Case Report

Enoxaparin-associated giant retroperitoneal hematoma in pulmonary embolism treatment

Fahri Halit Besir1, Mesut Gul2, Tacettin Ornek3, Tulay Ozer4, Bulent Ucan2, Levent Kart3

1Department of Radiology, School of Medicine, Duzce University, Turkey. Departments of General Surgery2, Chest Disease3, and Radiology4, School of Medicine, Zonguldak Karaelmas University, Turkey.

Citation: Besir FH, Gul M, Ornek T, Ozer T, Ucan B, Kart L. Enoxaparin-associated giant retroperitoneal hematoma in pulmonary embolism treatment. North Am J Med Sci 2011; 3: 524-526.
doi: 10.4297/najms.2011.3524

Abstract

Context: Retroperitoneal hematoma may usually occur as a result of trauma. A life threatening retroperitoneal hematoma is not expected complication of anticoagulation treatment and rarely reported. Low molecular weight heparins (Enoxaparin) which are used as effective and safe medicine in the venous thromboembol treatment have some major complications such as hematomas of different organs. We aim to present a giant spontaneous retroperitoneal hematoma after anticoagulant treatment of pulmonary embolism with enoxaparin. Case Report: A 73-year-old male patient with the diagnosis of pulmonary embolism underwent anticoagulant treatment (enoxaparin). In the second day of admission, the patient had an episode of abdominal and back pain. Abdominal ultrasonography and computerized tomographic scan revealed a giant retroperitoneal hematoma. Enoxaparin treatment was then stopped and the supportive treatment was started. In the following days, hemoglobin levels returned to normal and a control CT revealed regression of hematoma size. Conclusion: The anticoagulant treatment with enoxaparin may lead to severe hematoma. Therefore, the clinical suspicion is required especially in elderly patients and patients with impaired renal function for retroperitoneal hematoma, when they suffer from acute abdominal pain.

Keywords: Retroperitoneal hematoma, pulmonary embolism, anticoagulant, acute abdominal pain.

Correspondence to: Dr. Fahri Halit Beşir, Department of Radiology, School of Medicine, Duzce University, Duzce, Turkey. Tel.: +90 (380) 5421390 ext: 5841, Fax: +90 (380) 5421387, Email: drfhhbesir@gmail.com

Introduction

Retroperitoneal hematomas are most usually seen after trauma [1-3]. In the absence of trauma, other causes of retroperitoneal hematomas include, rupture of aortic or iliac aneurysm, complications from surgical procedures, tumors and anticoagulant treatment [4]. Spontaneous retroperitoneal hematomas denote bleeding without known any history of trauma or underlying other pathology. A life threatening retroperitoneal hematoma is an infrequent complication of anticoagulation treatment and rarely reported in the literature [4, 5].

We aim to present a giant spontaneous retroperitoneal hematoma case associated with anticoagulant treatment (enoxaparin) for treatment of pulmonary embolism.

Case Report

A 73-year-old male patient with the diagnosis of pulmonary embolism underwent anticoagulant treatment (enoxaparin 0.6 mg/kg subcutaneous every 12 hours). The patient did not have a medical history such as bleeding disorder or coagulopathies. The patient was not taking any antiplatelet drug. Initial laboratory data yielded creatinine: 2.1 mg/dL, hemoglobin: 12.9 g/dL, hematocrit: 39.6%, platelets: 252x10^9/L, prothrombin time: 11 seconds, activated-partial thromboplastin time (aPTT): 29 seconds. In the second day of admission, the patient had an episode of abdominal and back pain. Abdominal ultrasonography revealed retroperitoneal hematoma. Abdominal spiral computerized tomographic (CT) scan revealed a retroperitoneal hematoma measuring 11 x 10 x 7.5 cm displacing adjacent structures along the left psoas muscle.
from the level of the left external iliac vessels up to the level of the left kidney (Figure 1). The aPTT result was found to be prolonged. Also, hemoglobin level was found to be 10.4 g/dL significantly decreased compared to the admission value of 12.9 g/dL. Further decrease of the blood pressure occurred (100/60 mmHg). Enoxaparin treatment was then stopped. Then the patient was transfused 5 units of packed red cells and 16 units of frozen fresh plasma, given intravenous infusion of saline and lactated Ringers solution. So blood pressure increased to 110/70 mmHg. In the following day, hemoglobin level was found to be 7.6 g/dl and in a control CT, hematoma size increased (19.5 x 19 x 12.5 cm). The supportive treatment was continued and the patient’s clinical condition was stable. In the following days, hemoglobin levels and blood pressure stabilized and at day 21 returned to normal. A control CT revealed regression of hematoma size. The patient was followed with medical supportive treatment.

