

Case Report

Enoxaparin induced retro and intra-peritoneal hematoma: report of five cases and review of literature

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Massive bleeding and internal hematoma, caused by enoxaparin, are potentially fatal. With a high index of thoughtfulness, early diagnosis and management are attainable and a remarkable improvement in survival is the likely outcome. At this time, we report 5 cases of Enoxaparin induced retro and intraperitoneal hematoma. All patients were managed successfully in our hospital with a survival rate of 100% and a good clinical ending.

Keywords: Enoxaparin, low-molecular-weight heparin, retroperitoneal hematoma, bleeding.

INTRODUCTION

Enoxaparin is a low-molecular-weight heparin (LMWH) that had been utilized widely for the prevention and treatment of thromboembolic diseases (Lensing et al., 1995; Antman et al., 1999). Compared to the unfractionated heparin, enoxaparin had longer half-life, higher bioavailability, superior anticoagulant reliability, and fewer monitoring necessity (Boneu et al., 1990; Warkentin et al., 1995). However, its administration is intricate by vital hemorrhagic side-effects (Shullo et al. 2002, Macie et al. 2004). The infrequent but usually fatal is the retroperitoneal hematomas (Montoya et al., 1999; Cherfan et al., 2007). Throughout a decade (1999-2008), and in the 20 cases which have been reported, the survival rate of was about 55% (Montoya et al., 1999; Cherfan et al., 2007). Between 2006 and 2007, we report five cases of enoxaparin induced dangerous retro and intra-peritoneal hematoma and review current literature.

CASE REPORTS

Case 1

A 29 year old woman had a history of nephrotic syndrome and was admitted to the hospital with severe nephrosis along with normal renal function. She had a past medical history of old TB spine, and mild bronchial asthma. Enoxaparin was administered for DVT prophylaxis at a dose of 1 mg/kg (60 mg) subcutaneously (SC) daily for the last 4 days prior to presentation. The patient was presented with abrupt onset of palpitation, sweating, and sharp pain in the abdomen. On physical examination she was found to have a rapid pulse (110/min) with normal blood pressure (110/80 mm/Hg) and a tender distended abdomen. Her hemoglobin dropped from baseline of 13.8 g/dl to 5.1 g/dl. Other blood parameters were in the normal range. Abdominal computed tomographic (CT) scan revealed huge retroperitoneal hematoma, measuring 10 x 12 x 7 cm on top of chronic hematoma (Figure 1). Consequently, a clinical diagnosis of acute retroperitoneal hematoma was considered. A prompt transfusion of 4 units of fresh frozen plasma (FFP) and 6 units of packed red blood cells (PRBC) was incapable of improving the patient's

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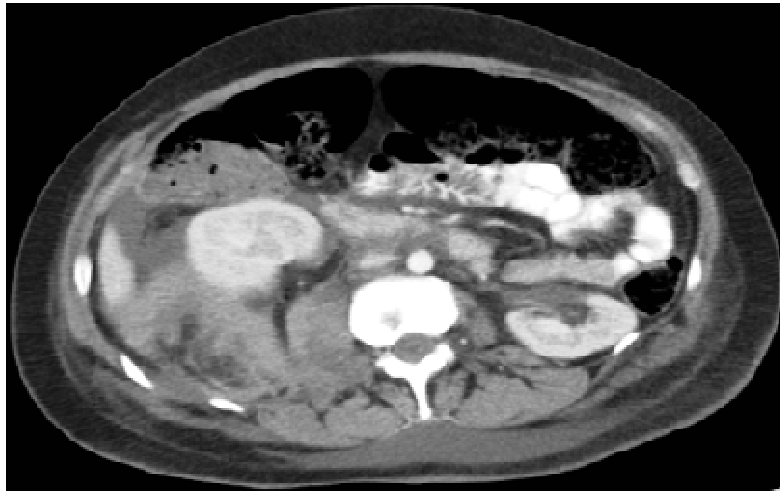


Figure 1: CT scan of abdomen with contrast showing retroperitoneal hematoma on top of chronic hematoma on the right side

condition and a surgical drainage of the hematoma turned out to be indispensable. The patient had survived the incident and within few days she was transferred back to the general ward in a good condition.

Case 2

A 16 year old girl presented with a circulatory shock. She had history of one month Henöch-Schonlein purpura, and a day of enoxaparin administration (20 mg SC, once daily) for DVT prophylaxis. Her blood pressure fell from 160/100 mm/Hg (at the start of enoxaparin) to 60/50 mm/Hg, and her hemoglobin declined from 11.3 g/dl to 7.5 g/dl. Other blood parameters were in the normal range. Physical examination revealed a painful abdominal palpation and a CT scan demonstrates the presence of intraperitoneal hematoma. The patient was treated rapidly by transfusion of 5 units of the PRBC, followed by splenectomy and surgical evacuation. Within three weeks the patient was discharged from the hospital in good health.

