Percutaneous Navicular ORIF: A Novel Technique

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• Percutaneous Navicular ORIF:

• A Novel Technique

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• My disclosure is in the Final AOFAS Program Book.

• I have no potential conflicts with this presentation.
Navicular fractures are common midfoot fractures that are commonly missed and difficult to treat. Navicular fractures compromise 62% of all midfoot injuries.

Forces translating from distal to proximal, cause the navicular to compress upon the talar dome. These forces cause the navicular to displace radially like staves of a barrel.

Radial displacement

post-op
Methods

- We employed a technique for a circumferential cabling to act like a barrel hoop to reverse and neutralize the deforming radial forces. A 2005 case report in Foot and Ankle International described a single case fixed with an open wiring technique.

- Initially an transverse open technique with a large wire passer was utilized. This was abandoned in favor of a percutaneous method using two 1cm incisions.

- A single surgeon performed all ten surgical cases of cabling.
Surgical Technique

- The approach evolved from an open transverse dorsal incision to a percutaneous technique.

- Two small incisions were made over medial and lateral poles of the navicular to pass the cable. The cable was either passed with the trochanteric cable passer or was pulled into place after first passing a more malleable high tension suture.

- Fluoroscopy was used intraoperatively. The patients were followed post-operatively until osseous healing.
Intra-Operative Open Technique
Fixation of navicular fractures has evolved from an open to percutaneous technique.

Two 1 cm incisions over the medial and lateral poles of the navicular.

Cerclage cable placed with cannulated cable passer or pulled into position with a lead suture that was placed “subperiosteally” with a right angle clamp.
We believe that this technique results in superior fixation of navicular fractures.

Circumferential wiring neutralizes the deforming forces by reversing the mechanism of injury.

These ten cases demonstrate a safe, quick, percutaneous surgical technique which provides excellent fixation of the navicular fracture fragments.
Conclusion

★ Percutaneous cerclage cabling of navicular fractures is an innovative technique to fixate these fractures.

★ This surgical technique is safe and expedient.

★ We believe that this series of ten patients conclusively shows excellent reduction and fixation.
References

- Calhoun, Laughlin; Fractures of the Foot and Ankle: Diagnosis and Treatment of Injury and Disease. 2010. 146-148.
- Myerson, M/ Reconstructive Foot and Ankle Surgery: Management of Complications. 2010. 194-195; 225-227

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