![Fig. 1 CT scan of abdomen showed giant well defined retroperitoneal hematoma displacing adjacent structures along the left psoas muscle.](image)

**Discussion**

Low molecular weight heparins (Enoxaparin) have been shown to be as effective and safe as unfractionated heparin for the treatment of venous thrombosis. However, in patients treated with the enoxaparin for acute venous thromboembolysis, acute pulmonary embolism some major complications have been reported, such as abdominal wall hematoma, psoas hematoma, thigh hematoma, retroperitoneal hematoma and spinal or epidural hematoma [5, 6]. A common trait in these patients was their advanced age [6]. Also, some cases have been reported who died due to enoxaparin induced retroperitoneal hematoma [4, 5]. Previous reports indicated that age over 70 years is a risk factor for hematoma during enoxaparin treatment. The age-related reduction in glomerular filtration rate in elderly patients causes decreased drug clearance, altered drug levels and drug sensitivity. [7]. However, the manufacturer of enoxaparin does not advise reduced doses in the elderly without concomitant bleeding risk factors of patients [6].

Retroperitoneal hematoma may occur with an acute onset of lower abdominal quadrant, inguinal or lumbar region pain radiating to the scrotum [8].

The acute abdominal pain and a sudden fall of hemoglobin level should alert physicians of the likelihood of spontaneous retroperitoneal hematomas. Treatment of spontaneous retroperitoneal hematomas is supportive and discontinuation of anticoagulant treatment. Blood transfusion according to the monitored hematocrit values might be needed [9]. If stabilization of the patient fails, surgical intervention may be needed. Because, some spontaneous retroperitoneal hematomas may lead to abdominal compartment syndrome and only prompt surgical approach with exploration and evacuation of the hematoma may offer patient stabilization. Also, the spontaneous retroperitoneal hematomas may compress surrounding structures and organs to leading to various symptoms, which may also require surgery for resolution, due to its location [4, 10].

We presented a giant retroperitoneal hematoma case which occurred during enoxaparin treatment for pulmonary embolism without changes in coagulation parameters and an invasive procedure that can cause bleeding. However, in our case, it is a fact that advanced age and impaired renal function have facilitated the formation of retroperitoneal hematoma.

In conclusion, anticoagulant treatment with enoxaparin may lead to severe hematomas. So, the clinical suspicion is required especially in elderly patients and patients with impaired renal function for retroperitoneal hematoma, when they suffer from acute abdominal pain.

**References**

1. Panetta T, Sclafani SJ, Goldstein AS, et al. Percutaneous transcatheter embolization for massive bleeding from pelvic fractures. J Trauma 1985; 25: 1021-1029.
2. Illescas FF, Baker ME, McCann R, et al. CT evaluation of retroperitoneal hemorrhage associated with femoral arteriography. AJR 1986; 146: 1289-1292.
3. Sclafani SJ, Florence LO, Phillips TF, et al. Lumbar arterial injury: radiologic diagnosis and management. Radiology 1987;165:709-714.
4. Haq MM, Taimur SDM, Khan SR, et al. Retroperitoneal Hematoma Following Enoxaparin Treatment in an Elderly Woman - A Case Report. Cardiovasc J 2010; 3(1): 94-97.
5. Chan-Tack KM. Fatal spontaneous retroperitoneal hematoma secondary to enoxaparin. South Med J 2003; 96:58-60.
6. Vaya A, Mira Y, Aznar J. Enoxaparin-related fatal spontaneous retroperitoneal hematoma in the elderly. Thrombosis Research 2003:110:69-71.
7. Campbell NR, Hull RD, Brant R, et al. Aging and
heparin-related bleeding. Arch Intern Med 1996; 156: 857-860.
8. Daliakopoulos SI, Bairaktaris A, Papadimitriou D, et al. Gigantic retroperitoneal hematoma as a complication of anticoagulation therapy with heparin in therapeutic doses: a case report. Journal of Medical Case Reports 2008; 2: 162 doi:10.1186/1752-1947-2-162.
9. Aydin M, Ozeren A, Bilge M, et al. Retroperitoneal hematoma following tirofiban and enoxaparin coadministration in a patient with acute coronary syndrome. Thrombosis Research 2003;111:121-123.
10. Topgul K, Uzun O, Anadol AZ, et al. Surgical management of enoxiparin- and/or warfarin-induced massive retroperitoneal bleeding: report of a case and review of the literature. South Med J 2005; 98: 104-106.