

Thromboembolic Cases in the Pregnancy and Pulmonary Embolism after Cesarean: Case Presentation

Nimet Şenoğlu¹, Hafize Öksüz¹, Beyazıt Zencirci¹, Meral Ezberci¹, Kıran Gürkan², Okur Nazan³

¹Department of Anaesthesiology and Reanimation,

²Department of Obstetrics and Gynecology, ³Department of Radiodiagnostics,
Hospital of Medical Faculty, Kahramanmaraş Sütçü İmam University, Kahramanmaraş

Abstract

Background: Pregnancy is a physiologic state with a markedly increased risk for venous thromboembolism. Deep vein thrombosis (DVT) is estimated to affect 0.71 in every 1000 pregnancies.

Case: A pregnant women at 36 week of gestation was hospitalized due to left leg pain and edema which was determined DVT in the venous doppler ultrasonography and the case was performed the cesarean section for fetal distress, immediately. Respiratory distress and hypoxemia was started in the postanaesthetic care unit. Pulmonary embolism was determined in the thorax computed tomography.

Conclusion: Cooperation of obstetrician and anaesthetist require during evaluation of pregnant which had risk factors for venous thromboembolism. So early diagnose and management of pulmonary embolism can be started with carefully observation, which may be reduce mortality and morbidity, in the postanaesthetic care unit.

Keywords: Venous thromboembolism, pulmonary embolism, pregnancy.

Gebelikte tromboembolik olaylar ve sezaryen sonrası pulmoner Emboli: olgu sunumu

Amaç: Gebelik venöz tromboembolizm için risk faktörlerinin yoğun olarak arttığı bir süreçtir. Derin ven trombozu (DVT) her 100.000 gebenin 71'inde saptanabilmektedir.

Olgu: 36 haftalık gebe olgu, sol bacak ağrısı ve şişlik şikayeti ile kadın doğum kliniğine kabul edildi. Venöz Doppler ultrasonografide sol bacak da derin ven trombozu izlenen olgu, fetal distress nedeniyle acil olarak sezaryen operasyonuna alındı. Anestezi derlenme ünitesinde hipoksi ve solunum sıkıntısı gelişen olguda toraksa yönelik bilgisayarlı tomografide pulmoner emboli saptandı.

Sonuç: Venöz tromboembolizm için risk faktörlerine sahip gebeler değerlendirilirken anestezi ve obstetrisyenlerin iş birliği gerekir. Dikkatli gözlem ile pulmoner embolinin erken teşhis ve tedavisine anestezi derlenme ünitesinde başlanabilir ve bu mortalite ve morbiditeyi azaltabilir.

Anahtar Sözcükler: Venöz tromboembolizm, pulmoner emboli, gebelik.

Background

Pregnancy is a physiologic process with markedly increased thromboembolic complica-

tions. Venous thromboembolism is an uncommon illness causing maternal mortality and morbidity.^{1,2,3} It is mentioned that in the periods of perinatal,

peripartum and postpartum, especially when performing the birth as cesarean, this risk is increased.⁴ In the presented case, there were deep vein thrombosis (DVT) and hematological illness in the personal history and there was respiratory distress in the postanesthetic care unit. Obstetricians and anesthesia and intensive care doctors must absolutely take into consideration that the risk of pulmonary embolism increases higher in the cesarean cases with postoperative hypoxemia and respiratory distress development than the other cases.

