

# Septic Pelvic Thrombophlebitis Following Laparoscopic Hysterectomy

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## ABSTRACT

**Background:** The diagnosis of septic pelvic thrombophlebitis is frequently one of exclusion; a suspicion should arise when fever fails to respond to standard broad-spectrum antibiotic therapy and defervesces within 48 hours of the addition of systemic anticoagulation. The risk of a thromboembolic event following minimally invasive surgery is not well defined.

**Case Report:** We report the first case of septic pelvic thrombophlebitis following laparoscopic hysterectomy in a 51-year-old woman who developed fever on postoperative day 4. The fever workup was negative. The patient's temperature spikes were unresponsive to medical management. A clinical diagnosis of septic pelvic thrombophlebitis was made, and the patient responded excellently to anticoagulation in conjunction with antibiotic therapy.

**Conclusion:** Although rare, septic pelvic thrombophlebitis should be suspected after laparoscopy in patients with appropriate risk factors and persistent fever despite antibiotic therapy. Considerable benefit will be derived from clinical trials that study and provide data on the risk and incidence of thromboembolism after laparoscopic procedures.

**Key Words:** Septic pelvic thrombophlebitis, Laparoscopy, Hysterectomy, Postoperative fever.

## INTRODUCTION

Septic pelvic thrombophlebitis (SPT) was initially described at the end of 19th century. The entity was then frequent and resulted in a 50% rate of mortality. Since then, with a better understanding of the pathophysiology of the disease and the availability of new drugs, management has evolved greatly and the incidence has been reduced. Diagnosis continues to be challenging and is still, usually, one of exclusion. The treatment of SPT has switched from a surgical excision or ligation of the thrombosed veins to a medical approach.

Two types of septic pelvic thrombophlebitis (SPT) have been described: ovarian vein thrombophlebitis (OVT) and deep septic pelvic thrombophlebitis (DSPT). These 2 entities share common pathogenic mechanisms and often occur simultaneously. However, they may differ in their clinical presentations.

Typically, patients with SPT present with fever within 1 week of delivery or surgery. Septic workup fails to identify the origin of the fever, which persists despite large-spectrum antibiotics. Addition of systemic anticoagulation resolves the fever within 48 hours.

To the best of our knowledge in the English-language literature, SPT has never been reported to be associated with laparoscopic surgery. We report the first case of SPT occurring 4 days after a total laparoscopic hysterectomy.

## CASE REPORT

A 51-year-old female with previous left salpingo-oophorectomy underwent a difficult laparoscopic hysterectomy with right salpingo-oophorectomy for extensive endometriosis and menometrorrhagia. Her past medical history was significant for type 2 diabetes, hypertension, hypothyroidism, adrenal insufficiency, and a BMI > 30. Antibiotic prophylaxis, heparin prophylaxis, and cortisol replacement were administered perioperatively. The patient had transient unexplained asymptomatic sinus tachycardia up to 124 beats per minute during the first postoperative night, which improved spontaneously. She was discharged the following day in stable condition.

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The patient came back on postoperative day 6 (POD) reporting fever and chills since POD4, which had gradually worsened. She denied any respiratory or urinary symptoms, calf pain, abdominal pain, or vaginal discharge. She reported 10 episodes of diarrhea within 2 days. Temperature on presentation was 39.4°C. Lungs, abdomen, and calves were normal on examination. Office ultrasound revealed a 51x31x28-mm heterogeneous tender collection at the vaginal cuff.

