



## Multidirectional voluntary glenohumeral dislocation in a 7-year-old patient : a case report

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**A case of multidirectional voluntary shoulder dislocation developing at the age of seven is reported. The authors present the process that leads to the diagnosis of voluntary shoulder dislocation. The treatment of young patients with this condition is difficult. If no underlying pathology exists, most authors agree it should consist of conservative treatment and skilful neglect. The role of surgical treatment in a maturing skeleton should be reserved only if conservative treatment fails.**

### INTRODUCTION

Voluntary glenohumeral dislocation has been reported as long ago as 1722 by Portal, yet until Rowe *et al* in 1973 (10) described 26 cases there have been very few reports on this condition. The diagnosis is made when a person is able to dislocate one or both shoulders in one or more directions at will, in the absence of any significant previous trauma. A review of literature would suggest that glenohumeral dislocation in children less than 12 years old is very rare (5, 9, 12). We present a case of a multidirectional voluntary shoulder dislocation in a 7- year-old patient.

### CASE REPORT

A 9-year-old boy was referred with recurrent deformity of his right shoulder, that presented at his will. The parents reported that the child started “playing” this curious game since he was seven years old. He kept repeating this action because he enjoyed the “cracking” noise that his shoulder pro-

duced during the event. No pain was ever reported during the event. There was no reported history of significant trauma, arthrogyrosis or neglected septic arthritis.

The clinical examination of both shoulders did not reveal any deformity of the clavicle, prominence of the sternoclavicular or acromioclavicular joint, deltoid wasting or swelling and the scapulae were normally situated. There was full painless range of movement and the apprehension test was negative. Anterior and posterior drawer test and sulcus sign were positive only on the right affected side. There was no clinical evidence of multiple joint laxity. The neurovascular status was normal. On demand the child demonstrated a multidirectional dislocation of his right shoulder (fig 1a, b). All the movements were painless and perhaps enjoyable. The examination of the shoulder after the voluntary reduction was unremarkable.

Although the history given by the parents and the clinical examination were suggestive of the voluntary dislocation of the shoulder, it was important that adequate radiological investigations were

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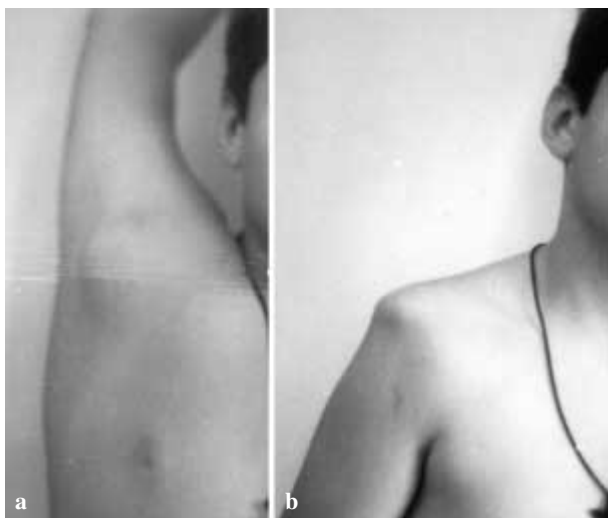
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**Fig. 1.** — Voluntary glenohumeral dislocation in a 7-year-old boy.

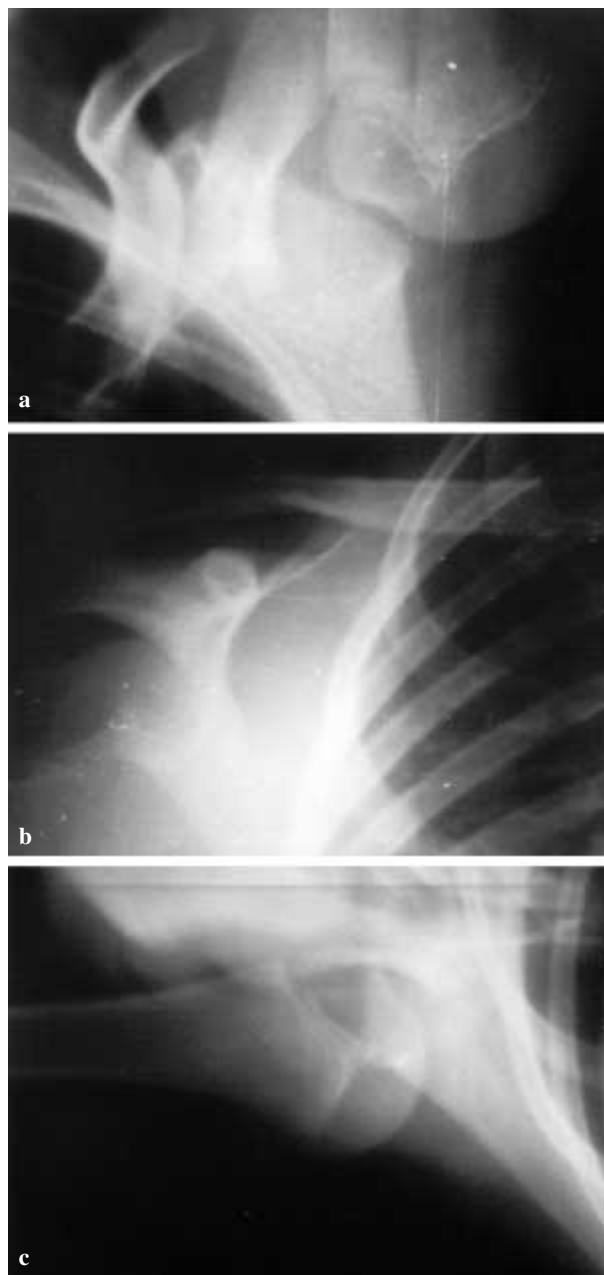
a) demonstration of inferior dislocation of the right shoulder.  
b) note the sulcus sign.

