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Heterotopic Ossification after Arthroscopic Elbow Contracture Release

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Summary:
The excessive use of a radiaofrequency device in arthroscopic elbow release will result in an increased incidence of heterotopic ossification.

Abstract:
Purpose: This study investigates the prevalence and risk factors of heterotopic ossification (HO) in arthroscopic elbow release surgery. Methods: There were 101 elbows with arthroscopic release performed on 98 patients over the 5-year period from November 2011 to December 2015. They were divided into 3 groups. Group 1, elbow arthritis, included 46 elbows in 43 patients. Group 2, posttraumatic extrinsic elbow stiffness, included 23 elbows in 23 patients, and 32 elbows in 32 patients with intraarticular fractures and severe intrinsic contractures were in Group 3. Arthroscopic elbow release was performed under general anesthesia. In the postoperative period, x-ray or CT was followed up regularly to determine if there was HO, which was diagnosed when significant new calcifications were identified. The functional recovery was evaluated by comparing the range of motion and Mayo Elbow Performance Score (MEPS) pre and postoperatively in each group. Other complications were also assessed postoperatively. Results: The patients' mean age was 38.6 (range, 12–66) years old, with 57 males and 41 females. Mean follow-up was 21 (range, 4–56) months. HO developed in 25/101 (25%) elbows and 4 severe cases underwent repeat surgery. Group 1 patients were primarily arthritis and 3/46 (6.5%) elbows had minor HO on x-ray. In Group 2, 1/23 (4.3%) elbows had minor HO. However, in Group 3, 21/32 (65.6%) elbows developed HO, including 4 severe cases, 4 moderate cases and 13 minor cases. The average flexion– extension arc was improved from 93° to 126° in Group 1, 66° to 121° in Group 2, 46° to 91° in Group 3 at the last follow up. MEPS increased from 71.4 to 91.3 in Group 1, 65.6 to 93.5 in Group 2 and 52.3 to 80.6 in Group 3. In these severe intrinsic contractures cases, we routinely applied the radiofrequency device to create space for visualization and release, which was rarely used in Group 1 and 2. Conclusions: The occurrence of HO after arthroscopic elbow release for intrinsic posttraumatic stiffness was unexpectedly high. The predominant risk factor for the increased incidence of heterotopic ossification in this series was excessive use of radiofrequency, and this complication apparently impaired the otherwise predictable outcome.
Key words: Elbow arthroscopy, Stiff elbow, Arthritis, Heterotopic ossification