

Postpartum septic pelvic thrombophlebitis after caesarean delivery: a case report

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ABSTRACT

Septic pelvic thrombophlebitis is a rare puerperal complication. It is an important differential diagnosis of postpartum fever and abdominal pain and although the condition is well known its diagnosis can be challenging. We report a case of a 41-year-old woman with fever and right abdominal pain three days after an uncomplicated caesarean delivery. Clinical, laboratory and imaging exams were unremarkable and the patient was treated for endometritis. In the absence of improvement despite an antibiotic adjustment, a clinical diagnosis of septic pelvic thrombophlebitis was made, and the patient presented a good response to anticoagulation in conjunction with broad-spectrum antibiotic therapy.

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1. Introduction

Septic pelvic thrombophlebitis (SPT) is a well-recognized but uncommon puerperal complication (about 1 in 3000 deliveries). It is more frequent after caesarean section (1/800 compared with 1/9000 after vaginal delivery) [1,2], probably due to a higher rate of puerperal infection [3]. In the past, the condition was far more prevalent; its management was almost solely surgical and it was associated with high mortality rates. Currently, prognosis has improved but it still can result in life-threatening conditions [4]. There are two types of SPT, ovarian vein thrombophlebitis (OVT) and deep septic pelvic thrombophlebitis (DSPT), which may differ in clinical presentation and diagnostic findings but share pathogenic mechanisms and often occur together. SPT is an important differential diagnosis of abdominal pain and fever in the postpartum period and diagnosis may be challenging.

We describe the case of a patient who developed fever and right abdominal pain three days after an uncomplicated caesarean delivery in which SPT was the final diagnosis.

2. Case Report

A 41-year-old previously healthy primigravid woman, with a pregnancy complicated by short cervix and gestational diabetes, underwent a non-programmed caesarean section at 36 weeks of gestation in our

hospital due to breech presentation in labour. Antibiotic prophylaxis with cefazolin 2 g was administered perioperatively and the surgery was uneventful, with the delivery of a male infant weighing 3150 g.

On postpartum day 3 the patient reported fever, chills and a constant abdominal pain in both flanks but stronger on the right side. She denied any respiratory or urinary symptoms or fetid lochia and her intestinal transit was normal. Physical examination revealed a tympanic temperature of 39 degrees Celsius and normal pulse and blood pressure. Lungs, abdomen and legs were normal on examination and the surgical wound was healing positively. Uterine palpation elicited slight pain. Blood analysis revealed a white blood count of 15,800/ μ L with 85.9% neutrophils and elevated C-reactive protein (17.97 mg/dL). Urinalysis was normal. Pelvic ultrasound and abdominal radiography were negative.

The patient was started on intravenous antibiotic therapy with amoxicillin 2000 mg/clavulanic acid 200 mg q8 hours for suspected endometritis. Because of occasional fever spikes and right abdominal pain, on postpartum day 6 diagnostic evaluation was continued. Blood analysis revealed a higher white blood count (19,000/ μ L) and a higher C-reactive protein value (35.33 mg/dL). The international normalized ratio was slightly increased (1.3) but partial thromboplastin time was normal (28.5 s). The antibiotic therapy was switched to ampicillin 2 g, gentamycin 80 mg and clindamycin 900 mg q8 hours and an abdominal ultrasound was requested for exclusion of abscess or infected intra-abdominal haematoma.

On postpartum day 8, despite improvement of the blood results (13,900/ μ L leukocytes and C-reactive protein of 16 mg/dL), ultrasound revealed a focal lesion in the myometrium that suggested an abscess.

On postpartum day 10, because of persistent fever spikes, a pelvic and abdominal computed tomography (CT) scan was obtained. It

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showed a small amount of intra-peritoneal fluid and bilateral heterogeneity in the lumen of the external iliac veins. Blood culture and urine culture were undertaken and the patient underwent a chest X-ray, which was normal.

On postpartum day 16, the results of the blood and urine cultures were reported to be negative but despite improvements in the level of pain, the patient maintained fever spikes. In consequence, a clinical diagnosis of SPT was suspected. The patient was started on broad-spectrum antibiotics (piperacillin 4000 mg/tazobactam 500 mg and metronidazole 500 mg q8 hours) and enoxaparin 40 mg/0.4 mL once a day. There was a good clinical response after 7 days of combined antibiotic and anticoagulant therapy. Another CT scan was performed; it did not reveal any evidence of thrombosis.

