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Sonography of the wrist examination technique

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Indications: Tendinitis-tenosynovitis, Tendon –rupture, Median Nerve compression-Carpaltunnel, Ulnar Nerve compression, Masses-ganglion-tumors, Synovitis, Joint effusion, US-guided aspiration, Loose Bodies, Bone erosions

Patient Positioning & Examination Technique - Hand and Wrist: Anterior scanning, posterior scanning, the carpus or wrist. Note that its rounded proximal surface articulates with the radius and a fibrocartilaginous disk on the ulnar side. The carpus is concave anteriorly, forming the carpal tunnel which allows nerves and tendons to pass through to the palm. Ultrasound examination of the hand and wrist requires the patient to sit comfortably with their arm supported on an adjustable stand. The wrist is placed comfortably in a neutral position with a small rolled towel placed beneath it. The examiner performs the study facing the patient.

Transducer: Ultrasound permits the performance of a dynamic examination as well as the ability to compare anatomy on the other side. Because the structures of interest are situated extremely superficially, a high frequency transducer in the 10-12 MHz range should be used for examination.

Doppler: Doppler are also useful tools when available, especially for diagnosing hyperemic changes secondary to inflammation. Images are obtained in both longitudinal and transverse planes, following the natural course of the structures being examined. Normal Ultrasound Appearances; The correct transducer position for imaging the flexor (upper image) and extensor (lower image) tendons of the wrist and sonography of various other normal structures will be discussed.

Pathologies: Carpal Tunnel Syndrome, Ganglion Cysts, Foreign Bodies (esp. radiolucent). Tendon tears (Flexors & Extensor), Tenosynovitis, Trigger Finger, Gamekeeper Thumb (UCL), Stener Lesion, Extensor Hood Injury, Pulley Tear, Pseudotumors Tumors. Foreign Body: Glass Rt 2nd finger PIP joint area, Tear: Thumb Extensor, Long Axis Rht EPB Tendon, De Quervain's Disease, Chronic Tenosynovitis-De Quervain, Trigger Finger (or Digit). Trigger digit is also a type of idiopathic tenosynovitis most often affecting the thumb, followed by the ring, middle, little and index fingers will be discussed. More commonly seen in women in the 40-60 year range, patients present with triggering or locking of the affected digit. Trigger Finger (or Digit), sonographically, a hypoechoic nodule is identified on the flexor tendon surface proximal to the A1 pulley. Fluid within the synovial sheath as well as synovial sheath thickening may also be present, often with small peritendinous cysts.

Recent Publications

1. Doppler Ultrasound in the Assessment of Lower Limb Peripheral Veins; Isra Medical Journal, Volume (9), Issues, December, 2017.
2. The significance of Doppler ultrasound in the causes of varicose veins; Vascular ultrasound 41(4):159-164(6) December, 2017.
3. Neurochemical Alterations in sudden unexplained perinatal deaths-A review; Frontiers in Pediatrics, Volume (6), January 2018.
4. Diagnostic accuracy of sonoelastography in different diseases; 18:29-36, J,ultrasound 2018.
5. Sonographic evaluation of urolithiasis formation with positive family history in the population of Lahore; Journal of Medical Ultrasound January, 2018.

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Biography

Prof. Syed Amir Gilani is Founder Dean of the Faculty of Allied Health Sciences at University of Lahore, Lahore, Pakistan. He founded this faculty having 11 departments of Allied Health Sciences in 2012 which is having a student body of 5300 offering variety of courses including undergraduate to postgraduate degree programs. He is also a professor of radiology and director of Directorate of Global Linkages at the same institution. He received his MBBS from Punjab Medical College, University of Punjab, Pakistan, followed by DMRD & MPH from The University of Lahore and he holds doctoral degree (PhD) in Medical Diagnostic Ultrasound from Al-Zaiem Al-Azhari University (Sudan). Prof. Gilani is the author of 11 books on Ultrasound, has published more than 110 research articles in journals and has had above 320 international conference presentations & 81 conference publications. He has supervised 168 M.Sc, M.Phil 56 and 28 PhD Students from four universities of Asia, Africa & Europe. Furthermore, he has so far attended and conducted 128 conference/workshops in 80 countries.

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