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TACTICS OF TREATMENT OF PATIENTS WITH DISTAL EPIMETAPHYSEAL FRACTURES OF THE HUMERUS

Khabibullayev F.F.
Xudayberdiyev Q.T.
Davlatov B.N.
Andijan State Medical Institute

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Abstract: Distal epimetaphyseal fractures of the humerus are among the most complicated injuries of the upper extremity. These fractures are often associated with severe pain, limitation of movement, neurovascular damage, and long-term disability. The purpose of this article is to analyze modern treatment tactics for distal humeral fractures, including conservative and surgical methods. Early diagnosis, proper immobilization, stable osteosynthesis, and rehabilitation significantly improve patient outcomes.

Introduction

Fractures of the distal humerus account for a significant percentage of elbow injuries in adults and children. These injuries are commonly caused by falls, sports trauma, or road traffic accidents. Distal epimetaphyseal fractures are difficult to manage because of the complex anatomy of the elbow joint and the need to restore full function of the upper limb. Improper treatment may lead to malunion, joint stiffness, infection, or chronic pain. Therefore, modern traumatology focuses on accurate diagnosis and individualized treatment strategies.

Anatomy and Classification

The distal humerus consists of the medial and lateral columns, trochlea, capitellum, and articular surfaces. Fractures may be extra-articular, partial articular, or complete articular injuries.

The AO/OTA classification system is commonly used to categorize distal humeral fractures.

Type A fractures are extra-articular, Type B are partial articular, and Type C involve complete articular disruption. Understanding fracture classification helps surgeons choose the most appropriate treatment method.

Clinical Presentation and Diagnosis

Patients with distal humeral fractures usually present with pain, swelling, deformity, and restricted movement of the elbow. Neurovascular examination is important because the radial, median, and ulnar nerves may be injured.
Radiographic evaluation includes anteroposterior and lateral X-rays of the elbow.
Computed tomography is often required for complex intra-articular fractures to determine the degree of displacement and fragmentation.

Treatment Tactics

Treatment depends on fracture type, patient age, bone quality, and associated injuries.
Conservative treatment includes immobilization with a splint or cast and is mainly used for non-displaced fractures or patients who cannot tolerate surgery.
Surgical treatment is preferred for displaced and unstable fractures.
Open reduction and internal fixation (ORIF) with plates and screws is considered the gold standard.
Modern locking plates provide stable fixation and allow early mobilization of the elbow joint.

In severe comminuted fractures in elderly patients, total elbow arthroplasty may be considered.
External fixation may be used in open fractures with severe soft tissue injury.

Postoperative rehabilitation is extremely important and includes physiotherapy, passive and active exercises, and gradual strengthening of muscles.

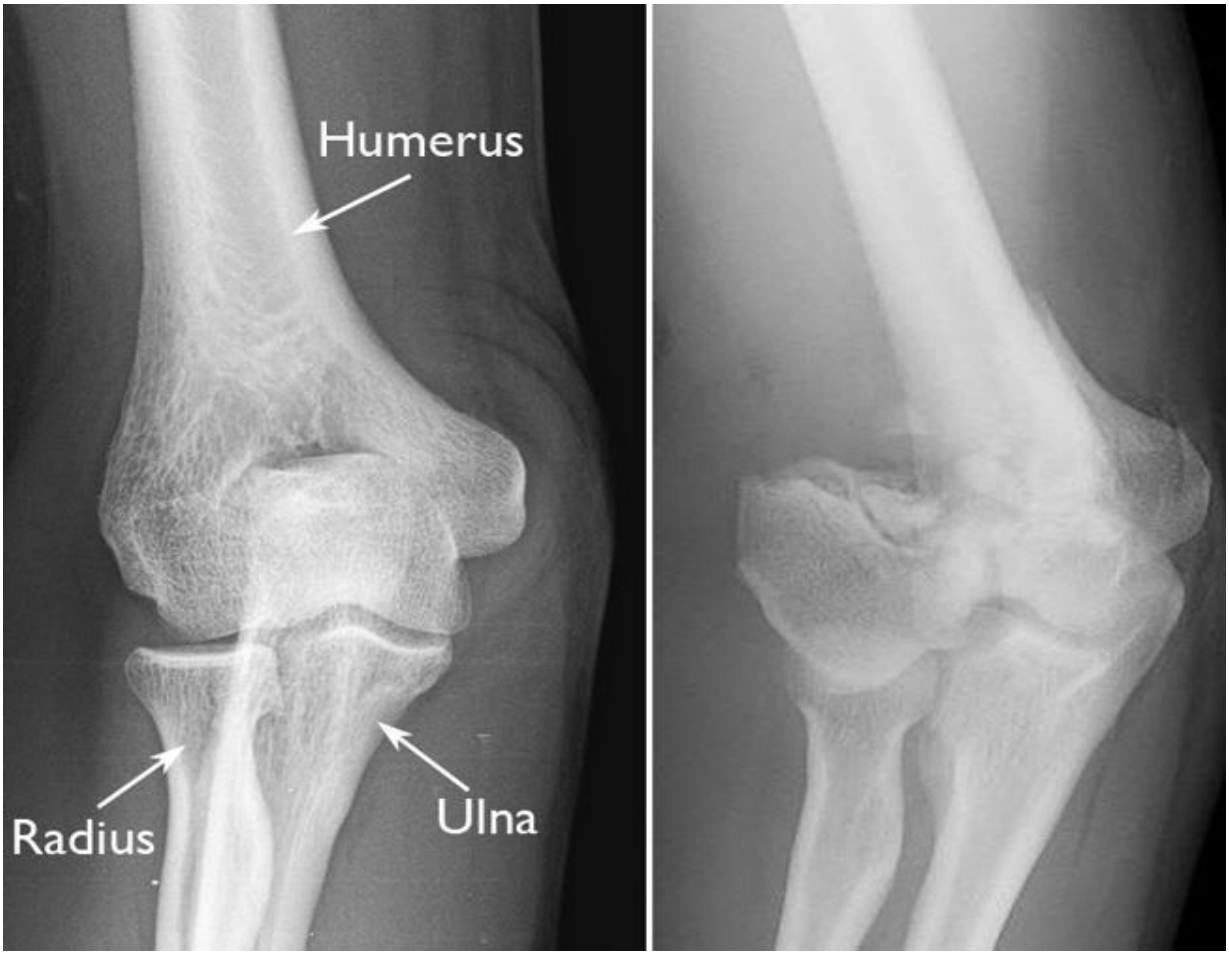
Complications

Possible complications include infection, nonunion, malunion, elbow stiffness, heterotopic ossification, and nerve injury.
Careful surgical technique and early rehabilitation reduce the risk of complications.
Long-term follow-up is necessary to evaluate functional recovery and patient satisfaction.

Conclusion

Distal epimetaphyseal fractures of the humerus remain a challenging problem in traumatology and orthopedics.
Successful treatment requires accurate diagnosis, stable fixation, and comprehensive rehabilitation.
Modern surgical technologies and individualized treatment tactics improve clinical outcomes and restore upper limb function in most patients.

Figure 1. Distal humerus fracture schematic



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