Radial Head Fracture: Open Reduction and Internal Fixation With Tripod Technique

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Background
Radial head fractures are common injuries and represent approximately 2% to 5% of all fractures and approximately 30% of all elbow fractures. Although radial head fractures can present as isolated injures, they often are associated with other soft-tissue or osseous injuries. Articular cartilage covers most of the radial head. Approximately 280° degrees of the radial head articulates with the ulna, whereas the remaining 80° has been deemed the safe zone for screw or plate fixation. Traditional fixation requires fixation hardware to be placed in this zone; however, the tripod technique, which involves the use of buried screws, allows for fixation outside of this zone and allows for perpendicular compression of transverse radial neck fractures, which previously may have necessitated plate fixation. Therefore, the tripod technique may be a good option for surgical fixation in patients with a Mason type II radial head fracture.

Purpose
This video demonstrates surgical management of a radial head fracture via the tripod technique.

Methods
The evaluation, diagnosis, and management of radial head fractures is discussed. The case presentation of a 44-year-old woman with a radial head fracture managed via the tripod technique is reviewed.

Results
The patient did well postoperatively. At 6-week follow-up, the patient had some residual elbow stiffness; however, her pain had largely resolved. In addition, she was able to work well with an occupational therapist.

Conclusion
Surgical repair of radial head fractures can be performed with the use of plates or screws. The tripod technique is a good treatment option for patients with a Mason type II fracture and allows for fixation outside the traditional safe zone. This technique has demonstrated promising results, with good biomechanical support.