

Original article:

Are Indians more prone for De Quervains tendinitis?

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ABSTRACT:

Background: Separation of first extensor compartment along the lateral aspect of radial styloid process is established risk factor for development of De Quervains tendinitis. Subdivision of the groove holding the tendons of first extensor compartment, by a bony ridge approves separation of compartment.

Materials & Method: 178 dry radii of unknown sex were examined for the presence or absence of bony ridge inside the groove along the lateral aspect of radial styloid process.

Results: 110 (61.79%) radii were of Type I (First extensor groove that was deep and divided into two sub-grooves by a tiny bony ridge), 57(32.02%) were of Type II (First extensor groove without the tiny bony ridge) and 11(6.17%) were of Type III (almost without any extensor groove) category.

Conclusion: Separation of first dorsal compartment is very common amongst Indians. Clinicians should be aware of the magnitude of this variation for better management of De Quervains tendinitis.

Key words: First extensor compartment, Radial styloid process, De Quervains tendinitis.

INTRODUCTION:

Extensor retinaculum is a thick fibrous band present at the back of wrist. It sends septa which are attached to bony ridges at the lower end of forearm bones to form six osseo-fibrous compartments for tendons of extensor muscles of forearm. Each tendon is surrounded by synovial sheath which facilitates its gliding. First compartment is present along the lateral aspect of styloid process containing tendons of Abductor Pollicis Longus (APL) & Extensor Pollicis Brevis (EPB). De Quervains tendinitis is commonly met in clinical practice where first dorsal compartments tendons are involved. ^[1] Exact etiology of this condition still remains unclear but repetitive motion coupled with awkward wrist position are

considered as causative factors. ^[2] Anatomical variations like separation of first dorsal compartment by a septum plays important role in development of De Quervains tendinitis. ^[3, 4] Knowledge of this variation is also essential for the management of De Quervains tendinitis. ^[5, 6] We found very few studies among Indian population reporting the magnitude of this important variation. As the septum dividing the first dorsal compartment is attached to the radius, examination of groove holding first compartment tendon, for the presence or absence of bony ridge can be an evidence of septum.

MATERIALS & METHODS:

We studied 178 dry radius bones of unknown sex from anatomy department of teaching medical

institute. Side determination of bones was done by conventional method. In all the radii, styloid process was identified & examined for the presence of groove on its lateral aspect. Inspection of the groove was done by naked eyes & hand held magnifying lens. Particular note was made of the presence or absence of any bony ridge inside the groove dividing it into two. Inspection findings were then confirmed by meticulous palpation of the groove. Findings were also verified from two other anatomists in order to eliminate the observer errors. Rate of variations in first groove was then compared between Right & Left sides by Chi square test.

Table 1: Categorization of dry radii on the basis of nature of first extensor groove on lateral aspect of styloid process

Radii	Right Side (Total=88)	Left Side (Total=90)	Total (178)
Type I	58	52	110 (61.79%)
Type II	26	31	57 (32.02%)
Type III	4	7	11 (6.17%)

[Figure 1: Categorization of dry radii on the basis of nature of first extensor groove on lateral aspect of styloid process. Type I - extensor groove that was deep and divided into two sub-grooves by a tiny bony ridge , Type II - extensor groove without the tiny bony ridge, Type III - almost without any extensor groove]

DISCUSSION

Fritz de Quervain, a Swiss surgeon, first described tenosynovitis within the first dorsal extensor compartment behind the wrist in 1895. [1] It is the most common tenosynovitis affecting the extensor tendons. [7] This painful and often disabling condition is mainly observed in workers who perform repetitive manual tasks, wrestlers and bowlers . [8]

Though the etiology of this condition is still uncertain, many studies have found positive association between septation of first dorsal compartment and De Quervains tendinitis. [4, 9, 10]

RESULTS

All the radii were classified depending upon the nature of first extensor groove on the lateral aspect of styloid process into Type I (the extensor groove that was deep and divided into two sub-grooves by a tiny bony ridge) , Type II (the extensor groove without the tiny bony ridge) & Type III (almost without any extensor groove). Out of 178 radii 110(61.79%) belonged to Type I, 57(32.02%) were of type II & 11(6.17%) were of Type III variety. The rate of variations on the right & left radii was statistically not significant ($\chi^2=1.56$, $df=2$, $p=0.45$).

High gliding resistance to tendons due to septation within the first dorsal compartment may induce micro-damage to the tendons and retinaculum. [2] The reported rate of separation of first dorsal compartment varies from 9.75 to 45%. [1, 7, 12, 13, 14, 15] In present study we found the presence of bony ridge dividing the first extensor groove in 61.8% of dry radii which indicates much higher rate of separation of first dorsal compartment in Indians. This makes them more prone for the development of de Quervains tendinitis.

Corticosteroid injection in tendon sheath rapidly controls the signs and symptoms of De Quervains tenosynovitis in majority of patients. ^[16] A septum in the first dorsal compartment demands separate injection over two tendons for better relief of symptoms. ^[5, 16] So it should be practiced in each patient of De Quervains tendinitis in Indian setup considering the presence of septum in majority.

In patients of De Quervains tendinitis where local injection is ineffective surgical decompression first dorsal compartment is undertaken. ^[17] If operating surgeon is unaware of presence of septum within first dorsal compartment, it would result into inadequate decompression where only the APL tendon is

decompressed and the EPB tendon remains compressed. ^[18]

CONCLUSION

Separation of first dorsal compartment is rather a rule than a variation in Indians making them more prone for the development of de Quervains tendinitis. Two point injections should be practiced considering the possibility of septum in all the patients of de Quervains tendinitis to increase the efficacy of local steroid therapy. Awareness of this variation will also prevent inadequate decompression & symptomatic recurrence of De Quervains disease. We suggest cadaveric & clinical studies to confirm the exact proportion of these variations amongst Indians.



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