The patient was admitted for postoperative fever. A complete fever workup was done. Chest radiography, urine culture, hemoculture, and clostridium difficile assay were negative, and white blood count was normal. She was started on intravenous antibiotic therapy (ampicillin, gentamicin, and clindamycin) for suspected infected vaginal vault hematoma. A pelvic tomodensitometry confirmed a small triangular structure in the pelvis near the sigmoid colon. This did not appear to contain significant drainable fluid. The internal medicine department was consulted for evaluation of diarrhea and resulting hypokalemia as well as suboptimal glycemic control. In the absence of improvement of the fever, the infectious disease department was also consulted, and antibiotic therapy was changed to Zosyn. The patient was subsequently taken to the operating room on POD11 for a diagnostic laparoscopy. No evidence of pelvic collection, hematoma, or infection was found. Pelvic cultures were negative. At this point, as persistent fever spikes were not otherwise explained, a clinical diagnosis of septic pelvic thrombophlebitis was suspected. Doppler sonography of the lower extremities was negative. On POD12, heparin therapy was added to the intravenous antibiotic regimen. From this point, the patient's temperature normalized. After a 48-hour afebrile period, both medications were stopped, and the patient was discharged home in stable condition. She was doing excellently at 5-week follow-up.

## DISCUSSION

The pathophysiology of SPT was initially described in a cohort of 70 women with fever following obstetric or gynecologic procedures in 1951.<sup>1</sup> The diagnosis was confirmed in each case by exploratory laparotomy, which demonstrated grossly palpable intravenous thrombus and seropurulent fluid. Histopathologic study showed perivascular and intimal inflammatory exudates with micro abscesses but rare bacteria.

Clinically, patients with SPT usually present with fever within 5 days of delivery or surgery, but the onset may be delayed to up to 3 weeks following the event. Abdominal

or pelvic tenderness is notably absent, and patients usually appear clinically well between fever spikes. Pulmonary emboli rarely complicate SPT and tend to be limited.<sup>2</sup> The mortality now seems to be below 5%.<sup>3,4</sup>

Numerous factors confer increased risk for SPT, such as pregnancy (1 in 3000),<sup>5</sup> cesarean delivery (1:800 compared with 1:9000 for vaginal delivery),<sup>5</sup> pelvic infection, induced abortion, pelvic surgery, uterine fibroids, underlying malignancy, and hormonal stimulation. Those conditions create an environment where the 3 components of Virchow's triad for the pathogenesis of thrombosis (hypercoagulable state, venous stasis, and endothelial damage) are present.

SPT is a diagnosis of exclusion. Radiographic imaging, such as computed tomography or magnetic resonance imaging, can reveal OVT but is virtually useless for visualizing DSPT. Leukocytosis is modest, and hemocultures are positive in less than a third of cases revealing mainly gastrointestinal flora. Suspicion should arise in patients at risk when spiking fever fails to respond to broad-spectrum intravenous antibiotic therapy. The resolution of fever within 48 hours of empiric systemic anticoagulation should confirm the diagnosis.

Anticoagulation is advocated for the management of SPT<sup>2,6</sup> to a goal PTT of 1.5 to 2.0 times the patient's baseline. If SPT or emboli are documented radiologically, anticoagulation should be continued for a longer period. In the absence of documented clot or underlying thrombophilia, most clinicians favor discontinuing heparin following resolution of fever for at least 48 hours. Selection of antibiotics for management of SPT is extrapolated from literature addressing postpartum endometritis and should include activity against *Enterobacteriaceae*, anaerobes, and streptococci.

Review of the English-language literature reveals no reports of previous cases of SPT associated with laparoscopic surgery. The incidence of perioperative deep and superficial thrombophlebitis is lower after laparoscopic compared with open surgery.<sup>7</sup> However, data are limited and evidence-based guidelines regarding the need for thromboprophylaxis during laparoscopic surgery in gynecology are still lacking. There is substantial variability in the current practices regarding deep venous thrombosis prophylaxis for minimally invasive surgery.<sup>8</sup> Considerable benefit could be derived from clinical trials studying the risk of DVT during different laparoscopic gynecologic surgeries and the benefit to expect from prophylaxis.

A high index of suspicion is the cornerstone in the management of patients with septic pelvic thrombosis. It seems that minimally invasive surgery may contribute to its pathogenesis and should be considered as a risk factor in high-risk patients with compatible clinical presentation. We hope that this case report can help physicians become aware of this rare but serious complication and to avoid delay in diagnosis and treatment.

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