Aneurysm of the Deep Circumflex Iliac Artery: A Rare Cause of Rectus Sheath Haematoma

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Abstract
We describe the presentation and management of a case of rectus sheath haematoma secondary to spontaneous rupture of a deep circumflex iliac artery aneurysm. This was successfully treated with coil embolization. Such a case has never, to our knowledge, previously been reported.

Introduction
Spontaneous rectus sheath haematomas are rare, and most frequently seen in patients on anticoagulant therapy, or secondary to blunt abdominal trauma. The most common site of haemorrhage is from the inferior epigastric artery, which is usually managed conservatively. Occasionally, patients present with ongoing active bleeding and, in a minority, haemodynamic compromise. These may require radiological or surgical intervention.

Here we report a case of rectus sheath haematoma with active bleeding secondary to spontaneous rupture of a deep circumflex iliac artery aneurysm. To our knowledge, this has never previously been reported. The aneurysm was embolized, and the patient made a full recovery.

Report
An 82-year-old man presented to the Emergency Department with sudden onset left iliac fossa pain. He had a history of benign prostatic hypertrophy, and pulmonary embolism eight years previously. He was not currently taking any antiplatelet or anticoagulant medication, and was not on long-term steroids. On examination, he was aPYrexial, normotensive (blood pressure of 148/78 mm Hg, no postural drop) and had a pulse rate of 96/min. There was a 6 cm round, tender, pulsatile mass in the left iliac fossa, with an overlying thrill and audible bruit. All peripheral pulses were palpable. Haemoglobin concentration was 14.0 g/dl, platelet count was $226 \times 10^9$/$l$, and creatinine and urea were 115 $\mu$mol/l and 7.6 mmol/l, respectively.
Clotting and other laboratory tests were within normal ranges.

CT scan revealed a large acute left rectus sheath haematoma, and consequently selective catheter angiography was performed. This revealed an aneurysm of a branch of the left deep circumflex iliac artery, which had ruptured and bled into the rectus muscle (Fig. 1A–C). There was no evidence of any other aneurysms. Embolization was performed using four coils (4 mm diameter, 4 cm length), and post-procedure angiogram confirmed complete occlusion (Fig. 1D). The patient was transferred to the High Dependency Unit where he remained haemodynamically stable. He was discharged two days later pain-free and with partial resolution of his haematoma, which had completely resolved by follow-up six weeks later.

Discussion

Rectus sheath haematomas are rare, often initially misdiagnosed in emergency departments as an acute abdomen
secondary to causes that include incarcerated hernia, or inflammation or perforation of the viscera. They usually occur due to shearing of small vessels within the rectus sheath during exertion (frequently coughing) or trauma. The incidence increases with age, and there is reported female predominance.\(^1,2\) Patients classically report sudden onset "tearing" abdominal pain, with or without associated fever, nausea and vomiting, altered bowel habit and bladder irritation. Physical examination may reveal a firm, tender abdominal mass, with positive Carnett (increased pain) and Fothergill (increased tenderness on palpation) signs on actively tensing the abdominal wall. Rebound tenderness and guarding can be present if there is local peritoneal irritation. There may be signs of haemodynamic instability with larger haematomas.

Rectus sheath haematomas can be subdivided into three types based on CT appearances.\(^3\) Type I are small, unilateral intramuscular bleeds that do not dissect along fascial planes. Type II are moderate sized and intramuscular, but may be unilateral or bilateral with extension up to the fascia transversalis. Type III are severe and occur between the fascia transversalis and the rectus muscle; they may or may not involve the muscle itself. Whilst type I haematomas usually resolve spontaneously within 30 days and do not require hospitalisation, type II and III can cause significant haemodynamic compromise requiring active management.

Haematomas due to major vessel injury are well-recognized. Most frequently, these involve the superior or inferior epigastric arteries, or the internal iliac artery.\(^1,2\) This is the first report to our knowledge of a rectus sheath haematoma caused by spontaneous rupture of a deep circumflex iliac artery aneurysm, although haematomas secondary to exertional,\(^4\) traumatic and iatrogenic\(^5\) injuries have been reported. The artery arises from the lateral aspect of the external iliac artery, opposite to the origin of the inferior epigastric. It ascends and travels laterally behind the inguinal ligament, then perforates through the fascia transversalis and transversus abdominis muscle.

Treatment of rectus sheath haematoma varies according to clinical severity. In haemodynamically stable patients with only mild pain from a non-expanding haematoma, management is expectant.\(^1,2\) In more severe cases, interventional radiologically-guided embolization is the modality of choice. Surgery is reserved for patients in whom this is unsuccessful or contraindicated, or those with immediately life-threatening blood loss.

In summary, this report highlights the deep circumflex artery as a potential source of bleeding in patients with rectus sheath haematoma, even without obvious trauma to the vessel. This could prove important when performing highly selective diagnostic and therapeutic angiography in such patients.

Conflict of Interest
The authors declare that they have no competing interests.

Consent
Informed consent was obtained from the patient for publication of this study.

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References