Case 3

A 66 year old woman presented with a 2-day history of increasing headache, vertigo, and palpitation. She had a history of pyelolithotomy for renal stones and enoxaparin administration for the last four days. Blood pressure dropped from 140/85 mm/Hg (at the start of enoxaparin) to 125/75 mm/Hg, and the hemoglobin declined from 12.7 g/dl to 7.4 g/dl. A physical examination revealed tenderness over the abdominal incision and bleeding

from the surgical site. The patient was given 4 units of PRBC followed by urgent evacuation of the wound hematoma. Postoperatively, the symptoms were improved and the patient was discharged from the hospital after one month.

Case 4

A 65 year old woman had a long history of diabetes, hypertension and grade II nephropathy. She presented with an acute coronary syndrome and was managed with aspirin, clopidogrel, and enoxaparin. Her serum creatinine was 2.4 mg/dl and blood urea was 70 mg/dl. The dose of enoxaparin was adjusted according to these parameters and the patient was given a 40 mg of enoxaparin twice daily. Three days after initiation of the treatment, the patient had a dangerous drop in blood pressure (170/100 mm/Hg to 85/40 mm/Hg) as well as a brisk decline in hemoglobin concentration (8.1 g/dl to 6.4 g/dl). At presentation, the patient was complaining of shortness of breath, palpitation, and abdominal pain. Physical exam discovered a tender abdominal mass, and an ultrasound for the abdomen documented the presence of a hematoma. Four units of PRBC were administered, followed by surgical exploration and evacuation of the hematoma. Patient's condition was improved subsequent to the operation and the patient was discharged from the hospital after 4 weeks.

Case 5

A 26 year old woman had a history of laparoscopic cholecystectomy. She presented with symptoms of



Figure 2: CT scan of abdomen with contrast showing that the retroperitoneal hematoma decreased dramatically



Figure 3: CXR showed right hemothorax

pulmonary embolism and was started on warfarin 5 mg/day and enoxaparin 1 mg/kg twice daily . Five days later, she had sudden onset of shortness of breath and abdominal pain. Her hemoglobin was dropped to 6.5 g/dl (at admission it was 12.6 g/dl). Abdominal computed tomography scan and plurocentesis documented the presence of intra-abdominal hematoma and hemothorax, respectively (figures 3, 4). The patient's condition was stabilized by the administration of two units of FFP and 2 units of PRBC; therefore, a surgical intervention was not required. The patient was discharged from the hospital after one week.

DISCUSSION

The prevalence of enoxaparin induced bleeding may extent to 17% in treated patients (Macie et al., 2004). However, the incidence of retroperitoneal hematoma is infrequent and only a small number of cases had been described in the literature (Montoya et al., 1999; Cherfan et al., 2007). The reported cases were typically in the elderly, were the patients' age range from 58 to 83 years (Montoya et al., 1999; Green et al., 2005). This tendency was a rationale for the implication of an advance age as a high risk factor for the occurrence of

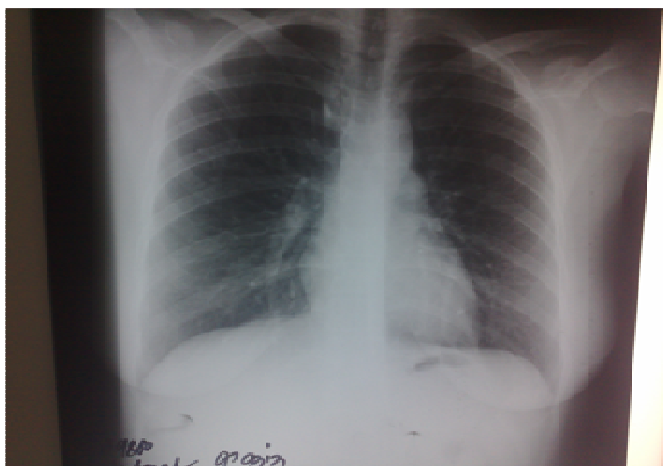


Figure 4. CXR after one month with complete resolution of the hemothorax.

retroperitoneal hematoma (Montoya et al., 1999; Cherfan et al., 2007; Macie et al., 2004).

In our patients, three cases were in young females (age of 16, 26, and 29 years). Therefore, this is the first report of enoxaparin induced retroperitoneal hematoma in young patients. Optimistically, this observation will extend the physician's alertness to include the young patients who were treated by enoxaparin.

Retroperitoneal hematoma more commonly affected females (Montoya et al., 1999; Cherfan et al., 2007) and our report corresponds to this pattern. Four of our patients have been treated conservatively with FFP and PRBC in the acute episode, and then followed by surgery. One patient satisfactorily responded to the conservative treatment with no need for surgery.

Even though a retroperitoneal hematoma is extremely dangerous, all our patients had survived with an excellent outcome. This may be due to the inclusion of retroperitoneal hematoma in the differential diagnosis for a patient, with a history of enoxaparin's administration, presents with symptoms of shock or hypovolumic syndrome, intra-abdominal compartment syndrome, or unexplained decreases in hemoglobin.

CONCLUSION

Retroperitoneal hematoma is a rare but fatal side effect for enoxaparin's administration. However, with a high vigilance, a diagnosis can be made from the patient's history and clinical assessment and the findings of CT scans. Early on diagnosis and management improve the survival greatly.

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