CLINICAL CASE

SPONTANEOUS RETROPERITONEAL HEMATOMA ASSOCIATED WITH ANTITHROMBOTIC TREATMENT FOR ACUTE MYOCARDIAL INFARCTION

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Abstract

Retroperitoneal spontaneous hematoma is a serious condition, sometimes fatal. It occurs in association with anticoagulant therapy, unrelated to any trauma, surgery, invasive procedures or aortic aneurysm.A 68-year-old male patient is admitted for a non ST elevation myocardial infarction. He has a history of ischemic dilated cardiomyopathy with severe systolic dysfunction and atrial fibrillation. He is started on double antiplatelet therapy, anticoagulation, statin, beta blocker, ACE, and iv diuretic. Eight days later he suffers a syncope and the clinical examination reveals a large tender abdominal mass. The computed tomography examination shows a massive retroperitoneal hematoma. Although the antiplatelet and anticoagulant therapy is discontinued, the volume resuscitation (with crystalloids and packed red blood cells) is initiated and vasoconstrictor drugs are used, his condition continues to deteriorate. He is taken to the operation room for emergency laparotomy and the hematoma is evacuated. Although his clinical status improved and he remained hemodinamically stable, he suffers a cardiac arrest 27 days later and the resuscitation maneuvers are unsuccessful.

Keywords*: spontaneous retroperitoneal hematoma, myocardial infarction*

Introduction

Enoxaparine is a low molecular weight heparine frequently used in the Cardiac Intensive Care Unit. It is an anticoagulant with a 12-hour effect. This therapy unfourtunately is not always without risks. The bleeding risk increases in patients with a history of bleeding, anemia, chronic kidney disease, concomitant use of other antithrombotic drugs, etc. In high risk patients, the level of anti-factor Xa should be monitored.

The incidence of retroperitoneal spontaneous hematoma has amplified exponentially in the last decade, following the increased use of anticoagulants, antiplatelet drugs, in double or even triple therapy (double antiplatelet and anticoagulant therapy) [1-3].

Case report

A hypertensive, ischemic, diabetic 68-year-old male patient presents with shortness of breath and angina. The patient history reveals congestive heart failure due to ischemic dilated cardiomyopathy with severe systolic dysfunction, right pleural effusion, permanent

atrial fibrillation, with chronic oral anticoagulation. The clinical examination, ECG, echocardiogram and bioumoral tests establish the diagnosis of non-ST elevation myocardial infarction and he is admitted in the cardiology intensive care unit. The standard therapy of double antiplatelet drugs is initiated and the oral anticoagulation is replaced with low molecular weight heparin (enoxaparine). The CRUSADE bleeding score is 45, which corresponds to a high risk of in–hospital major bleeding of 11.9%.

The patient symptoms of global heart failure due to biventricular dysfunction persist for a few days. He is transferred to the ward, on the same therapy. Eight days later he is transferred back to the cardiac intensive care unit for syncope, hypotension and intense abdominal right flank pain.

The clinical examination reveals a 15 x 20 cm tender abdominal mass. The abdominal ultrasound suggests an abdominal hernia, with only intestinal loops visible inside the mass. An emergency abdominal contrast computed tomography shows a massive retroperitoneal hematoma (16 x 17 x 23 cm) that displaces the right kidney and intestinal loops. The hematoma appears to start in the psoas muscle and fuse in the retroperitoneal space (Figure 1). The source of the bleeding is not clear. The abdominal aorta is within normal limits. The patient didn't have any history of bleeding disorders or coagulopathy.

