POSTERIOR DISLOCATION OF THE SHOULDER JOINT

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Dislocation of the shoulder joint with backward displacement of the humeral head is an unusual injury. The physical signs are often masked by swelling and, although careful study of antero-posterior radiographs may be suggestive, the diagnosis is often missed at the first attendance of the patient.

Wood (1941) reported three posterior dislocations in a series of 115 dislocations of the shoulder joint treated in the fracture clinics of the Massachusetts General Hospital between 1930 and 1938. Thomas (1937) reported four posterior dislocations in a series of 6000 shoulder examinations in his private practice, and he referred to three other cases. Wood found that the condition had received little attention in the text-books he studied; and such well-known books as those of Böhler (1935) and Watson-Jones (1943) include no separate description of this dislocation but simply mention the possibility of its occurrence. Many reported cases have been associated with fracture of the upper end of the humerus which may take the form of a compression fracture of the anterior aspect of the anatomical neck closely resembling the postero-lateral defect in the humeral head which may be observed in recurrent anterior dislocations.

It is significant that only four of the ten cases described by Wood and Thomas were recognised at the first attendance of the patient. Of the three cases reported in this paper, the first two passed unrecognised at the hospitals to which they were first referred. The third patient was examined by a well-trained and experienced surgeon who missed the clinical diagnosis and also failed to understand the X-ray films, but a recently qualified house-officer who could not understand why the coracoid process should be so prominent called the senior surgeon back for re-examination of the patient. After much discussion, the diagnosis was clinched when the head of the humerus was palpated behind the scapula. What is the explanation of this unsatisfactory state of affairs? What is the remedy?

Part of the explanation lies in the rarity of the injury, which, being unsuspected, is not recognised when physical signs are so masked by swelling. Moreover, these cases are usually dealt with as emergencies by house surgeons who are provided with no more than a single radiograph taken in the antero-posterior plane—a projection in which they fail to recognise any abnormality. Such failure is quite understandable and the remedy is obvious. The same rule which is applied to the radiographic examination of long bones must apply to the shoulder joint; in all recent injuries there must be provided either a stereoscopic pair of radiographs, or radiographs taken in two different planes. For the radiologist, stereoscopic examination meets all requirements; but these films cannot be viewed by the surgeon until they are dry and moreover experience is required for their correct interpretation. Therefore in emergency work an alternative is necessary and the choice lies between: 1) transthoracic lateral projections; 2) vertical projections with the tube in the axilla or with a curved cassette in the axilla; and 3) profile projections in the postero-oblique axis with the patient erect.

Transthoracic lateral views display the upper part of the humerus satisfactorily but the shoulder joint is not well shown except in patients who are very slender and for this reason it is not a satisfactory projection. Vertical views with the tube in the axilla are often impracticable unless there is a free range of abduction movement of the shoulder joint, but, by reversing the positions of the tube and the film, and loading the film in a curved cassette, a satisfactory lateral view of the shoulder joint can usually be obtained (Fig. 1). If a vertical view with curved cassette is impossible the postero-oblique or profile view of the scapula
gives a satisfactory lateral projection of the shoulder joint in patients of average thickness—a projection which is interpreted readily by surgeons. These views are all standard radiographic positions and they are described and illustrated by K. C. Clark (1941).

CASE REPORTS

Case 1. E. S., female, aged 44 years—Injured in a brawl. Her doctor sent her to hospital with a diagnosis of dislocation of the left shoulder joint. Radiographic examination of the shoulder included only an antero-posterior view and this was believed to show no abnormality. Physiotherapy was ordered. After five weeks her doctor was still convinced of the accuracy of his original diagnosis and sent her to the Royal Victoria Infirmary, Newcastle, where the orthopaedic surgeon suspected a posterior dislocation. There was marked flattening of the anterior aspect of the shoulder and complete loss of humero-scapular movement. Radiographic examination included antero-posterior and vertical curved cassette projections.

The antero-posterior view showed internal rotation of the humerus, and elevation of the humeral head. The vertical film demonstrated posterior dislocation of the humeral head together with a compression fracture of the anterior aspect of the anatomical neck of the humerus with impaction of the posterior margin of the glenoid. Reduction was successful.

Case 2. A. H., male, aged 60 years—Injured by a fall of stone in a pit. He was sent to hospital with bruising of the left shoulder. A radiograph in the antero-posterior plane was considered to show no abnormality and the man was discharged home. Five weeks later his doctor sent him to the Orthopaedic Department of this Infirmary but the diagnosis was not suspected until further radiographs were examined. Stereoscopic views were taken. Reduction was attempted unsuccessfully. Five weeks later another antero-posterior film and a vertical projection with curved cassette were obtained; the first showed overlapping of the glenoid.
Case 2. Antero-posterior radiograph shows slight overlap of the shadows of head of the humerus and glenoid, and elevation of the humeral head. From this view alone, surgeons might well have difficulty in establishing the diagnosis of posterior dislocation.

Case 2. The vertical projection shows backward dislocation of the shoulder joint, with fracture of the posterior margin of the glenoid and a defect in the anterior margin of the humeral head from which a piece of bone has been detached.
Fig. 4
Case 3. Antero-posterior radiograph of the right shoulder which is dislocated posteriorly. In this projection the humerus is seen to be internally rotated.

Fig. 5
Case 3. Radiograph in vertical projection of the shoulder joint shows the posterior dislocation quite clearly.
by the humeral head and rotation of the scapula so that the whole length of the spine was visible (Fig. 2). In the vertical view, posterior dislocation of the humerus was evident and there was an associated fracture of the posterior margin of the glenoid; a defect was visible in the humeral head from which a piece of bone had been detached (Fig. 3).

**Case 3. T. C., male, aged 43 years**—Struck the front of his right shoulder against the back of a lorry while cycling, and was brought immediately to the Royal Victoria Infirmary, Newcastle-upon-Tyne. Examination showed that the right upper limb was held internally rotated and extended at the elbow. The outline of the shoulder appeared to be normal; but on palpation, the coracoid process was unusually prominent. No increase in the vertical circumference of the shoulder was shown by measurement. Ruler tests showed no flattening of the contour of the shoulder. The antero-posterior radiograph showed internal rotation of the humerus with the tuberosities overlapping the glenoid (Fig. 4). The vertical film, which was obtained in the almost complete absence of any abduction movement of the shoulder by lateral flexion of the spine towards the affected side and the use of a curved cassette, demonstrated the dislocation clearly (Fig. 5). A transthoracic view of the humerus was also taken and it showed the dislocation but much less satisfactorily than in the vertical view. Reduction was successfully achieved by traction upon the limb.

**SUMMARY**

Posterior dislocation of the shoulder is an unusual injury and there is often much delay before the diagnosis is made. Nevertheless, if the condition is borne in mind when examining the patient and studying the X-ray films the diagnosis should not be missed. A single antero-posterior radiograph of the shoulder joint is inadequate. For the radiologist a pair of stereoscopic films is desirable; but for routine emergency work in hospital other projections are necessary. A vertical view should be taken, either with the limb abducted and the tube in the axilla, or with the tube above the shoulder and a curved cassette in the axilla. When this is impossible a profile or posterior oblique view of the scapula may be substituted.

**REFERENCES**


*Note.*—The paper by Thomas reviews the literature from 1804 to 1937.