

# Successful Management of De-Quervain's Tenosynovitis: A Case Report

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### Abstract

*A 26-years-old female garments worker presented with pain in right wrist and thumb near the base of the styloid process of the radius while doing twisting movement of wrist and lifting activities. Her pain started 2 months ago which increased gradually during working. She reported to the hospital as her pain was worst during last 2 days. She was diagnosed as a case of De-Quervain's tenosynovitis. The combination of conservative treatment approach consisted of eccentric exercise training, technique modification, manual therapy, protective guard and patient education was applied. Outcome measures included verbal pain rating scale and a return to activities of daily living (ADLs). Patient symptoms resolved and at 3 months' follow-up reported no recurrence of wrist pain.*

*Keywords: Tenosynovitis, Technique modification, Manual therapy*

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### Introduction

De-Quervain's disease is caused by stenosing tenosynovitis of first dorsal compartment of the wrist. This includes the tendon of the Abductor pollicis longus (APL) and the Extensor pollicis brevis (EPB). Patients with this condition usually report pain at the dorsolateral aspect of the wrist with referral of pain towards the thumb and lateral fore arm<sup>1</sup>.

### Case report

A 26 year-old female garments worker came to Physical medicine and Rehabilitation department of International Medical College Hospital with the complaints of right wrist and thumb pain at the base of styloid process of radius while doing twisting movement of the wrist and lifting activity. Her pain started 2 months ago and increased gradually during factory work and decreased with rest. The pain responded to NSAID. She was non diabetic, normotensive and had no history of trauma over wrist or hand. On pain assessment by 'Visual Analog Scale' (VAS) during working session was 8 out of 10 and VAS at rest was 2 out of 10. The pain was dull and constant during pinching, gripping and lifting activity.

On examination (LOOK-FEEL-MOVE), there was fusiform swelling over the radial styloid process, without wasting and deformity. There was Grade -2 tenderness over anatomical snuff box. Both superficial (touch, pain, temperature) and deep (vibration and position) senses were intact. The active ranges of motion and resisted isometric contraction of the right wrist revealed painful and resisted at wrist flexion and radial deviation at end range. Thumb ranges of motion on the right revealed painful active and resisted abduction, extension and opposition.

### Diagnostic test (Finkelstein's Test)

The special orthopedic test used to diagnose De-Quervain's disease is 'Finkelstein's test' (Figure-1)<sup>2</sup>. This test is performed by the patient making a fist around their thumb, and then ulnar deviating their wrist. In this position, the synovial tissue that surrounds the extensor pollicis brevis and abductor pollicis longus tendons is stretched. If they are inflamed and a patient is suffering from de Quervain's disease, a positive sign will be indicated by pain in the first compartment of the extensor retinaculum.

**Table I**  
*Range of Movement at wrist and Thumb<sup>3</sup>*

Right Side	Wrist Movement	Left Side		
A.R.O.M	P.R.O.M		A.R.O.M	P.R.O.M
0-75 (end range painful)	0-80	Flexion	0-80	0-85
0-70	0-75	Extension	0-70	0-73
0- 15 (end range painful)	0-20	Radial deviation	0-20	0-22
0-30	0-35	Ulnar deviation	0-30	0-35
		Thumb movement (CMC)		
0-65(end range painful)	0-70	Abduction	0-70	0-75
0- 15	0-20	Flexion	0-15	0-20
10-0 (end range painful)	10-0	Extension	15-0	15-0
		MCP movement		
0-50	0-55	Flexion	0-50	0-55
50-0 (end range painful)	50-0	Extension	50-0	50-0
		IP movement		
0-80	0-85	Flexion	0-80	0-85
0-15	0-20	Extension	0-15	0-20



**Figure-1: Finkelstein's test**

The patient was finally diagnosed as a case of De-Quervain's Tenosynovitis and was treated with the combination of conservative treatment approach consisted of eccentric exercise training, technique modification, manual therapy, protective guard and patient education for 3 weeks<sup>6</sup>. At the end of 2nd week, patient reported zero pain on VAS scale at rest and 1/10 during hand activities. The patient gradually resumed her factory specific work at 6th week. She was advised to follow a home exercises

programme which included similar type of exercises for 2 weeks. Physical examination revealed pain free and full ranges for thumb and wrist on follow-up at the end of 5th week.