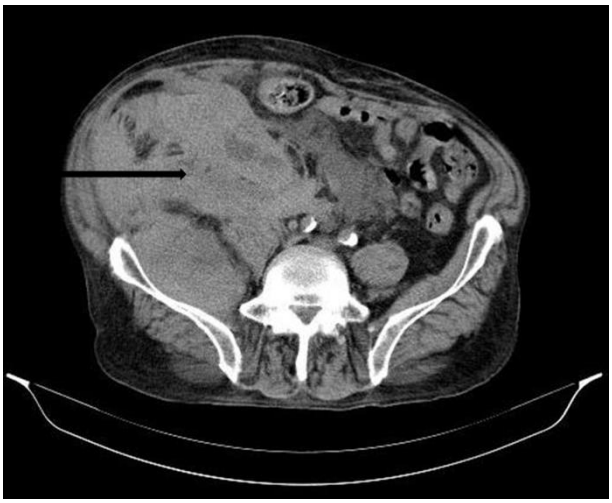

Figure 1 - Initial computed tomography: Black arrow indicates the fresh retroperitoneal hematoma

The decision to operate on is delayed by the preoperative high risk derived from the recent myocardial infarction, the severe systolic dysfunction and the current double antiplatelet therapy. All antithrombotic therapies were promptly discontinnued and he is initially perfused only with crystalloids. Given the fact that his hemoglobin level continues to drop from 14 g/dl at admission to 9.8 g/dl, and he develops hemodinamic instability, the patient is transferred to the intensive care unit. He is tranfused with two units of packed red blood cells (PRBC) and three units of fresh frozen plasma (FFP). He remains hypotensive against all volume repletion and vasocontrictor therapy is initiated.

The patient continues to be hemodinamically unstable and the decision to take him to the operation room for emergency laparotomy becomes mandatory.

Surgical protocol - An oblique incision was performed on the right lumbar and iliac regions to enter the retroperitoneal space, where a bulky hematoma was discovered. The upper edge of the hematoma extended to the 12th right rib and its inferior extremity was close to the external iliac vessels without compressing them. Towards the posterior, the hematoma was closely adherent to the iliopsoas muscle and determined the compression of the right kidney and right ureter. The ascending colon was displaced anteriorly by the hematoma.

Approximately 1 kg of clots and 400 ml of old, incoagulable blood were evacuated. Except for a few small blood vessels from the retroperitoneal fat and from the psoas muscle, no major source of bleeding was detected. Ligation and electrocoagulation of small blood vessels were performed and followed by the lavage and drainage of the remaining cavity. The drainage tubes were removed 5 days postoperatively.

Follow-up - After 10 days in the recovery unit the patient is transferred back to the coronary unit with symptoms of persistent heart failure and a large right pleural effusion. The effusion is drained and the patient status improves. Given the fact that the patient is both bedridden and with permanent atrial fibrillation a small dose (thromboprophilactic) of enoxaparine is started.

After nine more days, the patient once again develops hypotension and his haemoglobin level drops to 8.9 g/dl. Another emergency

tomography is performed showing a smaller hematoma with both fresh and coagulated blood (Figure 2). After a blood transfusion the patient condition stabilizes and he remains under surveillance.

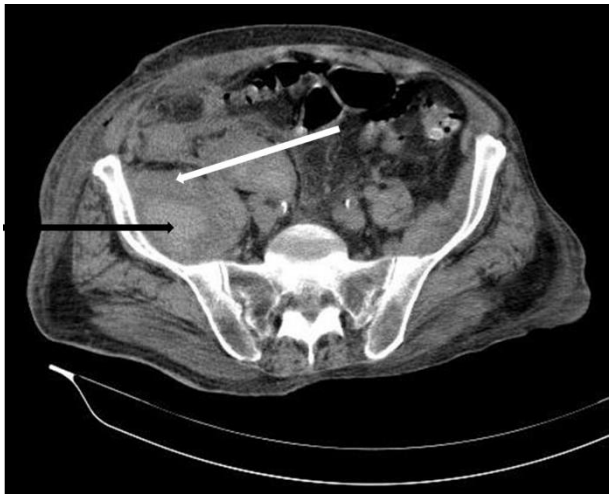

Figure 2 - Second computed tomography: Black arrow indicates the coagulated blood; white arrow designates the fresh retroperitoneal blood collection.

