

*Case report***Spontaneous Rectus Sheath Haematoma in a Renal Transplant Recipient**

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Abstract

Rectus sheath hematomas are rare and generally caused either by rupture of one of the epigastric arteries or by a muscular tear with shearing of a small vessel. Anticoagulation has been described as an important etiological factor; other less frequent associations include recent abdominal surgery, medication injection, trauma, and increased abdominal pressure from straining, coughing or pregnancy.

We present a first documented case of bilateral spontaneous rectus sheath haematoma in a renal transplant recipient treated with nadroparin. Sixteen days after renal transplantation she experienced abdominal pain after twisting in bed. Urgent MSCT revealed rectus sheath haematoma which was surgically treated with ligation of epigastric arteries. Patient completely recovered with preserved renal allograft function.

Key words: rectus sheath haematoma, renal transplantation, LMWH, nadroparin

Introduction

Rectus sheath haematoma (RSH) is a rare and difficult to diagnose clinically, while it may mimic a number of other acute abdominal conditions. It results from bleeding into the rectus sheath from injury to the epigastric arteries or their branches, or sometimes from a direct tear of the rectus abdominis muscle [1].

We present a first documented case of spontaneous bilateral rectus sheath hematoma in a renal transplant recipient.

Case report

A 63-year-old female patient received a renal allograft with 4 mismatches from deceased donor after 4 years of haemodialysis. Primary renal disease was amyloidosis. She also

suffered from hypothyreosis. Body mass index was 27 kg/m². Immunosuppressive protocol included basiliximab (20 mg on days 0. and 4.), cyclosporine (trough concentration was 185 umol/L), mycophenolate mofetil 2x1 g and steroid. Patient received pantoprasol, beta-blocker, L-thyroxin, digoxin, and gancyclovir. In 2007 she received artificial mitral valve for correction of mitral insufficiency, and since that time had been treated with warfarine. After renal transplantation she received nadroparin (Fraxiparine[®]) 0.6 ml/day subcutaneously. Graft function was delayed and she required dialysis 11 days after transplantation. Sixteen days after the surgery she experienced severe left sided abdominal pain after twisting in bed. Her haemoglobin dropped from 11.4 to 9.8 g/dL. A multi-slice computed tomography (MSCT) scan of the abdomen demonstrated a large haematoma in the right rectus abdominis



1a.



1b.

Fig. 1a and 1b. Multislice CT scan showing rectus sheath haematoma

muscle. On examination the patient was hemodynamically stable with a large haematoma palpable in the right side of her abdomen surrounded by extensive bruising. Haematoma was surgically drained, anticoagulation was ceased. The international normalized ratio (INR), activated partial thromboplastin time (APTV) and anti-Xa levels were all within the normal levels. Two days later she felt severe pain in the left side of abdomen. MSCT revealed haematoma in the left rectus abdominis muscle measuring 9.3x4.2x14.5 cm (Figure 1a and 1b). Patient was hypotensive what urged surgical control of the bleeding. Her hemoglobin dropped to 6.9 g/dL, and she received blood transfusion. Under general anaesthesia incisions were made over the inguinal ligament and over the upper rectus abdominis muscle. The right inferior and superior epigastric arteries were identified and ligated. She recovered completely, and left the hospital 10 days later with good kidney function.

Discussion

Rectus sheath hematomas are generally caused either by rupture of one of the epigastric arteries or by a muscular tear with shearing of a small vessel. The immediate cause of the rupture may be external trauma to the abdominal wall, iatrogenic trauma from surgery, or excessive vigorous contractions of the rectus muscle [1]. Because the arteries supply the recti from the back side, most hematomas are posterior to the muscle, making diagnosis by means of palpation more difficult. The incidence is thought to be on the rise, with the increased use of oral anticoagulation drugs and low molecular weight heparins (LMWH) [2,3].

