

PYLEPHLEBITIS COMPLICATING PERIDIVERTICULITIS WITHOUT HEPATIC ABSCESS: EARLY DETECTION WITH CONTRAST-ENHANCED CT OF THE ABDOMEN

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Pylephlebitis is a very rare and dangerous complication of inflammatory abdominal processes, mainly appendicitis (1) and diverticulitis (2). We describe a case of peridiverticular inflammation leading to an extensive phlebitis of the adjacent sigmoid vein, extending to the inferior mesenteric vein up to the proximal portal vein, with distal embolus into the left portal vein. Contrast CT and multiplanar reconstructions allowed early diagnosis, and with antibiotic and anticoagulation therapy, no liver abscess developed.

Key-words: Abdomen, acute conditions – Thrombophlebitis.

Pylephlebitis is a very rare and dangerous complication of inflammatory abdominal processes, mainly appendicitis (1) and diverticulitis (2). Many abdominal and extra-abdominal conditions can lead to portal or mesenteric vein thrombosis (3); it has been reported as a complication of hypercoagulation disorders, trauma, cirrhosis, or after splenectomy. It is called pylephlebitis or ascending septic thrombophlebitis when this thrombophlebitis is septic, quite often associated with a primary gastrointestinal inflammatory source. This unusual condition had a reported mortality of more than 50% before the era of the antibiotics. We report here a case of peridiverticular inflammation in the sigmoid, with ascending thrombophlebitis of the sigmoid and inferior mesenteric vein, and distal embolus in the left portal vein.

Case report

A 76-year-old lady was admitted for altered clinical status, left flank and left lower abdominal pain, fever (39°C). Blood tests showed highly elevated CRP levels (320 mg/l). In her past history one episode of peridiverticulitis two years earlier, treated without surgery. The abdominal CT performed at admission in the emergency department revealed a large air collection just close to the sigmoid colon, with infiltration of the adjacent fat. The sigmoid veins were thrombosed, as was the inferior mesenteric vein up to the lower portal vein. And the left intrahepatic portal vein was also thrombosed.

Intravenous antibiotic therapy (amoxicillin clavulanate) and sub-

cutaneous injections of low molecular weight heparin (LMWH) were started, leading to early biological response (CRP levels at day 4 lowered to 40 mg/l) and slower clinical response. No hepatic abscess developed and the patient left the hospital after 20 days, still on oral antibiotic and anticoagulation therapy.

Discussion

Pylephlebitis was a dread-full and often lethal complication of some cases of appendicitis before the utilization of the antibiotics. Diverticular disease has replaced appendicitis as the most common cause of pylephlebitis, with other possible sources including appen-

