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Case Report
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Osteochondritis Dissecans Involving the Trochlea of the Humerus: A Case Report

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Abstract

Osteochondritis Dissecans (OCD) developing in the trochlea of the humerus is extremely rare. It may cause pain, mechanical symptoms, and loss of elbow motion, typically in the adolescent athlete. The etiology and the treatment strategy for this lesion remain unclear.

The authors describe an adolescent boxer with osteochondritis dissecans involving the trochlea of the humerus treated successfully with conservative treatment.

Introduction

Osteochondritis Dissecans (OCD) is an idiopathic lesion of subchondral bone resulting in separation of the articular cartilage and subchondral bone [1].

The OCD of the elbow is prone to develop during adolescence in overhead or weight-bearing athletes [2]. Localization to the elbow is rare when it is usually located in the capitellum of the humerus or the radial head [3]. OCD of the humeral trochlea have very rarely been described in the literature [4,5]. Clinically, it may cause pain, mechanical symptoms, and loss of elbow motion [2,6].

The etiology of OCD remains controversial. More accepted theories include the combination of trauma, repetitive microtrauma or overuse and disruption of local vasculature [1,7]. Some patients may have a developmental predisposition, as suggested by the rate of OCD occurring bilaterally and in multiple locations, although hereditary influences are probably slight [1].

OCD of the elbow primarily involves the capitellum of the humerus in the activities, such as baseball or gymnastics. Repeated valgus stress is believed to cause microtrauma to the capitellum. In the trochlear groove, the OCD has been reported in gymnasts, tennis players, baseball pitchers, and basketball players. However, the mechanism that causes this OCD is still unclear, because the number of clinical reports in this localization is insufficient to clarify the mechanism [8].

Both trochlea and capitellum have precarious blood supply. While some authors hypothesized that trochlear groove OCD lesions occur in characteristic water shed zone resulting from unique blood supply of trochlea [9], others showed that the trochlea is supplied by separate vascular arcade and there is a water shed area [10-12].

The correct theory may be individualized for each patient and more importantly the location [1].

The goal of treatment for OCD lesions is to prevent the occurrence of osteoarthritis and to allow patients to return to their previous activities [5].

The natural history of trochlear OCD and the optimal treatment protocol have not been established [2]. Conservative and operative treatments have been studied and published [12]. Options vary from a total cessation of any irritating activities to immediate surgery. The critical determinant to the most of authors is the presence or absence of an intact cartilage cap. Patients with intact articular cartilage should be managed nonoperatively. Progression of the disease process, the presence of symptomatic loose bodies, or disruption of the cartilage cap that continues despite conservative treatment may be considered indications for surgery [13,14].

Several operations, including removal of the loose bodies with or without drilling or curettage,

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Figure 1: Rx of the left elbow.

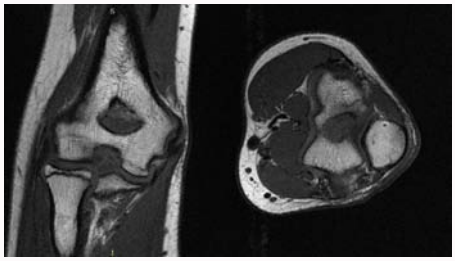

Figure 2: MRI of the left elbow.

Figure 3: Rx of the right elbow.

abrasion chondroplasty, reattachment of the fragments, and more recently transplantation of tissue-engineered cartilage have been performed for advanced lesions. However, the treatment is guided by the clinical and radiographic findings [5].

Case Presentation

A 17-year-old boy, boxer presented with an insidious onset of bilateral elbow pain during the prior 2 months. The pain was worse in the left elbow. There was no history of trauma. Physical examination revealed slight swelling of the left elbow, tenderness around the medial ulnohumeral joint, and limited Range of Motion (ROM) from - 30° of extension to 90° of flexion. Left forearm pronation and supination was normal.

In the right elbow the patient had diffuse tenderness, no pinpoint pain, normal ROM and no crepitus. Radiography (Rx) (Figure 1) and Magnetic Resonance Imaging (MRI) (Figure 2) of the left elbow showed radiolucent defects in the trochlear notch with well-defined margins. The Rx of the right elbow (Figure 3) was normal. The conservative management was undertaken with rest and stopped boxing.

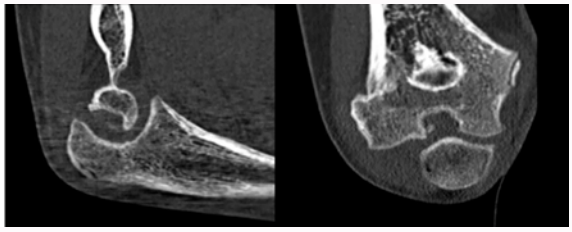

Figure 4: CT of the left elbow at 1 month after the diagnosis.

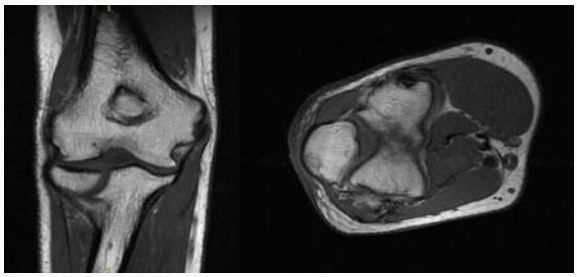

Figure 5: MRI of the left elbow at 22-months later.

Figure 6: Rx of the left elbow 22-months later.

After one month, the patient repeated the imaging exams. The Computed Tomography (CT) scanning (Figure 4) of the left elbow showed the same lesion and the MRI of the right elbow remained unchanged.

At 22-months follow-up the patient remained asymptomatic. The Rx (Figure 5) of left elbow showed some evidence of consolidation of the lesion and the MRI (Figure 6) a marked regression of the size of the injury.

The patient started ruled but effortless physical activity. At 3 years follow-up, he has remained asymptomatic with 5° extension deficit in left elbow ROM without any functional or aesthetic interference (Figure 7).

Results and Discussion

To our knowledge, few cases of OCD of trochlea humeral have been report in the literature. OCD of trochlea though an infrequent occurrence, is important differential diagnosis in chronic elbow pain [12]. Although rare, trochlear OCD can cause considerable elbow problems. Clinicians should be aware of this diagnosis [2]. Osteochondritis dissecans has been confused with other joint surface abnormalities. Some of these conditions include osteochondral fractures, accessory centers of ossification, and hereditary [1]. It can also be confused with Hegemann's disease, or osteochondrosis, a disease of the ossification center of the trochlea that has a relatively benign and self-limited course [15].

Figure 7: Elbow ROM at 3 years follow-up.

The etiology for this lesion remains unclear [5]. In the present case may result from some underlying predisposing factor, either biomechanical or vascular, allowing repetitive microtrauma in boxing to take its toll on the trochlea.

Plain radiographs should be carefully scrutinized for subtle signs of trochlear OCD, particularly in the repetitive or overhead athlete with elbow pain [2].

Early recognition and appropriate treatment may allow for the prevention of long-term sequela [14]. With our patient, careful evaluation with serial images of the affected and contralateral elbow was performed to evaluate the evolution of the OCD in the left elbow and prevent or possibly detect early in the right elbow.

Although most patients' symptoms will improve with activity modification, some may require surgery [2]. The prognosis and treatment often depend on the stage at which OCD is detected and the stability and location of the lesion. Till date there is no standard treatment and several kinds of treatments have been suggested [12].

Conclusion

To this patient, the treatment adopted was, in our opinion, successful, although the possibility of surgical treatment was never discolored if non-surgical treatment failed.

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