

Minimally Invasive, Maximally Effective: Metaizeau Meets Percutaneous Leverage

In Pediatric Radial Neck Fractures

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INTRODUCTION:

Radial neck fractures in children pose significant challenges due to the risk of growth disturbances and functional impairment. The Metaizeau technique, a minimally invasive approach, is widely used for managing displaced radial neck fractures. First described in 1980, this technique involves retrograde intramedullary fixation using a pre-bent Kirschner wire (K-wire) or elastic stable intramedullary nail (ESIN)¹. It allows for closed or percutaneous reduction, avoiding the risks associated with open surgery. Recent studies highlight the effectiveness of combining the Metaizeau technique with percutaneous leverage reduction using a K-wire, particularly for completely displaced fractures².

This case report describes the successful application of this combined approach in a pediatric patient.

REPORT:

A 13-year-old male presented to the emergency department following a motor vehicle accident, complaining of severe pain, swelling, and limited range of motion in the left elbow. Radiographs revealed a displaced radial neck fracture (O'Brien type III).

Percutaneous leverage reduction was



FIGURE 1: PRE-OP XRAY

performed using the blunt end of a K-wire inserted through a small lateral incision. The radial head was partially reduced. Next, the Metaizeau technique was employed: a 30-degree pre-bent K-wire was introduced through a distal radial metaphyseal incision and advanced into the medullary canal. Rotational and translational maneuvers achieved anatomic reduction, and the K-wire was advanced into the radial head for

stabilization. The distal end was cut and buried beneath the skin, and a trans-capitellar K-wire



FIGURE 2: POST-OP XRAY

was added for additional stability.

Postoperative radiographs confirmed anatomic alignment. The patient was immobilized in a backslab for four weeks, followed by progressive mobilization. By three months, the patient had returned to normal activities without complications.

CONCLUSION:

The combination of the Metaizeau technique and percutaneous leverage reduction is an effective and reliable method for managing completely displaced radial neck fractures in children. This approach minimizes soft tissue damage, preserves blood supply, and ensures stable anatomic reduction³. This case underscores the importance of combining minimally invasive techniques to achieve excellent functional and anatomical results in pediatric radial neck fractures.

REFERENCES:

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