PYLEPHLEBITIS : A RARE AND POTENTIALLY FATAL COMPLICATION

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LEARNING OBJECTIVES

- *To understand the definition and causes of pylephlebitis.*
- *To pictorially illustrate the imaging findings of this complication.*
- *To appreciate its implications on prognosis.*
- *To recognize the role of radiological investigation when facing such cases.*

BACKGROUND

- *Pylephlebitis is an uncommon septic thrombosis of portal or mesenteric vein and its intrahepatic branches.*

- *It can be caused by abdominal inflammatory processes including colonic diverticulitis, appendicitis, pancreatitis and inflammatory bowel disease.*

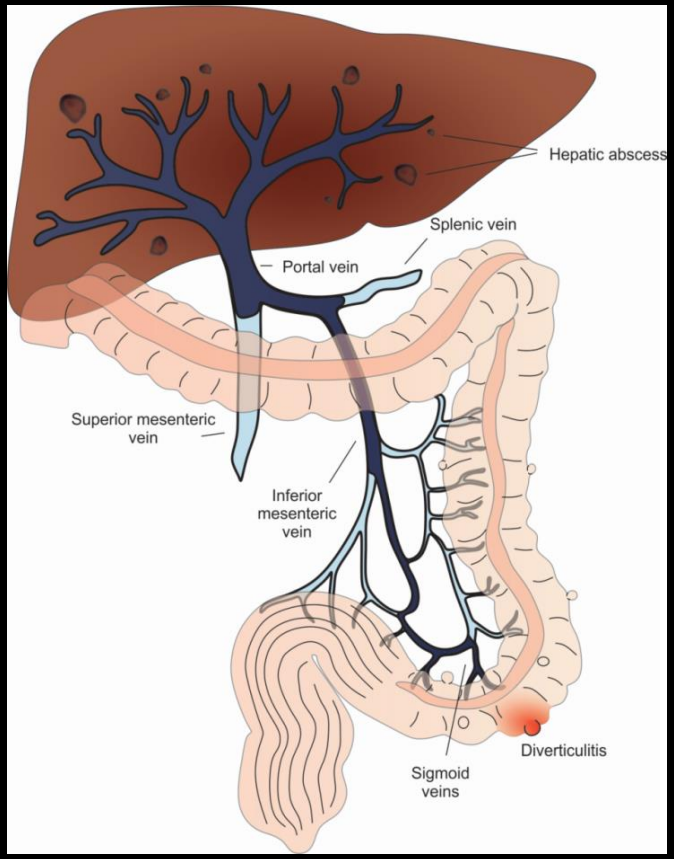
- *Treatment : aggressive antibiotic therapy and drainage of the infection focus, when it exists. Anticoagulation remains a controversial option.*

- *Despite major advances in therapies, mortality rate can be as high as 20%.*

BACKGROUND

- *Hepatic abscess is a frequent complication of pylephlebitis.*
- *Sepsis is the common denominator of this life-threatening illness.*
- *Early detection of the ascending process may reduce the morbity and mortality.*
- *Imaging plays an important role to identify the primary source of infection and in establishing the diagnosis earlier.*
- *But, there are no pathognomonic findings*

BACKGROUND

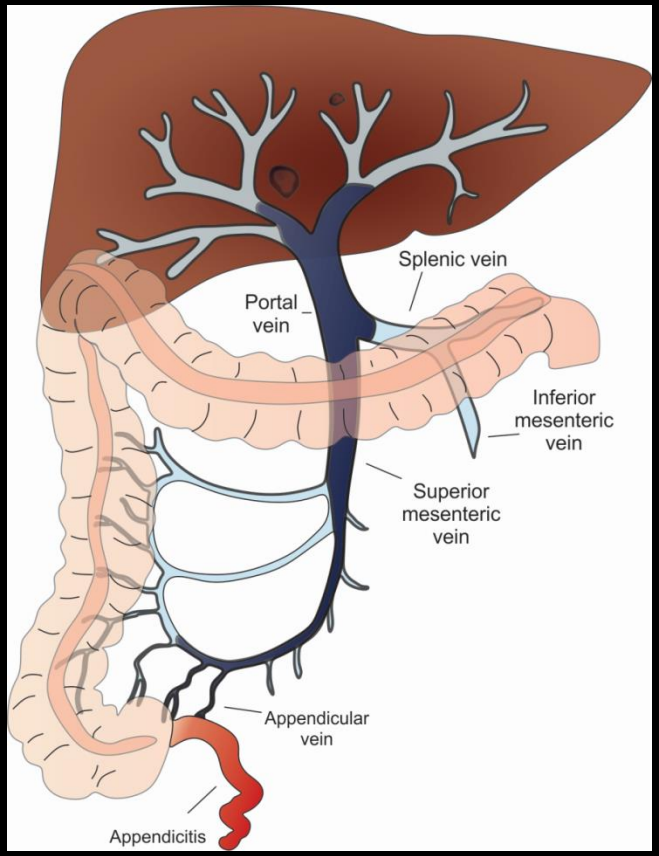


- Diverticulitis is the main cause, but a primary source of infection is not identified in 70% of patients.