The patient was discharged on the 6th day of apyrexia in a stable condition, with prescription of metronidazole 500 mg q8 hours and enoxaparin 40 mg/0.4 mL once a day for 5 more days. The patient was doing well at the 3-week follow-up consultation (Fig. 1).

3. Discussion

Since the first case of SPT described at the end of the 19th century, knowledge of the condition has increased substantially.

There are probably several factors necessary for the development of SPT, including some combination of infection, inflammation and thrombophilia [2], which explains why the postpartum period, especially after caesarean section, is especially vulnerable to the occurrence of SPT. Indeed, endothelial damage (secondary to uterine infection or due to the trauma of delivery or surgery), venous stasis (because of pregnancy-induced ovarian venous dilatation and low postpartum ovarian venous pressure) and the well-known hypercoagulable state of pregnancy contribute to the creation of a thrombogenic environment

[5]. The single risk factor for SPT identified in this case was the caesarean delivery.

Typically, patients with OVT appear clinically ill, with fever and abdominal pain located on the side of the affected vein, flank or back, within one week after delivery or surgery [3,6]. Patients with DSPT usually present three to five days after delivery or surgery with an unfocalized fever, which may be the only symptom; that symptom commonly persists despite antibiotics. Patients appear clinically well between fever spikes and pain is usually absent.

The diagnosis of SPT poses a challenge, given that there is no definitive laboratory test for it. Leukocytosis is modest and blood cultures are positive in less than a third of cases [6]. In this case, analytical parameters of inflammation improved after triple antibiotic therapy, although patient's clinical condition was unchanged.

A direct diagnosis of SPT is rarely made by imaging. While ultrasound is not useful in diagnosing SPT directly, it may have a role in excluding differential diagnoses [7]. Although in some patients CT scan or magnetic resonance imaging (MRI) can be useful for diagnosis of OVT, by demonstration of an enlargement and a filling defect within the ovarian vein [7,8], small uterine vein branches are difficult to visualize [1]. Thus, a negative imaging study cannot exclude SPT. In this particular case, the non-specific CT findings were interpreted as normal in the postpartum period. Indeed, in two randomized controlled trials the incidence of definite pelvic vein intraluminal filling defects, diagnosed by MRI venography in asymptomatic women, was much higher than anticipated (46% in women at moderate to high risk of thrombosis after C-section [9] and 30% in women at low risk after vaginal delivery [10]). The authors suggested that some degree of pelvic vein intraluminal filling defect may be a normal finding in the postpartum period and that conditions such as SPT may be overdiagnosed in clinical practice. The natural course of uterine involution following