Case

Female case at the age of 22, having 36-37 weeks of pregnancy applied to our hospital with the complaints of left leg pain and distention. There were edema in the left leg and heat increase and peripheral pulses were detected. In her personal history, she was diagnosed thalassemia intermedia in her pregnancy three years ago and after the caesarean surgery she had also splenectomy operation. DVT was detected in the case that left leg Doppler ultrasonography was taken urgently, cure was started by enoxaparin sodium 6000 IU as two dosages per day subcutaneous. In the second day, fetal distress was detected and she was

urgently taken for cesarean operation. Thiopental 8 mg/kg-1, lidokalin 1.5 mg/kg-1 and rocuronium 0.6 mg/kg-1 and anesthesia induction and orotracheal intubation was performed to the patient to whom premedication was not implemented. In the 5th minute following the induction, a 2300 gram male baby was born whose APGAR score was 6 in the first minute and 8 in the fifth minute. Anesthesia continuation was provided with 50% oxygen and 0% nitrogen protoxic and following cord clamping 1 mcg.kg-1 fentanyl as intra venous and sevofluran in a concentration of 0.8 minimal alveolar. Patient having no peroperative anesthetic problem was awakened after the operation lasting 40 minutes. The patient was taken to postoperative caring unit, oxygen saturation 90-92%, respiration number 24 minutes-1, blood pressure 20/85 mmHg and heart rate 120 pulse/min-1 was detected even the patient was supported by 5 L/min-1 oxygen with nasal cannula. Case, whose pH 7.425, pCO₂ 30.8 mmHg, PO₂ 55 mmHg, HCO₃ 20.3 mmol/L, BEb-3.2 mmol/L, spO₂ 89.4% was detected in blood gas was taken for monitoring in the anesthesia intensive care unit. In the preoperative blood count, hemoglobin was 11.3 g/dL, hematocrit was 33.7%, leukocyte was 27.000 K/UL, platelet, was 504, k/UL, in the blood biochemistry, total bilirubin was 1.09 mg/dL, conjugate bilirubin



Figure 1. View of the lungs in the case.

was 0.37 mg/dl, lactic dehydrogenase was 934 U/L and the other parameters were in the normal border. Respiratory sounds by listening lowered in the basal and uncommon rals exist. There was no significant pathological look in the lung diagram. Suspecting from PE because of the clinical findings, lung diagram was taken and contrast spiral lung tomography was taken. There was no abnormal condition in the lung diagram (Figure 1). In the dynamic intravenous contrasted computerized tomography for thoracic investigation (by Appling 120 ml nonionic contrasted substance at a speed of 3 ml/second) in the mediastinal window, in the right main pulmonary artery having a diameter of 1 cm, thrombus adopted multiple hipodens areas were detected (Figure 2). In the paranchymal view of the tomography, in the right hemithorace, in the bronchovascular marks, embolism secondary relative decrease was detected when compared with the symmetric (Figure 3). PE was diagnosed for the

case with the radiological and clinical findings and the enoxaparin sodium treatment was changed with intravenous heparin treatment (30.000 U/day dosages). The case, which was supported by oxygen 8 L/minute, sufficient peripheral oxygen saturation, was reached. Thrombotic findings degraded with the heparin treatment and oral warfarin treatment was stated in the ninth day (7.5 mg/day). The case was passed to cardiac surgery in the 10th day for the follow and treatment of deep vein thrombosis, and was discharged in good health.

Discussion

The postanaesthetic care period, there can be respiration failures and reasons of hypoxia, pneumothorax, pulmonary edema, pulmonary aspiration, and secretion, obstruction with blood and clot and bronchospasm.⁵ Pulmonary emboli (PE) should also be considered for the patients in the risk group as another reason.



Figure 2. Thrombus in the contrasted computerized tomography (arrow).



Figure 3. Decrease in the bronchovascular view in the right hemithorax.

