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Case Report

Chronic Radial Head Dislocation Caused by Focal Fibrocartilaginous Dysplasia (FFCD) of the Ulna: A Case Report and Review of the Literature

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Abstract

Background: Focal fibrocartilaginous dysplasia (FFCD) is a rare benign condition causing bowing deformity of the long bones, first described by Bell in 1985. Less than 100 cases have been reported in the English literature. The condition occurs most commonly around the knee joint and can cause tibia vara. In the upper extremity, 21 cases of FFCD have been reported.

Case Report: We describe a case of FFCD in the distal ulna that showed progressive bowing of the left forearm and the dislocation of the radial head. The patient underwent ulnar lengthening at the age of 5 years, and the radial head showed spontaneous relocation. At the latest follow-up visit four years after the operation, the deformity was clinically improved and the patient was pain-free, but the radiocapitellar joint was subluxed.

Conclusion: Gradual correction of the ulna could result in spontaneous reduction of the radial head without any intervention on the radial head itself, but a posterior bending elongation ulnar osteotomy should be done at the proximal third to achieve a more stable reduction of the radial head.

Keywords: *Focal Fibrocartilaginous Dysplasia; Radial Head Dislocation; Ulnar Lengthening*

Introduction

Chronic radial head dislocations occurring in children or adolescents can be caused by non-traumatic lesions including congenital or neurological malformations, and tumors in bones and joints of the forearms. A majority of conditions leading to a progressive dislocation of the radial head are mainly seen in hereditary multiple exostoses (HME) and in multiple enchondromatosis (Ollier disease). Local bone or cartilage lesions in the forearm bones can determine changes in the ulnar growth and secondary radius and ulna dysplasia, causing radial head dislocation.

Focal fibrocartilaginous dysplasia (FFCD) is a rare and benign condition inducing bowing deformity of the long bones first described in 1985 by Bell., et al [1]. Less than 100 cases have been reported in the English literature. The condition occurs most commonly around the knee joint and can cause tibia vara. In the upper extremity, 21 cases of FFCD have been reported [2].

We describe a case of FFCD in the distal ulna that showed progressive bowing of the left forearm and the dislocation of the radial head.

Case Report

A 2 years-old girl was evaluated for progressive left forearm shortening and bowing. No additional abnormalities were noted and no history of trauma was reported. At birth, the deformity was absent. Radiologically, the lesion was characterized by a lucent defect with marginal sclerosis in the medial metaphysis of the distal ulna, that was bowed and shortened. No focal defects were observed on the ra-

dius that was simply bowed. Based on the history and X-ray findings, FFCD was considered (Figure 1A). She had undergone non-surgical treatment, which was ineffective and the deformity progressively worsened. When she was 5 years old, was re-evaluated. Prominence of radial head in the lateral side of elbow joint was evident, both pronation and flexion of the forearm were painlessly affected. Plain X-ray of the left forearm showed no more the focal defect of the ulna but a radial and ulnar deformities, and the anterolateral dislocation of the radial head (Figure 1B). Mid shaft corrective osteotomy was performed for the bowing of the ulna and fixed with unilateral external fixator Stryker Monotube. On the fifth postoperative day, distraction of the ulna was initiated at a speed of 0.50 mm/day. The ulnar lengthening came to 3 cm and the radial head was spontaneously repositioned 2 months after the start of ulnar lengthening (Figure 1C and 1D). On final review at age 9 years, three years after the operation, the deformity was clinically improved and the patient was pain-free. Radiographs showed less deformity, but the radiocapitellar joint appeared subluxed (Figure 2).

