

## **Pylephlebitis: An Uncommon Complication of a Sigmoid Diverticulitis**

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### **Abstract**

Septic portal thrombophlebitis secondary to acute diverticulitis (known as pylephlebitis) is a rare entity, whose incidence has increased in recent years due to the progress and performance of imaging tests such as computerized axial tomography and abdominal ultrasound.

We present the case of a 69-year-old patient admitted to our center due to abdominal pain and fever secondary to uncomplicated acute diverticulitis, who presented with a complete portal thrombosis during his admission.

Pylephlebitis is an uncommon but potentially lethal entity whose diagnostic delay may imply an increase in patient mortality. Despite the development of new antibiotics and anticoagulants, the mortality rate in the different series remains around 35%. The most important thing to achieve the reduction of these mortality figures would be to establish an early diagnosis of the disease, locate with certainty the infectious focus causing portal thrombosis and initiate the treatment indicated by broad-spectrum antibiotics, anticoagulants and hemodynamic support.

**Keywords:** Pylephlebitis; Diverticulitis; Liver Abscesses; *Bacteroides Fragilis*; Acute Cholecystitis

### **Abbreviations**

MRI: Magnetic Resonance Imaging; CT: Computerized tomography

### **Introduction**

Pylephlebitis or suppurative thrombophlebitis of the portal venous system is the term by which septic thrombophlebitis of the portal venous system is known, secondary to an intraabdominal inflammatory or infectious process [1,2].

Currently, the most frequent cause of pylephlebitis is sigmoid colon diverticulitis, followed by acute appendicitis [3]. Other causes of pylephlebitis described in the literature include ascending colon diverticulitis, pelvic infections, cholecystitis, cholangitis, pancreatitis and cases of inflammatory bowel disease, although in 70% the cause is unknown [4-7].

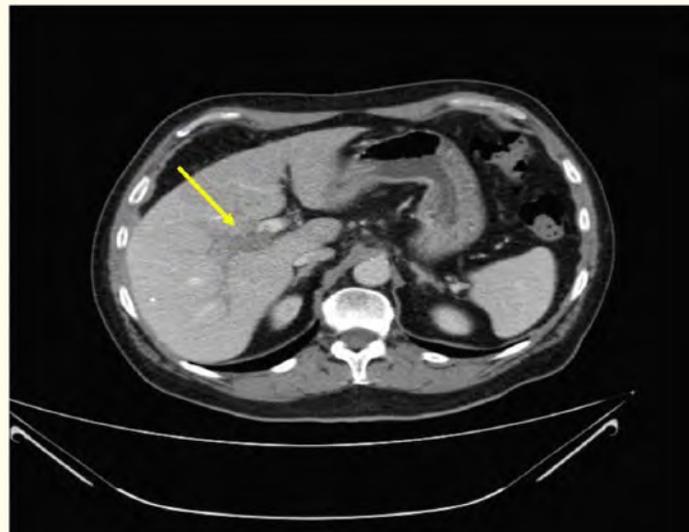
It is a little known but potentially lethal disease. We present a case of a 69-year-old patient who developed during his admission a pylephlebitis secondary to acute diverticulitis of the sigmoid colon.

### **Case Report**

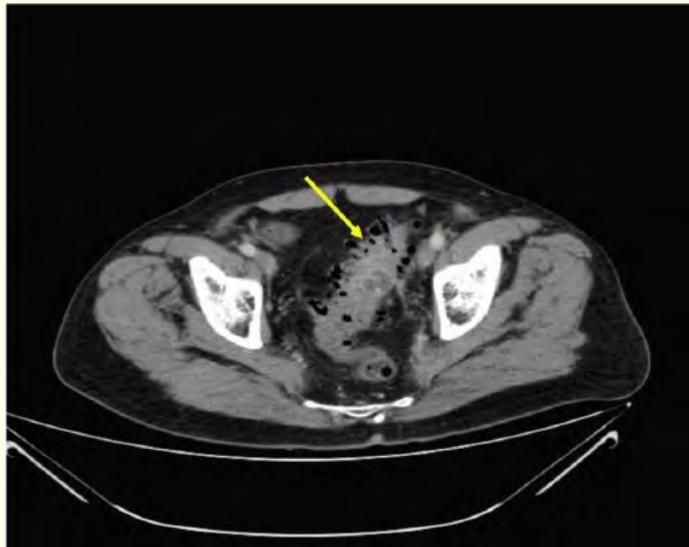
A 69-year-old male patient with no medical history of interest was admitted to the Emergency Department due to abdominal pain and fever of 38.5°C. The patient was hemodynamically stable with blood pressure values of 124/72 mm Hg and a heart rate of 96 beats per minute.

