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Fatal outcome of pylephlebitis treated with transhepatic percutaneous drainage

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ABSTRACT

Pylephlebitis, also called suppurative endophlebitis of the portal vein, is a rare potentially life-threatening acute abdominal complication of an intra-abdominal inflammatory process. Only early recognition substantially reduces the catastrophic mortality. As its clinical picture is fairly nonspecific, radiological findings, while not pathognomonic, are of great use in early diagnosis and management of these patients. We report a rare case of pylephlebitis with no identified intraperitoneal septic process in a 75-year-old man. Diagnosis was suspected on imaging features and confirmed with percutaneous transhepatic needle puncture. Thereafter, a drainage catheter was placed into the intrahepatic portal system. After a transient clinical improvement during the three following days, the drainage stopped and the patient developed a septic shock requiring transfer to intensive care but he died approximately 24 h later.

1. Introduction

Pylephlebitis is a rare but serious condition associated with a high rate of mortality [1]. It is an acute ascending infection of the portal system arising from a primary intra-abdominal septic source. Diverticulitis, appendicitis and necrotizing pancreatitis are the most common causes [1–4]. Early recognition and adequate therapy of the underlying condition are important in preventing the fatal outcome. However, diagnosis could be challenging as clinical signs may be nonspecific, while radiographic features are not pathognomonic [1]. The mainstay treatment should include broad-spectrum antibiotics as well as the eradication of underlying disease [1,5]. Transhepatic percutaneous drainage of suppurative endophlebitis of the portal vein has been proven as an alternative therapy to surgical procedures [4,6–9]. We report a rare case of fatal outcome of pylephlebitis with nonidentified abdominal septic source, despite of percutaneous drainage of the intrahepatic suppurative portal system and appropriate antibiotic therapy. We describe imaging features of pylephlebite and we also discuss the role of percutaneous drainage of the intrahepatic infected portal venous system in the management of this severe complication.

2. Case report

A 75-year-old man was admitted to the hospital after 5 days history of abdominal pain, fever and diarrhea. His relevant past history included an endoscopic resection of prostatic adenoma 4 years ago and chronic obstructive pulmonary disease treated with bronchodilators. He was febrile, tachypnoeic and his blood pressure was 110/70 mmHg. Physical examination was unremarkable except for moderate abdominal tenderness in the upper right quadrant. Laboratory studies showed a white blood cell count of 19,100 cells/dL, blood urea nitrogen of 86 mg/dL, serum creatine of 17.6 mg/dL with no derangement in liver function.

Abdominal ultrasonographic examination showed thrombosis of the left portal vein. The right and the main portal veins were patent. There was no gallbladder thickening and the common duct was not enlarged.

The patient was put under broad-spectrum antibiotic therapy because of the infectious presentation and anticoagulation therapy was started. Blood cultures obtained before antibacterial therapy were later found to be negative for bacteria.

After normalization of renal function, 3 days later, an abdominal dynamic CT was performed with a helical single detector CT (SIEMENS Somatom Plus 4). Unenhanced and contrast-enhanced dynamic CT was performed. CT scan showed complete nonenhancing filling defect within the lumen of the left portal vein and partial defect in the right anterior and posterior portal veins (Fig. 1). There was transient high attenuation in the peripheral part of liver during arterial hepatic phase.

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Fig. 1. Transverse CT scan obtained in the portal phase demonstrates partial defect in the right anterior and posterior portal veins (arrows).

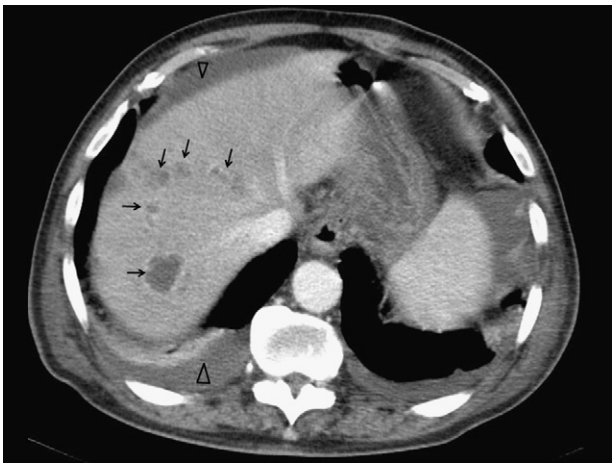

Fig. 3. Transverse CT scan in portal phase showing well-circumscribed hypodense cavities with peripheral rim enhancement in the right hepatic lobe (arrows). Note peritoneal and bilateral pleural effusion (arrowheads).

