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Introduction:
- Carpo-metacarpal (CMC) fracture – dislocation are frequent injuries, about 1% of all hand injuries, often misdiagnosed and predispose to painful arthritis and disability of the 4th and 5th CMC joints.
- Although different surgical techniques has been described from CMC arthrodesis, Dubert's stabilized arthroplasty and silicone interposition [1,2,3,4] none is fully satisfactory and patients often complains of residual pain or insufficient grip recovery.
- The purpose of this study was to evaluate the clinical and radiographic outcome of pyrocarbon interposition implant in treating posttraumatic little finger carpometacarpal arthritis.

Methods:
- We treated five consecutive patients who presented either traumatic destruction or symptomatic disabling post-traumatic arthritis of the hamato-metacarpal joints.
- According to the severity of the bone loss, two types of pyrocarbon interposition implants were used: Pi2® or Pyrocardan® (Tornier®, Montbonnot Saint Martin, France). All the patients were reviewed by an independent observer and were assessed through X-rays, physical exam and questionnaire.
- The surgical technique required a dorsal oblique incision. Putting aside the extensor digiti minimi to harvest, close to the bone, a wide capsular rectangular flap radially pediculated. The articular space for the implant was done by cylindrical burr although the Pyrocarbon® implant design suits perfectly the CMC joint anatomy. Fluoroscopy was used to control the size of the implant.
- Mean Post-operative immobilisation was 4 weeks.
In case of traumatic proximal instability of the fifth metacarpal, additional intermetacarpal fixation by K-wire was performed.

Results:
- All patients were reviewed at a mean follow up of 25 months (12-54).
- No complications were reported.
- Radiographic evaluation showed no fractures or dislocations of the implant.
- All patients acknowledged a decrease in pain levels and were satisfied with the little finger aspect and CMC joint mobility.
- All patients recovered full flexion and extension of the fingers.
- The Mean grip strength was 46.6kg (45-55kg) for 63.8kg (32-65kg) contralateral side,
- Improvement in grip strength was noted in all cases from preoperative mean grip of 29.3kg (25-35kg).

Conclusion:
- Pyrocarbon interposition implant in treating little finger carpometacarpal arthritis is a simple and reliable technique for restoring CMC joint mobility and functional grip strength without underlying pain. [5]
- Using a pyrocarbon implant in the 5th CMC joint eliminates the risk of silicone synovitis, polyethylene wear or metallosis.
- The design of the Pyrocardan® implant is very close from the carpometacarpal joint anatomic shape .
- Patient selection is important to avoid implant breakage as thin pyrocarbon arthroplasties would unlikely bear repeated powerful punch traumas.

Conflicts of Interest: None

References:

Image 1: pyrocarbon implants 1. Pyrocardan® 2. Pi2®

Image 2: Peroperative image of the Pyrocardan implant

Image 3 (left). Acute case
1. Pre-op X-ray of acute tear of CMC joint with bone loss
2. Post-op X-ray with Pi2 implant and additional fixation of the 5th metacarpal
3. X-ray at follow-up (24 months)

Image 4. Chronic case
1. Pre-op X-ray of arthritis of the 4th and 5th CMC joint
2. Post-op X-ray of Pyrocardan implant
3. Post-op X-ray of Pyrocardan implant at the follow-up (23 months)