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Finkelstein Sign

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Continuing Education Activity

Harry Finkelstein, an American surgeon, described the Finkelstein's test or Finkelstein's sign in 1930. It is a provocative test for diagnosis of De Quervain disease that can easily be performed in an office setting or at the bedside. This activity reviews the indications, contraindications, and clinical relevance of the Finkelstein sign and highlights the role of the interprofessional team in managing patients with hand and wrist problems.

Objectives:

- Describe how the Finklestein sign is evaluated.
- Review the indications for the Finklestein test.
- Summarize the clinical relevance of the Finklestein test.
- Outline the physiology behind a positive Finklestein test.

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Introduction

Harry Finkelstein, an American surgeon (1865–1939), described the Finkelstein's test or Finkelstein's sign in 1930. It is a provocative test for diagnosis of De Quervain's disease that can easily be performed in an office setting or at the bedside.[1] Finkelstein's test produces severe tenderness and usually pain on the radial aspect of the wrist when the thumb is flexed into the palm and the wrist is ulnar deviated. De Quervain's disease is commonly associated with the repetitive motions that place stress on the wrist; it is ommonly associated with professions such as restaurant servers. Moreover, De Quervain's disease is significantly more likely to occur in females.

Anatomy and Physiology

In the first dorsal compartment of the wrist, a tendon sheath encloses the abductor pollicis longus (APL) and the extensor pollicis brevis (EPB) tendons at the lateral border of the anatomical snuffbox. The functions of these muscles are as follows:

Extensor Pollicis Brevis (EPB)

- Radial abduction of the wrist (0 to 25 degrees)
- Thumb extension (90 degrees)

Abductor Pollicis Longus (APL)

- Wrist radial abduction (0 to 25 degrees)
- Thumb abduction (70 to 80 degrees)

De Quervain tendinopathy affects both the abductor pollicis longus and the extensor pollicis brevis at the point where they pass through a fibro-osseous tunnel (the first dorsal compartment) from the forearm into the hand.[2] These tendons are responsible for pulling the thumb away from the hand as it lies flat in the plane of the palm (i.e., radial abduction). Its reported incidence is 0.94 per 1000 person-years.[3] This disease involves noninflammatory thickening of both the tendons and the tunnel (or sheath) through which they pass. The inflammation causes the compartment around the tendon to swell and enlarge, making thumb and wrist movement painful.

The etiology of de Quervain tendinopathy is not well-understood. In the past, attribution was to occupational or repetitive activities involving postures that maintain the thumb in extension and abduction. Women have been reported to be four times more likely to be affected than men, and there has been an increasing incidence in nonwhite individuals and those older than 40 years of age.[3] As an example, there is a school of thought that new mothers are at risk postpartum due to the repetitive motion of hands required to lift and hold newborns. Hormonal causes and fluid retention are another plausible explanation. The evidence to support etiologic hypotheses is limited and has its basis in observational data. The histopathology does not demonstrate inflammation but rather myxoid degeneration (disorganized collagen and increased cellular matrix) in patients referred for surgery.[4]

Indications

The Finkelstein test should be performed in cases of wrist pain, especially in patients presenting with pain on the radial aspect of the wrist. De Quervain's tenosynovitis (named after the Swiss surgeon Fritz de Quervain) should be suspected in patients presenting with pain at the radial side of the wrist, which worsens during pinch grasping (pinching an object between the tips of the thumb and index finger) or thumb and wrist movement. Pain may radiate to the thumb or along the volar aspect of the wrist. Some patients may also notice swelling and tenderness on the radial side of the wrist. The dominant hand is no more likely to be involved than the non-dominant hand[5] and the disease can be bilateral.

Contraindications

There are no direct contraindications for this test, but it is not recommended in cases where wrist, radial or ulnar fractures are suspected or if there is radiologic evidence to prove any of the above.

