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CURRENT PROBLEM CASE

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An irreducible superior dislocation of the glenohumeral joint

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Abstract The clinical features of a superior dislocation of the glenohumeral joint are described. Reposition, even under general anaesthesia, cannot be achieved. Associated supraspinatus tear, acromioclavicular separation and the dislocated position of the humeral head can be clearly visualized.

Introduction

Of all glenohumeral dislocations the anterior and posterior forms are most commonly seen. Erect and superior dislocations are extremely rare [1]. Taskin and Sedlin report a 0.5% (of all shoulder dislocations) incidence of luxatio erecta. A superior dislocation is even rarer than a luxatio erecta [4].

In the literature no previous superior dislocation has been illustrated with 3-dimensional computed tomography (3D-CT). In this case, thanks to 3D-CT, a better definition of the osseous abnormality was possible.

Case report

An 88-year-old nursing home patient suffering from dementia was found lying on her right arm after a fall. Four years before she had been treated for a primary anterior glenohumeral dislocation. The patient's history mentioned good functional healing.

We saw a cachectic patient with a prominent humeral head anterior of the acromion. Severe pain made active motion of her right upper arm impossible. Her range of passive motion was decreased (20° abduction and 20° anteflexion) and painful. Neurovascular complications were absent. An anteroposterior radiograph revealed a superior dislocation of the right glenohumeral joint with the humeral head in front of the acromioclavicular joint (Fig. 1). Repositioning (Hippocrates and Kocher technique) with the use of intravenous sedation was tried. Because this was unsuccessful, general anaesthesia was given. In the operating theatre no limitation of movement of her right arm existed. Traction of the arm allowed lowering of the humerus out of the subacromial area.

On image intensifier, traction clearly restored the glenohumeral joint, but the humerus immediately leaped back to its superior position after releasing the traction. Soon thereafter, the patient regained minimal function of her right arm and returned to the nursing home, almost painfree, with this unreduced superior dislocation (Fig. 2).

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Discussion

The usual mechanism of a superior dislocation is an extreme force in the superior and anterior direction. The coracohumeral ligament, forming the superior part of the

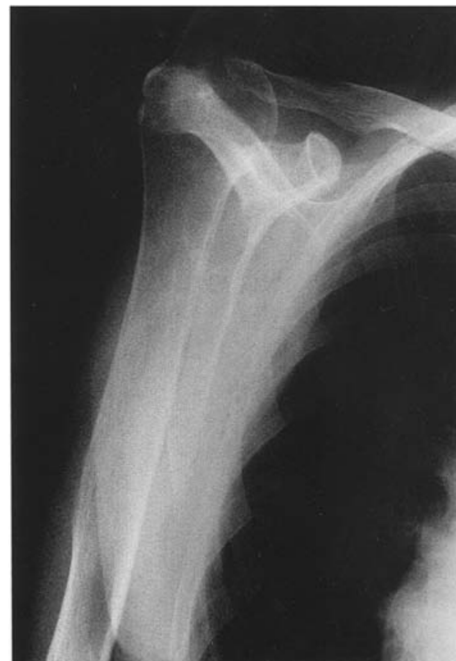

Fig. 1 Anteroposterior radiograph demonstrates a superior dislocation of the right glenohumeral joint with the humeral head in front of the acromioclavicular joint

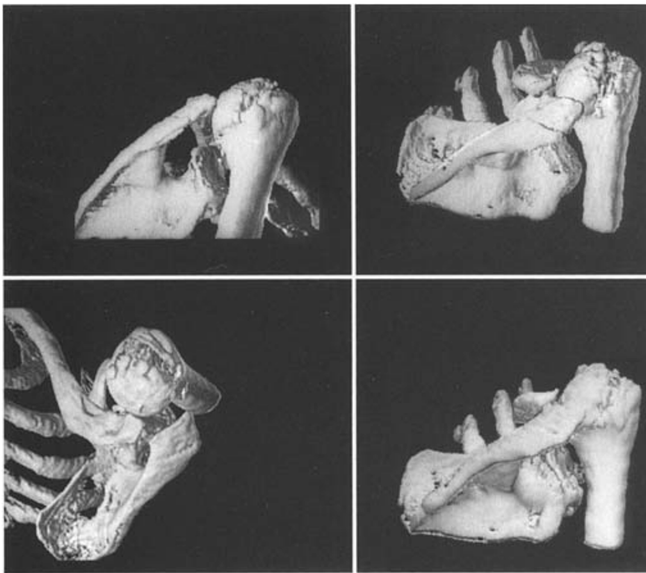

Fig. 2 Four views of a surface rendered 3-dimensional image show the dislocated humeral head anterior to the dislocated acromioclavicular joint

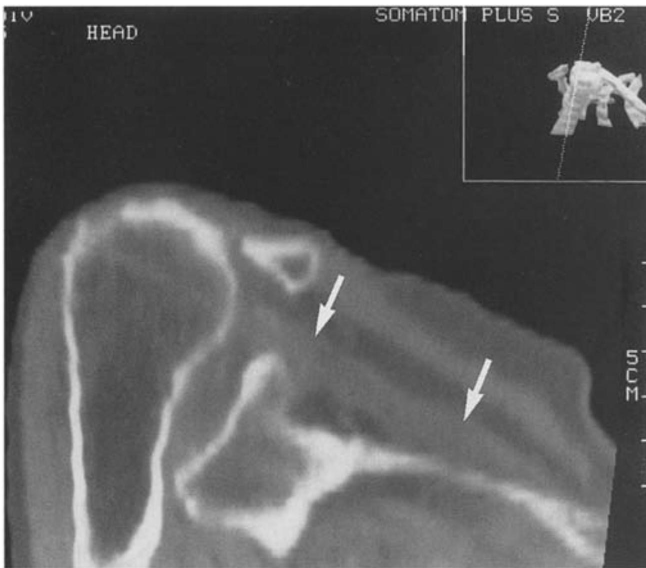

Fig. 3 Oblique coronal reformatted image, revealing the humeral head protruding through the atrophic supraspinatus muscle and tendon *(arrows)*

shoulder capsule, was tested by Warner et al. [6] and plays no significant suspensory role. Although capsuloligamentous restraints to superior-inferior translation of the glenohumeral joint is at its weakest in the 45° abduction position, the arm is usually adducted when superior dislocation takes place. Especially in elderly patients a complete loss of the rotator cuff is to be seen. Associated complications include fractures of the humeral tuberosities, acromion, clavicula, coracoid or acromioclavicular dislocations, in addition to the neurovascular complications which we may see in shoulder dislocations.

On the CT images (Figs. 2, 3) a supraspinatus tear, supraspinatus atrophy as well as an acromioclavicular separation are visible. Probably, the atrophy was caused by a suprascapular nerve lesion after the earlier dislocation [3]. Despite the documented positive functional result after the first dislocation, even a preexistent supraspinatus tear could have been possible.

For successful repositioning and maintenance of the reduction, reapproximating the rotator cuff is necessary. Regarding her age, mental state and her nearly painfree right shoulder, the superior dislocation was accepted.

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