managed by a single senior surgeon using the same surgical technique, with the hypothesis that the technique provides reliable and enduring results.

2. Patients and methods

All patients operated on for De Quervain's tenosynovitis, by a single senior surgeon, from 1993 to 2015, were included. Files were reviewed to ensure that the technique was in all cases identical and that any anatomic variants were recorded, whether supernumerary septum or abductor pollicis longus tendon comprising more than 2 slips.

There were 89 patients, including 6 with bilateral involvement: i.e., 95 cases (wrists). There were 81 females (91%) and 8 males; mean age was 49 years (range, 19–84 years). In 53 cases, the dominant side was involved.

All patients showed clinical signs of De Quervain's tenosynovitis, with a mean 9 months' progression (range, 3–30 months). The presenting symptom was systematically dorsal radial pain, progressive in 67 cases (70.5%), traumatic in 24 (25%) and of unknown onset in 4. All cases showed pain on first compartment palpation and swelling, which is a sign of tenosynovitis, with positive Finkelstein maneuver in 92 cases. Sixty-three cases had had a mean 2 injections, with transient impact in 55 cases.

Surgery was performed using a pneumatic tourniquet at 250 mmHg, usually under locoregional anesthesia. A transverse incision was made, centered on the first compartment extensor tendons. Subcutaneous tissues were meticulously dissected to recline the superficial nerves on either side and expose the lateral part of the extensor retinaculum. The first compartment was exposed, then the retinaculum was opened in the most ulnar part and lifted from ulnar to radial conserving a lateral hinge. Any supernumerary septum was resected. Tenosynovectomy was systematic. The dorso-ulnar end of the retinaculum flap was fixed subcutaneously to reduce the risk of palmar subluxation of the tendons, as recommended by Le Viet. Skin closure used running suture, and a padded dressing was applied before the immobilization orthosis was fitted, holding thumb and wrist in slight extension for 10–15 days.

In case of sensory disorder or dysesthesia in the territory of the superficial branch of the radial nerve associated with positive Tinel sign, neurolysis was performed via an independent short longitudinal incision centered on the aponeurotic emergence of the nerve between the extensor carpi radialis longus and brachioradialis muscles.

Medical records were analyzed to collect data on age, gender, side, risk factors, sensory disorder, associated ipsilateral pathology, supernumerary septum and multiple-slip abductor pollicis longus tendon, neurolysis of the superficial branch of the radial nerve, postoperative complications, complex regional pain syndrome (CRPS) and results at last follow-up.

At a minimum 1-year's follow-up, patients were contacted by telephone to answer a questionnaire on functional impairment, pain on VAS, scar issues and satisfaction.

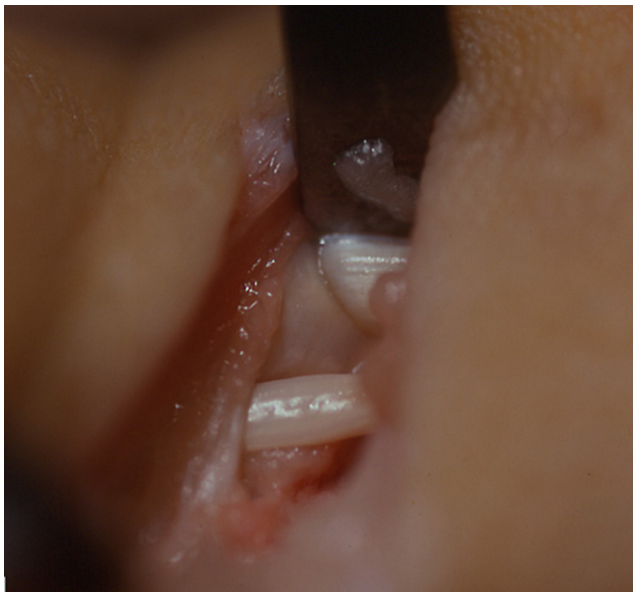

Fig. 1. Supernumerary septum.

3. Results

Seventy-four patients were successfully recontacted, enabling assessment of 80 wrists (there being 6 bilateral cases) at a mean 9.5 years' follow-up (range, 1–24 years). Mean age was 48.5 years (range, 19–71 years), with 68 females and 6 males. The 15 patients lost to follow-up had shown initial progression comparable to the rest of the population; 7 were considered cured and 8 improved at their last follow-up.

Forty-six wrists were on the dominant side. Sixteen showed risk factors: 14 occupational and 2 sports-related. Neurolysis of the superficial branch of the radial nerve was performed in the same step in 9 cases and other surgical procedures in 26: 12 carpal tunnel release procedures, 7 trapeziectomies for osteoarthritis of the thumb, and 7 other.

Fifty of the 80 wrists showed a supernumerary septum (Fig. 1) and 35 an abductor pollicis longus tendon with multiple slips (Fig. 2); one or the other of these abnormalities was found in 65 wrists (81%).

There were no intraoperative or immediate postoperative complications. Ten cases showed criteria for CRPS during follow-up, including 8 with concomitant procedures. Immediate postoperative orthotic immobilization was systematic, for 10–15 days except in the 7 cases of concomitant surgery for osteoarthritis, where immobilization was for 35 days.

At follow-up, 68 cases showed no functional impairment; 8 showed moderate impairment, 6 of which had associated pathologies; 4 showed severe impairment, 3 of which had associated pathologies. Mean pain on VAS was 0.76 (range, 0–10); 65 cases were pain-free (VAS = 0); in 12 pains was rare (mean VAS = 3.9); and pain was permanent in 3 cases (mean VAS = 6.2): 1 with associated osteoarthritis of the thumb, 1 with polyarthritis, and 1 with symptomatic cyst. There were 5 cases of scar problems (6%): 2 of adherence and 3 painful scars following concomitant trapeziectomy.

There were no signs of dislocation or neuroma. Seventy-two patients were very satisfied, 6 satisfied and 2 dissatisfied. In all 9 cases of neurolysis, the patients were very satisfied, 2 reporting only rare discomfort.

Of the 2 patients who were dissatisfied and would not undergo the operation again, 1 had associated osteoarthritis of the thumb,

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