OLGU SUNUMU CASE REPORT

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A Rare Case Report of Postpartum Mesenteric Venous Thrombosis, Despite the Prophylaxis with Low Molecular Weight Heparin

Düşük Molekül Ağırlıklı Heparin Proflaksisine Karşın Gelişen Nadir Bir Postpartum Mezenterik Venöz Tromboz Vakası

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ABSTRACT

Mesenteric venous thrombosis (MVT) is a rare but life-threatening complication of the postpartum period, especially when not associated with pre-existing risk factors of thrombosis. We described a woman who underwent an elective cesarean section and used low molecular weight heparin prophylaxis after the operation. Ten days after the operation, she applied to the hospital with nonspecific complaints of acute abdomen and died due to the multiorgan dysfunction after MVT and splenic artery thrombosis. MVT in our case was most likely secondary to the surgery and hyper-coagulability of the postpartum period. Lack of severe symptoms, signs, and laboratory findings at the beginning of the statement causes the life-threatening delay of diagnosis and treatment. Patients with postpartum abdominal distension should be evaluated for thrombosis of the arterial and venous system. MVT should be kept in mind for the patients with an acute abdomen in the postpartum period. This case report of life-threatening complications induces doubts about the efficacy of using LMWH to prevent thrombotic events after the cesarean operation.

Keywords: Heparin; mesenteric venous thrombosis; postpartum

ÖZET

Mezenterik venöz tromboz (MVT), postpartum dönemin nadir ve özellikle eşlik eden bilinen bir risk faktörü olmadığında hayatı tehdit eden bir komplikasyonudur.Vaka elektif sezeryan operasyonu geçiren ve operasyon sonrası düşük molekül ağırlıklı heparin proflaksisi yapılan bir kadını tanımlamaktadır.operayondan 10 gün sonra spesifik olmayan akut batın şikayetleri ile hastaneye başvuran hasta, MVT ve splenik arter trombozuna bağlı çoklu organ yetmezliği sonucunda ex olmuştur.Tanımladığımız vakada, MVT'nin postpartum dönemin ve geçirilmiş operasyonun hiperkoagulatif özelliğinin sonucunda geliştiği düşünülmektedir. Ciddi semptom, işaret ve labaratuvar bulgularının olmayışı, hayatı tehdit eden tanı ve tedavi gecikmesine neden olabilmektedir. Postpartum abdominal distansiyon saptanan hastalar arteriyel ve venöz systemin trombozu açısından da değerlendirilmelidir. MVT postpartum dönemde gelişen akut batın olgularında akılda bulundurulmalıdır. Hayati tehdit eden bu komplikasyonu tanımlayan vakamız, düşük molekül ağırlıklı heparin proflaksisinin sezeryan operasyonu sonrası gelişebilecek trombotik olayları önlemedeki yeterliliği konusunda şüpheye neden olmaktadır.

Anahtar Kelimeler: Heparin; mezenterik venöz tromboz; postpartum

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Mesenteric venous thrombosis (MVT) is a rare but potentially lethal type of mesenteric ischemia and includes the thrombosis of superior, inferior mesenteric vein and their branches. It can be presented as an acute, subacute, and chronic entity. The incidence of MVT is 2.7 per 100.000 person-years, 0.1% among emergency laparotomies applied for acute abdomen, and 5-15% of all mesenteric ischemia cases. The incidence of diagnosis of MVT increased last decade due to the more frequent use of abdominal tomography.[1]

MVT usually occurs as a result of a combination of hypercoagulability, endothelial injury, and stasis which is called Virchow's triad. Intraabdominal inflammation, abdominal trauma, abdominal surgery, heritable and acquired thrombophilias (factor V Leiden mutation, protein C, S and antithrombin III deficiencies, antiphospholipid syndrome, polycythemia vera, myelofibrosis, heparin-induced thrombocytopenia), Prothrombotic states like oral contraceptive use, in vitro fertilization procedures, malignancy, pregnancy-postpartum period, cirrhosis and congestive splenomegaly can be causes of MVT while 37% of the cases are idiopathic.[2]

Pregnancy and the postpartum period are associated with a major shift of the coagulation system towards hypercoagulability to reduce blood loss during delivery which is the major reason for the increased rate of thrombotic events during this period. Advanced maternal age, higher parity, cesarean delivery, immobilization, obesity, and other predisposing factors aggravate the statement.[3]

The occurrence of MVT after cesarean section is extremely rare in literature. We here describe a woman who presented with acute abdominal pain and diarrhea 10 days after cesarean section and was diagnosed with acute MVT and splenic arterial thrombosis, although she was using prophylactic low molecular weight heparin (LMWH). To our knowledge, this is the first case report determining this clinical presentation under heparin treatment.