As to the woman in the same age group, it is stated that the thromboembolism incidents increase by 5 times in the pregnancy.¹ Physiological and anatomical changes in the pregnancy are as a decrease venous turning as a result of venous repletion and volume increase. Hypercoagulability, stasis and endothelial injury are the three factors for the venous thromboembolism and these can be seen in the physiological process of the pregnancy.⁶ The reasons for them are hormonal as a result of progesterone and estrogen increase and they are more obvious in the progressive trimester.¹ Another reason is that the growing uterus mechanically obstructs the pelvic veins. Coagulation factors increase in the pregnancy, coagulation inhibitors decrease and fibrinolytic capacity decrease and this causes hypercoagulability.⁷ It is also stated that the thrombocyte activity rises in the pregnancy. Birth, however, because of the pressure by the surgery or surgery devices, causes vascular injury and changes in the uteroplacental surface. The risk of venous thromboembolism can increase

in the cases of preterm birth, preeclampsia, hemorrhage, sepsis, birth with intervention of cesarean and multiparity.¹ It is thought that the risk factor increases especially in the third trimester and postpartum period. The risk of venous thromboembolism increase by 5-10 times in the pregnancy. This risk reaches its maximum level especially after the delivery.⁸

It is informed that the risk factor about DVT in the pregnancy is less than 35 age, long time bed rest and inactivity, pelvis or leg trauma and obesity. Additional risk factors are cesarean birth, hemorrhage, multi-parity, varicose veins, previous thromboembolic incidences, hereditary or acquired thrombophilia and preeclampsia.^{9,10,11} DVT affects 71 of every one hundred thousand pregnant.¹²

The case having thromboembolic illness in the history, hematological illness as thalassemia intermedia is the additional risk factors for deep vein thromboses. By adding the factors such as pregnancy and birth with cesarean, the risk of PE

increased for the case. It must be very careful in the peripartum period and especially intrapartum and postpartum periods. It is stated that DVT increases in the left leg in the pregnancy.¹² The fact that the DVT developed in the left leg in the case supports that information.

Although it develops uncommonly, PE has importance because of maternal mortality and morbidity. PE incidence is stated 1/1000-2000 for some and 1/2500-10.000¹⁻¹² for others. Source of the emboli is known as proximal veins in the leg or pelvis or calf veins by many researchers.¹³ The most important factor in its etiology is the move of thrombus in the active peripheric veins. Detection of the PE can be difficult because of the various findings. Thorax diagram, electrocardiogram (ECG), sensitivity of the blood gas tests and specification are not enough in the routine laboratory studies. Most commonly reported findings of the PE are dyspnea, tachypnea and pleural based chest pain. Findings and symptoms such as anxiety, cough, and ral in the lungs are found approximately in the half of the patients.¹ ECG, thorax diagram, analysis of blood gas supports the diagnosis and helps to separate from other reasons in the etiology. Ventilation/perfusion scintigraphy is also suggested to support the diagnosis. Some non-specific abnormalities such as increase in hemidiaphragm, consolidation, unilateral pleural effusions, atelectasis can be seen in the PE patients. Decrease of the arterial oxygen pressure can be seen in the case of PE but it is not specific.

Dyspnea and tachypnea and hypoxia are seen in our case in the postoperative collection unit. Findings of hypocapnia and hypoxia were the supportive blood gas findings for pulmonary emboli. For the reason that the monitoring the lung diagram did not support the finding, contrast spiral lung tomography was taken and PE pre-diagnosis was supported. Some conditions such as pneumonia, atelectasia causing hypoxia must be thought in the distinctive diagnosis. These possibilities can be excluded by lung diagrams and spiral thorax CT. Finding of deep vein thrombus may not be remarkable every time and the diagnosis of PE can be difficult. But the early detection is important, it must be diagnosed without delay and treatment must be started.¹⁵

If PE diagnosis is late of is not made, it can cause maternal mortality. Diagnosis of PE and DVT for the pregnant requires objective view such as for the patients who are not pregnant. Reliability of laboratory tests such as D-limer is restricted. It must be supported by clinical and radiological findings first of all.

As a conclusion; conditions such as pregnancy and cesarean operation are risk factors for DVT and PE. It is obvious that special attention must be paid for the patient with the risk group. Distinctive diagnosis of pulmonary emboli and its treatment must be made for the cases that hypoxemia develops in the postoperative care unit after cesarean operation considering all these risks.

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