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The treatment of type II and type III supracondylar fractures of the humerus in children with closed reduction and percutaneous pinning has dramatically lowered the rate of complications from this injury. The incidence rates of malunion (cubitus varus) and compartment syndrome have both decreased. Nerve injury accompanying this type of fracture (prevalence, 5% to 19%) is usually a neurapraxia, which should be managed conservatively. Vascular insufficiency at presentation (prevalence, 5% to 17%) should be managed initially by rapid closed reduction and pinning without arteriography. Persistent vascular insufficiency necessitates exploration and vascular reconstruction.

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Supracondylar fracture of the humerus is a common elbow injury in children. Two thirds of all hospitalizations for elbow injuries in children are for supracondylar fractures,[1] but the incidence of supracondylar fractures has yet to be documented. In his review of 8,672 pediatric fractures, Landin[2] found that supracondylar fractures accounted for only 3.3%. Supracondylar fractures are most common in children aged less than 10 years, with a peak incidence between ages 5 and 8 years.[3] These fractures often require surgery and historically are associated with significant morbidity due to malunion, neurovascular complications, and compartment syndrome.[4,5] As a result, controversy still exists as to what constitutes optimal management of this type of fracture and its complications.

Classification

Supracondylar fractures of the humerus are categorized as extension or flexion injuries. The extension type is the most common, accounting for 90% to 98% of cases. It is caused by a fall on an outstretched hand with the elbow hyperextended.[6] The characteristic displacement of the distal humeral fragment in extension-type injuries has been reported to be posteromedial in 90% of cases and posterolateral in 10%.[7] In our study,[8] 49% of the supracondylar fractures were displaced posterolaterally. The flexion-type fracture, which is caused by falling on a flexed elbow, is a rare occurrence.

There have been numerous attempts in the literature to classify supracondylar fractures. Gartland's classification[9] is simple and widely used. In that system, type I fractures are nondisplaced. Type II fractures are displaced with a variable amount of angulation, but the posterior cortex of the humerus is intact. Type III fractures are completely displaced with no cortical contact. A medial periosteal hinge is intact in type III fractures with medial displacement of the distal humerus; a lateral periosteal hinge is intact with lateral displacement.

Physical Examination

The initial evaluation of the child with an elbow injury must include an overall assessment to rule out associated trauma. Fractures of the midshaft of the ipsilateral humerus are uncommon, but distal forearm fractures are common; both injuries may be overlooked if attention is focused solely on the elbow.

The elbow with a supracondylar fracture is characterized by swelling and deformity. With type III fractures, an S-shaped deformity of the elbow develops due to angulation and translation of the fracture fragments. A thorough neurovascular examination of the involved

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