

Mobilization with movement in de quervain's tenosynovitis

Abha Sachdev
Nidhi Kashyap
Savita Tamaría

ABSTRACT

This paper discusses the value of mobilization with movement in de quervain's tenosynovitis. De Quervain's tenosynovitis is a form of stenosing tenosynovitis usually occurring in the tendons of abductor pollicis longus (APL) and extensor pollicis brevis (EPB). Many conventional physical therapy interventions are followed for the management of this condition. But, in spite of such a variety of treatment options, many patients remain symptomatic. The possible reason for this could be attributed to the fact that the presence of tenosynovitis may be associated with carpal positional abnormality and CMC and wrist joint stiffness. These associated positional abnormalities are neglected while following the regular treatment protocols accounting for the failure of the conventional treatment approaches. Mobilisation with movement (MWM) techniques serves to correct the root cause of positional abnormalities and provide pain-free range of movement. Thus, these techniques should be added in the conventional treatment protocol for De Quervain's tenosynovitis

Keywords: Mobilisation with movement, De quervain's tenosynovitis, Positional faults.

INTRODUCTION

De Quervain's tenosynovitis is a condition that causes wrist pain and that can lead to dysfunction of the affected hand. It is caused by impaired gliding of the tendons of the abductor pollicis longus (APL) and extensor pollicis brevis (EPB) muscles. The age of occurrence is anywhere between 25 to 60 years, averaging 46 years.¹ Wolf JM found that age greater than 40 years was a significant risk factor for development of De Quervain's tenosynovitis.² It is frequently

unilateral, but occasionally bilateral cases are seen. It is approximately 10 times more common in females than in males. This could be due to the fact that the angulations of tendons against the retinacular roof of the dorsal tunnel is greater in females as compared to males. This aggravates the stress when radial deviation of the wrist is combined with a gripping motion of the thumb. Therefore, the disease is noted to be more common in people who use their thumbs in repetitive pinching, wringing, lifting, grasping or extension activities of the wrist such as typists, knitters, housewives, etc..^{1,2,3}

Although the term stenosing tenosynovitis is frequently used, pathophysiology of de Quervain's disease does not involve inflammation since on histopathological examination mainly degenerative changes such as myxoid

Author's Affiliations: Banarsidas Chandiwala Institute of Physiotherapy Chandiwala Estate, Maa Anandmai Marg, Kalkaji, New Delhi - 110 019.

Reprint Requests: Banarsidas Chandiwala Institute of Physiotherapy Chandiwala Estate, Maa Anandmai Marg, Kalkaji, New Delhi - 110 019, E-mail: sachdevabha@gmail.com.

(Received on 06.07.10, accepted on 16.07.2010)

degeneration, fibrocartilagenous metaplasia and deposition of mucopolysaccharide are seen.⁴

The diagnosis is made by history and physical examination. Symptoms consist of pain or tenderness at the radial styloid sometimes radiating to the thumb, forearm or shoulder and on physical examination there might be swelling at the radial styloid with tenderness, decreased abduction range of motion of CMC joint of thumb, palpable thickening of the extensor sheath and tendons and crepitus of tendons moving through the extensor sheath. Finkelstein's test (deviating the wrist to the ulnar side, while grasping the thumb, results in pain) is in typical cases positive.^{5,6}

It can be treated by conservative (such as heat, cold, diathermy, strapping, splints, rest, massage, counterirritants and medications), corticosteroid injections and operative methods (slitting or removing a strip of the tendon sheath).⁵ But, in spite of such a variety of treatment options, many patients remain symptomatic. The possible reason for this could be attributed to the fact that the presence of tenosynovitis may be associated with carpal positional abnormality and CMC and wrist joint stiffness. These associated positional abnormalities are neglected while following the regular treatment protocols accounting for the failure of the conventional treatment approaches.

MOBILIZATION WITH MOVEMENT

Mobilization with Movement (MWM) is an intervention technique developed by Brian Mulligan. He proposed that minor positional faults of joints can occur following injuries or strains. He defines positional faults as positions of joint surfaces whereby they are no longer aligned in their natural, congruent position, but are subtly misaligned. These faults are not readily palpable or visible on X-ray. Mulligan suggests that these positional faults can occur in all extremity joints.⁷

The proposed mechanism for the effectiveness of this intervention is the restoration of normal, pain-free, fluid movement through the correction of the joint misalignment. In comparison to other

joint mobilization techniques used by physical therapists, MWM emphasizes the restoration of normal joint alignment to allow for normal arthrokinematics, rather than the stretching of tightened tissues to restore normal arthrokinematics.^{7,8,9,10}

