



POSNA

The Core Curriculum

Fractures of the lateral humeral condyle

Objectives

1. Describe the path of the fracture line in a child's lateral humeral condyle fracture, correlating the radiographic findings with the anatomic findings
2. Describe a useful classification for lateral humeral condyle fractures
3. Discuss initial management of lateral humeral condyle fractures
4. Discuss management of late-diagnosed lateral humeral condyle fractures
5. Discuss complications of treatment of lateral humeral condyle fractures

Discussion

Fractures of the lateral humeral condyle in children are relatively frequent, behind only the supracondylar fracture in occurrence. The fracture line starts laterally in the metaphysis, then dives between the condyles to proceed toward the elbow joint through the largely cartilaginous epiphysis. The fracture line may or may not actually extend into the joint. Patients with cubitus varus following supracondylar fractures appear to be at increased risk for lateral humeral condyle fractures. The most often used classification of lateral humeral condyle fractures is based on the amount of displacement between the fragments, Type I has < 2 mm displacement of the metaphyseal fragment, Type II has 2-4 mm displacement, and Type III, is completely displaced with rotation. The fracture occurs from falling on the outstretched arm with the elbow supinated, placing a varus stress on the elbow. Soft tissue injury is less than that noted with supracondylar fractures, and the rate of neurovascular complication is much less. Nondisplaced or minimally displaced Type I fractures can easily be treated with a cast, as can some Type II fractures. If the fracture line does not extend into the epiphysis, it is stable. If it does, displacement occurred in about one quarter of the patients studied; there is no disadvantage to operatively fixing the fracture 1-2 weeks after injury. A method of assessing stability of Type II fractures is to perform an arthrogram; if the articular surface is intact, closed pinning of the fracture assures a good result. If the fracture is unstable, open reduction is performed. A lateral approach has been traditionally used, a posterolateral approach has recently been favorably reported. It is very important to avoid posterior dissection of the distal fragment, which carries the blood supply. Two pins are used, either parallel or divergent to avoid crossing of the pins at the fractures site which would decrease stability. Long-term results of lateral humeral condyle fractures are generally good. A peculiar avascular deformity of the distal humerus reported by Morrissy can result in loss of motion.

The late diagnosed fracture is not rare. Reports of surgery for such fractures is not surprisingly less good than that for acute injuries. Jakob, about 20 years ago, reported that results of lateral humeral condyle fractures treated > 3 weeks after injury did no better than if they had no treatment, secondary to avascular necrosis. Results of recent series is much more favorable, if surgery on

such an injury is undertaken, great care must be given to preserving the vascular supply of the fracture fragment.

Complications of lateral humeral condyle fractures include nonunion, usually from persistent cast treatment of mildly displaced fractures (Flynn). Malunions can occur from faulty reduction or fixation, as they can with any fracture. Avascular necrosis is a complication of operative dissection. Cubitus varus of a mild degree is fairly common, even after nonoperative treatment. Spur formation at the metaphyseal site of fracture is unusually frequent after lateral humeral condyle fractures, it is only a problem if it accompanies cubitus varus.

Medial condyle fractures are rare, and recognition is often delayed. Principles of management are similar to those for lateral condyle fractures.

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