

CASE REPORT



## A rare case of pylephlebitis after colonic polypectomy

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### ABSTRACT

Pylephlebitis or infective suppurative thrombosis of the portal mesenteric venous system is an uncommon condition that can potentially be deadly if not recognized and treated early. Although most commonly associated with pancreatitis and diverticulitis, any intra-abdominal or pelvic infection occurring in the region drained by the portal venous system can cause this rare entity. We report a case of a 75-year-old woman who developed post polypectomy pylephlebitis following colonoscopy, a condition rarely reported in the literature.

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## 1. Introduction

Pylephlebitis, or suppurative thrombophlebitis of the portal mesenteric venous system, is an uncommon condition associated with significant morbidity and mortality.[1] It most commonly presents with abdominal pain and fever, and may complicate intra-abdominal or pelvic infection occurring in the region drained by the portal venous system. The most common causes include pancreatitis and diverticulitis along with other intra-abdominal inflammatory processes.[2] An associated hypercoagulable state is found in approximately 40% of patients.[3] It has been reported as a complication of hemorrhoidal banding, intragastric migration of a silicone gastric band, and computerized tomography (CT)-guided liver biopsy.[4–6] Post-colonoscopy pylephlebitis has rarely been reported in the literature,[7] and diagnosis in this setting is often challenging owing to non-specific symptoms at presentation. In this report, we will outline the approach to diagnosis and management of post colonoscopy pylephlebitis.

## 2. Case presentation

A 75-year-old female with a history of colon polyps underwent a screening colonoscopy which showed indeterminate colitis. The patient did not have any gastrointestinal symptoms prior to the procedure. A single-piece polypectomy of a sessile 3 mm transverse colon polyp was performed that revealed tubular adenoma. Two weeks later she presented to the

emergency department with complaints of fever, malaise, melena, occasional nausea, vomiting and lower quadrant abdominal pain. The patient stated that the melena started after the colonoscopy and had decreased in frequency and severity over time. The review of system was otherwise unremarkable. On examination, she was febrile (38.7°C) and tachycardic (heart rate 117 bpm), with mild tenderness in the right lower quadrant, while the rest of the examination was unremarkable. Laboratory tests showed white blood cell count of 19,600 cells  $\mu\text{l}^{-1}$  (reference range 4800–10,800 cells  $\mu\text{l}^{-1}$ ) and normal hemoglobin, liver enzymes and coagulation profile. Blood cultures were obtained and she was started on intravenous piperacillin and tazobactam. A CT of the abdomen showed gas which tracked along the inferior mesenteric vein to the portal vein, and to a limited degree into the liver. There was no evidence of pneumatosis or pneumoperitoneum. A hyperdensity within the portal vein was also visualized on the CT scan (Figure 1). A hepatoportal ultrasound showed moderate non-occlusive thrombus within the main portal vein (Figure 2). Blood cultures turned positive for *Bacteroides fragilis*, while stool studies were negative. These findings were highly suggestive of pylephlebitis. She was cautiously started on unfractionated heparin. Repeat blood cultures after 48 h of IV antibiotics returned negative. The patient was switched to ciprofloxacin and metronidazole orally to complete a total of six weeks of antibiotics as per infectious disease recommendations. The heparin was transitioned to dabigatran for at least

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**Figure 1.** Computerized tomography of the abdomen showing hyperdensity (clot) in the portal vein.



**Figure 2.** Abdominal ultrasonography revealing moderate non-occlusive thrombus within the main portal vein.

three months of anticoagulation. Upon follow-up with gastroenterology as outpatient, the patient was symptom free at three months and hence the anticoagulation was discontinued.

### 3. Discussion

Pylephlebitis was first described in 1846 by Waller, who discovered it as the source of a hepatic abscess during autopsy. Although the exact incidence of this uncommon entity is not certain as experience is mainly limited to case reports and series, estimates suggest it to be 2.7 per 100,000 person-years.[8,9] It begins with thrombophlebitis of small veins draining an area of infection. Further extension into the larger veins leads to septic thrombophlebitis of the portal vein and eventually of

the mesenteric veins.[10] Presenting symptoms often include fever and abdominal pain while rigors, nausea and vomiting are less commonly reported.[1]

The diagnosis of pylephlebitis is often delayed since it is an uncommon condition that can present with non-specific symptoms, but due to advances in diagnostic imaging such as CT and ultrasonography, there has been an increased recognition of this condition. Diagnostic imaging modalities depend on individual expertise but both ultrasonography and CT scan may reveal the thrombus in the portal vein. CT scan provides the advantage of identifying an underlying focus of infection elsewhere in the abdomen or pelvis.[11] In our patient, diagnosis was established with both imaging modalities. Bacteremia can be present from 44 to 88% of cases and hence it is important to draw blood cultures

in patients presenting with fever and gastrointestinal symptoms.[1,2] The bacteremia is often polymicrobial and *Bacteroides fragilis* is the most common isolate reported, as was seen in our patient.[1]

Routine colonoscopy with polypectomy is associated with a low rate of bacteremia, with mean rates of around 4%.[12] Pylephlebitis owing to colonic polypectomy has been rarely reported. Gallinger et al. [7] reported a 78-year-old female with a history of IgM monoclonal gammopathy of unknown significance (MGUS) who developed pylephlebitis following polypectomy performed six weeks prior to presentation. The index patient was at high risk of pylephlebitis due to the underlying hypercoagulable state. Our patient presented within two weeks of polypectomy and had no evidence of underlying hypercoagulable condition.

Antibiotics constitute the major treatment for pylephlebitis. No randomized trials have evaluated the optimal antibiotic regimen for this disease. The empiric antibiotic regimen should be based on the probable source of infection. As the infection is often polymicrobial, the antibiotic regimen should ideally include coverage for both Gram-negative aerobes and anaerobes, especially *Bacteroides fragilis*. The typical duration of antibiotic therapy is at least four to six weeks.[1] There is no general consensus on the use of or duration of anticoagulation therapy. Studies suggest three to six months of anticoagulation treatment if no other underlying thrombotic disease is present.[13] The rationale for anticoagulation is to prevent propagation of thrombus and further complications. Kanellopoulou et al. [14] reported that the early use of anticoagulation in portal vein thrombosis may minimize serious sequelae and speed up recanalization. Choudhry et al. [2] also reported a lower mortality likely attributed to the early use of anticoagulation. We opted for anticoagulation based on the lower reported mortality in the recent literature.

In summary, our patient most likely suffered an uncommon complication of colonoscopy. Although rare, pylephlebitis should be considered in the differential diagnosis of patients presenting with unexplained fever and gastrointestinal symptoms after endoscopic procedures.

### Disclosure statement

No potential conflict of interest was reported by the authors.

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