

KEY PROCEDURES

OPEN TREATMENT OF RADIAL HEAD FRACTURES

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Published outcomes of this procedure can be found at: *J Bone Joint Surg Am.* 2002;84(10):1811-5, *J Bone Joint Surg Am.* 2006;88(9):1909-14, and *J Bone Joint Surg Am.* 2006;88(10):2192-200.

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Abstract

Radial head fractures may commonly be treated by (1) open reduction and internal fixation (ORIF), (2) radial head excision, or (3) radial head replacement. If there is no associated elbow instability with lateral ulnar collateral ligament (LUCL) injury, the preferred approach is via a split in the extensor digitorum communis (EDC) origin. This provides a wide exposure but limits the risk of injury to the LUCL and associated instability. The radial head is fixed, excised, or replaced. Open treatment of radial head fractures begins with the following steps: (1) a laterally based incision is centered over the radiocapitellar joint, (2) the EDC is split at the midline of the radial head and elevated off the bone anteriorly and superiorly, and dissection proceeds distally, splitting the extensor origin along its fibers, and (3) the capsule is opened and the radial head fracture, identified.

For ORIF, provisional fixation is then obtained with Kirschner wires and small bone reduction clamps. Headless low-profile screws are preferred if possible. If a plate is used, the dissection proceeds distally and the posterior interosseous nerve may need to be identified and protected. Definitive fixation is applied in the safe zone for implant placement (i.e., a right angle based laterally when the forearm is in a neutral position).

For excision of the radial head as definitive treatment or for radial head replacement, the fragments are removed and an oscillating saw is used to remove additional radial neck or other fragments. When radial head excision is the definitive treatment, the radial neck is planed to a smooth contour that allows for placement of the prosthesis or for smooth motion without impingement at the proximal radioulnar joint. An indication for radial head replacement is suspicion of an Essex-Lopresti-type injury or demonstration of longitudinal instability of the forearm with excessive motion when a “push-pull” test is performed under fluoroscopy of the wrist while traction is applied to the radial neck.

The final step of open treatment of radial head fractures, before the wound is closed in layers, consists of assessment of the range of motion and use of fluoroscopy to confirm appropriate fixation, resection, or prosthetic position.

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Outcomes following radial head fixation, resection, or arthroplasty for isolated radial head fractures are generally favorable. Loss of motion is particularly problematic in the pronation-supination arc in the setting of plate fixation, and patients are generally counseled that implant removal is often necessary. Loss of motion in the flexion-extension arc, particularly loss of terminal extension, may be noted. Resection of the radial head results in radiographic evidence of degenerative changes along the ulnohumeral joint, but this may be well tolerated as symptoms develop slowly, particularly in older patients. Radial head replacement results in changes in the capitellum over time, but these are usually asymptomatic.

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