

## ISOLATED PURE EXTRATHORACIC SCAPULAR DISLOCATION: A CASE REPORT

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### ABSTRACT

To our knowledge, we report the first case of pure and isolated extra thoracic scapular dislocation as a result of a sports injury and in total absence of any musculoskeletal lesions. Scapular dislocation is a rare entity that consists in the loss of the normal articular relationship among the shoulder-blade and the homolateral posterior ribs; it can be identified as intra-thoracic when there is a penetration of the scapula into the thoracic cavity or as extra-thoracic (or scapulo-thoracic dissociation) in the case of an external separation of the scapula from the thoracic wall. Given the rarity of the lesion, no bloodless maneuver or surgeries are described in literature. Our technique was based on the rely of the patient without any drugs and in a gentle maneuver to re locate the scapula; the mobility of the scapula on deep and superficial plane helped in the reduction and explains an extreme laxity of the patient that could on the basis of this very rare dislocation.

**KEYWORDS:** Pure and isolated extra thoracic scapular dislocation.

### INTRODUCTION

Scapular dislocation is a rare entity that consists in the loss of the normal articular relationship among the shoulder-blade and the homolateral posterior ribs; it can be identified as intra-thoracic when there is a penetration of the scapula into the thoracic cavity or as extra-thoracic (or scapulo-thoracic dissociation) in the case of an external separation of the scapula from the thoracic wall.<sup>[1]</sup>

Only few cases of intrathoracic scapular dislocation are reported in international literature: in particular one case of pure intrathoracic scapular dislocation,<sup>[1]</sup> 3 case of intrathoracic dislocation associated with a preexisting and predisposing conditions as sternoclavicular separation, prior rib fractures, thoracotomy for a lung transplant procedure, or surgical resection of superior ribs during breast or pulmonary tumor excisions;<sup>[2-4]</sup> 3 case of intrathoracic scapular dislocation associated to a scapular fracture; "Extra-thoracic or Scapulo-thoracic dissociation", instead, was frequently reported in the literature as consequence of a high-energy trauma to the shoulder girdle always in association with multiple musculoskeletal (clavicles or humerus fractures), nerve or arterial lesions.<sup>[8,9]</sup>

To our knowledge, we report the first case of pure and isolated extrathoracic scapular dislocation as a result of a sports injury and in total absence of any musculoskeletal lesions.

### CASE REPORT

An eighteen years old boy presented to the emergency department after a sports injury: he bumped his left shoulder against a pole during a soccer match. He referred to impact the shoulder with left upper arm down along the body: the point of impact was directly against the spine of the scapula.

He had immediately a deep pain in the posteriorly to the scapula and in the back, associated with impossibility to elevate the shoulder.

Radiologist performed a standard X-Ray and a CT scan with 3d reconstruction showed the pure and isolated scapulothoracic dislocation (figure 1, 2): no fractures were identified in the shoulder or ribs, no other articular dislocation were present, no lung contusions.

A physical examination revealed tenderness over the left shoulder with an evident anatomical alteration slightly posterior to the clavicle in correspondence of the trapezius muscle (figure 3). Elevation, external and internal rotations of the shoulder were not possible. No vascular or nervous lesions were present in the affected arm.

Scapula was mobile on the superficial and deep planes; a gentle maneuver was applied to re locate the scapula by grasping the vertebral side of the scapula with the patient extremely relaxed, moving it medially. Patient

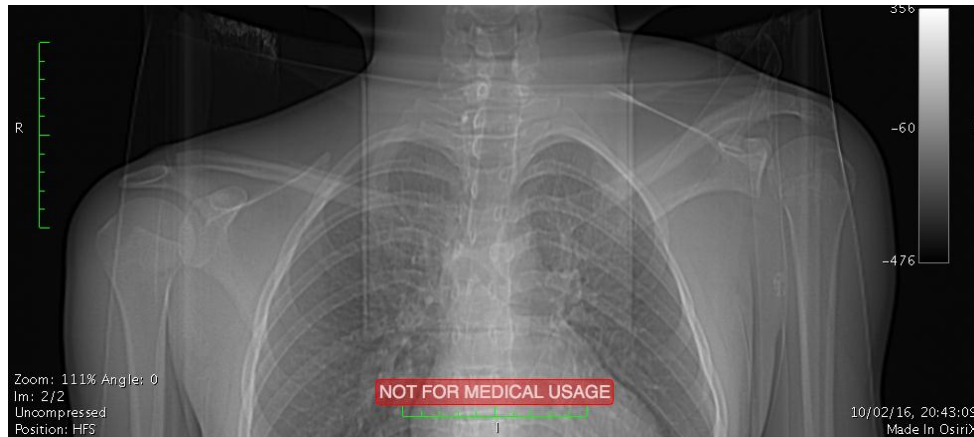
immediately felt comfort, pain disappear, all the range of motion was present again. (figure 4.)

