CASE REPORT

An Unsuspected Double Brachial Artery Injury

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Introduction

Brachial artery trauma associated with humeral shaft fracture, is an uncommon but challenging injury.1–4 We report an unusual case of double brachial artery injury associated with a humeral shaft fracture.

Case Report

A 67-year-old man rolled the open-topped sports car he was driving, sustaining trauma to the right arm. He presented with a wound on the anterior aspect of the arm, extending from the upper third to the level of the elbow. There was abnormal sensation in the radial nerve territory and an absent radial pulse. The arm was ischaemic, although movement and sensation were retained. Plain radiographs showed a displaced distal third fracture of the humerus.

Initial fixation of the fracture was undertaken with an intra-medullary nail. Exposure of the wound revealed muscle damage and a ragged tear in the brachial artery above the bicipital aponeurosis, which was bleeding profusely. The vessel was repaired with a vein patch, but on completion pulsation was poor. There was clearly a proximal problem, either thrombus in the lumen or a separate injury at a higher level in the artery. The proximal brachial artery was exposed, revealing evidence of swelling and thrombosis at the mid-point of the vessel, suggestive of an intimal tear. The lesion was distal to the profunda brachii, thus accounting for bleeding from the brachial artery injury at the level of the elbow. A 2.5 cm long segment of damaged vessel was excised and an end-to-end saphenous vein interposition graft inserted. This resulted in good pulsation throughout the brachial artery and intra-operative arteriography confirmed patency of the distal arterial tree.

The median and radial nerves were contused but intact in the ante-cubital fossa. The patient made an uneventful recovery and at 3-month review had a good radial pulse, a healed fracture and no residual neurological deficit.

Discussion

Vascular trauma to the upper extremity constitutes between 28 and 58% of peripheral vascular injuries.5 Some authors advocate preoperative angiography in all cases to identify a proximal injury. However, after any repair angiography to confirm good flow throughout the arterial tree is essential. This is especially the case in injuries distal to the important profunda brachii branch, which can be masked, as in this instance.

The ideal management is stabilisation of the fracture prior to arterial repair; a delicate vascular reconstruction can be damaged by orthopaedic manipulation. A higher rate of limb loss and arterial repair failure is reported in cases where the fracture is not stabilised. The general considerations of arterial repair hold true in the upper extremity, namely: it should be tension-free and vein should be used in all cases to reduce risk of infection. Primary fasciotomy, although recommended by some authors, is not essential in all
cases. However, careful surveillance is essential to avoid the development of compartment syndrome.

References