It is difficult to distinguish between rectus sheath haematoma and other intra-abdominal disorders what caused many unnecessary surgical abdominal explorations. Rectus sheath haematomas occur more commonly in women, with the highest incidence in the fifth decade. Anticoagulation has been described as an important aetiological factor; other rarer associations include recent abdominal surgery, medication injection, trauma, and increased abdominal pressure from straining, coughing or pregnancy.

Common features in the history include acute abdominal pain, often associated with nausea, fever and vomiting [4,5]. Both ultrasonography and CT may be used for diagnosis, thus reducing unnecessary laparotomy, but CT is more sensitive and specific, and has the advantage of ruling out other abdominal pathology [6,7].

Most rectus sheath haematomas can be treated conservatively with bed rest, analgesia, treatment of predisposing conditions, transfusions and discontinuation of anticoagulation. Active bleeding can be managed either surgically by evacuating the haematoma and ligating the bleeding vessels or radiologically with catheter embolisation [8,9].

Although most are self-limiting, rectus sheath haematoma can lead to significant morbidity and has an overall mortality reported as 4%. Patients on anticoagulation therapy have the mortality as high as 25%. The morbidity of rectus sheath hematoma is primarily the result of incorrect diagnosis leading to unnecessary exploratory laparotomy or delay in cessation of anticoagulant therapy [1,4,5].

To the best of our knowledge, a case of spontaneous rectus sheath haematoma in renal transplant recipient has never been described in the literature. It resulted from the accumulation of extravasated blood into the sheath of the rectus abdominal muscles. Abrupt change in position, together with precipitating factors which in our patient included anticoagulation therapy, coagulation disorder, recent surgery, medication injection, steroid treatment, and amyloidosis as the primary renal disease, all contributed to development of this rare complication. Prompt recognition and treatment resulted in complete recovery with preserved graft function. Association between the time-duration of the use and the dose of anticoagulants as well as of corticosteroids with the incidence of RSH is, because of the rarity of this condition, unknown but possible.

Conclusion

This case demonstrates an uncommon cause of abdominal pain in a renal transplant recipient. Spontaneous abdominal rectus muscle haematoma occurred as a result of accumulation of multiple risk factors. Prompt recognition and treatment are mandatory to reduce morbidity and mortality in this rare condition.

Conflict of interest statement. None declared.

References

1. Edlow A, Juang P, Margulies S, Burstein J. Rectus sheath hematoma. *Ann Emerg Med* 1999; 34: 671-675.
2. Ortega-Carnicer J, Ceres F. Rectus sheath haematoma with severe haemodynamic compromise after enoxaparin use for unstable angina. *Resuscitation* 2003; 57: 113-114.
3. Hildreth DH. Anticoagulation therapy and rectus sheath hematoma. *Am J Surg* 1972; 124: 80-86.
4. Zainea GG, Jordan F. Rectus sheath hematomas: their pathogenesis, diagnosis, and management. *Am J Surg* 1988; 54630-54633.
5. Donaldson J, Knowles CH, Clark SK, *et al.* Rectus sheath haematoma associated with low molecular weight heparin: a case series. *Ann R Coll Surg Engl* 2007; 89: 309-312.

6. Berna JD, Garcia-Medina V, Guirao J, Garcia-Medina J. Rectus sheath hematoma: diagnostic classification by CT. *Abdom Imaging* 1996; 2162-2164.
7. Gallego A, Aguayo J, Flores B, *et al.* Ultrasonography and computed tomography reduce unnecessary surgery in abdominal rectus sheath haematoma. *Br J Surg* 1997; 84: 1295-1297.
8. Salemis NS, Gourgiotis S, Karalis G. Diagnostic evaluation and management of patients with rectus sheath hematoma. A retrospective study. *Int J Surg* 2010; 84: 290-293.
9. Rimola J, Perendreu J, Falco J, *et al.* Percutaneous arterial embolization in the management of rectus sheath hematoma. *Am J Roentgenol* 2007; 886: 497-502.