Wrist Swelling in Kienböck’s Disease

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Purpose

Wrist swelling is a frequent clinical manifestation of Kienböck’s disease but no study has reported the pathology of wrist swelling in this disease. The aim of this study is to elucidate the site and pathology of wrist swelling in Kienböck’s disease.
Materials

- Standard lateral views of X-ray with support in 30 pairs of bilateral normal wrists for examining the extent of laterality of the soft tissue thickness
- Standard lateral views of X-ray with support in 26 pairs of bilateral wrists with unilateral Kienböck’s disease.
- T2-weighted fat-saturated axial view across the capitate head of MRI in affected side of 26 wrists with Kienböck's disease and 30 control wrists
- Three specimens from the dorsal capsule of wrists with Kienböck’s disease for histological examinations
Method 1: Measurement of soft tissue thickness in X-ray

A: Dorsal soft tissue thickness
B: Palmar soft tissue thickness
Method 2: Measurement in layers on MRI

- A: joint space
- B: joint capsule to gliding floor
- C: gliding floor to extensor retinaculum/transverse carpal ligament
- D: skin/subcutaneous tissue
Axial /saggital view of wrist swelling in Kienböck's Disease

Arrows showing the site of swelling
Results 1: there was no laterality in soft tissue thickness of the normal wrists.
Results 2: Dorsal soft tissue was greater in affected wrist with Kienböck’s disease.

![Bar chart showing the comparison of dorsal and palmar soft tissue measurements between affected and unaffected wrists.](#)

- **Dorsal**
  - Affected wrist: 15.4 ± 2.0 mm
  - Unaffected wrist: 20.0 ± 2.0 mm
  - $P < 0.001$

- **Palmar**
  - Affected wrist: 20.0 ± 2.0 mm
  - Unaffected wrist: 15.4 ± 2.0 mm

**Note:** The measurements are given in millimeters (mm).
Results 3: Capsular ligament and extensor layer were thicker in Kienböck’s Disease than controls.
Results 4. Capsular ligament and extensor layer showed nonspecific inflammation with lymphocyte infiltration and angiogenesis consistently.
Dorsal wrist swelling in Kienböck‘s disease is a common manifestation and histological analysis confirms chronic extra-articular capsulosynovitis together with MRI findings. This capsulosynovitis constitutes a part of pathology of Kienböck’s disease, although further study is required to clarify the relation between wrist swelling and etiology of Kienböck's disease.