

Clinical Article

***Congenital Dislocation of the Radial Head:
Avoiding Post-traumatic Misdiagnosis***

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Abstract

We report the findings in 5 patients seen in our department with congenital dislocation of the radial head. Three cases corresponded to bilateral anterior dislocation, one case to bilateral posterior dislocation and one case to single posterior dislocation. Two of the anterior dislocation cases were first seen after traumatism with an initial misdiagnosis; evolution and X-ray of the contralateral elbow helped to find the correct diagnosis. Posterior dislocations presented alterations in the shape of the radial head and a deficit of last grades of pronation-supination. Other pathologies such as Perthes disease or hyperlaxitude were associated with this elbow abnormality in our series. Our patients did not need any treatment presenting good pain-free elbow function. *Int Pediatr.* 2002;17(2):107-109.

Key words: children, radial head dislocation, congenital disease

Introduction

Congenital radial head dislocation is the most common congenital elbow abnormality.¹⁻³ It may appear as an isolated abnormality or in association with multiple syndromes.² Minimal impairment in daily life predisposes for late diagnosis¹ and may lead to misdiagnosis when the first medical exploration of the elbow occurs after a traumatism.

Patients

We report the findings in 5 patients. No case presented any history of a family member with elbow deformities.

Case 1

An 11-year-old boy with no trauma antecedents presented a pain free tumor in his left elbow, with normal flexion-extension and deficit of the last 8° of pronation-supination. In the X-ray, a posterior luxation of the radial head could be observed. The radial head shape was abnormal with no central concavity. The posterior border of the ulna had an accentuated convexity.

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Case 2

A 4-year-old boy with Perthes disease and no history of trauma presented bilateral posterior luxation of the radial head (Fig. 1). The patient suffered a clicking and blocking in the supination position of the left elbow. There was a pronation and supination deficit of 10° in the right elbow. The right radial head shape was abnormal with no central concavity; the left radial head was hypotrophic. The posterior border of the ulna had an accentuated convexity in both elbows. Six years later, the findings are the same and he presents scoliosis.

Case 3

An 8-year-old girl was attended for a post-traumatic diaphyseal fracture of the right ulna associated with an anterior radial head dislocation. These were diagnosed as a Monteggia lesion and the ulnar fracture was established with a K-wire. In the immediate post-surgery period the radial head dislocation appeared again (Fig 2a) and a non-symptomatic radial head dislocation was discovered in the left elbow (Fig 2b). The range of movement was normal in both elbows with no clicking. The radial head was dome-shaped with no central depression, and the posterior border of the ulna was slightly concave in both el-

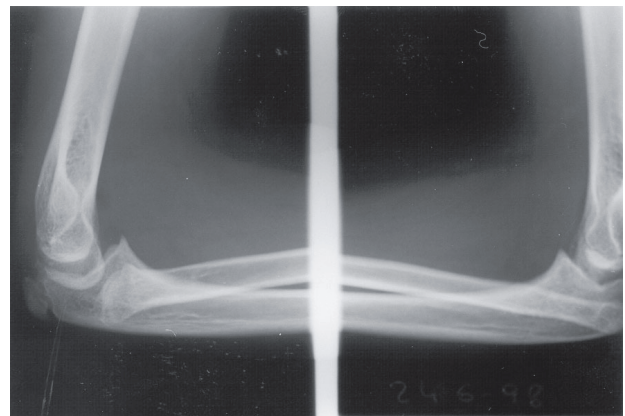


Fig 1 - A 4-year-old boy (case 2) with bilateral posterior luxation of the radial head. The right radial head shape is abnormal with no central concavity; the left radial head is hypotrophic. The posterior border of the ulna has an accentuated convexity in both elbows.



Fig 2a - Lateral radiography of the right elbow in an 8-year-old girl (Case 3) with an anterior radial head dislocation associated with a post-traumatic diaphyseal fracture of the right ulna established with a K-wire.



Fig 2b - Anterior radial head dislocation in the left elbow. The radial head is dome-shaped with no central depression, and the posterior border of the ulna is slightly concave in both elbows.

bows. Reduction of the radial head was obtained with active flexion. Now she presents normal function.