A post reduction X-Ray showed the reduction of the dislocation (figure 5). A shoulder brace was applied for one month.

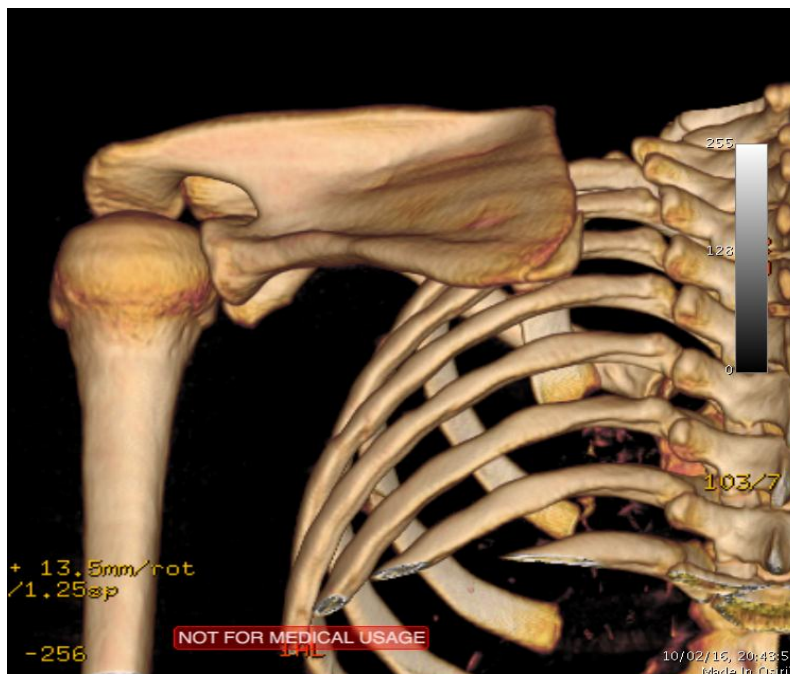
An MRI of the shoulder (figure 6 a, b, c, d, e, f, g) performed a week later rule out any muscular or tendons

lesions: no surgery was indicated. Patient started a functional rehabilitation program for the shoulder after brace removal.

He was clinically evaluated after 1, 2, 3 and 6 months after trauma: no complications were present, he returned to his sport activity.



**Figure 1: On radiographic CT Scout view left shoulder blade appears above than normal, confirming the clinical suspicion of a scapulothoracic dissociation. Be care that the appearance of a supra-elevated shoulder blade on a plain radiography, in absence of clinical suspicion of scapulothoracic dislocation, could be secondary to a rotation or a mal-position of the patient during the execution of the examination.**



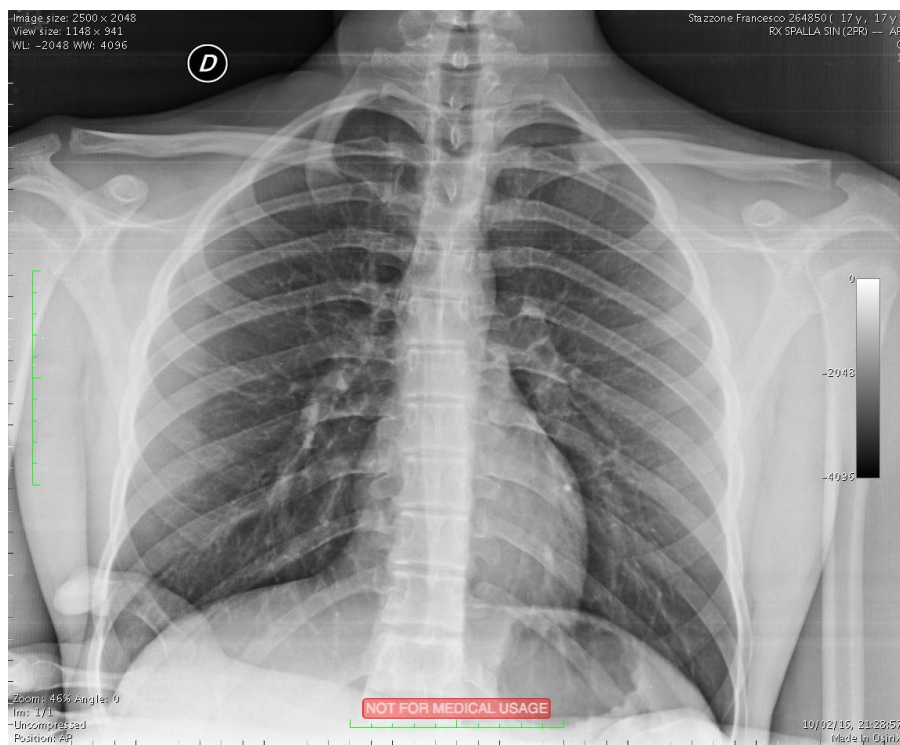
**Figure 1: CT confirms the radiographic suspicion of scapulothoracic dissociation. Note as in the Volume Rendering projection the distance between the shoulder blade and the posterior portions of the left ribs is increased.**