- The pyogenic extension leads to septic thrombophlebitis of the mesenteric vein and, in some cases , of the portal vein.

- Multifocal liver abscess occurs secondary to hematogenous spread.

BACKGROUND



- Pylephlebitis is an infrequent but known complication of appendicitis.
- The inflammatory process extends into the mesenteric veins
- Bowel ischemia and infarction are associated with a high morbity and mortality.

IMAGING FINDINGS

Pylephlebitis and Diverticulitis

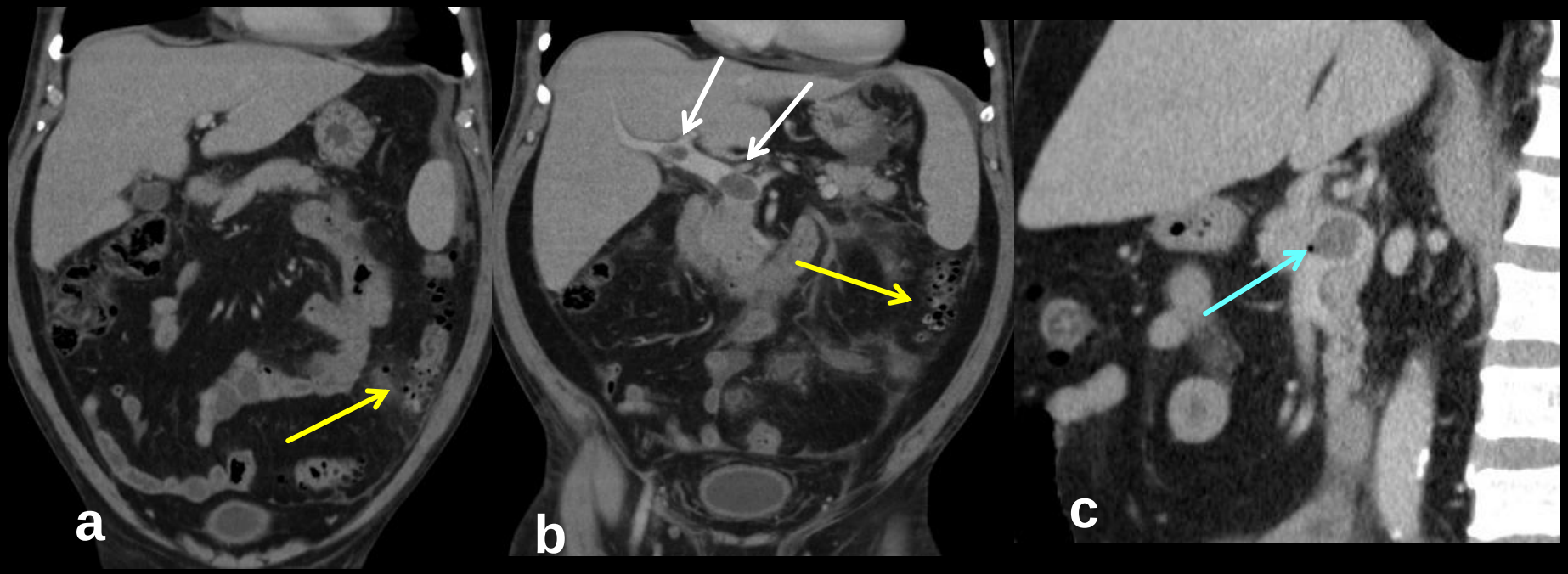


Figure 1 : 59-year-old man with pylephlebitis secondary to diverticulitis. Coronal abdominal CT(a,b): multiple diverticula with densification of pericolic fat (yellow arrows) and portal vein thrombus (white arrows). Sagital CT (c) : blue arrow points to intraluminal gas.