The patient remained pyrexial. He presented chills and upper right quadrant pain and went in the 7th day into a progressive septic shock. Thus a follow-up CT scan looking for intraperitoneal septic process was performed after stabilisation of the hemodynamic parameters. Repeat CT scan, performed 10 days after the first one and 2 weeks after admission to the hospital, showed extension of the thrombosis to all intrahepatic branches of the portal venous system (Fig. 2). There was no evidence of gas within portal venous system. It also showed well-circumscribed hypodense cavities with peripheral rim enhancement in the right hepatic lobe which diameters ranged from 10 to 30 mm evoking multiple abscesses (Fig. 3). One of these abscesses communicated with the thrombosed right anterior portal vein (Fig. 2). The main portal vein presented normal enhancement. No other source of intra-abdominal sepsis was identified. Peritoneal and bilateral pleural effusion appeared on this repeat CT. Diagnosis of pylephlebitis was suspected according imaging findings in conjunction with patient condition. Upon fine needle aspiration of the cavity that communicated with the right anterior portal vein, purulent material was obtained confirming our diagnosis (Fig. 4). Twenty milliliters of purulent material was aspirated and sent for culture. After multidisciplinary discussion, a percutaneous drainage of the suppurative portal thrombosis was indicated. A 10-Fr multipurpose catheter was placed into the right anterior and left portal veins through right hepatic approach using a Seldinger technique (Fig. 5). No complications were noted after the percutaneous drainage procedure. *Escherichia coli* grew by culture.

After percutaneous drainage, the patient defervesced quickly and had significant decrease in the amount of pain. The output from the drainage catheter was about 30 mL of purulent material a day and no appreciable blood returned with this drainage. After a transient clinical improvement during the three following days, the drainage stopped and the patient developed a rapid and profound septic shock with refractory hypotension requiring transfer to intensive care unit for mechanical ventilation and vasopressor support but he died approximately 24 h later.

3. Discussion

Pylephlebitis also called suppurative thrombophlebitis of the portal vein is a rare and acute life-threatening complication of intra-abdominal infection with a high rate of mortality [1]. For many years it was associated with an almost 100% mortality, but with the advent of broad-spectrum antibiotics and early surgical intervention, incidence and mortality have decreased. Pylephlebitis

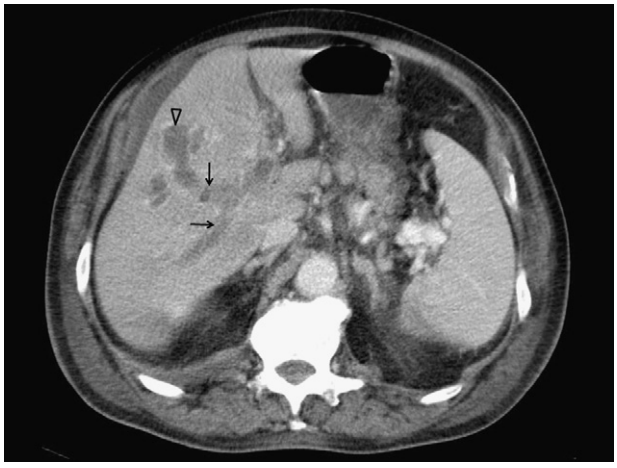

Fig. 2. Repeat CT scan in portal phase showing complete nonenhancing filling defect within the lumen of right anterior and posterior portal veins (arrows). Note an abscess communicating with the thrombosed right anterior portal vein (arrowhead).

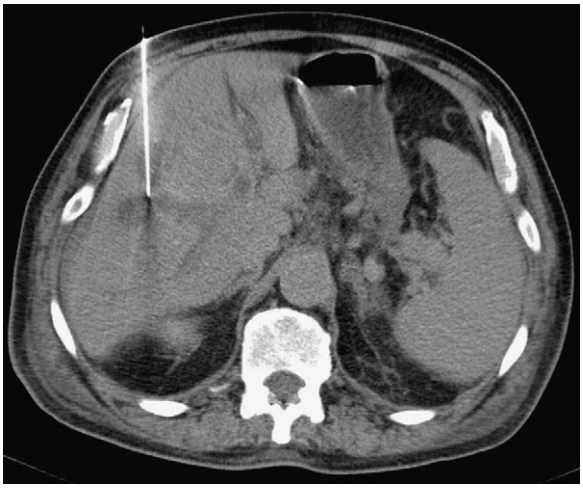

Fig. 4. Fine needle aspiration of the cavity that communicates with the right anterior portal vein.