Introduction

The elbow joint is a complex joint, and has three major articulations: radiohumeral, ulnohumeral, and radioulnar. Except for the medial and lateral epicondyles, the other ossification centers are intra-articular. Other intra-articular structures include the olecranon fossa, the coronoid fossa and process and radial head ***(Morrissy, 2001).***

It is best to address elbow fractures from an anatomic perspective, as each specific fracture has its own unique challenge in diagnosis and treatment. One frequent source of problems in the management of pediatric elbow injuries is distinguishing fractures from the normal secondary ossification centers ***(Herring, 2002).***

The radial head epiphysis: The initial ossification of this epiphysis is fairly predictable and usually occurs in fifth year of age ***(Schmidt, 1993).***

Fusion of the proximal radial and olecranon epiphyseal centers with their respective metaphysis occurs around the same time as the common distal humeral epiphysis fuses with its metaphysis; The physis closes at age 12–14 years in females and 14–15 years in males ***(Tibone JE, 1981).***

For a better understanding of injury patterns, it is useful to know the relative contributions of individual growth regions to overall lengths of individual bones. The distal radial epiphysis is responsible for the growth of 75 to 80 per cent of the radius, while the proximal radial epiphysis is responsible for 20 to 25 per cent ***(Micheli LJ et al., 1994).***

Fractures of the proximal radius in children account for slightly more than 1% of all children fractures, represent 5 to 10 % of all elbow fractures and accounts for 5% of all fractures involving the growth plates, average age is 10 years (4 to 16 years) with no difference between boys and girls ***(Cassiano and Telles, 2002).***

The majority of articles either does not define distinctions between head and neck fractures, or mix the two together in ways that obviate extracting epidemiologic data for either. Of all pediatric elbow fractures, radial head and neck fractures represent 4–16%. Of these, approximately 50% involve the head and 50% the neck ***(Leung and Peterson, 2000).***

Reluctance to move the elbow, swelling, and tenderness of the proximal radius are present in both head and neck fractures. Crepitus is frequently absent. Usually, altered alignment of the fragments can be neither clinically visualized nor palpated. Active or passive forearm rotation, particularly supination, is more painful than elbow flexion and extension ***(Peterson, 2007).***

The complex joint construction and the age-dependent appearance of the epiphyseal ossification centers sometimes make a correct radiological diagnosis difficult ***(Weise et al., 1997).***

Ultrasonography can be used to evaluate for hemarthrosis and displacement of the fracture. It also allows a dynamic range of motion evaluation ***(Lazar, 1998).***

Arthrography or magnetic resonance imaging (MRI) can be used to determine any displacement of the unossified radial head ***(Chamber, 2001).***

According to the degree of deviation, and age of the patient, the current trend is to a closed treatment had better results ***(Belangero et al., 2001).***

Controversy over the best methods of fixation for completely displaced proximal radial epiphysis fractures (type A, Salter Harris type I and II) exists ***(S. Bhargava et al., 1999).***

Unlike other anatomical areas, most elbow injuries - even in the growing skeleton - are treated operatively. Hereby, the growth plates have to be respected using minimal amounts of small implants. Additional immobilization in a cast for 2- 4 weeks is necessary in most cases but does not lead to a functional deficit in contrast to adults. The implants should be removed as early as possible ***(Weise et al., 1997).***

It appears that when radial head fractures are associated with sever displacement, a high rate of fair and poor results can be expected, despite treatment by open reduction and temporary internal fixation ***(Rodriguez, 1991).***

Newman, 1977 listed 106 complications in 48 children with head and neck fractures: thickened radial neck, premature physeal arrest, enlarged radial head, ectopic ossification, avascular necrosis, and radioulnar synostosis. But he did not specify the number or type of complications from head fractures, neck fractures, or unspecified fractures. Interestingly, he and others such as Reidy JA, 1963 and Tibone JE, 1981 noted that younger children (under age 10 years of age) had a higher percentage of good and excellent results than did older children ***(Peterson, 2007).***