Pylephlebitis and Appendicitis

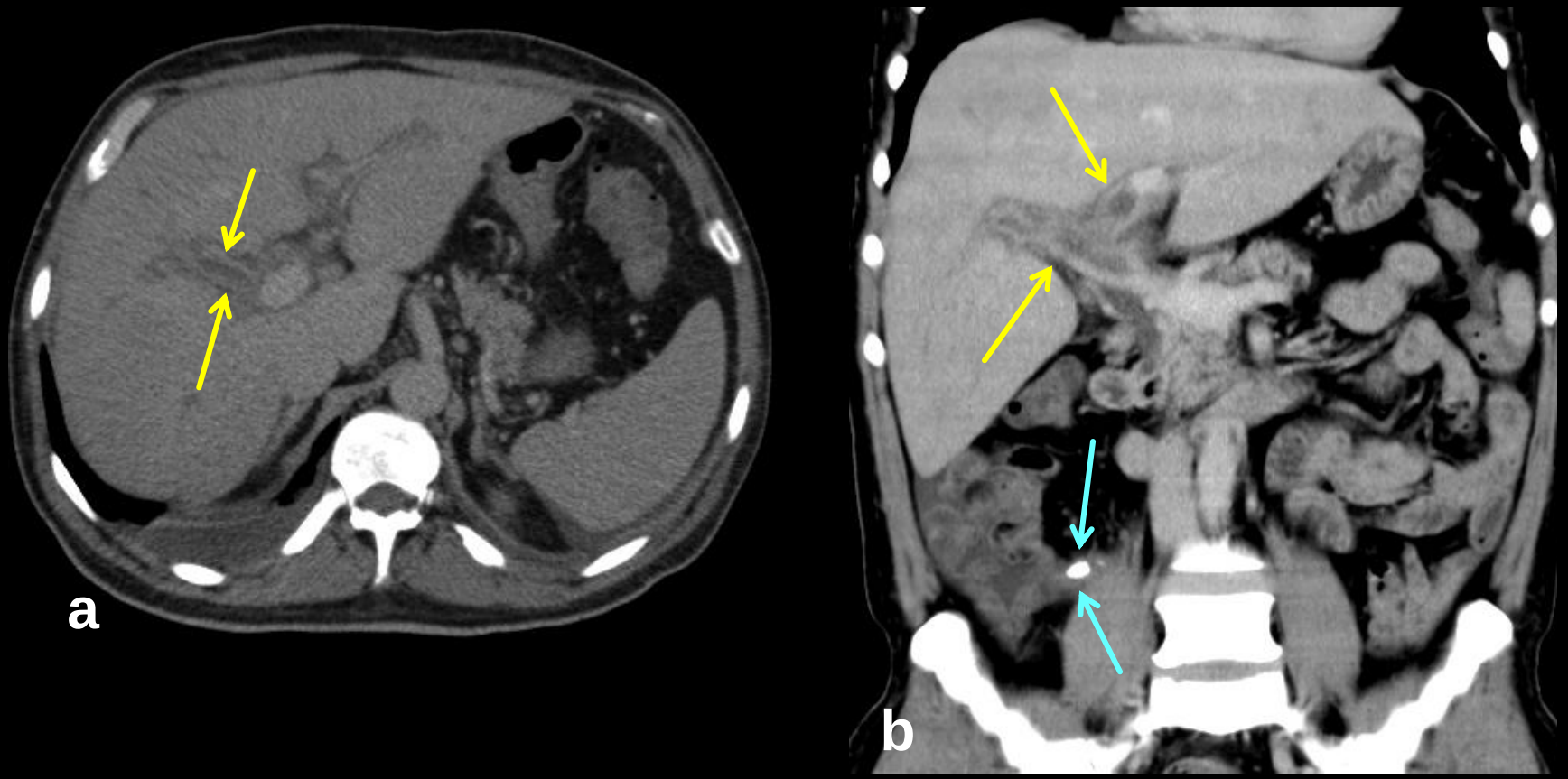


Figure 2: 48-year-old man with appendicitis and septic thrombosis of portal vein. Transverse and coronal CT images (a,b) demonstrate enhancement and thickening of the walls of thrombosed portal veins (yellow arrows). Blue arrows point to thickened appendix with appendicolith.

