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Case Report

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Open forearm trauma with abolition of the radial pulse complicated by Wolkmann syndrome: A case report

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Introduction

Open vascular injuries are relatively frequent and those of the arteries of the forearm correspond to 20% of total arterial injuries [1-5]. They can engage the functional and vital prognosis of the limbs [6-7]. They are always associated with lesions of the soft tissues or neighboring organs [6-7]. The clinical presentation is variable [1,6,7]. The aim of this work is to report a case of open forearm trauma with abolition of right radial pulse complicated after surgical repair by wolkmann syndrome.

Observation

We report the case of a 24-year-old boy with open trauma to the right forearm with cutaneous, muscular and vascular deterioration associated with an undetermined mechanism. Physical examination of patient showed active red and black bleeding through an open forearm wound with broken skin and muscles associated with an abolition of the right radial pulse with coldness of the right hand and forearms

associated with motor deficit of these last. Bone X-ray of the left upper limb was unremarkable.

After an emergency assessment, the patient was operated on under general anesthesia and endotracheal intubation. Intraoperative exploration found a section of all the muscles of the forearm, stretching of the median nerve with total section of the middle humeral artery associated with a loss of arterial substance of approximately 08 cm. The procedure consisted of restoring arterial continuity through the inverted saphenous vein end-to-side with partial muscle approximation (Figure 1) and immobilization of the right upper limb with a plaster splint.

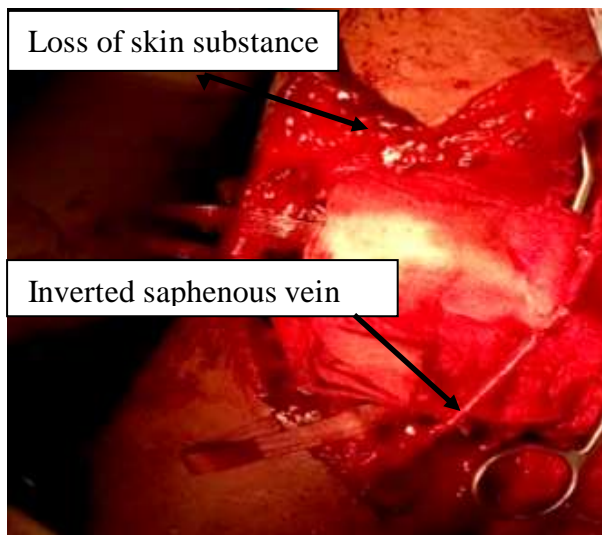


Figure 1: Intraoperative image after revascularization.

Results

The intraoperative follow-up was marked by a compartment syndrome having benefited from an unloading aponeurotomy complicated by parietal sepsis of the right forearm, which progressed favorably under antibiotic therapy. Forearm. CT angiography of the traumatized limb was unremarkable.

Discussions

Trauma of the forearm arteries corresponds to 20% of all arterial trauma and up to 40% of these, when restricted to the upper member [1-2]. Initially trauma might not be perceived because most patients do not exhibit signs of ischemia [3]. Patients with penetrating trauma to the forearm, should, before suture of the superficial wounds is performed, undergo careful examination, with special attention given to signs of vascular injury. Diagnosis and early management not only result in a higher rate of preserved members, but also in a lower rate of functional deficiencies of the impaired member [1-3]. As ligation of the radial and ulnar arteries, frequently, has no significant aftermaths, literature on the subject is scarce [4]. Reports of the II World War experience,

when arterial traumatism were treated solely by arterial ligation, relate a 5.1% rate of amputation in injuries to the radial artery, 1.5% for the ulnar artery and of 39% in case of concurrent injury [5]. Should only one of the forearm arteries be injured, with no evidence of ischemia, it might be ligated with little risk of sequelae [4].

In presence of ischemia or concurrent injury of the humeral arteries, arterial restoration must be performed. A graft with inverted saphena was performed in our patient [5, 6, 7]. According to McCready, patients with injuries to the forearm arteries, seldom require fasciotomy, done by an extensive longitudinal incision in the flexor compartment, which can be extended through the carpal ligament until inside the hand [8]. Wolkman's syndrome can be seen post-operatively requiring offloading aponeurotomy as is the case of our patient who was complicated by compartment syndrome having benefited from aponeurotomy of discharge [9].

Conclusion

Open vascular trauma can be revealed either by hemorrhage or by ischemia. Exploration of the humeral artery should be systematic after open elbow trauma. The presence of a lesion of a vessel must be suspected and explored in front of an opening on the path of a vascular axis. The treatment is adapted to the vascular lesions and possibly to the associated lesions. It is conventional or endovascular surgery. The urgency of its implementation depends on the intensity of the hemorrhagic shock or downstream ischemic repercussions. Wolkman's syndrome can occur postoperatively.

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