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CASE REPORT

# A rare case of life-threatening spontaneous psoas hematoma following cardiac surgery

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**Abstract** Spontaneous psoas haematomas are uncommon, even in patients with coagulopathies on anticoagulation therapy. We report a unique case of a life-threatening spontaneous psoas haematoma in a patient during the immediate post-operative period following open heart surgery, despite a normal pre- and post-operative coagulation profile.

**Keywords** Cardiac · Haematoma · Cardiopulmonary bypass

## Introduction

Spontaneous psoas haematomas are rare, and limited to patients with coagulopathies on long-term anticoagulation. We report a unique case of a life-threatening spontaneous psoas haematoma in a patient during the immediate post-operative period following open heart surgery, despite a normal pre- and post-operative coagulation profile.

## Case report

A 38-year-old man underwent pericardial patch closure of an Atrial Septal Defect (ASD) 30 years ago at another centre. He presented to us with a recent episode of cerebro-vascular accident. Further evaluation revealed a residual ASD, which was successfully closed using a pericardial patch at our centre by standard sternotomy and aorto-bicaval cannulation.

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Within 4 hrs, he developed tachycardia and marked hypotension, unresponsive to volume replacement and inotropes. There was minimal bleeding through the drain tubes, but there was significant abdominal distension. All his pre-operative blood parameters, including platelet count, coagulation factors, and prothrombin time were all within normal limits. He had no previous history of haemophilia or coagulopathies. His post-operative coagulation profile, including platelet count, and thrombo-elastase profile were within normal limits. His pre-operative haemoglobin of 16.3 g/dL, dropped to 7.1 g/dL post-operatively, despite transfusion of 4 units of packed red blood cells. Echocardiography excluded cardiac tamponade and demonstrated good cardiac contractility. Abdominal ultrasound performed to identify the cause for abdominal distension (Fig. 1) revealed a significant intraperitoneal collection in the right iliac fossa measuring 8 cms in diameter. Haemodynamic instability did not permit further investigations, and warranted emergency laparotomy.

The intraperitoneal cavity was approached through a median vertical laparotomy. Following clot evacuation, diffuse active bleeding was observed at the level of right psoas muscle, for which the retroperitoneal space was explored in the direction of the right common iliac arteries. In order to identify the exact origin of the excessive bleeding and to prevent further blood loss, the infra-renal abdominal aorta was clamped. The course of the right common iliac artery and its branches were carefully dissected, and it was noted that the right external iliac artery gave rise to multiple branches directly supplying the psoas muscle.

Initial attempts to apply clips, and to suture ligate these multiple branches failed to control the bleeding. Ligation of the right common femoral artery and the right external iliac artery was required to provide complete haemostasis, following which, right lower limb perfusion was restored by performing a right ilio-femoral bypass using an 8 mm Impra

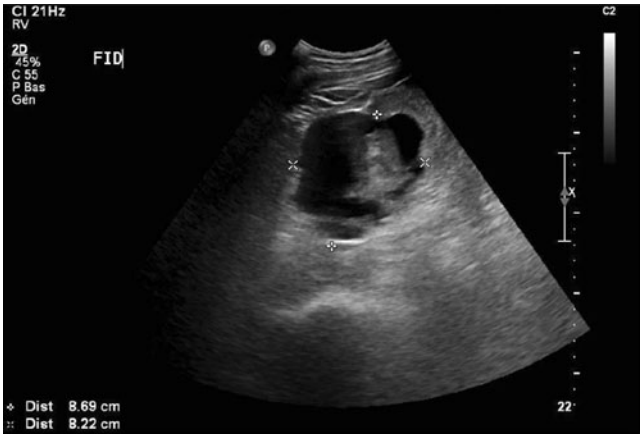


**Fig. 1** Abdominal ultrasound of the right iliac fossa demonstrating a psoas hematoma measuring 8 cm

(Bard Peripheral Vascular Inc, Arizona, USA) tube graft. The left psoas muscle was also explored, and it demonstrated a small haematoma measuring 5 cms, which was treated conservatively. The patient had a quick and uneventful postoperative recovery thereafter.

## Discussion

This report presents an exceedingly rare case of life-threatening spontaneous psoas hematoma following cardiac surgery. Spontaneous psoas hematomas are rare [3], and limited to patients with coagulopathies on long-term anticoagulation. They are often large volume, causing muscular and neurological dysfunction [1]. Clinical onset is marked by sudden and severe groin pain, sometimes associated with abdominal pain. However, all these manifestations were masked in our patient due to post-operative anaesthesia. The primary presentation was hypotension that was refractory to volume replacement and inotropes, without any significant bleeding through the chest drains. Post-operative abdominal distension was the only sign that alerted us to investigate this case in detail, specifically looking for any obscure iatrogenic causes. The clear diagnosis of a psoas hematoma was confirmed by ultrasonography. Although Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) scans provide better visualisation [4], haemodynamic instability warranted emergency surgical exploration in our patient. Similarly, interventional angiography with coil embolisation or covered-stent implantation was not attempted due to the acute nature of the case.

The anatomic variation of multiple arterial branches originating from the external iliac artery to supply the psoas, instead of a single vessel seen in 75% of cases [2], made achieving haemostasis challenging. In this case, ligation of the right external iliac and right common femoral arteries, followed by ilio-femoral bypass, although may appear to be radical, it was a life-saving procedure, since it excluded the area of the hematoma, and all the multiple fragile arterial branches supplying the psoas. It is possible that extracorporeal cardiopulmonary bypass could have caused hemodilution. Another contributing factor could have been the excessive initial use of volume expanders, instead of coagulation factors, that may have lead to further clinical deterioration.

Although this patient represents an exceedingly rare case report and a remarkable clinical curiosity, it highlights the need to consider spontaneous psoas haematomas as a probable cause for post-operative heamodynamic instability and abdominal distension following “on pump” cardiac surgery. This may be especially important in patients on chronic anticoagulant therapy, despite a normal pre-operative and post-operative coagulation profile. In these cases, a high index of suspicion, leading to prompt diagnosis and emergency intervention, could be life saving.

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