TFCC foveal re-attachment by ulnar tunnel technique

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Objective
Triangular fibrocartilage complex (TFCC) injury is present in up to 80% of patients with displaced DRF (1). TFCC usually heals well along with the fracture treatment. Thought, the commonest cause of prolonged pain and disability after distal radius fracture (DRF) is ulnar-sided wrist pain and instability caused by the foveal TFCC injury. We report short-term results with our preferred method of foveal repair in TFCC reconstruction (2).

Methods
Between April 2013 and May 2017, 15 patients have been operated by modified Iwasaki technique (ulnar tunnel technique) for foveal re-attachment of TFCC injury. All patients had ulnar sided wrist pain at activity and mild instability of the Distal Radioulnar Joint (DRUJ). All patients undergone X-ray and MR scan investigations of the wrist, prior to the surgical treatment. A positive hook test verified at the beginning of the arthroscopic surgery procedure was absolute indication for the TFCC foveal reconstruction. Average time from the initial injury to the reconstruction procedure was 18 months (range 3 – 96 months). There were 6 men and 9 women and their mean age was 27 years (range 16 – 40).

All patients were immobilized for 2 weeks in a sugar tongue splint, whereupon they all received removable orthosis with limited rotation for further 4 weeks. Then, hand therapy with light weight-bearing exercises started. Full weight-bearing activity was allowed at 3 months follow-up. Mean follow-up was 18 months (range 6 – 48 months). Retrospective evaluation included assessment of pain (VAS score), satisfaction, DRUJ instability, range of motion (ROM), grip strength and Disabilities of the Arm, Shoulder and Hand (q-DASH) Score.

Results
There were no complications during the operative procedures or the post-op period. All patients achieved full stability and showed improvement at the evaluation as well as full satisfaction except one case with persistent pain. Both grip strength, pain at rest/activity and q-DASH values improved significantly (p<0.05) as shown on the table to the right. Mean grip strength of the operated hands showed a 24 % increase after the operative treatment (95 % of strength of the contralateral side). ROM improved non-significantly, especially in pronation and supination. In one case, we observed recurrent pain, despite full stability of the DRUJ. The pain diminished after arthroscopic synovectomy was performed, a year after the primary surgery.

Discussion
Only few series have investigated treatment of foveal TFCC injuries. Our results are similar or superior to other presented techniques. None of our patients have experienced recurrent DRUJ instability or transient symptoms of neuropraxia of the sensory branch of the ulnar nerve compared to some of other methods (3)(4). The presented knotless technique simplifies the procedure.

Conclusions
- Short-term results of the modified Iwasaki ulnar tunnel technique for foveal repair of the TFCC injury provided satisfactory results with a few observed complications.
- Appropriate patient selection and indication must be fulfilled.
- This study continues as a part of a larger study design.

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<th>Pre-op</th>
<th>Post-op</th>
<th>Significance</th>
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<tbody>
<tr>
<td>VAS rest/activity</td>
<td>17/66</td>
<td>6/18</td>
<td>P&lt;0.05</td>
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<td>(1-100)</td>
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<td>Grip strength (KgF)</td>
<td>29</td>
<td>36</td>
<td>P&lt;0.05</td>
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<tr>
<td>qDASH</td>
<td>40</td>
<td>16</td>
<td>P&lt;0.05</td>
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References: