

Joint Event on

Stefanie Schmitt, Orthop Muscular Syst, Volume: 12

International Conference on

STEM CELL AND ORTHOPEDICS &

International Conference on

PSYCHOSOMATIC AND LABORATORY MEDICINE

July 19-20, 2023 | Rome, Italy

Dynamic palmar dislocation of the ulnar head at the distal radioulnar joint (druj) after radius shaft malunion

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Statement of the Problem: Palmar instability of the distal radioulnar joint (DRUJ) is a rare condition, which is, in contrast to the dorsal dislocation, scarcely represented in the literature. This palmar instability can result from a dorsally angulated malunion of the radial shaft after forearm fracture in childhood. Treating such a condition is controversial in the literature and was described in small case series. This study represents the largest case series in the literature that dealt with this condition, alongside a review of the key papers in the English literature.

Methodology and Theoretical Orientation: This is a retrospective case series. Ten patients were operated between 2007 and 2014. Six patients could be followed up clinically and radiologically after radius corrective osteotomy at the site of malunion with a mean time of 5.6 years. Patient history revealed a conservatively treated forearm fracture in childhood, a symptom-free period of several years [mean of 21.5 (min–max: 9.4–26.5) years] and a minor trauma as a trigger for clinical symptoms. All patients had clinically a DRUJ instability with palmar luxation of the ulnar head at supination. A diagnostic key feature is a radiograph of the whole forearm, revealing malunion of the radius at shaft level. Retrospective patient

history, diagnostic imaging, operative technique and clinical results (DASH, modifed Mayo Wrist Score, pain, grip strength, range of motion) were analyzed.

Findings: Four patients were lost to follow-up. In all patients, a radius corrective osteotomy could stabilize the DRUJ. In one patient, the osteosynthesis was revised due to metal failure after one month. In all the six patients, bony union of the osteotomy was achieved. In another patient, an additional ulnar shortening osteotomy was done one year later due to a positive ulnar variance. Postoperative range of motion of the wrist had an average of 136° in extension/fexion and 149° in pronation/ supination, and grip strength was 89% of the opposite side. With an average of 12.5 points at the DASH score and 82 at the modifed Mayo Wrist Score, patients rated their hand function as good.

Conclusion & Significance: DRJU is a rare and late complication after fore arm fracture. The presented patients show, that a simple corrective osteotomy of the radial shaft was adequate to treat the complex pathology of a dynamic palmar instability of DRUG. A soft tissue procedure was not required. Whole Forearm radiographs were the key diagnostic feature to detect and understand this rare pathology.

Biography

Stefanie Schmitt is a hand surgeon. The research Group around Prof. van Schoonhoven found this unique Diagnosis and classified it as an own posttraumatic entity of Instability of the DRUJ. Careful analyze of patient history, simple forearm x ray and a one step procedure (radius corrective osteotomy) will help patients to get a stable DRUJ. She has published several articles about reconstructive handsurgery. Presently she is a senior consultant at the Clinic for Plastic and Handsurgery at the Kantonsspital Luzern, Switzerland. She graduaded from the University of Wuerzburg in 2005. Her dissertation was Biomechanically based rehabilitation approach for different pathologies of the wrist". She is an Orthopedic and Trauma Surgereon since 2012, specialized in Handsurgery 2014 in Bad Neustadt an der Saale/Germany and is a Member of the European Board of Hand Surgery since 2014.

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