Pylephlebitis and Mesenteric Ischemia

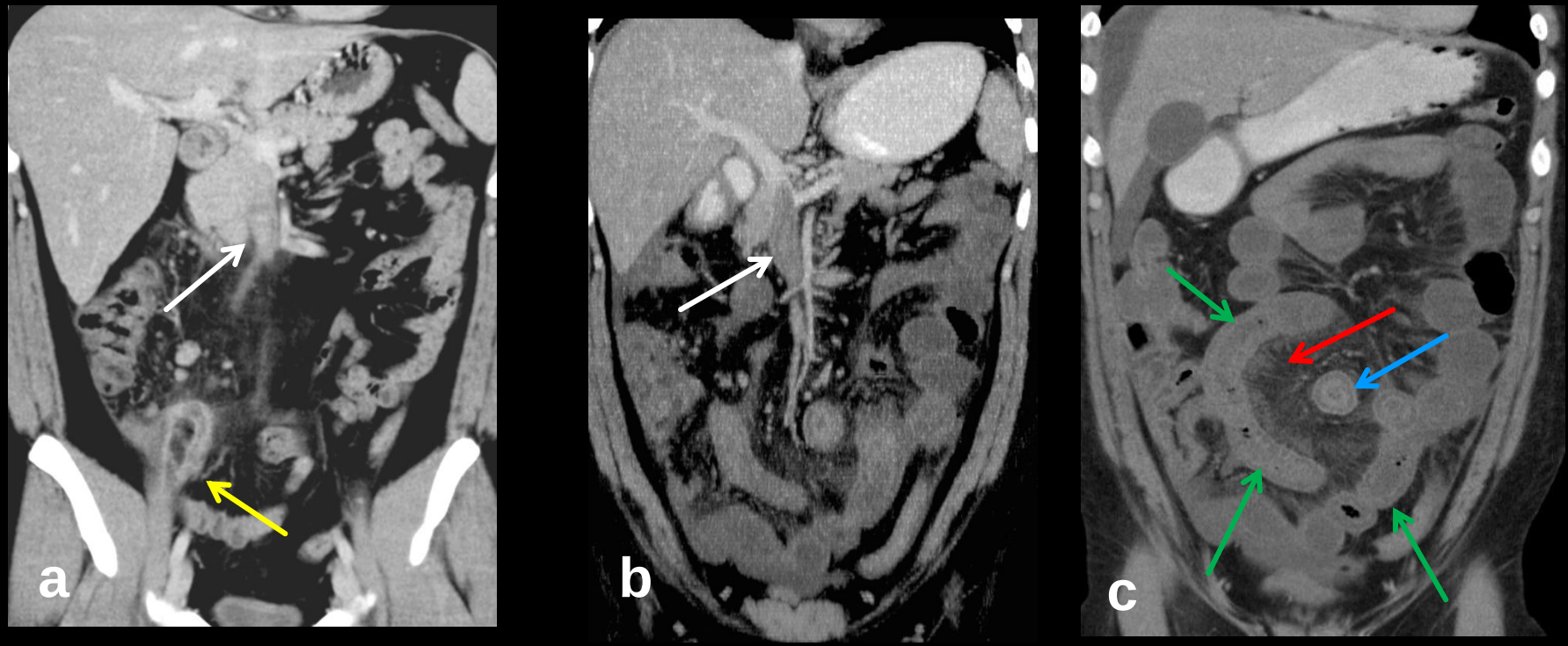


Figure 3: Coronal CT images of a 28-year-old man with appendicitis . In (a) thickened enhancing wall of the appendix (yellow arrow) and superior mesenteric vein thrombosis (white arrow). Four days after appendectomy and progressively worsening abdominal pain, another CT was performed (b,c). Note septic thrombus within the superior mesenteric vein (white arrow). In (c) signs of ischemia with mesenteric congestion (red arrow), thickened bowel walls (green arrows) and the "target sign"(blue arrow). Bowel ischemia and infarction are associated with a high morbidity and mortality.