MWM techniques involve the sustained correction of subtle joint misalignment, which is accomplished by passive mobilization. Active movement is then superimposed on the corrected joint position. The active movement chosen is one that previously produced pain, but when superimposed on a corrected joint position, occurs without pain.⁸

TECHNIQUE

The patient is seated comfortably. The therapist grasps the lower end of the radius and ulna with one hand so that the web between your index finger and thumb lies over the distal end of the radius. The web between the thumb and index finger of the other hand lies medially over the proximal row of the carpal bones. The therapist glides the carpals radially. If this is painful, ever so slightly, alter the direction of the glide to seek a pain-free glide. Maintain the mobilization and have the patient actively move the thumb in the painful and restricted direction. If the MWM is indicated the range of movement will improve painlessly instantly. Perform three sets of ten repetitions and make the patient apply overpressure with free hand to get further range.^{3,7}

RATIONALE FOR USING MWM

It has been proposed in the literature that EPB and APL tendons are angled acutely (105°) at the distal edge of the first dorsal tunnel. Hence, in response to the force of the angulated tendons, the retinaculum thickens and inflammation results. The larger the degree of angulations, the worse the irritating effects on the retinaculum. Carpal misalignment, however slight, negatively

affects the line of pull or function of the tendons crossing the joint, specifically the EPB and APL.³

Their angulations is greatest, thus most troublesome, when the wrist is in a position of radial deviation.³ Arthrokinematically, radial deviation of the wrist involves an ulnar glide of the carpals. Application of a radial glide may be able to counteract the forces of radial deviation (ulnar glide) on the first dorsal tunnel and thereby lessen this irritating angle. Therefore, MWM involving a sustained radial glide of the proximal row of carpal bones serves to correct this abnormal position and resultant increased angulations, thus resulting in increased range of pain-free thumb motion.

The correlation between joint function and alignment and musculotendinous pathology is not a new concept for physical therapists. The stressful effects of excessive midfoot pronation on the muscles and tendons in the lower extremity are well known.¹¹ Glenohumeral posterior capsular tightness and/or anterior instability have also been shown to be correlated with rotator cuff pathology.³ Correction of abnormal foot or glenohumeral alignment is used as a common intervention for tendon-related disorders in those areas. Therefore, it is evident that osseous positional faults can contribute to the symptoms of tendinitis and that MWM is one intervention that can be used by the physical therapist to aid in a successful patient outcome.

The prospect of positively affecting tendon pathology in the wrist by imposing subtle changes in joint alignment is engaging and warrants further research.

REFERENCES

1. Z. Younghusband, J. D. Black De Quervain's Disease: Stenosing Tenosynovitis at the Radial Styloid Process, *Canad. Med. Ass. J.* 1963; 89: 508-12.
2. Wolf JM, Sturdivant RX, Owens BD. Incidence of de Quervain's tenosynovitis in a young, active population. *J Hand Surg Am.* 2009; 34(1): 112-5.
3. Karen Maloney Backstrom Mobilization With Movement as an Adjunct Intervention in a Patient With Complicated De Quervain's Tenosynovitis: A Case Report, *J Orthop Sports Phys Ther.* 2002; 32: 86-97.
4. Clarke MT, Lyall HA, Grant JW, Matthewson MH: The histopathology of de Quervain's disease. *J Hand Surg [Br. Vo.].* 1998; 23:732-734.
5. Cyriac Peters-Veluthamaningal*, Jan C Winters, Klaas H Groenier and Betty Meyboom-deJong, Randomised controlled trial of local corticosteroid injections for de Quervain's tenosynovitis in general practice. *BMC Musculoskeletal Disorders.* 2009; 10: 131.
6. Anderson M, Tichenor CJ. A patient with de Quervain's tenosynovitis: a case report using an Australian approach to manual therapy. *Phys Ther.* 1993; 74: 314- 326.
7. Mulligan B., *Manual Therapy: "NAGS," "SNAGS," "MWMS," etc.,* 6th Edition.
8. Exelby L. Peripheral mobilisations with movement, *Man Ther.* 1996; 1(3): 118-126.
9. Vicenzino B, Paungmali A, Teys P Mulligan's mobilization-with-movement, positional faults and pain relief: current concepts from a critical review of literature. *Man Ther.* 2007; 12(2): 98-108.
10. Natalie Collins, Pamela Teys, Bill Vicenzino, The initial effects of a Mulligan's mobilization with movement technique on dorsiflexion and pain in subacute ankle sprains, *Manual Therapy.* 2004; 9: 77-82.
11. Messier SP, Pittala KA. Etiologic factors associated with selected running injuries. *Med Sci Sports Exerc.* 1988; 20: 501-505.