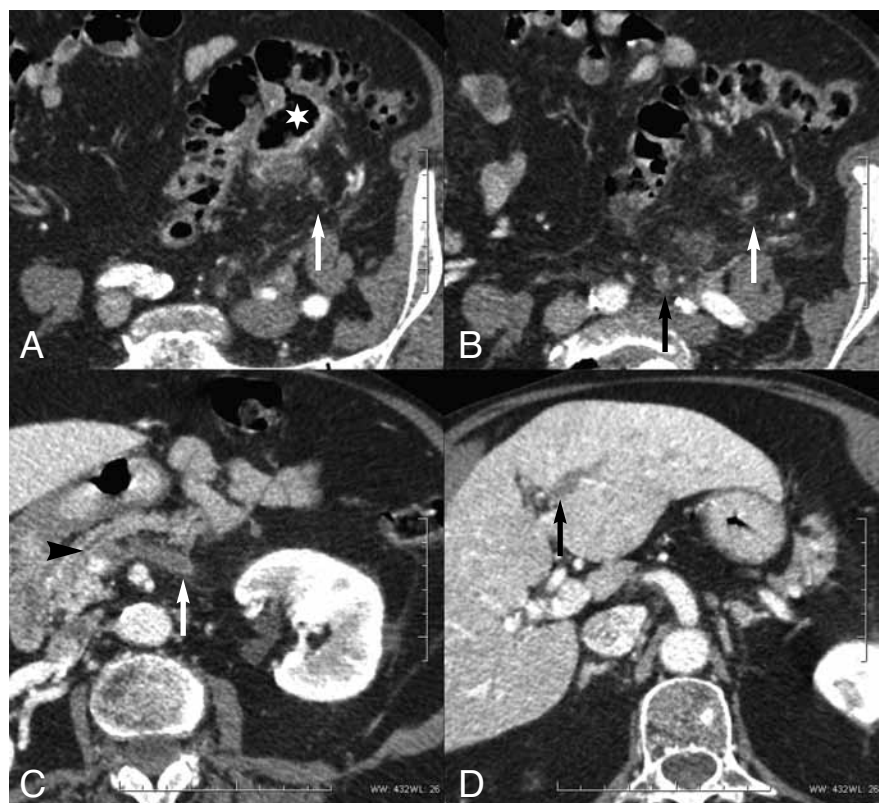


Fig. 1. — Contrast enhanced CT. CT parameters were 120 kV, modulated mAs, 15671.19CTD/vol of mGy, DLP mGy-cm and 8,5 mSev. A : large pericolic aeric cavity (star) with adjacent blurring of the fat and thrombosis (straight arrows) of the veins in the mesosigmoid fat. B: axial slice at the level of the iliac vessels. Thrombosed sigmoid vein (white arrow). Thrombosed inferior mesenteric vein (black arrow). C: at the level of the pancreas. Thrombus (white arrow) in the area of the confluence of inferior mesenteric vein and splenic vein. Distal end of the thrombus (arrow head). D: thrombus in the left portal vein (arrow) but no intra-hepatic abscess.

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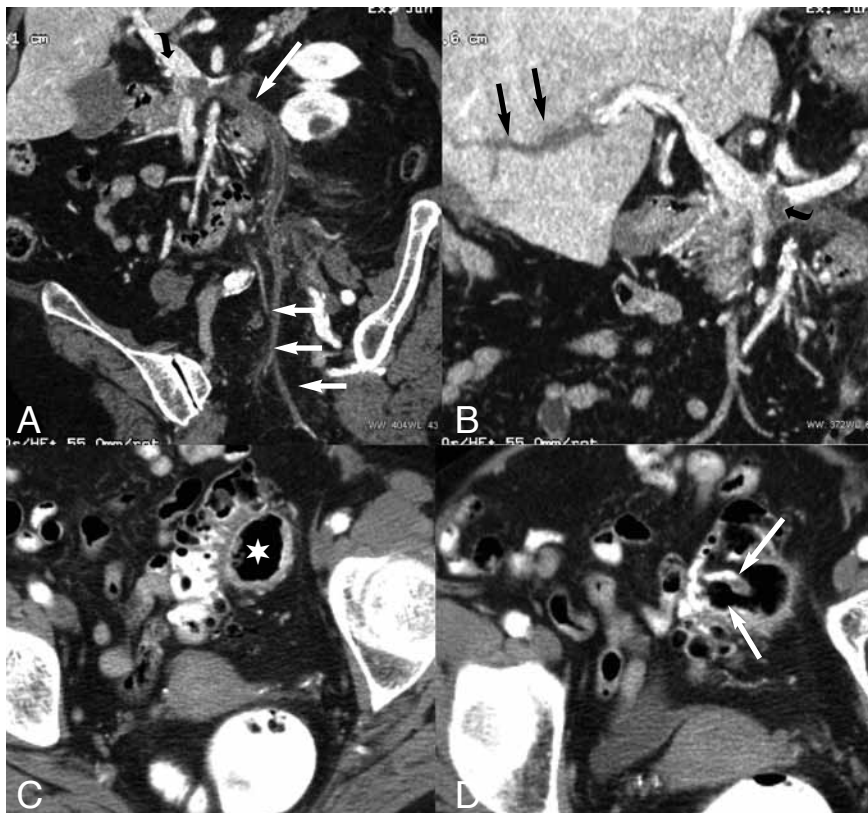


