

Case Report

Extremely elevated serum D-dimer level in a patient with pelvic abscess after cesarean section: a case report

Mustafa Demir¹, Burcu Kasap¹, Onur Ince², Bulent Yilmaz²

¹ Izmir Katip Celebi University, Atatürk Education and Research Hospital, Department of Obstetrics and Gynecology, Izmir, Turkey.

² Izmir Katip Celebi University, Tepecik Education and Research Hospital, Department of Obstetrics and Gynecology, Izmir, Turkey.

Abstract

Pelvic abscesses occurring after cesarean section (CS) or gynecologic pelvic surgery are uncommon. Symptoms of pelvic abscess are highly variable and not showing enough specificity. Focal tenderness, persistent abdominal pain, persistent tachycardia, spiking fever and leukocytosis are just few examples of these. Pelvic abscess might be presented with significantly elevated D-dimer level which is a marker of cross-linked fibrin turnover. In this report, we describe a case presented with extremely elevated D-dimer levels (10500 ng/ml) 15 days after CS operation and she was found to have extended pelvic abscess. After 2 days of intravenous antibiotic treatment, she underwent emergent laparotomy because of acute abdomen findings in order to get rid of abscess. After the removal of pelvic and rectal sheet abscess material, the follow up was unevenfull. She discharged on oral antibiotic regimen. In this case, D-dimer level showed correlation with clinical situation of the patient and gave us a clear indication about the extension of the pelvic abscess.

Key words:

Cesarean section; Pelvic abscess; D-dimer.

Introduction

Pelvic abscesses occurring after CS or gynecologic pelvic surgery are uncommon. This report highlights that very high D-dimer levels might be indicative of pelvic abscess resulting severe clinical situation and emergency surgery and suggests that this relationship might be useful for diagnosis in the future.

Pelvic abscess formation is the result of many conditions with obscure nature, so its diagnosis, localization and treatment are often delayed. Symptoms of pelvic abscesses are highly variable and not showing enough specificity. Focal tenderness, persistent abdominal pain, persistent tachycardia, spiking fever and leukocytosis are just few examples of these. Moreover, antibiotic administration may harden clinician's job by masking fever, leukocytosis and abdominal tenderness [1].

Various disorders can result in elevated D-dimer level. Since fibrin D-dimer is a marker of cross-linked fibrin turnover, an elevated plasma concentration of D-dimer

indicates recent or ongoing intravascular blood coagulation. Conditions that result in elevated D-dimer level include thromboembolic diseases, disseminated intravascular coagulation, preeclampsia and eclampsia, severe infection, malignancies etc [2].

In this report, we describe a case presented with extremely elevated D-dimer levels (10500 ng/ml) 15 days after CS operation. She was found to have extended pelvic abscesses. Due to the severe and life-threatening clinical situation of the patient, an emergency surgery had to be performed.

Case presentation

An 18 year old woman, gravida 2, para 2, was referred to our department's emergency unit with symptoms of high fever and severe abdominal pain, 15 days after CS operation.

On her clinical examination she was found to have a normal blood pressure level (110/70 mmHg), high body temperature (38°C in axillar measurement) and a pulse rate of 85 beats per minute. During abdominal examination minimal sensitivity and on gynecologic examination minimal vaginal mucopurulent discharge and pain during cervical manipulation were noted. Laboratory data revealed leuko-

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*Correspondence: Mustafa DEMIR, M.D.

Basin sitesi mahallesi, 168. sokak No: 18/6, Karabağlar, İzmir, Türkiye

Fax: +90 232 243 32 08 | E-mail: musdem27@gmail.com

cytosis (28.7 K/uL) with %83.8 neutrophil predominance, C- reactive protein (CRP) level as 20.99 mg/dl (normal range 0.08-1.5 mg/dl). Coagulation profile was in normal range, except D-dimer level which was significantly high (10,500 ng/ml) as normal range varies between 0 to 275 ng/ml. While abdominal USG was showing intensive content fluid in douglas, abdominal computed tomography (CT) revealed intraabdominal and parauterine high density fluid collection. Moreover cutaneous and subcutaneous fat tissue were observed in edematous state with diffuse fluid collection.

