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Case Report

Brachial Plexus Reconstruction Following Textiloma Due to Subclavian Artery Ligation: Case Study

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Abstract

Background: Penetrating injuries of neck are always demanding and concerns most care givers. Subclavian artery and vein injuries can be catastrophic in some emergent facilities, which may be associated with main artery ligation.

Case presentation: A 48 year old man with deep stab wound of subclavian artery who had primary exploration and vessel ligation, underwent secondary surgery to reconstruct brachial plexus and subclavian artery reconstruction. Due to retained long gauze and improper field, only nerve reconstruction was done without artery repair. After 3 years he has good function by impaired limb.

Conclusion: In special circumstances of damage control management with subclavian artery ligation, it is possible to reconstruct brachial plexus without manipulation of artery successfully.

Keywords: Brachial plexus reconstruction; subclavian artery ligation; textiloma

Introduction

Trauma in the neck is always concerning, as vital elements can be injured. Sever crush injuries in cervical area may need emergency interventions, such as vascular ligations and primary hemostasis. Sometimes ongoing bleeding is associated with massive packing and follows up until second look. Forgotten or retained gauze in the surgical field, called textiloma or gossypiboma, is not uncommon, but in the neck the prevalence is extremely rare. Little surgeries in the cervical area are associated with textiloma, like thyroidectomy, radical neck dissection or so. Clinical presentations and imaging findings are limited and ambiguous and misleading [1]. This event can be expected in accidental traumas with massive active bleeding, especially in thoraco-abdominal segments which involve hidden areas during gauze count and field control [2]. Brachial plexus may be injured by penetrating causes like sharp or crush injury which usually needs to be explored. A third of patients require vascular surgery concomitantly [3]. These surgeries differ from vein graft and repair to vascular ligation in life threatening events. Here, we present our patient who underwent brachial plexus reconstruction in the context of textiloma without revascularization.

Case Presentation

A 48 year old man admitted for neurovascular damage who had damage control management in the primary facility by general surgeon. According to medical records, there was a deep stab wound in peri-axillary area with massive bleeding, so the surgeon had to ligate the main vessels to control bleeding. Upon resuscitation in intensive care unit, the patient had been sent to our referral center,

as he had brachial plexus nerve deficiencies. In the first visit, the patient had stable vital signs with oscillating chest tube (Figure 1). Among preoperative assessments, we evaluated the lung and pleural condition and prepared for a surgery in combination with vascular surgeons to reconstruct vascular and brachial plexus concomitantly (Figure 2). During exploration, we found a long gauze in the proximity of ligated vessels with infiltrative secretions without pus (Figure 3). Due to such new scenario and reliable warm limb and acceptable capillary filling, we decided not to manipulate the ligated subclavian artery. Then we did nerve coaptation with sural nerve grafts. After 3 years, he has warm and healthy limbs and can work with his hand with minimal limitations.

Figure 1: The patient on the operating room.

Figure 2: Primary chest and axillary x-ray image to evaluate probable injuries.

Figure 3: Immediate photo while exploration of injured area and nerve branches a retained long gauze in the middle of the field.

Discussion

Textiloma or retained sponge in surgical field has its legal and medical processes. Most patients seek medical care following ambiguous manifestations which may evoke medical care staff`s attention. Mostly we heard about this idiom in abdomen [2]. Though rarely, there are published articles in strange locations such as neck. This may relate to limited hidden corners. On the other hand, axillary injuries are not uncommon civilian combat reports contain 1.5 to 8.6% of all arterial injuries. Moreover, axillary arterial injuries account for 4.7–42.9% of all upper extremity vascular injuries [4]. Upon emergent life threatening accidents, most surgeons do what they can, to control bleeding and save patient`s life, as any delay in diagnosis, complicated operative exposure, and concomitant injuries influence overall morbidity. Hemodynamic instability on arrival can deteriorate the condition, too [5]. However, in combined subclavian arterial and vein injuries higher mortality rates were seen and in a series 61% of patients were dead on arrival [6,7]. It is important that since the last decades there have been improved guidelines to enhance health support and safety.

Exsanguinating bleeding around subclavian vessels need strict and concise approaches to overcome blood loss to resuscitate patient as soon as possible.one of obligatory tricks is ligation of bleeding major vessels and then wait and watch. The main rationale comes from extensive collateral flow through the thyrocervical trunk. It should be noticed arterial reconstruction in the first second look [8]. Arterial reconstruction in infectious environment is not acceptable and associated with failed anastomosis and pseudo-aneurysm formation.in our case, during second look, retained long gauze caused risky field for re-anastomosis. Though, the involved limb was warm and capillary filling of the extremity was acceptable, vascular surgeons decided not to repair the ligated subclavian artery, and at that stage brachial plexus reconstruction was done with good result after completion of rehabilitation.

Conclusion

Brachial plexus reconstruction following subclavian artery ligation in a severe injury may be promising with long term functional outcome and collateral nourishment around subclavian artery may guarantee future sequel of artery ligation.

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Footnotes

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