**Figure 3:** Shoulder dislocation was evident clinically with an important deformity of rear profile of the patient: the left scapula was about 6-7 cm elevated compared to the contralateral.



**Figure 4:** Patient felt immediately comfort after the maneuver: scapula was back oh its position.



**Figure 5:** A shoulder X-ray has demonstrated as the shoulder blade, after the clinical reduction maneuver, was replaced in the right position.

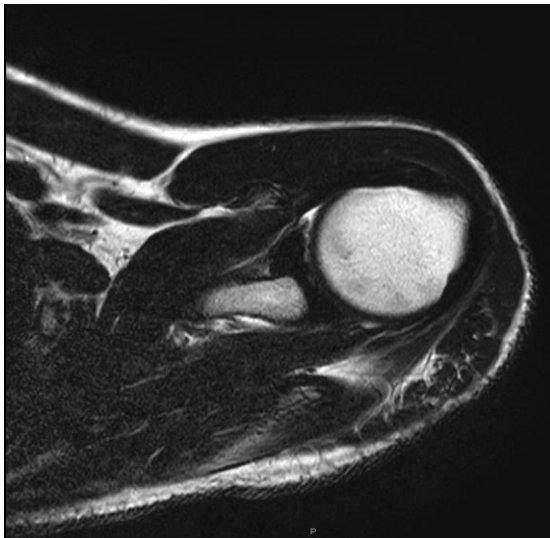
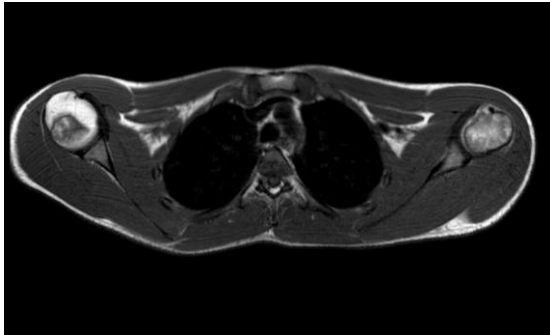
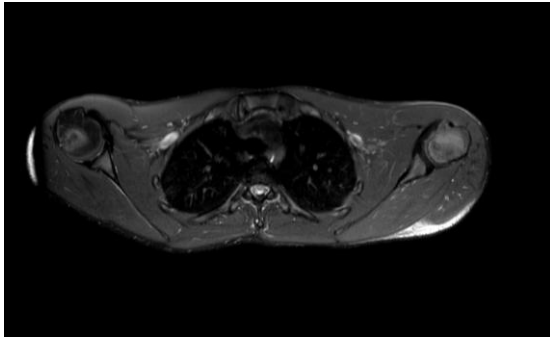


Figure 6: (a, b, c, d, e, f, g) MRI, performed at the tenth day after the trauma, didn't show any significant muscle or tendons lesions.

## DISCUSSION

Extrathoracic isolated scapular dislocation is a very rare injury. As described, no other cases are present in literature. Scapulothoracic dislocation is usually associated to predisposing factors creating a weak area over the thoracic cage and a subsequent fulcrum point for levering the scapula.<sup>[1]</sup>

Comminuted scapula fractures could be associated with dislocation, especially if inferior pole is involved.<sup>[5-7]</sup>

Our case is the first extrathoracic dislocation not associated with fracture of the scapula or predisposing factors described in literature.

It is important to suspect a scapulothoracic dislocation even in absence of predisposing factors or fractures.

An accurate radiographic study, including 3d CT scan reconstruction, is necessary to evaluate the position of the scapula respect to the thoracic cage; an MRI to evaluate muscles or tendons associated lesions; an accurate physical exam to rule out the suspect of vascular or nervous injury.

Given the rarity of the lesion, no bloodless maneuver or surgeries are described in literature. Our technique was based on the rely of the patient without any drugs and in a gentle maneuver to re locate the scapula; the mobility of the scapula on deep and superficial plane helped in the reduction and explains an extreme laxity of the patient that could on the basis of this very rare dislocation.

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