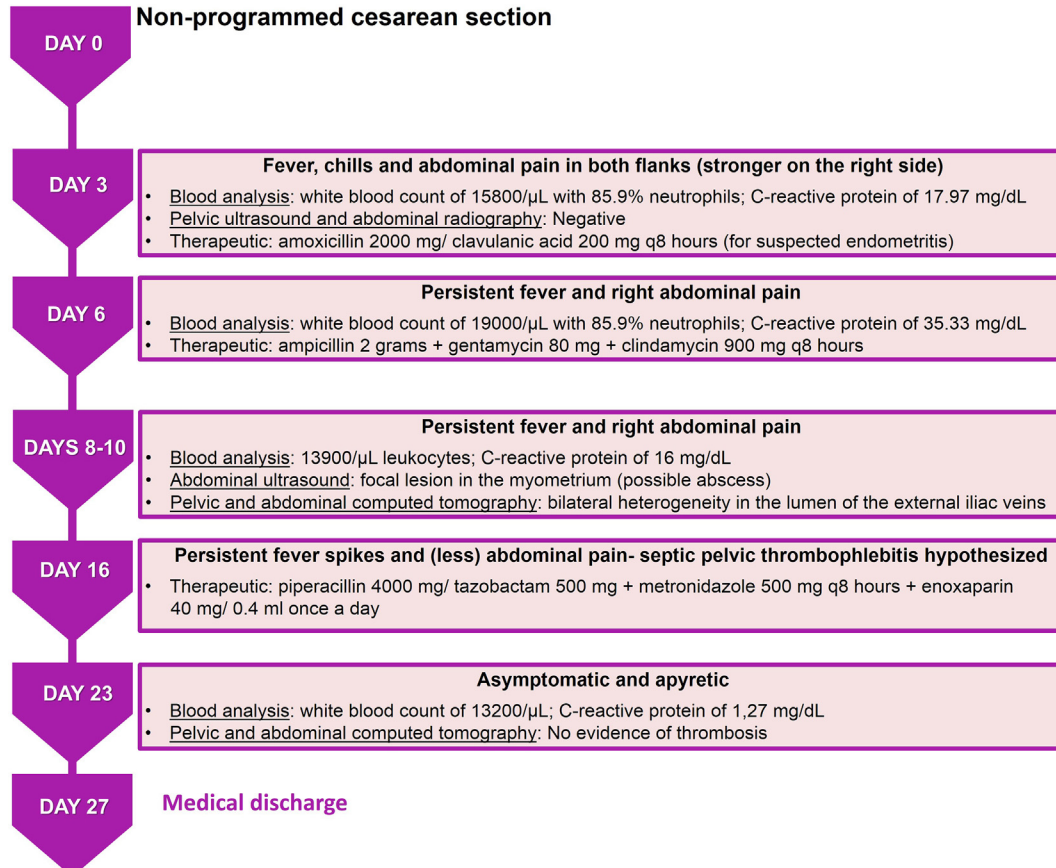


Fig. 1. Schematization of the clinical case.

delivery may involve pelvic vein thrombosis, so the timing and interpretation of pelvic studies in a postpartum setting must be cautious [11]. Besides, our patient complained of pain in the right flank but the reported heterogeneity in the lumen of the external iliac was bilateral.

Given that SPT is frequently misdiagnosed (often as appendicitis, endometritis, urinary infection, adnexal torsion or pelvic abscess) and there are no specific auxiliary exams, its diagnosis requires a high level of clinical suspicion.

Treatment of this disorder includes antibiotic therapy and anticoagulation, although there is no consensus on this [1,4,5]. The selection of antibiotics for managing SPT is extrapolated from the literature on postpartum endometritis, since at the time when a presumptive diagnosis of SPT is made, most patients will have already been receiving broad-spectrum parenteral antibiotics to cover the common pathogens of endometritis [5,6]. The duration of the antibiotic therapy is not strictly defined [5]. At the time of suspicion of SPT, our patient had already received the “triple antibiotic regimen” recommended for most puerperal infections, but without clinical improvement, so broad-spectrum antibiotic therapy with piperacillin, tazobactam and metronidazole was prescribed.

The use of anticoagulants for the treatment of SPT is advocated by many authors [3,5,12], in order to prevent further thrombosis and embolism and reduce the spread of septic emboli. However, there are no defined guidelines for anticoagulation therapy. Several experts guide the duration of anticoagulation based on imaging studies of thromboses, their localization and their persistence after initial treatment [3,5,12]. In this case, as the first CT scan was not enlightening, it was decided to do a second CT scan directed to SPT, in order to guide management. Although the presence of pelvic thrombi was not confirmed, given the prolonged nature of the clinical picture we decided to maintain anticoagulation for two weeks after presuming STP.

Although there is a lack of studies addressing this effect, apparently the recurrence rate is low and similar to that of thrombosis in the legs [1,13].

In conclusion, this case highlights the risk factors for the development of SPT, and also the management and treatment of the condition. Because it is an infrequent complication, with non-specific clinical manifestations and often negative imaging findings, the diagnosis is challenging and can be delayed. The key to the diagnosis of SPT is to consider it among the differential diagnoses for postpartum persistent puerperal fever, especially when it is resistant to broad-spectrum antibiotic therapy and resolves after systemic anticoagulation.

Given the large number of caesarean sections currently performed, the number of cases of SPT may be set to increase. In this context, we hope this case report helps physicians become aware of this complication and thereby avoid delay in its diagnosis and treatment.

Contributors

Margarida da Silva Cunha contributed to the management of the patient. She initiated the conception, design and writing of the article. She also coordinated the article preparation, drafting and critical review.

Ana Beatriz Godinho contributed to the management of the patient, as well as conception and critical review of the article.

Rosário Botelho contributed to the critical review of the article.
Pinto de Almeida contributed to the critical review of the article.

Conflict of Interest

The authors declare that they have no conflict of interest regarding the publication of this paper.

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Consent

Informed consent to publish this case report was obtained from the patient.

Provenance and Peer review

This case report was peer reviewed.

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