Functional Recovery of Complex Elbow Dislocations Treated with a Hinged External Elbow Fixator: Results of a Multicenter Prospective Study

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Purpose: A hinged external fixator theoretically allows collateral ligaments to heal without surgery while allowing functional after-treatment in patients with a complex elbow dislocation. The aim of this study was to assess the functional outcome in patients treated with a hinged external fixator after a complex elbow dislocation.

Methods: This is a multicenter prospective case series, between December 2009 and December 2011. Inclusion criteria were patients aged 18 years or older with a complex elbow dislocation who were treated with a hinged elbow fixator for residual instability. Primary outcome parameter was the QuickDASH, an abbreviated version of the Disabilities of the Arm, Shoulder and Hand (DASH) score after 1 year. Secondary outcome parameters were the Mayo Elbow Performance Index (MEPI), Oxford Elbow Score (OES), level of pain (visual analog scale [VAS]), and range of motion. Complications, secondary interventions, and radiographs were evaluated.

Results: 27 patients were included. 19 patients underwent open reduction and internal fixation (ORIF) or radial head replacement and 8 underwent closed reduction prior to hinged external fixation. One patient reported recurrent instability. Ten patients experienced fixator-related complications, of whom seven required secondary surgery. The median QuickDASH score was 6.8 after 1 year. The median VAS score for pain was 0.5, MEPI was 100, and the OES was 90 points. Median flexion-extension and forearm rotation arcs were 118° and 160°, respectively.

Conclusion: A hinged external elbow fixator provides enough stability to start early mobilization after an acute complex elbow dislocation and residual instability. This was reflected in good functional outcome scores and only slight disability despite a relatively high complication rate.

- The FDA has not cleared this drug and/or medical device for the use described in this presentation (i.e., the drug or medical device is being discussed for an "off label" use). For full information, refer to page 600.