After clinical and laboratory evaluation of the patient, antibiotic regimen including intravenous (iv) gentamycin plus iv clindamycin administration was started. After development of acute abdomen symptoms on the second day of her clinical follow-up under medical treatment, she underwent immediate laparotomy.

During surgical process, initially widespread abscess materials among the rectus sheets were observed. The rectus muscles seemed to be lytic and fragile. After the peritoneal incision, widespread intra-abdominal fluid collection was again observed, which was consistent with purulent abscess materials that were also confirmed by pathologic evaluation. Uterus was consistent with postpartum period and larger than normal. Kehr incision was seen on the anterior part of the uterus. Uterus, bilateral ovaries and bilateral tuba were embedded in purulent abscess material. After peritoneal lavage and removal of the purulent material, all the pelvic organs were left in situ. The operation was completed with leaving a drain into anterior part of the uterus. The follow-up was uneventful. The patient's both clinical and laboratory findings improved day by day. She was discharged on oral antibiotic regimen.

Discussion

This case report represents a patient with widespread abscess that occurred 15 days after CS. On the second day of antibiotic follow-up, the patient developed acute abdomen symptoms. Significantly elevated D-dimer level found (10.500 ng/ml) at first assessment was an indication of the severity of clinical situation.

There are multiple gold standards (clinical examination, laboratory tests, imaging techniques and laparoscopy) in use to establish the diagnosis pelvic abscess. Many diagnostic markers were researched such as the density of the plasma cell infiltrate correlated with the clinical severity of disease [3] or inflammatory markers such as erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) [4]. But none of them was found adequate alone. Furthermore, none of these tests is highly specific and

sensitive. D-dimer, as a new diagnostic marker was also described [5,6].

Elevated plasma concentrations of D-dimer designates recent or ongoing intravascular blood coagulation and such high levels were demonstrated in many clinical conditions such as arterial and venous thromboembolic disease, disseminated intravascular coagulation, malignancy, renal and liver diseases. But none of these diseases were detected in this case by physical examination, laboratory findings and imaging studies.

The correlation between high D-dimer levels and pelvic abscess or inflammation has been identified in several recent studies. Franchi et al. argued that D-dimer could be a useful parameter, as it appeared to have significant correlation with the severity of PID [5]. In this study, the patients were divided into three groups; those that were treated by antibiotic regimen, those undergoing conservative surgery, and those that underwent destructive surgery. There were significant differences in the median D-dimer levels between these three groups. In particular, the median D-dimer level for the group that underwent destructive surgery was more than double of the group that was treated with antibiotic regimen.

A second study by Patrelli et al. [6], like Franchi et al. [5], grouped the patients with TOA into three groups. The study demonstrated that CRP and D-dimer values most likely correlate with disease severity. They concluded that in conjunction with clinical evaluation, CRP and D-dimer levels could be used as indicators of the need for surgical treatment.

In another cross-sectional pilot study done by Yilmaz et al. [7], serum D-dimer levels were found to be significantly higher in women with tuboovarian abscess (TOA) than in other adnexal cysts. Consequently, authors concluded that D-dimer levels could be used as an inexpensive and reproducible marker for differential diagnosis of TOA.

D-dimer levels were searched for many purposes. In a case report [8], acute elevation of plasma D-dimer level was found to be associated with rupture of ovarian endometriotic cyst. In another study [9], plasma D-dimer levels were used to help discriminate between patients with benign and malignant tumors where authors concluded that D-dimer alone differentiated malignant from benign ovarian tumors and also improved differentiation when combined with CA-125. In a previous study [10], a high preoperative plasma D-dimer level was associated with shorter postoperative survival and the presence of vascular invasion was associated with higher preoperative D-dimer levels.

To summarize, in our case, D-dimer level showed correlation with clinical situation of the patient and gave us a clear indication about the extension of the pelvic abscess. This suggests extremely high D-dimer levels can be the

sign of not only diagnosis for abscess but also for inevitable surgical procedure of patients with pelvic abscess.

Conflict of interest statement

The authors declare no conflict of interest.

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