FRACTURES OF THE OLECRANON

(1) a comminuted
(2) a transverse

These two types can be further sub-classified into (a) displaced and (b) undisplaced fractures. More severe injuries may be associated also with subluxation or dislocation of the ulno-humeral joint.

Treatment

Patient with bruise The arm is rested in a sling for a week; a further x-ray is obtained to ensure that there is no displacement and the patient is then encouraged to start active movements.

An undisplaced transverse fracture The elbow is immobilized by a cast in about 60 degrees of flexion for 2–3 weeks and then exercises are begun.

Displaced transverse fractures The fracture is reduced and held by tension band wiring.
Oblique fractures may need a lag screw, neutralised by a tension band system or plate.

Displaced comminuted fractures need a plate and often bone graft.

Complications

1 . Stiffness used to be common, but with secure internal fixation and early mobilization the residual loss of movement should be minimal.

2 . Non-union

3 . Ulnar nerve symptoms can develop. These usually settle spontaneously.

4 . Osteoarthritis is a late complication,

DISLOCATION OF THE ELBOW

in 90% of cases the radioulnar complex is displaced posteriorly or posterolaterally a fall on the outstretched hand with the elbow in extension. Disruption of the capsule and ligaments structures alone can result in posterior or posterolateral dislocation. However, provided there is no associated fracture, reduction will usually be stable and recurrent dislocation unlikely.

Clinical features

The patient supports his forearm with the elbow in slight flexion. Unless swelling is severe, the deformity is obvious. The bony landmarks (olecranon and epicondyles) may be palpable and abnormally placed. the hand should be examined for signs of vascular or nerve damage.

X-ray

(a) to confirm the presence of a dislocation and
(b) to identify any associated fractures.

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Treatment

UNCOMPLICATED DISLOCATION

Reduction under anesthesia Unless almost full flexion can be obtained, the olecranon is not in the trochlear groove. After reduction, the elbow should be put through a full range of movement to see whether it is stable. The distal nerves and circulation are checked again. In addition, an x-ray is obtained to confirm that the joint is reduced and to disclose any associated fractures. The arm is held in a collar and cuff with the elbow flexed above 90 degrees. After 1 week the patient gently exercises his elbow; at 3 weeks the collar and cuff is discarded. Elbow movements are allowed to return spontaneously and are never forced. The long-term results are usually good.

DISLOCATION WITH ASSOCIATED FRACTURES

Coronoid process , Medial epicondyle, Head of radius, Olecranon process
Open reduction with internal fixation is the best treatment. The medial collateral ligament may also be repaired to protect the radial head fixation or implant from undue valgus stress.

Side-swipe injuries These severe fracture-dislocations are often associated with damage to the large vessels of the arm. The priorities are repair of any vascular injury, skeletal stabilization and soft tissue coverage.

Persistent instability In cases where the elbow remains unstable after the bone and joint anatomy has been restored, a hinged external fixator can be applied in order to maintain mobility while the tissues heal.

Complications

EARLY

Vascular injury The brachial artery may be damaged. should be treated as an emergency. Splints must be removed and the elbow should be straightened somewhat.

Nerve injury
The median or ulnar nerve is sometimes injured. Spontaneous recovery usually occurs after 6–8 weeks.
LATE

Stiffness

Loss of 20 to 30 degrees of extension is not uncommon after elbow dislocation due to prolonged immobilization. Hinged external fixator, can allow some movement in the flexion-extension plane whilst protecting against collateral stress.

Persistent stiffness of severe degree can often be improved by anterior capsular release. However, operative treatment should not be rushed; remember that sometimes the stiffness is due to myositis ossificans, which is usually undetectable on plain x-ray examination until a month or more after injury.

Heterotopic ossification (myositis ossificans)

bone formation may occur in the damaged soft tissues in front of the joint. It is due to muscle bruising or haematoma formation. was a fairly common complication of elbow injury, usually associated with forceful reduction .alert signs such as slight swelling, excessive pain and tenderness around the front of the elbow. soft-tissue ossification is usually not visible until 4–6 weeks after injury on X ray. If the condition is suspected, exercises are stopped and the elbow is splinted in comfortable flexion until pain subsides; gentle active movements and continuous passive motion are then resumed. Antiinflammatory drugs may help to reduce stiffness; they are also used prophylactically to reduce the risk of heterotopic bone formation. A bone mass which markedly restricts movement and elbow function can be excised, though not before the bone is fully ‘mature’, i.e. has well-defined cortical margins and trabeculae (as seen on x-ray).

Unreduced dislocation

A dislocation may not have been diagnosed or only the backward displacement corrected, leaving the olecranon process still displaced sideways. Up to 3 weeks from injury, manipulative reduction is worth attempting but care is needed to avoid fracturing one of the bones. Other than this, there is no satisfactory treatment. Open reduction, further stiffness. If pain is a problem, the patient can be offered an arthrodesis or an arthroplasty.

Recurrent dislocation

This is rare unless there is a large coronoid fracture or radial head fracture. the lateral ligament and capsule can be repaired .A cast with the elbow at 90 degrees is worn for 4 weeks.

Osteoarthritis

Secondary osteoarthritis is quite common after severe fracture-dislocations. In older patients, total elbow replacement can be considered.