Ulus Travma Acil Cerrahi Derg 2009;15(5):518-519
Olgu Sunumu

Intercondylar fracture of the distal humerus in youth: two case reports

Genç yaşta görülen interkondiler distal humerus kırığı: İki olgu sunumu

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Intercondylar fracture of the distal humerus in youth is an extremely rare injury. Three cases have been reported in the literature to date. We describe two cases, aged 15 and 14 years, both of whom were boys. The stability in this injury allowed non-operative treatment and a favorable outcome.

Key Words: Child; elbow; fracture; intercondylar.

Genç yaşta interkondiler distal humerus kırığı oldukça nadir görülen bir durumdur. Bugüne kadar literatürde üç olgu rapor edilmiştir. Biz, her ikisi de erkek çocuk olan 15 ve 14 yaşlarında iki olguyu tanımlıyoruz. Bu yaralanmadaki stabilite, cerrahi olmayan tedavi uygulanmasına ve olumlu bir sonuç elde edilmesine olanak sağlamıştır.

Anahtar Sözcükler: Çocuk; dirsek; kırık; interkondiler.

Injuries of the distal humerus in the pediatric population are common. While supracondylar fractures of the elbow in children are well-described, intercondylar fracture of the humerus is an extremely rare injury. We herein report two cases.

CASE REPORTS

Case 1- A 15-year-old boy was admitted to the hospital two hours after a fall onto his left elbow. The impact occurred with the elbow in flexion. On examination, there was swelling of the elbow with tenderness on compressing the medial and lateral epicondyles. The movements were limited by pain from 20 to 120° flexion; supination and pronation were unaffected. There was no neurovascular symptom.

X-ray film of the elbow (Fig. 1a) revealed a displaced intercondylar fracture extending from the distal metaphysis into the trochlea with an intra-articular gap of 2 mm.

The patient was immobilized in a long-arm cast for four weeks, at which time range of motion exercises were instituted.

Review at seven months post-fracture demonstrated a full range of movement and X-rays of the elbow revealed complete union (Fig. 1b).

Case 2- A 14-year-old boy fell on his left elbow during a football game, and sustained closed injury to his elbow. When seen in the emergency room, the neurovascular status of the limb was described as normal, no deformity was noted on the injured elbow, and the flexion and extension motion was limited by pain. Radiographs revealed an intercondylar fracture of the distal humerus (Fig. 2a). The fracture was clearly seen on the elbow computed tomography (Fig. 2b, c).

The arm was supported in cast immobilization for six weeks. Thirteen months later, follow-up radiographs revealed bone union without deformity of the distal humerus. The patient recovered a stable elbow with full range of motion.

DISCUSSION

Intercondylar fracture of the distal humerus is a rare injury in youth. Despite the high frequency of elbow fractures, which account for 7-9% of all fractures sustained by children,[1] only three cases have been reported in the literature.[2,3]

This entity was reported as leading to greenstick intercondylar fracture of the distal humerus. However, greenstick fracture is a metaphyseal or diaphyseal

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Fig. 1. **(a)** Anteroposterior (AP) radiograph of the elbow revealed an intercondylar fracture of the humerus. **(b)** Complete union of the bone is seen at 7 months post-fracture.

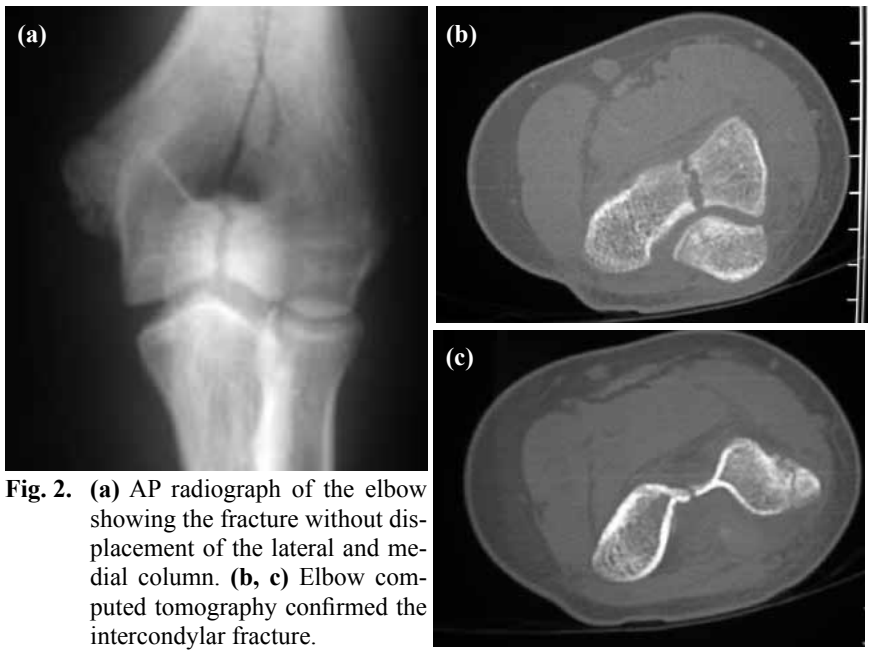

Fig. 2. **(a)** AP radiograph of the elbow showing the fracture without displacement of the lateral and medial column. **(b, c)** Elbow computed tomography confirmed the intercondylar fracture.

fracture following bending forces; in this case, the periost remains intact or is ruptured on the tension site vis-à-vis from the acting bending force.

This injury, different from T or Y intercondylar fracture, is likely to affect only the adolescent elbow because the main growth plates have fused and elasticity of cortical bone is maintained.[2,3] In fact, the age range in previous cases was 13 to 15 years. They were all boys since boys have a significantly higher incidence of fracture than do girls at this age.

Intercondylar fracture of the distal humerus results from a direct blow onto a flexed elbow, the force wedging the olecranon directly up into the trochlear groove. The precise direction of this force is the main point in generating this type of fracture. In fact, this force must have a slight medial angulation because the transverse axis of the elbow is at 82.5° to the long axis of the humerus.[3] In this case, the force of trauma should be significant enough to transmit the shock to epiphyseal as well as metaphyseal bones. Otherwise, when the force is less important, the fracture affects only the epiphyseal region and leads to Salter III fracture. The unicondylar or T-condylar fracture results from the increasing obliquity of the direction force of the shock.

Stability in this fracture pattern is maintained by the integrity of the column, allowing non-surgical procedures without the risk of position loss. However, an intra-articular gap over 3 mm can justify operative treatment.

In conclusion, intercondylar fracture of the distal humerus in youth is a rare elbow injury. This type of fracture does not exist in the classification of elbow fractures. The stability in this fracture allowed non-operative treatment, early mobilization, and led generally to a favorable outcome.

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