

Radial head resection versus replacement for unreconstructable radial head fractures

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Radial head resection and replacement are common treatment strategies for comminuted radial head fractures. In particular, the presence of more than three fragments in the setting of unstable radial head fracture has a poor prognosis and, if secure fixation cannot be achieved, radial head resection or replacement may be the best option [1]. Although the indications are controversial, radial head resection without replacement has been recommended in isolated unreconstructable radial head fractures when the degree of comminution hinders internal fixation, especially for those who have little demand [2].

In this issue, a study by Mebouinz et al. [3], “Results of radial head resection after mason type 3 or 4 fracture of the elbow,” discusses 11 patients treated with radial head resection for a comminuted radial head fracture for which internal fixation was not possible. They reported that nine patients had a stable and painless elbow with an average follow-up of 47.6 months. The extension-flexion arc ranged from 5° to 120° and the mean values of pronation and supination were 76.8° and 74.5°, respectively. The mean Mayo Elbow Performance Score was 83.2 points and recovery of overall function of the elbow was achieved in 81% of cases. They concluded that radial head resection remains a useful surgical procedure for radial head fractures.

However, this study should be interpreted with caution. The

complication rate including instability or valgus deformity of the elbow joint was relatively high. They reported that seven of 11 cases had a valgus deformity and two of 11 cases had elbow instability in valgus stress. The radial head plays an important role in maintaining stability and force transfer from the hand to the shoulder. Previous studies have described the importance of mechanical block in functionality [4-6]. Hildebrand et al. [7] reported that radial head resection must not be performed with concurrent fractures or ligamentous injuries. Hilgersom et al. [4] reported that radial head resection can lead to proximal migration of the radius and concurrent derangement of the distal radioulnar joint.

Additionally, a study by Mebouinz et al. [3] included patients who had radial head fracture with combined injury (five patients with posterior dislocation and three patients with fracture of the coronoid process). Hilgersom et al. [4] emphasized that associated injuries influencing physiologic elbow kinematics, particularly those causing elbow instability or interosseous membrane injury, should be excluded for successful radial head resection outcomes. Therefore, radial head resection in fractures accompanied by such injuries can lead to additional instability on long-term follow-up. The increase in force load and tendency toward valgus deformity also affect the ulnar collateral ligament to progressive

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cubitus valgus, leading to the development of additional instability and ulnar nerve palsy [2].

In our opinion, radial head prosthesis is a reasonable option for unreconstructable radial head fractures. In a recent study, Lópiz et al. [6] described the higher rate of complications in patients who underwent radial head resection, together with a greater need for reoperation and a worse clinical score, as suggesting radial head replacement as the first-line treatment option. We agree with their opinion. Radial head replacement can achieve effective radiocapitellar contact that will improve the stability in valgus, posterolateral, and axial loading of the forearm. This treatment option has satisfactory short- and mid-term results even with other combined elbow injuries [2]. Thus, we recommend that surgeons prepare for and consider radial head replacement during all surgical procedures for comminuted radial head fracture

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