

# Pylephlebitis due to acute cholecystitis and cholangitis

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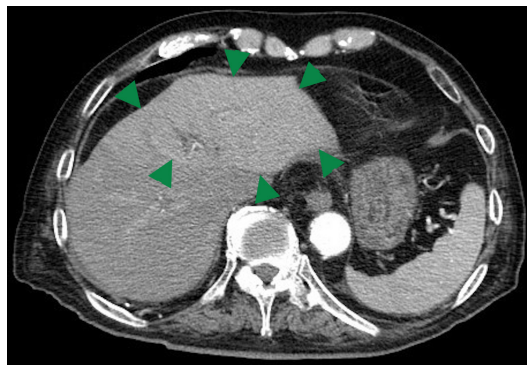
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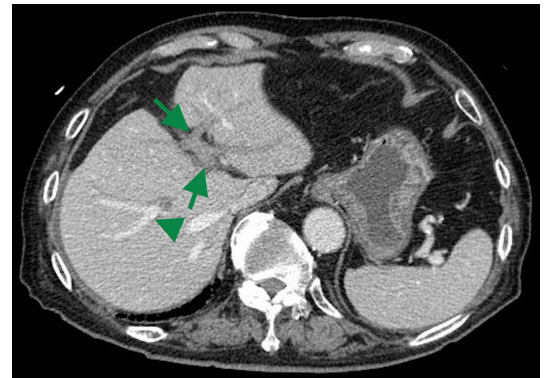
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## DESCRIPTION

On 20 October 2020, an 88-year-old man presented with a 12-hour history of right upper abdominal pain, nausea and vomiting. His medical history included that of iliopsoas and epidural abscesses 3 years before presentation, which made him bedridden. Physical examination revealed body temperature of 37.0°C, pulse rate of 89 beats per minute, respiratory rate of 22 breaths per minute, blood pressure of 81/52 mm Hg and oxygen saturation of 91% on ambient air. Abdominal examination revealed a positive Murphy's sign. Laboratory tests showed white cell count of  $11.5 \times 10^9/L$  with neutrophils of 94.7%, C reactive protein of 4.31 mg/dL, total bilirubin of 4.22 mg/dL, direct bilirubin of 2.47 mg/dL, aspartate aminotransferase of 826 U/L, alanine aminotransferase of 477 U/L, alkaline phosphatase of 734 U/L and gamma glutamyl transpeptidase of 222 U/L. *Escherichia coli* was found to grow rapidly in the blood cultures. Abdominal contrast CT revealed swollen gallbladder with thickened wall, with extended cystic and common bile duct. Small higher density area was noticed in his duodenal papilla. At the early phase, the left hepatic lobe was brighter than the right hepatic lobe (figure 1). At the portal vein phase, there was thrombosis of the left portal vein (figure 2). Pylephlebitis due to acute cholecystitis and cholangitis was diagnosed, and empiric antibiotics therapy and emergency endoscopic retrograde biliary drainage were started. Anticoagulant therapy was also started. However, on day 6, the anticoagulant therapy was discontinued because of intestinal bleeding. As of 30 November 2020, antibiotics were extended for 6 weeks, after which the patient recovered.



**Figure 1** Abdominal contrast CT at the early phase showing the left hepatic lobe to be brighter than the right hepatic lobe (arrowheads).



**Figure 2** Abdominal contrast CT at the portal vein phase showing thrombosis of the left portal vein (arrows: intraportal thrombus, arrow head: normal portal vein).

Pylephlebitis, which is the septic thrombophlebitis of the portal vein and its tributaries, is a rare complication in an abdominal infection.<sup>1</sup> Appendicitis and diverticulitis used to account for most of the causes,<sup>2</sup> but in recent years, the proportion of pylephlebitis caused by liver abscesses and cholangitis has increased.<sup>3 4</sup> Although there is no established treatment, clinicians should not overlook this disease because it is lethal, and long-term antimicrobial and anticoagulation therapy should be considered.<sup>1</sup> The role of anticoagulation in the management of pylephlebitis is controversial, and data regarding its impact on outcomes is limited. In fact, this case was complicated by bleeding. However, recently a large retrospective study showed that anticoagulation significantly improves the rate of portal vein thrombosis resolution, and significantly reduces the rate of chronic symptomatic portal hypertension without the increasing risk of major bleeding, among patients with pylephlebitis.<sup>5</sup>

A wedge-shaped enhancement effect of the portal vein occlusion area may be observed in the early arterial phase on CT.<sup>6</sup> It is speculated that the effect is due to a compensatory increase in hepatic arterial blood flow caused by portal vein occlusion.<sup>6</sup> If there is the effect of the liver in a patient with cholangitis, we should suspect a thrombus in the portal vein on the side that is being contrasted. A high level of suspicion is required and abdominal contrast CT can make an early diagnosis.

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## Learning points

- ▶ The proportion of pylephlebitis caused by cholangitis has increased.
- ▶ In pylephlebitis, a wedge-shaped enhancement effect of the portal vein occlusion area may be observed in the early arterial phase on CT.

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