

Cerclage Suture Fixation of Comminuted Navicular Fractures

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Purpose: Comminuted and displaced navicular fractures are difficult to treat. These fractures result from forces that compress the talar head into the navicular causing radial fracture displacement like the staves of a barrel. In a case report from Foot & Ankle International, Naidu and Singh (2005) showed a displaced comminuted navicular fracture that was innovatively treated with a cerclage wiring technique. To our knowledge, this is the only published report of a navicular fracture treated with this approach. Since that time the senior author has treated over 25 of these severe fractures with a similar, less-invasive cerclage wiring technique. Over time this technique has evolved and now preferentially involves use of a long chain ultra-high molecular weight polyethylene (UHMWPE) suture tape. Advantages of this technique include reduced operative time, minimal dissection, no need for hardware removal, and no obstruction of fracture imaging.

Methods: The surgical technique uses a small incision made over the medial pole of the navicular. A lead suture is then passed subperiosteally along the plantar surface of the navicular and received at a similar incision at the lateral pole. Subperiosteal dissection is performed along the dorsal surface with a Kelly clamp or small periosteal elevator. The lead suture is then delivered to the medial pole. The suture tape is then passed by pulling the lead suture, which delivers the UHMWPE suture circumferentially. Suture tensioning provides indirect reduction by radial compression as it is tightened.

Results: We have performed over 25 cases using the suture tape or wire and in our experience have found this to be the best fixation and reduction technique available (Fig. 1).

Conclusion: This approach demonstrates a safe, expedited, minimal incision surgical approach that provides optimal fixation of these difficult navicular fractures.

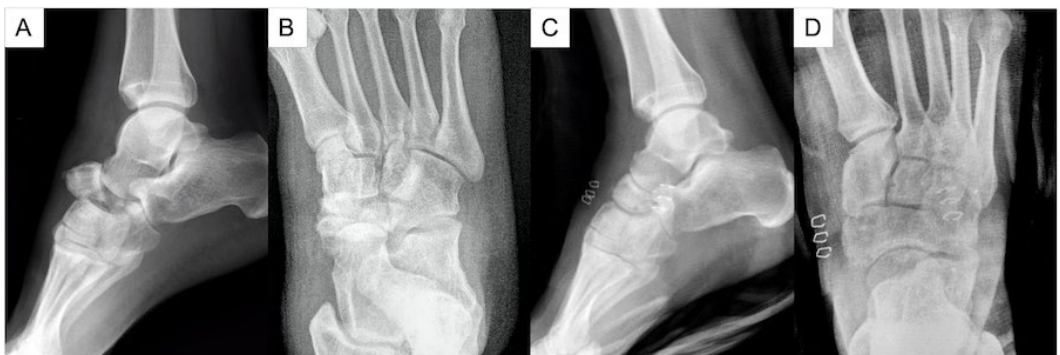


Figure 1: Preoperative lateral (A) and AP (B) view radiographs of a comminuted navicular fracture dislocation compared to postoperative lateral (C) and AP (D) view radiographs s/p navicular cerclage with UHMWPE suture tape in a right foot.