Nine days after this episode the patient suffers a cardiac arrest but the resuscitation maneuvers are unsuccessful.

Discussion

Spontaneous retroperitoneal hematoma (SRH) is a severe and potentially fatal complication related to anticoagulation therapy. It is defined as a retroperitoneal hemorrhage that is unassociated to trauma, surgery, invasive procedures or abdominal aortic aneurysm [4].

It is a rare clinical entity associated with high mortality and morbidity rates [5]. A recent study reported that 66.3% of the patients diagnosed with SRH were anticoagulated4. The incidence of SRH has been reported in 0.6% to 6.6% of the patients receiving anticoagulant therapy [6]. The risk of bleeding is correlated with the glomerular filtration rate (GFR), mostly for the patients treated with low molecular weight heparin. For these patients, a decrease of the GFR under 30 ml/min increases the risk for hemorrhage and prompts to dose reduction or replacement with unfractioned heparin.

Survival was over 80% in a series of cases4, where the majority of patients received only medical treatment. The surgical treatment was reserved only for complicated cases. Our patient became a surgical emergency because of the hemodynamic instability resistant to all therapeutic interventions. Our limitations in this case were the lack of anti-factor Xa monitoring and the lack of factor VIIa recombinant therapy.

In many reviews regarding this subject it is considered vital that the correct diagnosis is achieved as quickly as possible and aggressive treatment is initiated.

As for the management of the hematoma, the intervention was appropriately timed, but the lack of an angiogram and the low resolution of the CT made it impossible to localize precisely the source of the bleeding. Thus, the second spontaneous bleeding happened and the hematoma reappeared.

Conclusions

The standard therapy in the setting of acute myocardial infarction cannot be readily modified and our focus should be on carefully assessing the risk for major hemorrhage. The fact that the patient has a high bleeding risk is not a contraindication for the antithrombotic therapy, but merely a warning that the hemoglobin levels and symptoms ought to be closely monitored. Cases such as these are difficult to manage when balancing the embolic and bleeding risk, in patients that are clearly in danger of repeating the hemorrhage, but also at risk for stroke or pulmonary embolism. In the end, even if the diagnosis was fast and the combined therapy (surgical and medical) initially efficient, the outcome of the case was dictated by the severe heart disease of the patient.

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References

[1]M KC-T. Fatal Spontaneous Retroperitoneal Hematoma Secondary to Enoxaparin Southern Medical Association. South Med J. 2003. http://sma.org/southern-medicaljournal/article /fatal-spontaneous-retroperitoneal-hematoma-secondary-to-enoxaparin/. Accessed July 21, 2015.

[2]Quartey B, Nelson J. Massive spontaneous retroperitoneal hemorrhage induced by enoxaparin and subsequent abdominal compartment syndrome requiring surgical decompression: A case report and literature review. Int J Case Reports Images. 2011;2(10):14. doi:10.5348/ijcri-2011-10-60-CR 4.

[3]Montoya J-P. Retroperitoneal Hematoma and Enoxaparin. Ann Intern Med. 1999;131(10):796. doi:10.7326/0003-4819-131-10-199911160-00033.

[4]Sunga KL, Bellolio MF, Gilmore RM, Cabrera D. Spontaneous retroperitoneal hematoma: etiology, characteristics, management, and outcome. J Emerg Med. 2012;43(2):e157-e161. doi:10.1016/j.jemermed.2011.06.006.

[5]Ernits M, Mohan PS, Fares LG, Hardy H. A retroperitoneal bleed induced by enoxaparin therapy. Am Surg. 2005;71(5):430-433. http://www.ncbi.nlm.nih.gov/pubmed/15986976. Accessed July 11, 2015.

[6]Chan YC, Morales JP, Reidy JF, Taylor PR. Management of spontaneous and iatrogenic retroperitoneal haemorrhage: conservative management, endovascular intervention or open surgery?, Int J Clin Pract. 2008;62(10):1604-1613. doi:10.1111/j.1742-1241.2007.01494.x.