Radial Nerve Transection After Ballistic Humerus Fractures: A Retrospective Cohort Study

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Purpose: Radial nerve palsy following fracture of the humerus is common. However, the incidence of nerve transection in the setting of ballistic trauma is unknown. The purpose of this study was to determine the incidence of radial nerve transection after ballistic fracture of the humerus.

Methods: Patients presenting to the emergency department of an urban, Level 1 trauma center with a ballistic fracture of the humeral shaft or distal humerus (OTA / AO 12, 13) were retrospectively reviewed. Patient demographics, clinical examination on presentation, and operative data were reviewed to determine the incidence of radial nerve palsy on initial examination, the incidence of operative treatment, the incidence of how frequently the nerve was directly visualized, and the incidence of radial nerve transection.

Results: 97 patients were identified. Of these, 42 (43.3%) were noted to have a radial nerve deficit on initial exam. 61 patients (62.9%) were taken to the operating room for treatment of their fracture. In 24 (39.3%) of these cases the radial nerve was directly visualized, and the radial nerve was found to be damaged in 14 patients (58.3%). Of these, 3 were contused or partially lacerated while the remaining 11 were completely transected. Therefore, the rate of transection in visualized nerves was 41.7%. Of patients with a radial nerve deficit on initial examination, the rate of nerve transection was 26.2%.

Conclusion: Radial nerve transection is common in ballistic humerus fractures with associated radial nerve palsy. Early exploration and operative treatment of these fractures may be warranted.