



### Introduction

- Madelung’s deformity is a rare congenital anomaly of the wrist:
  - shortened radius with volar-ulnar curvature
  - Ulnar wrist pain most commonly seen in adolescent females.
- Indications for surgery: progressive pain and worsening range of motion.
- Classically, the ulna is shortened to achieve joint leveling.

### Methods

- Single case of 19-year-old (17 at time of initial surgery) right-hand-dominant female who presented with bilateral Madelung deformity, worse on the right compared to the left.
  - Worsening pain w/ wrist extension/lifting/pushing
- Desired both cosmetic improvement in the wrist as well as pain relief
- 3D CT imaging was obtained for surgical planning
- Treated with dome osteotomy and internal distraction of the right radius.

Figure 1



Preoperative, 2016: 15-18cm discrepancy from level of DRUJ

Figure 2



December 2019: Precice internal bone distractor, extra-medullary.

Figure 3



Postoperative March 2020 after removal of extractor.

### Results

- Distracted at a rate of 0.25mm, twice daily
  - Total distraction 18mm
  - 3.5 month period of consolidation and removal of distractor
  - Patient provided with a bone stimulator
  - OT for ROM
- 5 months post op:
- Had 45 degrees of wrist flexion and extension, near-full pronation, and full supination.
  - Improved pain

### Conclusion

- Dome osteotomy combined with the novel application of a PRECICE device internal distractor for correction of Madelung deformity
- With significant post-operative improvement in range of motion and pain relief.