CASE PRESENTATION

We report the case of mesenteric venous and splenic arterial thrombosis in a 32-year-old female, G2 P2, 10 days after cesarean section. She applied to the Emergency Department of our hospital with complaints of abdominal pain and diarrhea which proceed for about 10-15 hours. The antenatal follow-up and cesarean operation were uneventful. The cesarean indication was macrosomia and she had no significant medical problem, surgical risk, or family history suggestive of thromboembolism. She did not use hormonal therapy, oral contraceptives, and no history of any risk factor for thromboembolic state. She was advised to use LMWH for two weeks after the cesarean section as a routine approach of our clinic for prophylaxis of thrombosis. She assured me to use it regularly and paid attention to be mobile during this period after cesarean.

Upon arrival, the temperature was 36.8°C, pulse rate 105 beats per minute, respiratory rate of 24 breaths per minute, and blood pressure was 100 mmHg systolic and 70 mmHg diastolic. Physical examination showed a gravid uterus, favorable for the postpartum period. Abdominal tenderness is located to four quadrants, apparent distension, and rebound tenderness of bilaterally inferior quadrants. The bowel sounds were hyperactive coherent to diarrhea. Clear sweating was observed on her body. A hematologic examination revealed a leukocyte count of 24.24×10^9/L (normal range 3.9×10^9/L-10.2×10^9/L) with neutrophils accounting for 85.7% (normal range 50-70%), a hemoglobin level of 14.5 mg/L (normal range 12 mg/L-15.6 mg/L), hematocrit of 43.5% (normal range 35.5-45.5%), and platelet count of 439×10^9/L (normal range 150×10^9/L-400×10^9/L). Coagulation parameters were within normal limits. Glucose was 189 mg/dL, biochemical tests including renal function (urea, creatinine, GFR, uric acid, phosphorus), liver and bile duct function (total bilirubin, alkaline phosphatase (ALP), lactate dehydrogenase (LDH), aspartate aminotransferase (AST), alanine aminotransferase (ALT), gamma-glutamyl transferase (GGT), albumin), arterial blood gas sampling, and cardiac enzyme levels were within normal limits. C-reactive protein was moderately increased (nephelometric C-reactive protein was 0.0255g/L, the normal range is between 0 and 0.005 g/L). Gynecologic ultrasound revealed a postpartum sized uterus, minimal fluid filling the pouch of Douglas, and dilated numerous bowel loops. She immediately underwent a computed tomographic (CT) scan of the abdomen and pelvis, which demonstrated acute total throm-

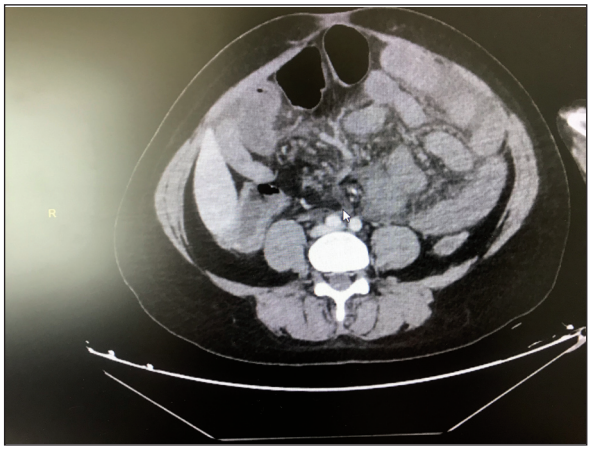

FIGURE 1: Computed Tomography of abdomen.

botic occlusion of the superior mesenteric vein from confluence to the proximal portal vein. The splenic vein was open, and multiple areas with splenic infarction were determined. Duedonum from ligament of Trietz, jejunal and ileal loops (until 70-80 cm proximal of the ileocecal valve) were ischemic. Colonic loops were normal (Figure 1). A vascular medicine specialist and general surgery were consulted. The patient was evaluated with a computed tomography (CT) angiography which demonstrated splenic artery subtotal occlusion with total occlusion of the posterior branch. Splenic infarction areas were also observed with CT angiographic evaluation. Vascular surgery is recommended using 1.5 mg/kg/day enoxaparin as a therapeutic dose. In a few hours after admission, the vital signs of the patients deteriorated dramatically, therefore emergency exploratory laparotomy was performed immediately by general surgery. On exploration, approximately 1000 cc serous-hemorrhagic fluid was found in the abdomen. The entire bowel from the ligament of Trietz to 70-80 cm proximal of the ileocecal valve was edematous due to the venous congestion. Mesenteric and splenic arterial pulses were palpable. Spleen and liver appeared normal. Gastrocolic ligaments were opened and SMV and distal branches were evaluated. Blood flows were intact and no thrombus was observed. The operation was ended with an anticoagulant therapy plan and a second look if needed. A hemodynamically stable patient was transferred to the intensive care department after the surgery. Low molecular weight heparin was initiated with a therapeutic dose. The patient was complicated with multi-organ dysfunction 1 day after laparotomy. Unfortunately, the patient could not recover from multi-organ dysfunction despite the multidisciplinary close monitoring and treatment and died 3 days after the laparotomy.