Pylephlebitis and Infectious Colitis

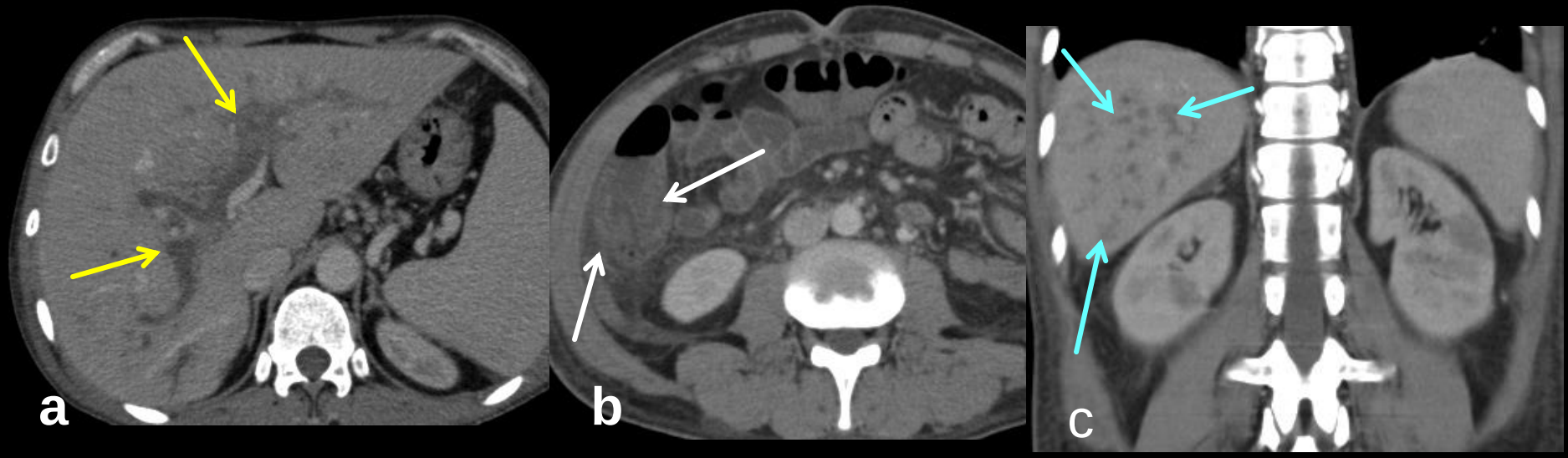


Figure 4: Transverse CT images (a,b) of a 46 year-old patient demonstrate septic thromboflebitis of intrahepatic branches of the portal veins (yellow arrows) secondary to infectious colitis. Note mucosal hyperemia and submucosal edema of ascendind colon (white arrows). Coronal image (c) of a follow-up CT examination showed several small liver abscesses (blue arrows). Multifocal liver abscess is considered to occur secondary to hematogenous spread.

Pylephlebitis and Enteric Infection

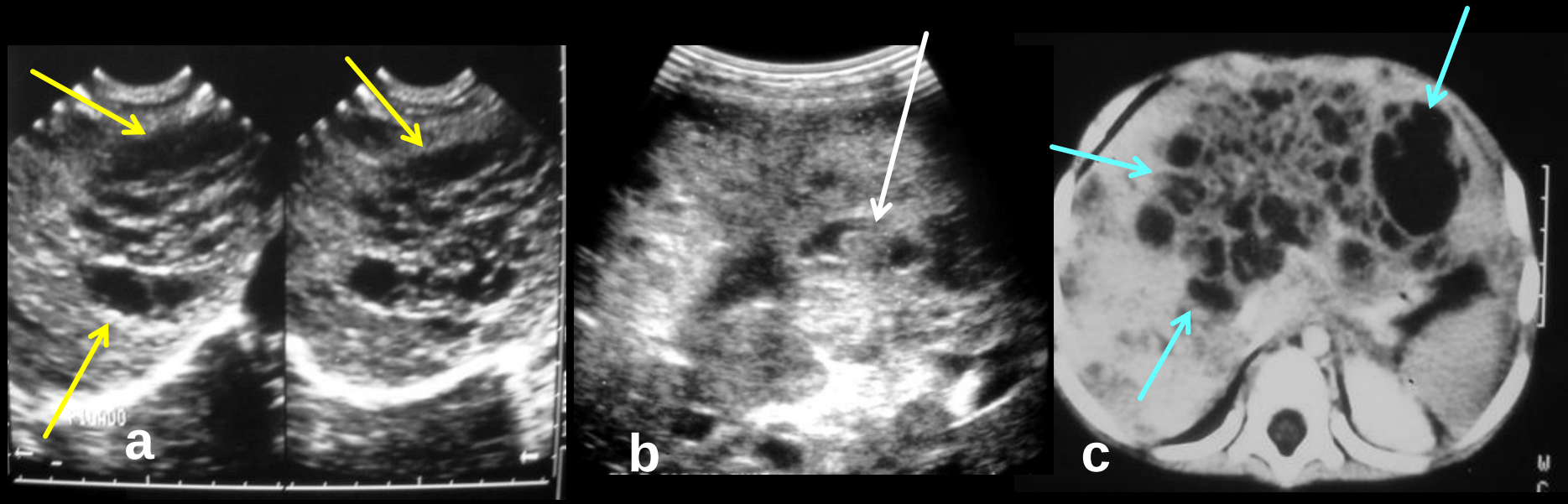


Figure 5 : Transverse sonography (a,b) of a 5-year-old boy admitted with abdominal pain, fever and diarrhea, showed multiple hypoechoic focal lesions of hepatic abscesses (yellow arrows). Septic thrombus in a portal vein branch(white arrow). Transverse CT image of the same patient (c) demonstrates multiple low attenuation liver lesions corresponding to pyogenic hepatic abscesses (blue arrows). Bacterial enteric infections in children may be the source of suppurative thrombophlebitis of the superior mesenteric vein and hepatic abscesses.

