




CASE IMAGE

“Daddy wrist”: A high-resolution ultrasound diagnosis of de Quervain tenosynovitis

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1 | INTRODUCTION

De Quervain disease (DQD) is a stenosing tenosynovitis which affects the retinaculum of the first dorsal compartment of the wrist, the abductor pollicis longus (APL) and extensor pollicis brevis (EPB) tendons and the synovial sheath that surrounds them. These tendons pass through an osteo-fibrous tunnel over the radial styloid and under the transverse fibers of the extensor retinaculum. Mechanical overuse and repetitive microtrauma at this level can lead to thickening of the extensor retinaculum, stenosis of the first compartment of the extensor tendons and subsequent impingement and inflammation of the EPB and APL tendons.^{1,2}

DQD seems to be associated with female sex (F:M = 10:1), middle age (30–50 years) and activities involving repetitive hand and wrist motions often as part of a job, sport, or hobby. New mothers are also commonly affected as a result of repeated extension and flexion of the wrist with abduction of the thumb against resistance, such as occur grasping and lifting up a baby (hence the term “baby wrist” or “mommy wrist”).²

Aim of this paper was to illustrate high-resolution ultrasound (US) features of the DQD by describing a well-documented case that occurred in a “new dad” taking care of his babe.



FIGURE 1 Photograph of the wrist of the patient shows localized swelling (yellow arrow) over the distal radius.

2 | CASE PRESENTATION

We briefly present the case of a 40-year-old man who sought medical attention for tenderness and pain in the anatomical snuffbox region (Figure 1). On physical examination, there was a swelling over the radial styloid exacerbated by wide movements of the thumb. Finkelstein test was positive. Given the suspicion of DQD, we investigated the patient's possible risk factors and it emerged that he recently became father.

High resolution ultrasound (US) evaluation with a 4.0–15.0 MHz hockey-stick transducer confirmed the presence of an overall thickening of the extensor retinaculum at the level of the distal radius which more

distally, at the level of the radiocarpal joint, remained thickened only around the EPB whereas it reacquired a normal appearance around the APL. At both levels, EPB and APL tendons appeared rounder on transverse scans due to edematous changes. A vertical hypoechoic septum between the APL and EPB tendon slips dividing the first dorsal compartment into two subcompartments was also seen (Figure 2A–C). Furthermore, dynamic maneuvers allowed to value that the gliding movement of tendons within the osseofibrous tunnel was not smooth. However, no snapping phenomenon of tendons was detected. Finally, power-Doppler US evaluation showed inflammatory hyperemia as an increased flow signal around the tendon sheath (Figure 2D).

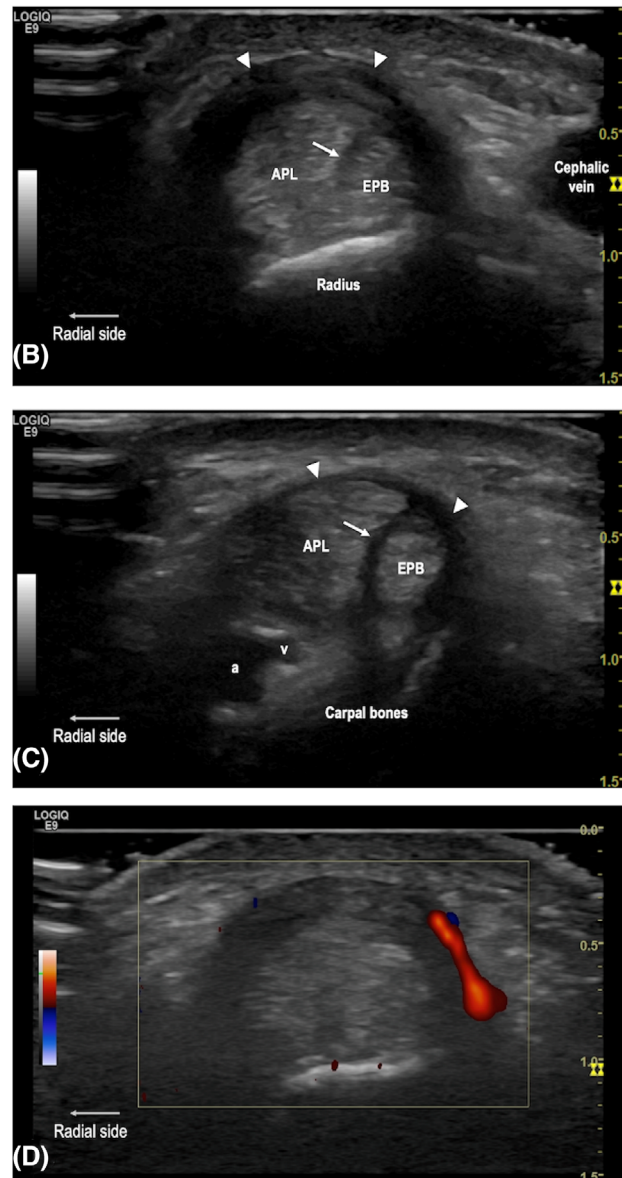
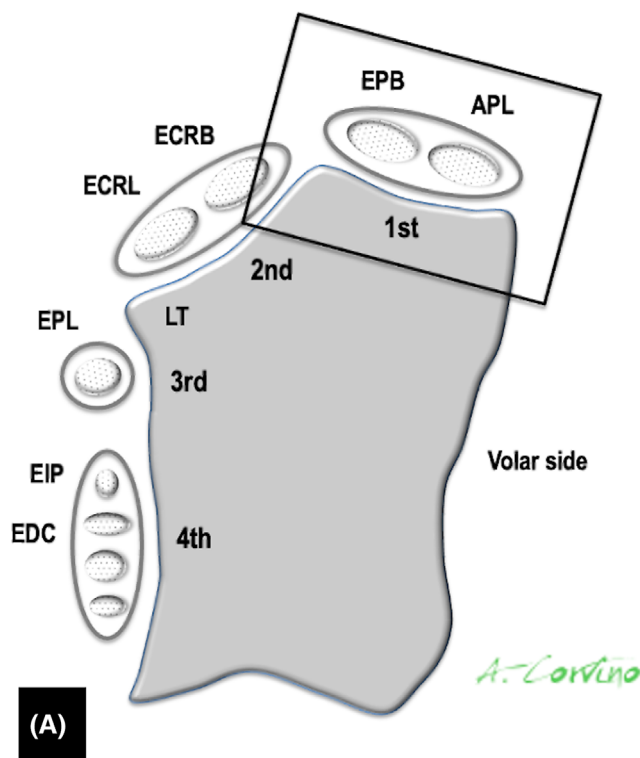


