A Novel Use of Arthroereisis in the Adult Flat Foot

Peek AC
Malagelada F
Clark CIM
Dega R

Frimley Health
NHS Foundation Trust
United Kingdom

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Disclosures

The authors have no conflicts to disclose
Arthroereisis in Adults

• Although initially used in children, arthroereisis in adults is described in several case series:
  • Ozan 2015 – Young adults with flexible flat feet
  • Needleman 2006 – Flexible flat feet due to Posterior Tibialis Tendon Disorder (PTTD), spring ligament rupture or a neurological condition. Combined with Tendo Achilles lengthening (TAL)/Evans/Cotton or Lapidus procedures as needed.
  • Viladot 2003 – Stage II PTTD, combined with TAL as needed and either PTT repair or reconstruction with FDL augmentation or FHL transfer.
Methods

- Retrospective study
- 36 feet in 34 patients underwent Tibialis Posterior Reconstruction:
  - Calcaneal Osteotomy
  - Spring Ligament reefing
  - FDL transfer
- In 23 patients the reconstruction was augmented with an arthroereisis screw using the Kalix (Integra) implant
- Arthroereisis screw removed around 6 months in all patients
Radiographic Assessment

Post operative measurements taken after removal of Kalix implant where applicable

- Talonavicular uncoverage angle
- Talar-1<sup>st</sup> Metatarsal angle
- Talar- 2<sup>nd</sup> Metatarsal angle
Radiographic Assessment

Post operative measurements taken after removal of Kalix implant where applicable

- Medial Column Height
- Talar-1\textsuperscript{st} Metatarsal angle (Meary's angle)
- Calcaneal Pitch angle
Results

• 30 women and 4 men, mean age 59 years
• Mean follow up for functional score 4 years (range 13 months – 8 years)
• 6 patients were lost to follow up (2 in augmented, 4 in non augmented group)
• Complications:
  • One patient in the non augmented group had persistent pain requiring triple fusion 13 months post op.
  • One patient in the augmented group complained of abnormal heel sensation post operatively which was managed conservatively.
Radiographic results

- There was improvement in all the radiographic criteria from pre to post operatively (2 tailed Wilcoxon Signed rank test, $p < 0.01$)
- There was no difference found between the two groups (Arthroereisis screw vs No arthroereisis)
Radiographic results

- There was a trend towards more correction in talo-navicular coverage with the arthroereisis screw but this was not statistically significant.
Functional results

- No difference found in functional outcomes between the two groups.
- Wide range in MOxFQ score: 0 to 81 (0 = best score, 100 = worse score possible)
Conclusions

- Although we could not demonstrate any advantage in this small case series, we feel that an arthroereisis screw may be a useful adjunct to tibialis posterior reconstruction, in particular may avoid talo-navicular uncovering in the post-operative period, thereby protecting the spring ligament repair

- Limitations
  - Retrospective study meant many patients had incomplete datasets
  - Insufficient power to detect any difference between the groups
References


Needleman RL. A surgical approach for flexible flatfeet in adults including a subtalar arthroereisis with the MBA sinus tarsi implant. Foot Ankle Int. 2006 Jan;27(1):9–18.