**Table II**  
*Resisted isometric contraction of wrist and thumb muscles<sup>4</sup>*

Wrist Movement	Resisted Isometric Contraction
Flexion	Strong and painful
Extension	Strong and pain free
Radial deviation	Strong and painful
Ulnar deviation	Strong and pain free
<b>Thumb movement</b>	
Abduction	Strong and painful
Flexion	Strong and pain free
Extension	Strong and painful
Opposition	Strong and pain free
<b>MCP movement</b>	
Flexion	Strong and pain free
Extension	Strong and pain free
<b>IP movement</b>	
Flexion	Strong and pain free
Extension	Strong and pain free

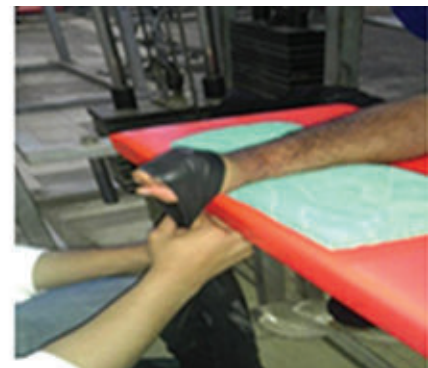
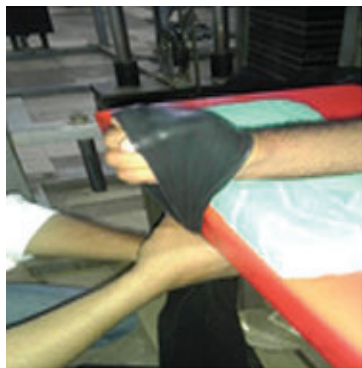


**Figure-2:** Deep tendon friction massage at anatomical snuff box

**Table III**

*Manual Muscle Testing of wrist and thumb Muscles<sup>5</sup>*

Muscles	Right side	Left side
wrist		
Flexors	- 4	5
Extensors	+ 4	5
Extensor policis longus	- 4	5
Abduct policis longus	- 4	5
Flexor policis longus	4	5
Opponens policis	+ 4	5



**Figure-3:** Eccentric strengthening of (a) radial deviator muscle, (b) wrist flexor muscles and (c) wrist extensor muscles

**Table IV**

*Differential diagnosis<sup>5</sup>*

Differential diagnosis	Positive Findings	Negative Findings
1 <sup>st</sup> CMC osteoarthritis	Pain at the level of CMC joint No sign of inflammation, age factors	This type of signs do not occur in De-Quervain's disease
Intersection syndrome	Inflammation of an adventitial bursa between the APL and ECRB due to friction at the intersection	Anatomical site is different in De-Quervain's disease
Wartenbergs syndrome	Compression of superficial radial nerve (numbness, tingling, burning sensation)	In De-Quervain's disease no compression occurs
Ganglion	Formation of synovial cyst communicating with the joint space	In De-Quervain's disease no synovial cyst formation
Scaphoid fracture	Tenderness present at the base of snuff box	In De-Quervain's disease it is not present like this



**Figure-4:** *Thumb Spica taping*



**Figure-5:** *a) UST therapy over radial aspect wrist and (b) TENS therapy over wrist*

### Discussion

Injury to the hand and thumb can be challenging, since most patients frequently use those parts in their daily lives and delay healing time. Predisposing factors include pregnancy, musicians, assembly workers, golfers, mountain bikers and weight lifters<sup>5</sup>. Risk factors include repetitive movements, hand position, frequency of movement and static postures. There are many recommended conservative treatments, which include rest, early mobilization<sup>7</sup>. Lightweight thumb Spica taping is done to reduce ulnar deviation and thumb flexion. Other conservative measures include heat, cold, modalities (Ultrasound) and deep tendon friction massage. Active treatment

options included active pain-free range of motion exercises, strengthening, tendon gliding and eccentric training exercises. This case had a favorable outcome. Eccentric exercises with Theraband were started early during the 2nd week, which helped in quicker recovery of patient. She was successfully treated by using conventional Physiotherapy interventions such as electrotherapeutic agents (TENS, US, Manual therapy [DTFM])<sup>8</sup> and eccentric strengthening exercises with Theraband, which were started early in rehabilitation program of the patient.

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