

Heterotopic Ossification Following Total Elbow Arthroplasty in Geriatric Distal Humerus Fractures: A Retrospective Cohort Study

Christopher Merritt, M.D.¹, Rosalee Zackula, M.A.², Alex Bollinger, M.D.¹

¹The University of Kansas School of Medicine-Wichita, Wichita, Kansas, Department of Orthopaedics

²The University of Kansas School of Medicine-Wichita, Wichita, Kansas, Office of Research

Received Mar. 27, 2026; Accepted for publication Apr. 20, 2026; Published online Apr. 22, 2026
<https://doi.org/10.17161/kjm.vol19.25385>

Introduction. The purposes of this study were to determine (1) whether delay to total elbow arthroplasty (TEA) after traumatic distal humerus fracture affects heterotopic ossification (HO) formation and (2) whether HO is associated with postoperative elbow range of motion (ROM).

Methods. This retrospective cohort study included patients with distal humerus fractures who underwent TEA at a single institution by a single orthopaedic surgeon from 2017 to 2021. All procedures were performed using a triceps fascial tongue approach. Patients did not receive HO prophylaxis and followed a standardized postoperative rehabilitation protocol. Demographic and clinical data were extracted from medical records and entered into an electronic database. Postoperative radiographs were reviewed for evidence of periarticular HO. HO volume was estimated using three-dimensional linear measurements derived from orthogonal radiographic views. Pearson bivariate correlation analyses were performed to assess associations between HO volume, time to surgery, and patient characteristics.

Results. Sixteen female patients were included, with a mean age of 78.9 (± 9.8) years. Median time to surgery was 14.5 days (IQR, 11-27.5). There was no significant correlation between delay to surgery and HO volume, which averaged 5.5 (± 4.5) cm³. Among five of fifteen patients with a postoperative total elbow arc of motion $<100^\circ$, the mean time to surgery was 17.6 days and mean HO volume was 9.2 cm³.

Conclusion. Delay to TEA was not associated with HO volume in geriatric patients treated for distal humerus fractures. However, increased HO volume was associated with reduced postoperative elbow ROM.