In the laboratory tests, leukocytosis was obtained with neutrophilia and alteration of the hepatic profile, with elevation of AST and ALT with normal levels of bilirubin, which he was admitted in order to complete the diagnosis.

After performing pelvic abdomino-CT scan, complete thrombosis of the right and possibly partial portal vein of the main portal vein (Figure 1) was observed with alterations in the density of the right hepatic lobe together with findings suggestive of acute diverticulitis at the uncomplicated sigmoid level (Hinchey I) (Figure 2).



**Figure 1:** CT Scan showing portal thrombosis.



**Figure 2:** CT Scan. Yellow arrow indicates the mural thickening of a segment of sigma compatible with acute diverticulitis.

Treatment was started empirically using Piperacillin-Tazobactam at a dose of 4.5 g/8 hours i.v. In blood cultures taken in the Emergency Department, a bacteroides fragilis sensitive to piperacillin grew. After requesting an assessment for the Hematology service, anticoagulation was initiated by low molecular weight heparin, which were subsequently substituted with acenocoumarol.

The patient presented clinical improvement and could be discharged after 3 weeks of admission to our center.

**Discussion**

Pylephlebitis was initially described by Waller in 1846 and later by Dieulafoy in 1898 as a source of multiple liver abscesses after performing clinical autopsies in patients who died of acute appendicitis [2,7].

Its incidence has increased in recent years, due to technological advances in imaging tests such as computed tomography and abdominal ultrasound, with an annual incidence of 2.7 per 100,000 inhabitants per year [2,8]. There is no predominant age, although it is described more frequently in males [3].

Pylephlebitis is a rare complication described after an episode of acute diverticulitis, occurring in approximately 3% of cases, especially in patients older than 70 years of age [6,9]. It is associated with hypercoagulability states, trauma or abdominal surgery.

It is non-specific clinical presentation. It may debut in asymptomatic individuals as a casual finding or as a picture of abdominal pain associated with nausea, vomiting, jaundice and / or fever, which may end in septic shock or liver failure [8].

In the laboratory, leukocytosis with neutrophilia can be found in most patients, as in our patient, as well as elevated liver enzymes.

Abdominal ultrasound has a good sensitivity, both for the identification of echogenic material inside the portal vessels and to reach the diagnosis of the cause that originated it (appendicitis, acute cholecystitis, etc.) [7]. However, the test of choice is the computerized axial tomography with intravenous contrast because it allows to check the permeability of the portomesenteric venous system, to assess the possibility of liver abscesses and to locate the infectious abdominal focus.

In recent years, ultrasound with Doppler flow has shown that it can provide information on portomesenteric flow [8] (Figure 3). MRI can help differentiate acute from other chronic processes [1].



**Figure 3:** Hepatotropic flow visualized after performing Doppler ultrasound.

The most frequent responsible microorganism is *Bacteroides Fragilis* followed by *Escherichia coli*, with 50-88% of positive blood cultures being reassured. Other microorganisms described are *Proteus mirabilis*, *Clostridium* species, *Klebsiella* species and *Streptococcus* species [1,3].

Apparently, some of the capsular components of the bacterium stimulate the coagulation cascade, giving rise to a state of hypercoagulability, predisposing to portal thrombosis by venous dissemination [3].

The main treatment is the control of the triggering cause (appendectomy, cholecystectomy, etc.) and then initiate broad-spectrum antibiotic therapy with coverage for Gram-negative and anaerobic bacilli, staying for 4 weeks (or up to 6 weeks, it is a case of liver abscess). In general, in the case of liver abscesses less than 3 cm, treatment with prolonged antibiotic therapy should suffice, while those greater than 3 cm should be candidates for drainage (percutaneous or surgical) [10]. Some authors describe as antibiotic therapy schemes the use of metronidazole, gentamicin, piperacillin, imipenem and/or ampicillin [3].

Finally, the indication of anticoagulation is controversial. It seems clear the indication in those states of hypercoagulability as protein S deficiency, protein C deficiency, antithrombin III deficiency, anti-cardiolipin antibodies or tumors. The objective of anticoagulation is to prevent ischemia or intestinal infarction due to extension of the venous thrombus. Some authors such as Kanellopoulou have found a better prognosis in those patients who were anticoagulated during an episode of pylephlebitis compared to those who did not receive anticoagulant treatment [11].

### Conclusion

In conclusion, pylephlebitis is a rare entity whose incidence has been increasing in recent years. Its rapid identification and correct treatment has a positive effect on the prognosis, reducing its mortality, which can reach figures of up to 25%.

### Conflict of Interest

There is no conflict of interest.

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