Outcomes of Open Elbow Contracture Release for the Stiff Elbow: A Single Surgeon Experience

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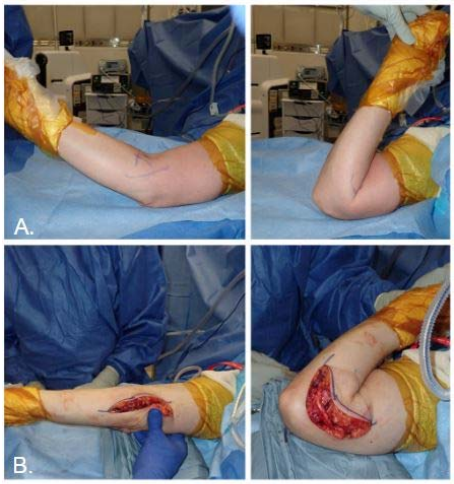
INTRODUCTION: Elbow stiffness, often from trauma or arthritis, requires personalized management. When non-operative methods fail, surgical release may be needed. Post-traumatic stiffness involves anterior/posterior tethers or blocks limiting motion. This study aims to report the outcomes of open surgical release in improving range of motion and function for post-traumatic elbow stiffness.

METHODS: A retrospective review was conducted on patients who underwent open surgical release for post-traumatic elbow contracture at a single institution between January 1993 and July 2023. Demographic data, preoperative clinical information, radiographic assessments, and postoperative outcomes were collected.

RESULTS: 309 patients (174 males, 135 females) met inclusion criteria, with a mean follow-up duration of 76 months (range 12-343). The mean age at surgery was 54 years (range 9-95). Contracture release surgery was performed at an average of 26 months (range 1-808) from the time of injury. Postoperatively, the average extension-flexion arc of motion improved from 65° to 114°. Rotation of the forearm also increased from 128° to 155°. In the early postoperative period (< 4 weeks), 62 patients (20%) benefited from a gentle closed manipulation under regional anesthesia followed by a return to standard physical therapy. A second open release was performed on 33 patients (10%) at an average of 27 months (range 2-202) following the initial release. 11 patients (3%) experienced failure due to painful motion (n=8) and elbow instability (n=3). Other complications included ligamentous instability (n=2), wound infection (n=9), and cubital tunnel syndrome (n=5)

DISCUSSION AND CONCLUSION: Open surgical release is an effective and valuable procedure for improving range of motion and function in patients with post-traumatic elbow stiffness, with gentle manipulation under anesthesia and standard physical therapy proving beneficial for managing early postoperative setbacks, despite the potential for low rates of complications such as painful motion, elbow instability, hematoma, and wound infection.



A. Preoperative extension-flexion arc of motion
B. Postoperative extension-flexion arc of motion