Review of a serie of scaphoid non-union by radial approach

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No conflicts of interest to disclose

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Introduction

- Preserve the **radioscaphocapitate ligament and dorsal ligaments**

- Preserving the **scaphoid vascularization**

- Better control for the **correction of the wrist deformity**

Aims

- To assess the results of this preliminary study of patients operated for scaphoid non union by radial approach

- **Hypothesis**: Consolidation rate at least similar to other studies
Surgical technique

- Control of sensitive branches of the radial nerve, control of the radial artery, log to bring in ulnar tilt and wrist extension
- Impacted cancellous grafts preferably from the radius
- Styloidectomy if necessary (SNAC 1, bone graft)
- Broaching or screwing in the frontal plane
Study protocol

- From January 2015 to January 2018

- **Inclusion criteria:**
  - Scaphoid non union or SNAC 1
  - Radial approach
  - > 6 months follow up

- **Exclusion**: revision for osteoarthritis
Review

- Clinical review
  - **Clinical assessment**: active mobilities, strength
  - **Functionnal assessment**
    - Pain (VAS)
    - PRWE
    - Quick Dash

- Radiological review: **consolidation**?
Results

- 22 patients
- Characteristic

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
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<tbody>
<tr>
<td>Sex</td>
<td>22 men</td>
</tr>
<tr>
<td>Mean Age, yo</td>
<td>24 yo (20-41)</td>
</tr>
<tr>
<td>Dominant side</td>
<td>9</td>
</tr>
<tr>
<td>Manual worker</td>
<td>13</td>
</tr>
<tr>
<td>Smoker</td>
<td>5</td>
</tr>
<tr>
<td>Pseudarthrosis</td>
<td>Zone 3</td>
</tr>
<tr>
<td>Mean time</td>
<td>22 months (6-45)</td>
</tr>
<tr>
<td>Snac 1</td>
<td>2</td>
</tr>
<tr>
<td>Failure of previous treatment</td>
<td>2</td>
</tr>
</tbody>
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Clinical results

Mean follow up ; 26 months (7-33 months)

- Functionnals score post operative
  - Quick Dash  9,6 (0-72)
  - PRWE  42 (8-114)

- Strengh
  - Pinch  58 % / controlateral side
  - Jamar  62 %

- Mean VAS  1,9/10 (0-7)

- ROM

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<table>
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<tr>
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<tbody>
<tr>
<td>Flexion</td>
<td>60°</td>
</tr>
<tr>
<td>Extension</td>
<td>59°</td>
</tr>
<tr>
<td>Radial deviation</td>
<td>15°</td>
</tr>
<tr>
<td>Ulnar deviation</td>
<td>17°</td>
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Radiological results

- Consolidation: 87%
  - 2 failures: no cause found (non smoker), no revision surgery
Discussion

- Comparable avec la literature
  - 80-84 % of consolidation

Scaphoid fracture non-union: a systematic review of surgical treatment using bone graft
D. O. Ferguson, V. Shanbhag, H. Hedley, I. Reichert, S. Lipscombe and T. R. C. Davis

Comparative meta-analysis on the various vascularized bone flaps used for the treatment of scaphoid non-union†
Konstantinos Ditsios¹ MD, PhD, Ioannis Konstantinidis¹ MD, Konstantinos Agas² PhD, Anastasios Christodoulou¹ MD, PhD
J Orthop Res. 2017 May;35(5):1076-1085

To cite this article: Bo Munk & Claus Falck Larsen (2004) Bone grafting the scaphoid nonunionA systematic review of 147 publications including 5 246 cases of scaphoid nonunion, Acta Orthopaedica Scandinavica, 75:5, 618-629
Discussion

Radial approach:

→ Preferred approach for

✓ Non union in zone 3,4,5 of Schernberg
✓ Recent or old (SNAC1)
✓ Especially if significant deformation

✓ Arthroscopic → Zone 1 and 2
✓ No more anterior or dorsal approach
Conclusion

- **Advantage:**
  - seems **easier** to correct the deformity and to perform the fixation
  - **less invasive** on the vascularization of the scaphoid and the ligaments of the wrist

- **Technique:**
  - **Radial artery control** for the positioning of the osteosynthesis
  - impacted cancellous bone graft from the radial styloid
Thank you