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CLINICAL CASE

Axillary artery injury from a closed humeral neck fracture: A case report

Un traumatisme de l'artère axillaire secondaire à une fracture du col chirurgical de l'humérus : à propos d'un cas

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Summary Axillary artery injury from humeral neck fracture is an uncommon event. Vascular damage due to these injuries may threaten limb loss. In some cases, the signs of ischemia may not be evident just after the injury and may only appear later on. Therefore, a high index of suspicion is essential. It is important to bear this association in mind, so as to make an early diagnosis and avoid serious complications. We are describing the case of a young patient involved in a motor vehicle crash with an axillary artery trauma due to the surgical neck of humerus fracture. The patient underwent a basilic vein grafting, the postoperative course was good.

Résumé Les traumatismes de l'artère axillaire secondaires à une fracture du col chirurgical de l'humérus est une entité pathologique rare. Cette lésion vasculaire peut compromettre la viabilité du membre. Les signes d'ischémie peuvent manquer dans certains cas, et n'apparaissent que tardivement. Un diagnostic précoce reste donc primordial afin de prévenir une ischémie irréversible et éviter ainsi une amputation de membre dramatique. Nous rapportons l'observation d'un jeune admis pour une lésion de l'artère axillaire suite à une fracture fermée du col chirurgical de l'humérus. Le patient a bénéficié d'une réparation de l'artère axillaire par interposition d'un greffon veineux basilique, les suites opératoires ont été simples.

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Introduction

Fractures of the proximal humerus account for 4—5% of all fractures seen in the emergency department [1,2]. These fractures are usually the result of high-energy trauma in young patients. Axillary artery injury due to blunt trauma resulting in proximal humeral fractures is even more uncommon [3]. Associated injuries of the brachial plexus can also complicate the management and require due consideration [4]; fortunately, in our patient, brachial plexus was intact. Early diagnosis based on signs of acute ischemia of the arm enables early treatment and a favorable outcome.

Case report

A 24-year-old male presented to the emergency department complaining of right shoulder pain, tenderness and deformity following a motor vehicle accident. The mechanism was a direct blunt trauma of the shoulder. The physical examination showed the right shoulder was swollen, and the range of motion was severely limited. The hand and forearm were cool and pale and the capillary refill was slow. Mobility of the hand and fingers was normal with no sensory loss, but the brachial, radial or ulnar pulses were impalpable. Initial radiography of the shoulder revealed a comminuted fracture of the humeral surgical neck without evidence of a glenohumeral joint dislocation (Fig. 1). Computed tomographic (CT) angiogram showed complete occlusion of the right axillary artery just distal to the fracture site, beyond which a brachial artery of much reduced calibre was seen to fill via collaterals (Fig. 2). Moreover, CT angiography does not show signs of pseudoaneurysm or arteriovenous fistula. Urgent surgical intervention was done in the form of fixation of fracture followed by repair of the axillary artery. The patient was operated under a supraclavicular block; the orthopedic team first made the open reduction and fixation of the neck of the humerus through a longitudinal incision over the anterolateral aspect of right shoulder (Fig. 3). After fixation of fracture, vascular surgery team did the exploration of axillary artery. Operative exploration through an extended deltopectoral incision enabled to expose the axillary artery, which was observed to be contused and thrombosed for a segment of approximately 4 cm; the brachial plexus was intact on inspection. The contused segment of the axillary artery was replaced with a basilic vein interposition graft in a reversed fashion (Fig. 4). The patient's postoperative course was uneventful, pulses at the wrist reappeared and arterial perfusion of the whole arm improved dramatically. He was discharged home 1 week after surgery on low molecular weight heparin for 2 weeks and anti-platelets. At his follow-up clinic visit at 12 months, he had good functional outcome with a normally perfused limb.

Figure 1 Plain radiography demonstrating a fracture of the humeral neck.
Radiographie standard montrant une fracture du col chirurgical de l'humérus.

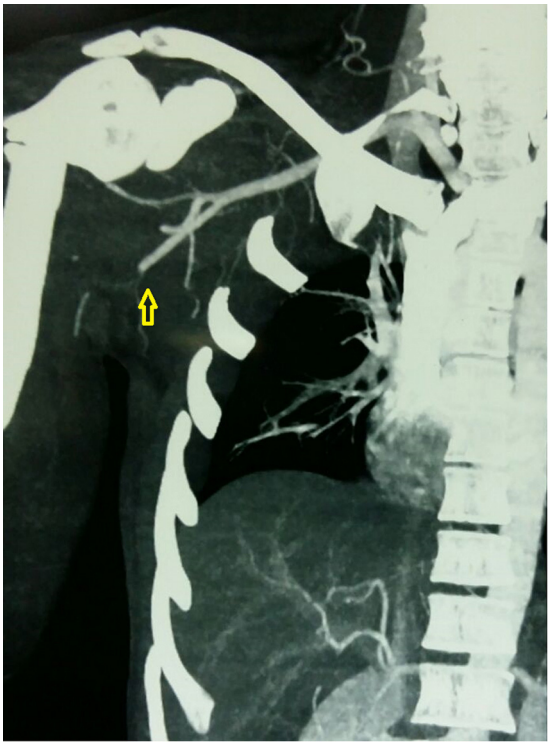

Figure 2 Computed tomographic angiography revealed an occlusion of the right axillary artery (arrow) without signs of pseudoaneurysm or arteriovenous fistula.
Angioscanner en reconstruction du membre supérieur droit objectivant une occlusion de l'artère axillaire droite (flèche) sans image de pseudo-anévrysme ou de fistule artérioveineuse.

Discussion

Axillary artery injury from blunt trauma to the shoulder is uncommon. Fracture of the neck of the humerus is a rare