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ULTRASOUND ASSESSMENT OF A1 AND A2 PULLEY ENTHESIS WITH ANATOMICAL AND HISTOLOGICAL CORRELATION

Keywords: Imaging, Ultrasound, Enthesitis

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Background: Digital entheses are of particular interest in inflammatory arthropathies. The annular pulleys (A) are forms of soft connective tissue organized as transverse fibers of variable width, thickness, and configuration that overlay the synovial sheath of flexor tendons. These structures prevent the flexor tendons from bowing and maintain them in constant relationship to the joint axis of motion.

Objectives: To describe and measure the ultrasonographic, anatomical, and histological characteristics of the A1 and A2 annular pulleys entheses.

Methods: A1 and A2 annular pulleys from 15 formalin-embalmed cadavers were assessed by grey-scale ultrasound (Figure 1) and then dissected. The ultrasonographic assessment included the identification, widths, microvasculature, and characterisation of insertion site of the annular pulleys. For the anatomical analysis, dissection was then performed, identifying the transverse fibers of the distal region of the palmar fascia as the proximal limit and the proximal interphalangeal joint as the distal limit. Measurements of the anatomical width of the region of the palmar fascia as the proximal limit and the proximal interphalangeal joint as the distal limit. Measurements of the anatomical width of the pulleys were obtained with a digital caliper. For the histological study, 2x2 cm samples were received, fixed with 4% formaldehyde, and processed to obtain paraffin blocks, then cut into 4-micron sections and stained with hematoxylin-eosin. The slides were observed and measured with a Leica DMD 108 microscope. Quantitative data were expressed as mean ± standard deviation (SD) and qualitative data as n (%). Means were analyzed using Student’s-t test and frequencies using the chi-square test and Fisher test when needed. Pearson’s correlation coefficient (r) was used to analyze the linear correlation between the ultrasonographic and anatomical measurements. Statistical analyses will be performed using the SPSS program version 26.0.

Results: Fifteen cadaveric hands (9 males and 6 females) with a mean age of 79 years were included. Regarding the ultrasonographic assessment the mean ultrasonic width of the A1 pulley was 0.27 ± 0.06 mm and A2 0.11 mm ± 0.04 mm in the thumb, while A1 was 0.36 ± 0.09 mm and A2 pulley 0.46 ± 0.06 mm on the other fingers. A strong correlation between the ultrasonographic and anatomical measurements was found (r=0.82). All A1 in the thumb shows sesamoid bones (SB) in the radial and ulnar sides where the annular pulley make its proximal attachment, while SB was found in just twelve hands in the second finger (80%) and two hands measurements was found (r=0.82). All A1 in the thumb shows sesamoid bones (SB) in the radial and ulnar sides where the annular pulley make its proximal attachment.

Conclusion: These preliminary results show that ultrasound is a valuable tool for identifying annular pulleys’ width and entheses, with good correlation with the ultrasonographic and anatomical measurements. The annular pulleys have a mixed fibrous and fibrocartilaginous enthesis.

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DIAGNOSTIC VALUE AND BENEFITS OF PERFORMING A MINIMALLY INVASIVE TECHNIQUE FOR MINOR SALIVARY GLAND BIOPSY, A CASE SERIES

Keywords: Sjögren syndrome, Diagnostic tests

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Background: Salivary gland biopsy plays an important role in the diagnosis of systemic diseases, especially Sjögren’s Syndrome. Minimally invasive biopsy has a low risk of complications with respect to the classical technique, without losing its diagnostic capacity.

Objectives: To assess the utility and safety of minimally invasive technique in patients with suspected systemic disease and salivary gland involvement.

Methods: Retrospective analysis of 31 minor salivary gland biopsies performed by our Systemic Autoimmunity Disease Unit from November 1st 2020 to November 1st 2022, using a minimally invasive technique. Antibody profile and histopathological changes observed were recorded. Adverse events were registered immediately after the procedure and at the next medical visit.

Results: A total of 31 biopsies were reviewed. Mean age of patients was 60 years, most women (n=27, 87%). The success rate of obtaining glandular tissue was 94% (29/31). With respect to immunological data, 24 patients had positive ANAs (77,4%), 24 negative ENAs (77,4%) and 21 negative Rheumatoid Factor (67,7%). In histopathological evaluation 52% were normal salivary tissue (n=16), 23% had focal lymphocytic salaienitis (n=7), 16% nonspecific chronic salaienitis (n=5), 6% (n=2) non-existent or insufficient sample and 3% fatty infiltratiin (n=1). The only complication was a transient superficial lip ecchymosis in one patient (3,2%).

Conclusion: 23% of patients with immunogenenetic sicca syndrome are diagnosed with Sjögren’s Syndrome due to a minor salivary gland biopsy performed with a minimally invasive technique. This is a simple tool which saves time until diagnosis with low rate complications.

REFERENCES: