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Posterior labrocapsular periosteal sleeve avulsion complicating locked posterior shoulder dislocation

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Introduction

Posterior shoulder subluxations are rare, but have been documented extensively. Among the well-known complications are stretching of the posterior capsule, avulsion of the lesser tuberosity, fractures of the posterior glenoid rim, trough fractures, posterior capsular stripping and stretching or detachment of the subscapular tendon [1, 2].

Presented in this case report is a posterior shoulder dislocation complicated by a posterior labrocapsular periosteal sleeve avulsion. To our knowledge, this kind of lesion has never been reported before as a separate entity.

Case report

A 44-year-old woman presented with a post-traumatic painful shoulder. On

Abstract This case presents the imaging features of a posterior shoulder dislocation complicated by a rare but surgically relevant lesion of the posterior labrum. Due to the attachment of the posterior capsule to the posterior portion of the labrum, which in itself is attached to the posterior scapular periosteum, stripping of the labrum by the posterior capsule resulted in a posterior labrocapsular periosteal sleeve avulsion.

Key words Shoulder · Trauma · Dislocation · MRI

clinical examination abduction was severely limited and external rotation was impossible.

The diagnosis of a posterior dislocation of the humeral head was made on conventional shoulder radiographs. An anteroposterior radiograph of the right shoulder shows a vacant glenoid fossa and loss of parallelism between the articular surfaces of the glenoid fossa and the humeral head (Fig. 1). The patient was additionally investigated by MRI to rule out internal derangements. With the use of a circular surface coil, axial T2 gradient echo (GE) images (TR/TE, 500/9; flip angle 25°) and oblique coronal fast spin echo (FSE) images (TR/TE, 2500/60) with fat-selective saturation were obtained. An axial T2 GE image confirms the abnormal relationship between humeral head and glenoid fossa. Additionally, it shows a trough-like impaction fracture of the



Fig. 1 A conventional anterior-posterior radiograph of the right shoulder shows loss of parallelism between the articular surface of the humeral head and the glenoid fossa, in addition to a trough-like fracture line in the humeral head

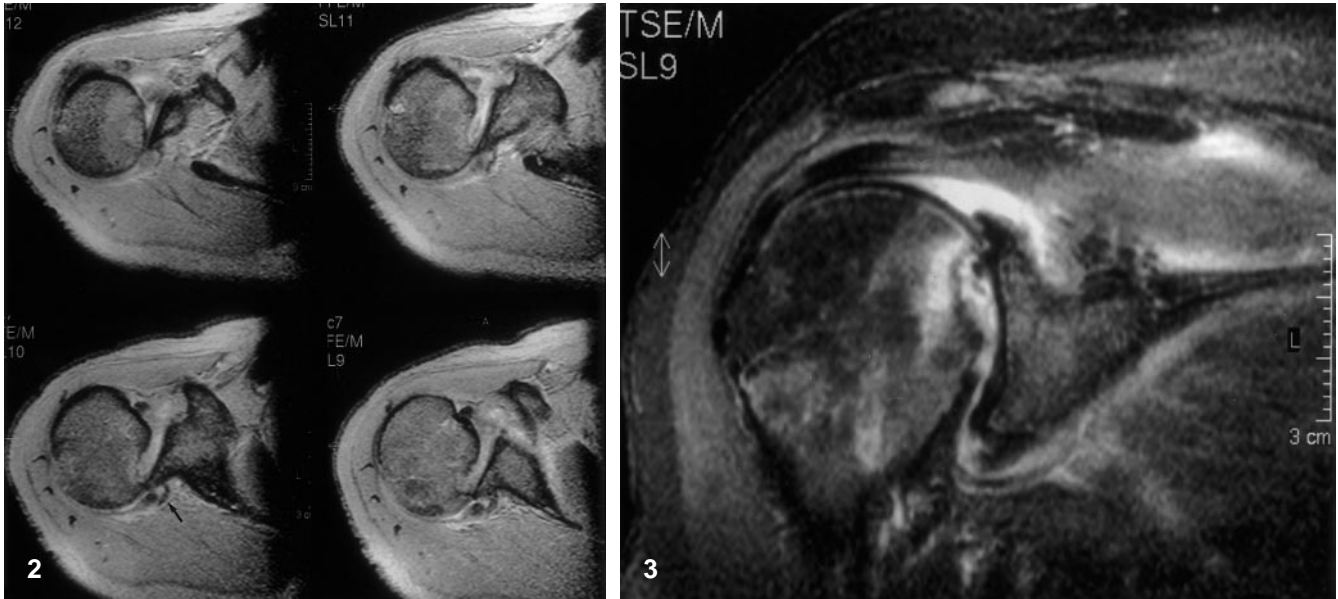
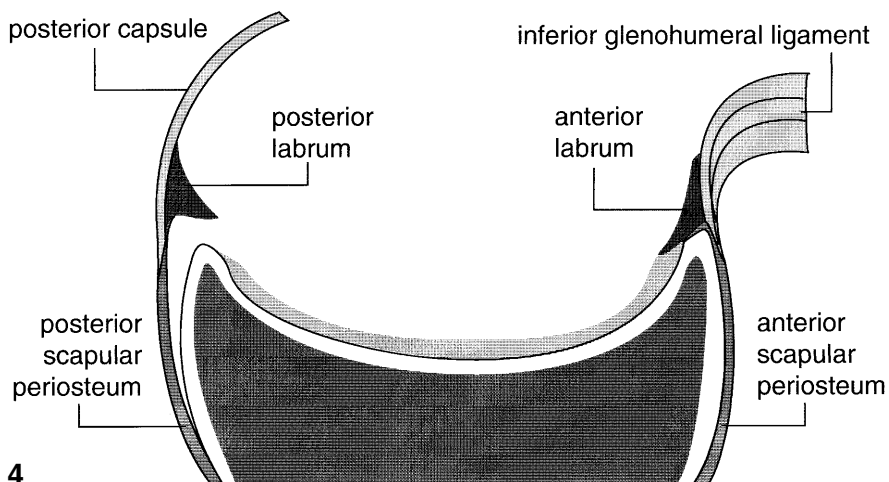


Fig. 2 Posterior labrocapsular periosteal sleeve avulsion lesion. Contiguous axial T2 gradient echo images (TR/TE, 500/9; flip angle 25°) show the internally rotated posterior labrum stripped from the posterior glenoid rim. It remains attached to the posterior glenoid neck by a thickened periosteal sleeve (*arrow*). Also note the internally rotated humeral head with a trough-like impaction fracture on the posterior glenoid

Fig. 3 Oblique coronal fast spin echo image (TR/TE, 2500/60) with fat-selective suppression shows fraying of the superior labrum and the humeral head fracture surrounded by hyperintense bone marrow oedema

Fig. 4 Drawing shows the posterior labrocapsular periosteal sleeve avulsion lesion. The posterior labrum is torn, but remains attached to the posterior glenoid neck by a periosteal sleeve



humeral head on the posterior glenoid margin, better known as a trough fracture. Furthermore, there is a posteriorly displaced posterior labrum, which remains attached to the posterior glenoid margin by a linear hypointense structure, representing a thickened periosteal sleeve (Fig. 2).

An oblique coronal FSE image with fat-selective saturation shows the fracture line through the medial surface of the humeral head, surrounded by hyperintense bone marrow oedema (Fig. 3).

At surgery, the shoulder dislocation with trough fracture and stripping of the posterior labrum from the

posterior glenoid rim were confirmed.

Discussion

Posterior shoulder subluxations are rare, constituting only 2.1% of all shoulder dislocations. Most cases result from trauma (58%), followed by convulsions (33%) or electrical accidents (9%) [3]. Clinical examination usually shows a humeral head fixed in a position of internal rotation and a limitation of shoulder abduction.

Conventional radiographs generally confirm the diagnosis. However, MRI supplies additional important information concerning the extent of the soft tissue injuries complicating the dislocation, as illustrated in this case.

Besides a trough fracture, our attention was drawn to a peculiar posterior labral lesion. To characterize this lesion we first describe two well-known labral lesions: the anterior labroligamentous periosteal sleeve avulsion (ALPSA) and the Bankart lesion. The ALPSA lesion is defined as an avulsion of the anteroinferior labrum from the anterior glenoid rim by traction of the inferior glenohumeral ligament, which is firmly at-

tached to the anterior labrum. In this lesion, a connection remains between the labrum and the glenoid by a partially avulsed anterior scapular periosteal sleeve, as opposed to a Bankart lesion where there is complete rupture of the periosteum [1, 2, 4].

We describe a similar lesion of the posterior labrum. Posterior shoulder dislocation can cause posterior capsular stripping. However, in our patient, due to the attachment of the posterior capsule to the posterior portion of the labrum, which itself is attached to the posterior scapular periosteum [5], this resulted in a posterior labrocapsular periosteal sleeve avulsion (Fig. 4). This lesion should be considered as a separate capsulo-

labral abnormality because, if left untreated, it will cause posterior shoulder instability [5]. Furthermore, this lesion should be distinguished from a Bennett lesion, in which an extra-articular bony excrescence arises from the posteroinferior portion of the glenoid cavity. The Bennett lesion is a chronic lesion, associated with past subluxation, posterior labral tears and posterior undersurface rotator cuff tears, which, besides ossification, can show a paramagnetic effect on MRI, suggesting prior haemorrhage [1].

Knowledge of this posterior labrocapsular lesion is surgically relevant because, as in the ALPSA lesion, before labral reattachment the periosteal sleeve should be incised to release the labrum from the posterior glenoid neck.

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