made to exclude a developmental lesion as glenoid dysplasia. The radiographs taken at rest and during the dislocation (fig 2a, b, c) confirmed the rare multidirectional voluntary dislocation without any evident bony abnormality suggestive of traumatic dislocation. A CT scan with 3-D reconstruction did not reveal any hidden underlying pathology (fig 3a, b). The paediatric-psychiatric assessment was unremarkable and screening for possible Ehlers-Danlos syndrome was negative.

The child has been followed up for the past two years and it is currently managed by “skilful neglect”, physiotherapy with isometric and isotonic muscle exercises and education of normal coordinated movements. The parents have also been involved by enlisting them to discourage the habit.

## DISCUSSION

Multidirectional voluntary dislocation of the glenohumeral joint in children is very rare. A review of literature (5, 9, 12) suggests that voluntary glenohumeral dislocations can be seen in children between 6 and 16 years of age, being more common when children reach adolescence. We are aware of two series (4, 10), totalling 62 patients of



**Fig. 2.** — a, b) Anteroposterior and axial lateral radiographs of the shoulder show inferior and anterior displacement of the humeral head. c) with overhead elevation, the humeral head is noted to displace anteriorly, laterally and inferiorly.

all ages with voluntary dislocation. Only three patients were younger than their seventh year of age. No individual case reports were found to describe the condition at such a young age.



**Fig. 3.** — a, b) CT three dimensional reconstruction of the right shoulder. No obvious underlying pathology is noted.

Because of the rarity of the condition, no classification exists apart for the description or location (anterior-posterior-inferior-multidirectional) of the dislocation (2, 9).

The diagnosis is made by demonstrating the voluntary nature of the “abnormality” and by excluding history of trauma and associated pain. The patient has the ability to stabilise the scapula against the thorax and to contract certain muscle groups while antagonists are inhibited, which, in combination with arm positioning allows the humeral head to move anteriorly, posteriorly, or inferiorly to the point of dislocation. In most instances spontaneous or voluntary reduction occurs without manipulation. In case of voluntary shoulder dislocation the patient should be investigated for Ehlers-Danlos syndrome, congenital malformation of the glenoid, deformities of the proximal humerus or scapula and emotional or psychiatric problems. Arthrogyrosis, neglected septic arthritis and neurological deficits can also be implicated in the aetiology.

The treatment of voluntary shoulder dislocation in the immature skeleton is difficult. Patients who do not have significant emotional and psychiatric problems or any underlying pathology are successful in improving their shoulder stability with a vigorous rehabilitation program involving strengthening of the rotator cuff.

In the longer term, there is no reported evidence of development of osteoarthritis of the glenohumeral joint. In adult life, the shoulders will have good function if the conservative treatment is successful. Therefore, most authors agree that there is no justification for “prophylactic” surgical treatment (1, 3-9, 11, 12). Surgical intervention might be considered only if a strict 12 month or even longer rehabilitation program fails. It should be reserved only for patients troubled by spontaneous dislocations, complying with the physiotherapy regime, in the absence of underlying psychiatric problems. Routine shoulder reconstruction procedures involving subscapularis shortening, including the Magnuson-Stack procedure and Putti-Platt procedure, or “bone blocks” such as the Bristow have had variable and not very encouraging results for preventing future instability (9). Neer and Foster presented a series of 40 shoulders (8) treated by an inferior capsular shift procedure for involuntary multidirectional instability. Their technique offers the advantage of addressing the multidirectional instability through one incision without damage to the articular surface. Even though their results are encouraging, they suggested that their technique should be used only after the conservative treatment has failed.

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