

# Sonographic Envisage for Bilateral Variation of Extensor Pollicis Longus

## Ekstensör Pollicis Longus Tendonun Bilateral Varyasyonunun Sonografik İspatı

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**ABSTRACT** Lister tubercle is an important anatomical marker in sonographic examination of the wrist. This structure, which can be palpated in the dorsum of the distal end of the radius, allows for easy identification of the extensor tendons. A 25-year-old female presented with a mild right forearm pain. Her complaints began with a fall on her forearm 1 year earlier and on physical examination there was a mild tenderness over the right dorsal forearm with wrist flexion and extension. Neurological examination of the right upper extremity and systemic examination were unremarkable. In the ultrasonographic examination, the extensor pollicis tendon which is in the third compartment was on the radial side of the Lister tubercle and the extensor digitorum tendon which is in the fourth compartment was located on the ulnar side of the Lister tubercle. Similar findings were found on the left dorsal extensor compartments. Variations between Lister tubercle and extensor compartments rarely have been seen. To the best of our knowledge, radial side of Lister's tubercle location of both third extensor compartments has not been mentioned as yet in the literature.

**Keywords:** Extensor pollicis longus; Lister tubercle; ultrasound

**ÖZET** Lister tuberkülü, el bileğinin sonografik muayenesinde önemli bir anatomik işaretir. Radiusun distal ucunda dorsumunda palpe edilebilen bu yapı, ekstansör tendonların rahat ayırt edilebilmesine imkan tanır. 25 yaşında kadın hasta el bileği hareketleri ile artan hafif düzeyde sağ önkol ağrısı ile başvurdu. Hastanın şikayetleri 1 yıl önceden düşme ile başlamıştı ve fizik muayenede sağ dorsal ön kol bölgesinde el bileğinin fleksiyon ve ekstansiyonu ile oluşan hassasiyet mevcuttu. Sağ üst ekstremitenin nörolojik muayenesi ve sistemik muayene normaldi. Ultrasonografik değerlendirmede, üçüncü kompartmanda yer alan ekstansör pollicis tendonunun Lister tuberkülünün radial tarafında olduğu ve dördüncü kompartmanda yer alan ekstansör digitorum tendonunun da Lister tuberkülünün ulnar tarafında yer aldığı gözlemlendi. Benzer bulgular diğer dorsal ekstansör kompartmanlarında da gözlemlendi. Lister tuberkülü ve ekstansör kompartmanlar arasındaki varyasyonlar nadiren görülmektedir. Bildiğimiz kadarıyla; Lister tuberkülünün radyal tarafındaki lokalizasyonunun ultrasonografik görünümü literatürde daha önce bahsedilmemiştir.

**Anahtar Kelimeler:** Ekstensör pollicis longus; Lister tuberkülü; ultrasonografi

Ultrasound is a useful imaging method for wrist evaluation, which allows high-resolution anatomy imaging while allowing dynamic evaluation of joints, tendons, vessels, nerves and ligaments. There are six compartments on the dorsal part of the wrist, including the tendons of the wrist extensor muscles. Each compartment is lined internally by a synovial

sheath and separated from one another by fibrous septa. Dorsal tubercle of radius or Lister's tubercle provides easy identification of tendons in radiological evaluation.<sup>1</sup>

A 25-year-old female presented with a mild right forearm pain, which was exacerbated with wrist movements. Her complaints began with a fall on her

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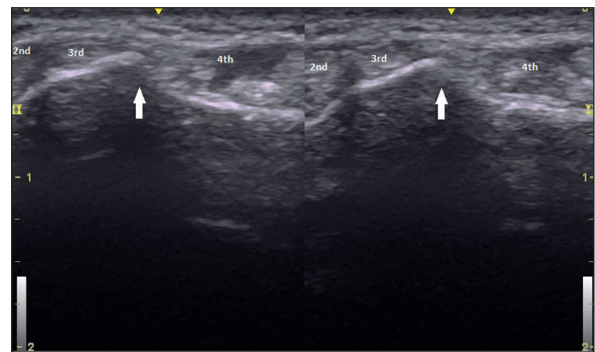
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forearm 1 year ago and her physical examination, laboratory and plain radiography findings gave no information about her mild pain. An initial examination in our centre revealed mild tenderness over the right dorsal forearm with wrist flexion and extension. Range of motions of the wrist joint were unlimited. Neurological examination of the right upper extremity and systemic examination were unremarkable. There were no contributory findings and no laboratory abnormalities. Sonographic imaging of the dorsal forearm demonstrated that extensor pollicis tendon which is in third compartment located radial side of the Lister tubercle next to second extensor compartment which encompass extensor carpi radialis longus and brevis tendons. Fourth compartment which contains the extensor digitorum is located to ulnar side of the Lister tubercle (Figure 1). Similar findings were found on the left dorsal extensor compartments.

Dorsal tubercle of radius or Lister's tubercle is a useful sonographic landmark when examining extensor tendons at the wrist. It is located at the distal end of the radius and palpable on the dorsum of the wrist. This bony prominence serves as an important starting point with dorsal wrist tendons evaluation. It separates the 2<sup>nd</sup> and 3<sup>rd</sup> compartment tendons. The extensor carpi radialis longus and extensor carpi radialis brevis tendons are located on the radial side of the Lister tubercle (2<sup>nd</sup> compartment) and the extensor pollicis longus tendon is located on the ulnar side of the Lister tubercle (3<sup>rd</sup> compartment). The extensor digitorum and extensor indicis tendons are situated on the ulnar side of the third compartment (4<sup>th</sup> compartment and 5<sup>th</sup>).<sup>2</sup>

Variations between Lister tubercle and extensor compartments rarely have been seen.<sup>3</sup> It is clinically significant to know the anatomical diversity of the Lister tubercle. The palpable Lister tubercle in the distal dorsum of the wrist is the anatomical landmark for wrist injection and arthroscopic procedures. It may cause some complications in surgical and interventional procedures without taking into account Lister variations. Ultrasound is an important diagnostic tool to quickly reveal these variations.<sup>4</sup> To the best of our knowledge, radial side of Lister's tubercle location of both third extensor compartments has not been mentioned as yet in the literature. In this presentation, a variation in both 3<sup>th</sup> compartment is noted. On the other hand, we could not find any traumatic or embryonic basis to explain our findings.

We present this interesting case to call physicians' attentions towards this incidentally mild symptomatic finding. We also point to the role of ultrasound for prompt and practical imaging in suitable patients.



**FIGURE 1:** Axial sonographic image shows the extensor compartments of both hands (A,B). Third extensor compartments which encompass extensor pollicis longus tendon are located at radial side of the Lister's tubercle in both sides.

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