Case 4

The third daughter of an epileptic woman in treatment with phenobarbital and valproic acid was born in the 39th week by means of a cesarean hysterectomy due to a rupture of the uterus and fetal asphyxia with neonatal convulsion and microcephaly. A bilateral clicking sensation appeared in the first week after she was born. Immobilization in flexion was applied for two months with no changes in the clinical presentation. Now the girl is 7 years old and an anterolateral dislocation persists with a normally shaped radial head but with a bilateral valgus angulation at the elbow, and the posterior border of the ulna is slightly concave in both elbows. Reduction of the radial head can be obtained with active flexion. Flexion-extension and pronation-supination are normal. The girl suffers microcephaly, oligophrenia, epilepsy, hypoacusis, muscular hypotony, hyperlassitude and mitral leaflet prolapse, however karyotype is normal.

Case 5

A 38-year-old woman attended the casualty department after a traffic accident. An anterior dislocation of the right radial head was diagnosed, reduced in flexion and immobilized with a cast. One week later, the radial head dislocated in extension and reduced in flexion without pain. A similar anterior radial head dislocation was discovered in the left elbow. The range of movement was normal in both elbows. The radial heads are dome-shaped with no central depression, and the posterior border of the ulna is slightly concave in both elbows.

Discussion

Congenital dislocation of the radial head may be asymptomatic with delay in diagnosis. Except for cases associated with other anomalies, this pathology is usually first seen in patients over ten years of age.¹ As was demonstrated in one case in our series, this dislocation may be present at the moment of birth. However, the minimal impairment in daily life predisposes for late diagnosis.¹ This pathology, especially the posterior type, is often associated with a variety of anomalies and syndromes.^{1,2,4} Nevertheless, in our series, one case of anterior and one case of posterior dislocation appeared in combination with systemic pathologies (a Coffin-Siris syndrome was suspected in case 4) or epiphysis disorders in the hip (case 2). We have not found any radio-ulnar synostosis, or other anomalies of the upper limb.

According to other authors,⁵ nearly half in our series of congenital radial head dislocations were anterior and near half posterior. Anomalies in head shape were greater in posterior congenital dislocations in our series, as other authors have reported.¹ The posterior border of the ulna was concave in anterior congenital dislocations and the normal convexity of the posterior border of the ulna was accentuated in posterior congenital dislocations in agreement with other authors' findings.^{1,5}

Futami et al.⁶ employed rotational osteotomy at the middle of the radius for the treatment of 5 patients with anterior dislocation, and Campbell et al.⁷ employed excision of the radial head for treatment of posterior dislocations in 6 patients, obtaining an average improved range of elbow motion of 10°, and 11°, respectively. Miura¹ found little functional improvement in surgical treatment with radial head excision, or rotational osteotomy of the radius and wedge osteotomy of the ulna.

Radial head excision has been associated with complications such as progressive cubitus valgus, loss of stability, or regrowth of the radial head.^{1,5,7,8} Most authors agree that surgical indication has to be limited.^{1,5,8} Although, Miura¹ found that several patients complained of restricted flexion and extension of the elbow joint and supination and pronation of the forearm, our patients presented no significant functional impairment. Futami et al.⁶ believe that prolonged dislocation should be corrected before the end of bone growth, however, we think that, in cases with no significant functional impairment, treatment must be avoided.

Two anterior dislocation cases were first seen after traumatism with an initial misdiagnosis. Evolution and X-ray of the contralateral elbow helped to find the correct diagnosis. Some authors^{9,10} asserted that traumatic dislocation of the radial head could show a convex radial head and flattening of the capitellum identical to those of congenital dislocation if post-traumatic remodeling occurred and, therefore, Mizuno et al.¹⁰ propose arthrography to search for post-traumatic extra-articular dislocation to confirm the diagnosis of congenital unilateral dislocation of the radial head. However, difficulty in differential diagnosis normally appears immediately after traumatism, as in our series, so the elbow does not have sufficient time for remodeling. We conclude, that in radial head dislocation, contralateral X-ray and the observation of some characteristic alterations of the elbow bones are mandatory to avoid misdiagnosis independently of any traumatic antecedent.

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