Equipment

No additional medical equipment is necessary for this test. Only a trained medical professional should perform this test in a suitable environment (where the patient can be comfortably seated and their had can be placed on an examining table). It can also be performed bedside by hanging the hand of the patient by the edge of the bed/hand-rail.

Personnel

It is worth noting that although Finkelstein's test has long been considered to be a pathognomonic sign of De Quervain tendinopathy; most clinicians and instructional manuals describe what is, in fact, the Eichhoff's test.[6][7] Errors incorrectly describing Finkelstein's test can be traced to Leao (1958) who quoted Eichhoff's maneuver as Finkelstein's test[8]. Eliott pointed out the error

in 1992 and explained the difference between Finkelstein's test and its incorrectly described variant, Eichhoff's maneuver. It is noteworthy to know that Eichhoff's test gives an increased number of false-positive or false-negative results, as it can create pain in other surrounding tissues, the patient can radially deviate against resistance to possibly reproduce pain.[6][9] If performed correctly by the examiner, Finkelstein's test does not give false positives.

Preparation

To begin the test, the patient is seated comfortably and relaxed on the examination table. The examination should first commence with an inspection of the patient's hands; this is done to look for any swelling or deformity at the radial side of the wrist.

Technique

Dawson et al. (2010) recommend a three-stage process which is well tolerated and can diagnose de Quervain's synovitis accurately.[10] To perform the test have the patient's affected extremity extended so that the wrist remains at the edge of the treatment table. Arm positioning is with the ulnar aspect of the forearm on the table and ulnar aspect of the hand hanging off of the edge, maintaining the forearm in a neutral position.

In the first step, the patient's pain is assessed with gravity-assisted gentle active ulnar deviation at the wrist. This version is suitable for patients who present in the acute phase. This test is positive if the patient reports pain aggravation at the tip of the radial styloid process.

If this step does not elicit pain, the examiner can gently apply an ulnar deviation force to the hand which results in an increased passive stretch across the first dorsal compartment. Again, this test is positive if the patient reports pain aggravation at the styloid process.

If this also does not provoke any pain, the examiner can then perform the original version described by Finkelstein et all which is suitable for patients in the chronic stage that are unlikely to experience substantial pain in the first two steps. In this step, the examiner grasps that thumb and then passively flexes it into the palm. A positive test result occurs when the patient experiences increasing pain at the radial styloid tip. Performing the test in this staged manner is hypothesized to result in fewer false-positive results as it is less provocative than the Eichhoff's test.

For performing the Eichhoff test patient's forearm is rested and the edge of the table in the same manner as Finkelstein's test. The patient is instructed to form a fist with the thumb placed within the hand and clenched tightly with the other fingers. The hand is then passively abducted in an ulnar direction by the examiner. Due to its very provocative nature, Eichoff's maneuver can produce a lot of false-positive test results, and hence it is not preferred over the three-staged Finkelstein test.[6]

Complications

If performed in the correct setting by a trained medical professional, there are no known complications of this test.

Clinical Significance

Finkelstein's test is more reliable in diagnosing De Quervain tenosynovitis than the Eichhoff's test, but studies that have tested the reliability of the Finkelstein's test are currently very limited. More large scale studies are needed to give us an exact sensitivity and specificity of the test.

Typically, once the diagnosis of De Quervain's tenosynovitis is made, the initial treatment is conservative such as activity modification and rest. If conservative management does not result in symptom alleviation the next step is a thumb spica splint follow by corticosteroid injection. In refractory cases, patients may benefit from the surgical release of the APL.

Enhancing Healthcare Team Outcomes

The Finkelstein test should be performed only by a trained medical professional (physician or nurse) who have adequate knowledge about the anatomy of the compartments of the wrist and understand the clinical significance of the outcomes of this test. However, it is important to remember that this test is not 100% sensitive for De Quervain tenosynovitis and if there is doubt about the diagnosis, the patient should obtain a referral to a rheumatologist or an orthopedist. As missing the diagnosis can have untoward consequences, a team approach is best to evaluate patients. [Level V]

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