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**Pisiform = Patella-like bone**

- Acts as a lever arm for FCU action
- Stabilizes the first row
- Protects ulnar nerve

- Surrounded by 9 tendons or ligaments ➔ Provide pisiform stability

- Gliding « adaptable » motion
  - Proximo–distal
  - Ulno–radial

**PT joint arthritis treatment:**

- **Pisiformectomy = gold standard:**
  - Alters proximal row kinematic
  - Reduces strength flexion and ROM extension
  - Uncomplete pain relief
  - Ulnar nerve syndrom

- **PT fusion**: for high functional demand patient
  - More complications
  - Reduces ROM flexion and extension
**Pyrocardan® implant:**

-Spacer
-Rectangular shape with 2 cylindrical concave surfaces opposed perpendicularly to one another
-Pyrocarbon (mechanical property similar to cortical bone)
-Already used in TM and STT joint

**Study objective:**
Propose a new surgical procedure preserving the pisiform
-Interposition arthroplasty of the PT joint with a pyrocarbon implant
-Report early results

P.B. has a conflict of interest to disclose with Tornier/Wright medical company. Other authors have nothing to disclose.
Material and method (1/2)

- **Surgical technic:**

  - Postoperative care:
    - Permanent splint for 2 weeks
    - Removable splint until the 4th week postoperative
    - No restriction after 6 weeks
Series: 8 patients
- 1 ♂, 7 ♀
- Mean age: 60 years old (51 to 74 years)
- 4 dominant hand
- 5 workers
- Etiology:
  - Degenerative arthrosis: 7 cases
  - Posttraumatic arthrosis: 1 case

Indication:
- Ulnar wrist pain with PT arthrosis
- Failure of medical treatment

Follow-up: 2.5 years (0.9 to 4 years)

Pre and postop evaluation:
- Pain VAS
- Grip strength, ROM (F/E, U/R deviation)
- PRWE, QuickDash, MWS
- Patient satisfaction

Radiological postop evaluation:
- Pisotriquetral space (A)*
- Pisohamatal distance (B)*
- Pisiform motion (C)*
- Fluroscopy kinematic on 3 cases

• 1 reoperation after 1 month for proximal luxation of the implant
  ◦ Implant repositioning
  ◦ Proximal capsule reinforcement

♂ 50 years
Domiant side
Postman biker

• VAS = 0
• F/E, UD/RD = 100% / Clt
• Grip = 45 kg (112.5% / Clt)
• Very satisfied
• MWS = 100
• QDASH = 13.6
• PRWE = 4
Results (2/2)

- **Pain relief:** 5.4 points
  - VAS = 1.6 (7 preop)
  - 62.5% no pain

- **ROM:** unchanged
  - F/E: 98%/Clt
  - R/U deviation: 106%/Clt

- **Grip strength:** +3kg
  - Grip = 103%/Clt

- **Radiography:**

<table>
<thead>
<tr>
<th></th>
<th>Values at last follow-up</th>
<th>Normal values *</th>
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<tbody>
<tr>
<td><strong>Piso-triquetal space:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- neutral wrist</td>
<td>1.4 mm ± 0.3</td>
<td>1.5 mm (1 to 2mm)</td>
</tr>
<tr>
<td>- wrist flexion</td>
<td>2.3 mm ± 1.1</td>
<td>3.5 mm (2 to 6 mm)</td>
</tr>
<tr>
<td>- wrist extension</td>
<td>1.4 mm ± 0.5</td>
<td>1 mm (0 to 1.5 mm)</td>
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<tr>
<td><strong>Pisiform excursion</strong></td>
<td>5.1 mm ± 2.4</td>
<td>6 mm (3 to 10 mm)</td>
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<tr>
<td><strong>Piso-hamatele space:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- neutral wrist</td>
<td>3.8 ± 2.2 mm</td>
<td>7.5 mm (4 to 10 mm)</td>
</tr>
<tr>
<td>- wrist flexion</td>
<td>0.8 ± 2.5 mm</td>
<td>2 mm (-1 to 6 mm)</td>
</tr>
<tr>
<td>- wrist extension</td>
<td>4.6 ± 2.5 mm</td>
<td>8 mm (5 to 11 mm)</td>
</tr>
</tbody>
</table>

- **Pain relief:**
  - VAS = 1.6 (7 preop)
  - 62.5% no pain

- **Patients satisfaction:**
  - Very satisfied: 87.5%
  - Satisfied: 12.5%

- **Functional scores:**
  - MWS = 85
  - QuickDash = 20.5 (70 preop)
  - PRWE = 23 (78 preop)

- **Return to work:**
  - 1.6 month ± 0.9

- **Grip strength:** +3kg
  - Grip = 103%/Clt

- **Radiography:**

  Normal position and motion of the pisiform with the arthroplasty

**Discussion**

- **Pyrocardan® interposition implant:**
  - Preserves the pisiform ➔ anatomical and biomechanical interests
  - Non invasive (does not burn the bridges in failure case)
  - Good short term results on 8 cases ➔ Bigger series with longer follow-up are required

- **But pay attention to the proximal capsule**
  - **Weakest point of the joint ++++, thin capsule or fenestration in nearly 75%** (From Arya and al, *Bone Joint Surg* 2007;89-B:202-5)
    ➔ 1 early proximal luxation of the implant in our series
  - To avoid implant luxation
    - Check with a probe the proximal capsule
    - If fenestration or tear ➔ capsule reinforcement with Goretex CV O thread
Références

1 Halé B. Racquet player’s pisiform. Hand 1978;10(01):87–90
14 Gauthier E, Truffandier MV, Gaisne E, Bellemère P. Treatment of scaphotrapeziotrapezoid osteoarthritis with the Pyrocarbon(®) implant: results with a minimum follow–up of 2 years. Hand Surg Rehabil 2017;36(02):113–121