Fig. 2. — A: curved reconstruction of the same examination. Thrombus is seen in the peripheral branch of the sigmoid vein (small white arrows), extending into the inferior mesenteric vein (large white arrow). Distal end of the thrombus in the lower portal vein (curved black arrow). B: curved reconstruction of the portal vein and left branches. Distal end of the thrombus in the lower portal vein (curved black arrow) and thrombus in the left branches of the portal vein (black arrows). C: CT scan performed 2 years earlier: The large pericolic air-filled cavity was already present (star). D: this organized collection is in communication with the colon lumen through more than one diverticulum (2 are seen on this slice, white arrows).

diverticulitis, inflammatory bowel disease, ileal diverticulitis, suppurative pancreatitis, bowel perforation and pelvic infections. The addition of local inflammatory processes and infection precipitate the development of a septic thrombosis (3). If undetected, the infection tends to spread through septic emboli into the intrahepatic portal veins. The early hepatic abnormalities consist, as in our patient, of unopacified intrahepatic branches of the portal vein (Fig. 1D) and central or peripheral zones of low attenuation secondary to decreased intrahepatic blood flow. With early medical treatment, those abnormalities will subside, but untreated can lead to one or more hepatic abscess. Long term antibiotic therapy is recommended, especially in case of liver abscess, often with drainage of these abscesses. Anticoagulation remains controversial but is often used: it did not prevent cavernous transformation

of the portal vein in some series (3).

Doppler ultrasound of the main portal vein and branches is very reliable but the analysis of the mesenteric veins is limited in the evaluation of these patients due to its operator dependency and inability to accurately depict vascular anatomy in the presence of overlying bowel gas (radiographics). Especially when, as in our patient, the clinical symptoms are in the left lower quadrant and not in the right hypochondrium.

It was claimed that low-dose unenhanced multi-detectors CT has a diagnostic performance similar to that of contrast-enhanced standard-dose multi-detector row CT in patients suspected of having acute diverticulitis (4) but its accuracy to exclude this type of serious complicated should still be scrutinized. CT with intravenous injection of iodinated contrast is superior to non contrast CT to detect thrombosis of the

branches of the mesenteric vein or the portal vein. Scanning can be performed at the "portal" phase 70 sec after intravenous injection of iodinated contrast at a rate of 2 or 3 cc/sec but false positive diagnosis of venous thrombosis have been made when scanning was initiated too early after contrast injection. This can be avoided with a "biphasic injection of iodinated contrast" (60 cc at a rate of 2 cc/sec, 30 sec of pause followed by a second injection of 60 cc at a rate of 3 cc/sec and than 20 cc of saline), as in our patient, which allows nice depiction of the arterial vessels with at the same time complete filling of the veins (Fig. 1 and 2A). Diagnostic CT findings are to be searched in close vicinity to the sigmoid colon (thrombosed branch of the inferior mesenteric vein (Fig. 1A) and distally: segmentally thrombosed portal branch (Fig. 2A) or liver abscess. Sequential reading of the axial and coronal slices allows precise analysis of the vessels involved by the thrombus, but, in small vessels such as the inferior mesenteric vein, curved reconstruction can help in recognizing the vessels and their continuity (Fig. 2A, B).

Conclusion

Unenhanced MDCT can detect acute diverticulitis with a very high accuracy, but complications such as venous thrombosis and portal vein emboli could be difficult to diagnose without intravenous injection. In this case, early diagnosis and early treatment may have helped avoiding the development of intrahepatic abscesses. Multiplanar and curved reconstructions can help recognizing the small thrombosed veins.

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