

Case Report

Bullet injury to great vessels of abdomen - a case report and review of literature

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ABSTRACT

Bullet injury to the great vessels of abdomen is uncommon and has high mortality and morbidity including amputation. Many times there are other associated organ injuries. Though hypotension and absent or feeble peripheral pulse are good indicators of vascular injury, there can be normal blood pressure with palpable pulses initially when there are hematoma formation in a closed space and adequate fluid resuscitation. We report this uncommon presentation in a 26 years old gentleman who had bullet injury in the right lower flank of abdomen causing a longitudinal tear on the medial aspect of right external iliac vein (zone III injury) with multiple small intestinal perforations.

Keywords: Abdomen, Bullet, Vessels

INTRODUCTION

Bullet injury to the great vessels of abdomen is uncommon and has high mortality and morbidity including amputation. Many times there are other associated organ injuries. Though hypotension and absent or feeble peripheral pulse are good indicators of vascular injury, there can be normal blood pressure with palpable pulses initially when there are hematoma formation in a closed space and adequate fluid resuscitation.

CASE REPORT

We report a case of a 26 year old gentleman, who presented at casualty with bullet injury in the right lower flank of abdomen. At the time of presentation at emergency, the injury was already 90 minutes old. The entry wound was in right iliac fossa, but no exit wound was noted. Clinical examination revealed tender abdomen with peritonism. Initial X-ray abdomen erect posture detected a bullet in left side of pelvis (Figure 1). His peripheral pulses in the lower limb were palpable and no

neurological deficit was noted. Routine blood examination revealed Hb of 11.9gm/dl with neutrophilic leucocytosis. Emergency exploratory laparotomy under general anesthesia was performed after shifting patient from casualty to operation theatre directly. There was longitudinal tear on the medial aspect of right external iliac vein (Zone III injury) with multiple small intestinal perforations. Repair of right external iliac vein was done after vascular control with continuous 4-0 polypropylene sutures and small intestine repair was done with 3-0 vicryl sutures. After retroperitoneal exploration, bullet was taken out from in front of sacrum. He received blood transfusion and post-operative antithrombotic therapy as LMWH and colloid. On 6th postoperative day he was discharged. Postoperative CT angiography of iliac vessels showed normal flow (Figure 2).

DISCUSSION

Iliac vessel injuries are among the most difficult and challenging injuries managed by trauma surgeons.¹ The presentation of patients sustaining iliac vessel injuries

may range from total hemodynamic stability, generally in patients with contained retroperitoneal haematomas, to those presenting in shock, with abdominal distension and in cardiopulmonary arrest.² Absence of retroperitoneal tamponade is associated with high mortality.³ Important physical finding that is occasionally noted in common iliac artery or external iliac artery is intermittent or complete loss of pulse in ipsilateral femoral artery. In all suspected cases, rapid surgical intervention with immediate exposure to obtain proximal and distal control is the key to manage continuous blood loss. The iliac vessels in zone III can be exposed by transecting the avascular line of Toltdt by means of a combination of blunt and sharp dissection.⁴ Small penetrating wound can be repaired with 3-0 or 4-0 polypropylene suture. When there has been significant destruction of the vessel wall, reconstruction can be accomplished with end-to-end anastomosis or bypass with either autogenous saphenous vein or PTFE grafts.⁵



Figure 1: X-ray of abdomen showing bullet in left side of pelvis.



Figure 2: CT angiography of right iliac vessels showed normal flow.

Injuries to great vessels of abdomen are often accompanied by injuries to multiple intraabdominal organs, including those in the gastrointestinal tract.⁶ Significant contamination due to bowel injury increases lethality of abdominal vascular injuries and it requires complex surgical techniques for management and reconstruction.⁷ When a patient is in severe shock from exsanguinations caused by complex injury to the common iliac or external iliac vessels, damage control laparotomy is indicated.⁸ When fecal contamination is present, there is increased risk of blowout of any type of vascular repair. Injuries to external iliac vein managed by lateral venorrhaphy can result in significant occlusion during postoperative period. Postoperative venography or CT angiography of iliac vessels is mandatory during follow-up of such patients.⁹ Once the patient's perioperative coagulopathy resolves, anticoagulation with low molecular weight heparin should be initiated to prevent progression or migration of venous thrombus. The patient is then discharged with on a regimen of oral warfarin sodium and serial measurement of INR is continued for 3 months. The survival rate in patients with iliac vessels injury ranges from 33% to 81% depending upon associated injuries and other factors.¹⁰

CONCLUSION

Surgeons should be prepared of the possibility of vascular injury in any penetrating trauma to abdomen such as bullet injury, and timely identification and treatment would improve the clinical outcome.

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