ETHICAL APPROVAL

Case reports have not given any requirement for taking ethical clearance. But it is strongly recommended obtaining written and signed informed consent from patient/guardians to publish it. We have taken informed consent from the first degree relatives to publish this case report.

DISCUSSION

Acute MVT is a rare and vital condition that results in acute mesenteric ischemia.[4] MVT causes circulatory insufficiency, bowel ischemia, and infarction. Bowel infarction causes an increase in intestinal integrity, bacterial translocation, and hemoconcentration which are the precursors of irreversible multi-organ dysfunction including, non-compensatory heart failure, sepsis, disseminated intravascular coagulation (DIC), and even death.[4]

MVT usually presents with abdominal pain, although the pain might be quite mild at the beginning of the acute condition.[4] Severe physical signs usually appear with the progression of the disease when trans-mural bowel infarction is occurred.[4] Nausea and vomiting, diarrhea, abdominal distension, hematemesis, hematochezia, melena are the common complaints of the patients.[4] Hemodynamic instability, septic shock, and multi-organ dysfunction occur with deteriorated compensatory mechanisms.[4] In our case report, the patient was presented with diarrhea and abdominal pain. Although the vital signs were tolerable due to the young age and physical condition at the beginning, she worsened in a little while.

Diagnosis usually delays due to the non-specific and variable severity of symptoms and almost 30% of the patients are diagnosed before surgical exploration or death. Contrast-enhanced CT is the gold standard for MVT diagnosis In case of suspicion, a CT evaluation should be performed immediately as the rapid diagnosis is critical.[5]

Management of MVT varies according to the Hemodynamic condition of the patient. Anticoagulant therapy, surgery, and supportive treatments are the main steps. LMWH is usually used as anticoagulant treatment and can be used in acute, subacute, and chronic MVT. Fibrinolysis and thrombectomy are the other effective treatment choices for appropriate patients Surgical resection of the bowel might be considered according to the ischemic level of the bowels. Fluid supplementation, antibiotics, electrolyte replacement, supportive treatment for hemodynamic instability are life-saving components of management.[6]

Despite the extensive treatment options, mortality rises with advancing time to the diagnosis. The mortality rate varies between 80-100% if the treatment delays more than 24 hours.[7] Other factors affecting the prognosis are age, comorbidity, and vital signs at admission.[7] If the portal vein is affected, portal hypertension which is a life-threatening complication may occur. Our case was probably presented in an irreversible stage, although it needed time to come into the open due to the general health condition. Although the postpartum period and cesarean operation were the only identified risk factors of our case, prophylactic LMWH was prescribed as a part of the routine approach of our clinic. Despite the prophylactic use of LMWH after the surgery, widespread and severe thrombus composition provokes doubts on the efficacy of using prophylactic use of LMWH after the surgery.

CONCLUSION

MVT in our case was most likely secondary to the surgery and hyper-coagulability of the postpartum period. Lack of severe symptoms, signs, and laboratory findings at the beginning of the statement causes a life-threatening delay of diagnosis and treatment. We believe that this is the first case report of severe MVT under the use of prophylactic use of LMWH and resulted in multi-organ failure and death. A patient with an acute abdomen after the cesarean operation should be evaluated carefully and differential diagnosis of MVT should be kept in mind to prevent delayed diagnosis. The efficacy of using LMWH to prevent thrombotic events after the cesarean operation is needed to be evaluated with further studies.

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Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: *Ümit Yasemin Sert, Özlem Moraloğlu Tekİn, A. Seval Özgu-Erdinç;* ***Design:*** *Ümit Yasemin Sert;* ***Control/Supervision:*** *Özlem Moraloğlu Tekin, A. Seval Özgu-Erdinç;* ***Data Collection and/or Processing:*** *Ümit Yasemin Sert;* ***Analysis and/or Interpretation:*** *Ümit Yasemin Sert;* ***Literature Review:*** *Ümit Yasemin Sert;* ***Writing the Article:*** *Ümit Yasemin Sert;* ***Critical Review:*** *Özlem Moraloğlu Tekin, A. Seval Özgu-Erdinç;* ***References and Fundings:*** *Ümit Yasemin Sert;* ***Materials:*** *Ümit Yasemin Sert.*

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