



Scapholunate Ligament Reconstruction with the Flexor Carpi Radialis Tendon: The Ross Technique

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Background:

Injuries to the scapholunate (SL) joint are the most frequent cause of carpal instability. While acute SL ligament injuries are amenable to ligament repair or capsulodesis, chronic scapholunate dissociation associated with a pattern of dorsal intercalated segment instability often requires ligament reconstruction. The Ross technique utilizes a strip of the flexor carpi radialis (FCR) tendon to reconstruct the SL Ligament and dorsal intercarpal ligament. The purpose of this study is to describe the outcomes of this novel technique.

Methods:

This was a retrospective review that assessed the efficacy of scapholunate ligament reconstruction in 3 patients with chronic, non-repairable scapholunate ligament tears. The Ross technique uses a strip of the FCR tendon, which is left attached distally. The tendon is passed through intra-osseous tunnels in the scaphoid, lunate and triquetrum. An interference screw is placed in the triquetrum to secure the FCR, and the FCR is brought back dorsoradially and sutured to the scaphoid using a bone anchor (Figure 1). This technique was slightly modified by anchoring the leading edge of the FCR on to the capitate in 1 case.

Pre and post-operative wrist flexion, extension, and grip strength expressed as a percentage of the opposite unaffected hand were assessed. Patients were then contacted and asked to complete a Patient Rated Wrist Evaluation (PRWE) survey and asked their satisfaction with the operation on a 4-point scale. Pre/post-operative radiographs were assessed for scapholunate gap and scapholunate angle.

Results:

All 3 patients were males, with a mean age of 61 years. All 3 patients had surgery to the nondominant wrist. The mean postoperative follow up duration was 6 months (range, 3-10 months). The mean pre/postoperative wrist flexion, extension, and grip strength were $58^{\circ} \pm 4$, $55^{\circ} \pm 14$, and $74 \pm 53\%$ and 50° , 55° , $67 \pm 12\%$ respectively. One patient was not satisfied with treatment and scored 35 on the PRWE, while two patients were very satisfied and scored 16 and 17 on the PRWE. Radiographic findings pre/postoperatively showed a scapholunate gap and angle of 5.7 ± 0.6 mm, $61^{\circ} \pm 7^{\circ}$ and 5.7 ± 1.6 mm, $57^{\circ} \pm 3^{\circ}$ respectively, after a mean of 6.7 months post operatively. One patient developed reflex sympathetic dystrophy.

Summary:

- The Ross technique, with modifications, was used successfully to treat 2 out of 3 patients.
- Pre/post operative radiographs did not show a difference in the scapholunate gap or scapholunate angle.
- A larger sample size is required and long-term follow up is underway to assess the longevity of this procedure.

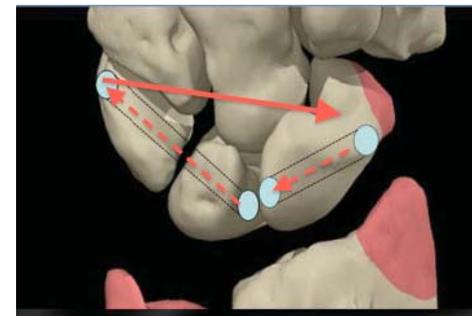


Figure 1. Presentation of the path of the FCR tendon as it is passed intra-osseously and dorsally.

References:

Ross M et al. *Jnl Wrist Surg* 2013; 02(02): 110-115.