FIGURE 2 (A) A schematic cross-sectional image of the distal radius shows the area of sonographic transverse scan images of the first extensor compartment in de Quervain's disease (inset). (B, C) Transverse 4.0–15.0 MHz US images at the level of the (B) distal radius and (C) radiocarpal joint. In B, there is an overall thickening of the overlying extensor retinaculum (white arrowheads) and enlargement of both the EPB and APL tendons, which appear rounder on cross section, as a result of edematous changes. In C, the retinaculum around the EPB remains thickened whereas the one around the APL has a normal appearance. A vertical fibrous septum (white arrow in B and C), which divides the first dorsal compartment into two parts, is seen between APL and EPB tendon slips on both the US images. (D). Power-Doppler US image shows flow signals distributed around the tendon sheath due to inflammatory hyperemia.

3 | DISCUSSION

As a cost-effective, quick, and non-invasive imaging technique that also provides dynamic assessment, US is a valuable tool for examining the musculoskeletal system. Current ultrasound machines and high-frequency probes allow for visualization of the small superficial structures of the wrist with high-resolution detail.^{1,2}

In this case, US was fundamental to establish the diagnosis of DQD, ruling out other disorders associated with pain at the level of the styloid process. US allowed also to detect the presence of a vertical fibrous septum extending from the extensor retinaculum between the APL and EPB tendons (Hiranuma type II), which has clinical implications because it acts as a barrier to diffusion of injected steroids whether this treatment is performed.^{3,4} Similarly, surgical treatment would be unsuccessful in these patients if the tendon sheath of only one subcompartment is released while that of the one in another subcompartment remained unreleased.³ Moreover, an impairment of the tendons' gliding was observed under the retinaculum, which also can be considered pivotal information for the hand surgeon in order to plan an accurate surgical combining the retinaculum incision with the release of any adhesions.^{4,5}

Interestingly, our case represents an exception to the commonly reported DQD epidemiological data, which has always described new mothers as being at the highest risk while our patient is a father. Hence, firstly in literature we could refer to this condition with the term of "daddy wrist". In the coming years, in our opinion, it will be increasingly detectable in clinical practice given the growing involvement of fathers in childcare compared to the past.

DISCLOSURE

We confirm that this work is original and has not been published elsewhere nor is it currently under consideration for publication elsewhere. Publication is approved by all authors and by the responsible authorities where the work was carried out. Each author participated sufficiently in any submission to take public responsibility for its content. Written informed consent was obtained from patient.

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CONFLICT OF INTEREST STATEMENT

The authors have no conflicts of interest.

DATA AVAILABILITY STATEMENT

Data available on request due to privacy/ethical restrictions.

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