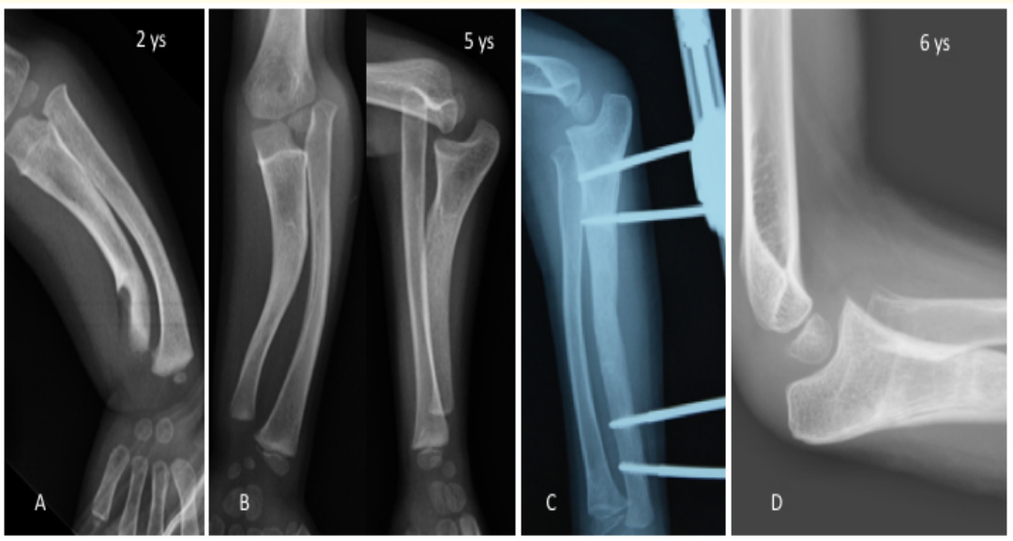

Figure 1:
A) The radiograph at the first visit showed a lucent defect of the cortex with some surrounding sclerosis at the distal third of ulnar diaphysis, angular deformity of the ulna and radius.
B) Plain radiographs at 5 years of age: the focal defect of the ulna was no longer visible, but the radial and ulnar deformities persisted, and the anterolateral dislocation of the radial head was obvious.
C) X-ray 5 months after ulnar lengthening: the ulnar deformity and radial head dislocation have been corrected.
D) In the radiograph at 12 months' follow-up, the radial head was kept in the right position.

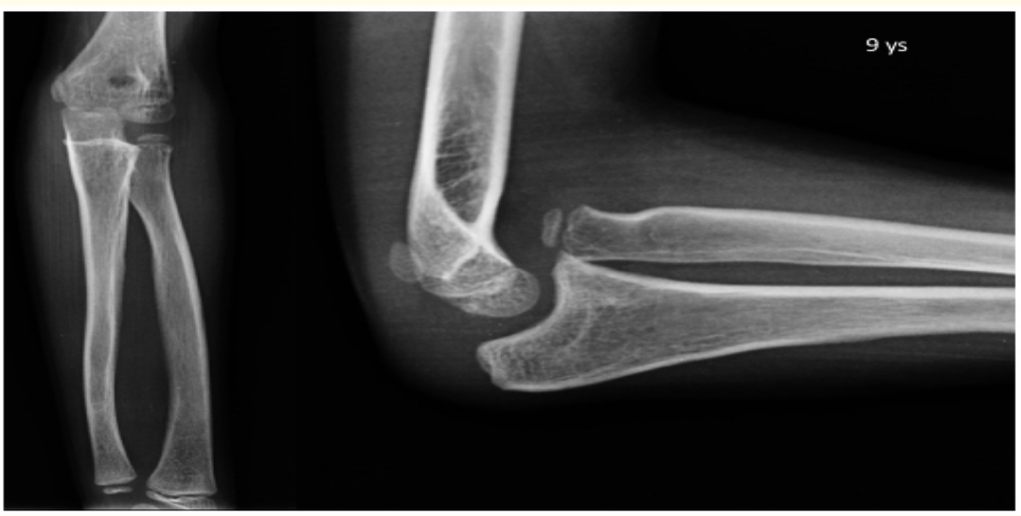

Figure 2:*Radiographs at 9 years of age, 4 years after ulnar lengthening, the ulna and the radius were corrected straightly but the radiocapitellar joint appeared subluxed.*

Discussion

The pathological course of FFCD indicated that at least 45% of tibial FFCD showed spontaneous resolution [3]. At the site of the distal ulna, the ability of spontaneous resolution against the deformity is less than that in the proximal tibia [2]. As an analogous condition is observed in the forearm of multiple osteochondromatosis, where the ulna is short and deformed and the radiocapitellar joint is predisposed to subluxation, so for the FFCD at the site of the distal ulna, it causes progressive deformity and eventually radial head dislocation [2,5]. The treatment of the FFCD at the site of ulna reported in the literature included simple observation (3 cases), biopsy (1 case), one-bone forearm reconstruction (2 cases), excision of the fibrous tissue (3 cases), and corrective osteotomies with ulnar lengthening (6 cases) [2-9]. Observation of these lesions is reasonable, but the radiocapitellar joint should be carefully monitored [5].

Nakura., *et al*. recommend that unless spontaneous resolution occurs at the age of 2 years, excision of the fibrous tissue at the affected ulna should be performed before the radial head dislocates [2].

For Smith., *et al*. (2004) if the radiocapitellar joint is threatened in FFCD of the ulna, correction of the ulna deformity would seem justified. Once the joint is frankly dislocated, the re- construction is more likely to require a forearm lengthening, and the risk of complications increases [5].

We agreed with Nakura., *et al*. that gradual correction of the ulna would result in spontaneous reduction of the radial head without any intervention on the radial head itself [2]. Based on our experience with chronic Monteggia lesions, we think that a posterior bending elongation ulnar osteotomy should be done at the proximal third to achieve a more stable reduction of the radial head [10]. The clinical outcomes are better than the congruency of the radio capitellar joint.

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