PROXIMAL AVULSION of RADIOCARPAL CAPSULE Parc Lesion: a new entity

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Parc lesion is a large capsular tear of the dorsal wrist capsule, from TFCC to DCSS, often neglected in wrist arthroscopy and cause for persisting posttraumatic wrist pain.

This lesion probably results from a blunt trauma; however it also appears after a fall, often the wrist blocked in straight position. Arthroscopic exploration often does not reveal any tear, due to coverage of the lesion by synovitis and/or fibrotic tissue, especially in chronic cases.

However, blunt debridement with the shaver reveals a detachment of the dorsal capsule.
The trauma appears to create an avulsion tear of the dorsal wrist capsule at its insertion on the dorsal side of the TFCC, from styloid recessus until distal radius, and can expand into the DCCS (Dorsal Capsulo-Scapholunate Septum) in the direction of the second metacarpal.

Our proposal is to define this tear as a PARC lesion: Proximal Avulsion of Radiocarpal Capsule.
PARC LESION

Avulsion tear of the dorsal wrist capsule at its insertion on the dorsal side of the TFCC, from styloid recessus until distal radius.
PARC LESION

The avulsion tear of the dorsal wrist capsule expand into the DCCS (Dorsal Capsulo-Scapholunate Septum) in the direction of the second metacarpal.
1\textsuperscript{st} Step: TFCC Double loop

- Local-regional anaesthesia
- Tourniquet
- Outpatient surgery
- Elbow flexed 90°
- « Japanese » fingers traps

- 3-4 portal for vision
- 6R portal for instrumentation
- RUD portal for suture
Technique

First Arthroscopic control and freshening of TFCC lesion
Technique

Passage of the central loop
Technique

Passage of the radial and ulnar sutures
Technique
Technique

Final passage of double loop
Technique

Final passage of double loop
2nd Step Arthroscopic Dorsal Capsuloligamentous Repair
ADCLR
Arthroscopic Dorsal Capsuloligamentous Repair
ADCLR
Arthroscopic Dorsal Capsuloligamentous Repair
ADCLR
PARC LESION

The treatment combines arthroscopic suture of dorsal attachment of TFCC and dorsal capsulo-ligamentous repair.
Material

- *Between 2013 – 2014*
- 13 Parc Lesions *(Rare injury)*
  - 9 men    4 women
  - Mean age : 36.6 yo (range 19 to 51)
  - Sports injuries : 11 cases  
    *high level : 1 case*
  - Average time between injury and surgery: 9.14 months  
    (range 5 to 28)
RESULTS

Follow-up : 19.34 months (range 12 to 28)

• Pain :
  Preop VAS : 6.04   Postop VAS : 1.2

• ROM :
  normal flexion–extension in 10 cases (76.9%)
  normal pronation-supination in all cases (100%)

• Strength :
  Preop: 25.03 kgf   Postop: 45.28 kgf
## Total functional outcomes

<table>
<thead>
<tr>
<th></th>
<th>Pre-op</th>
<th>post-op</th>
<th>controlateral</th>
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</thead>
<tbody>
<tr>
<td>Flexion</td>
<td>50.39</td>
<td>63.42(p&lt;0.01)</td>
<td>73.46(p=0.26)</td>
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<tr>
<td>Extension</td>
<td>55.47</td>
<td>76.76(p&lt;0.01)</td>
<td>78.99(p=0.35)</td>
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<tr>
<td>Radial deviation</td>
<td>16.7</td>
<td>25.75(p&lt;0.01)</td>
<td>28.16(p=0.48)</td>
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<tr>
<td>Ulnar deviation</td>
<td>25.35</td>
<td>36.12(p&lt;0.01)</td>
<td>37.18(p=0.27)</td>
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<tr>
<td>Pronation supination</td>
<td>0-165</td>
<td>0-179(p&lt;0.02)</td>
<td>0-180(p=0.16)</td>
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<tr>
<td>Wrist strength</td>
<td>25.03</td>
<td>45.28(p&lt;0.01)</td>
<td>46.92(p=0.18)</td>
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No problem with sporty level +++
Results

Outcome was related to:
- delay surgery (better outcome if short delay)

Complications:
- flexion stiffness 3 cases (range 30° to 40°)
  - 1 Sudeck (healed)
Results

**DASH:**

- **PreOp:** Average 65.02 (range 13.64 to 90.91)
- **PostOp:** Average 9.13 (range 0 to 40.91)

**Mayo WS:**

- **Excellent:** 6 cases
- **Good:** 4 cases
- **Average:** 3 cases
- **Poor:** 0 case
CONCLUSION – PARC Lesion

This avulsion origins by a sudden block of the palmar hand or the dorsal forearm, during a swing movement.

This may cause a sudden dorsal translation of the proximal carpus with elevated pressure on an already tensioned dorsal radiocarpal capsule.

The dorsal radio carpal structures can be seen as a unit.

It is possible that the lesion starts at the dorsal portion of the TFCC, and extends radially and distally,

It begs the question of whether the isolated large dorsal lesions of TFCC, could not be a lesion PARC to a less severe stage.

Arthroscopic capsuloligamentous sutures are simple and reliable procedures convenient for the patient.