Pylephlebitis and Acute Cholangitis

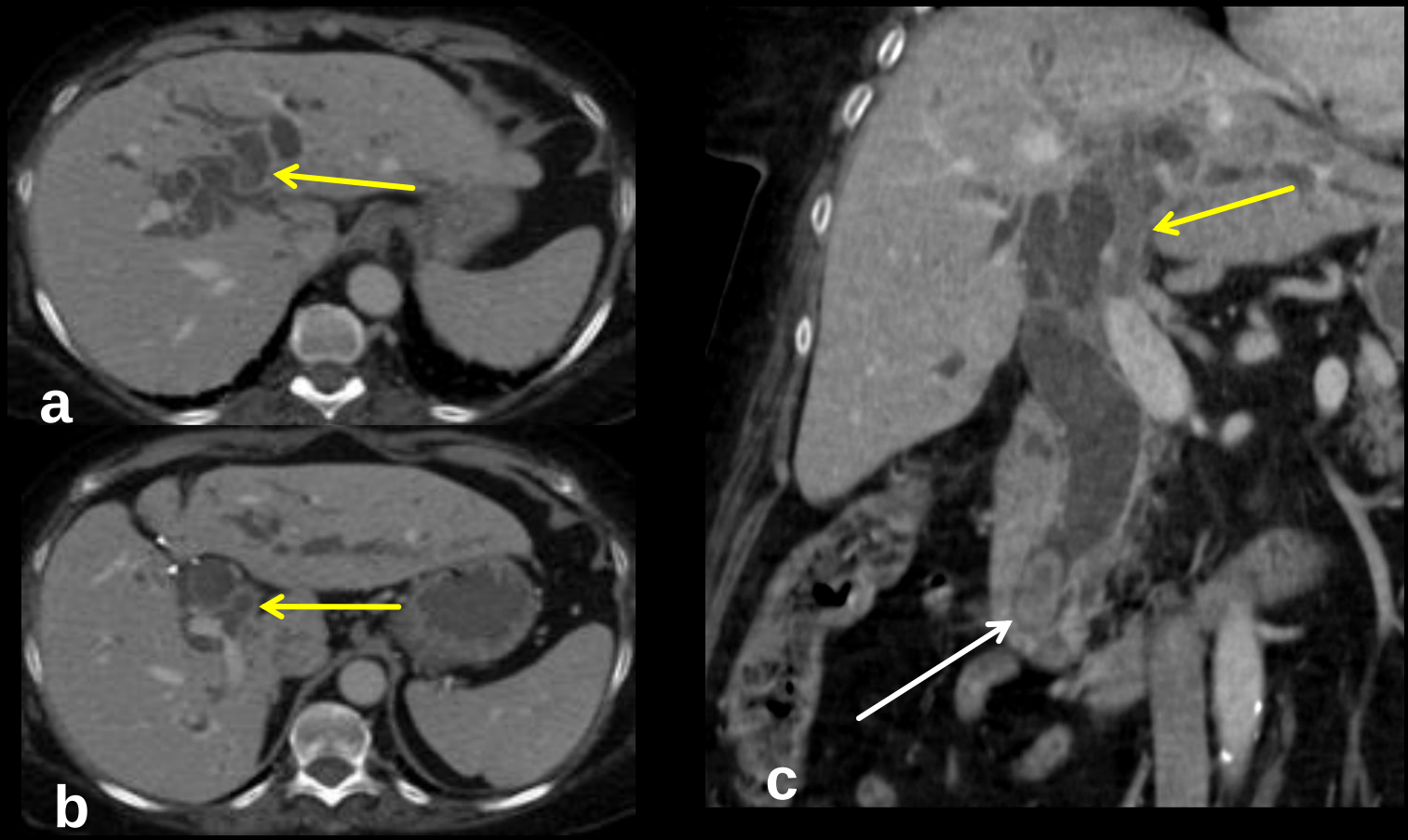
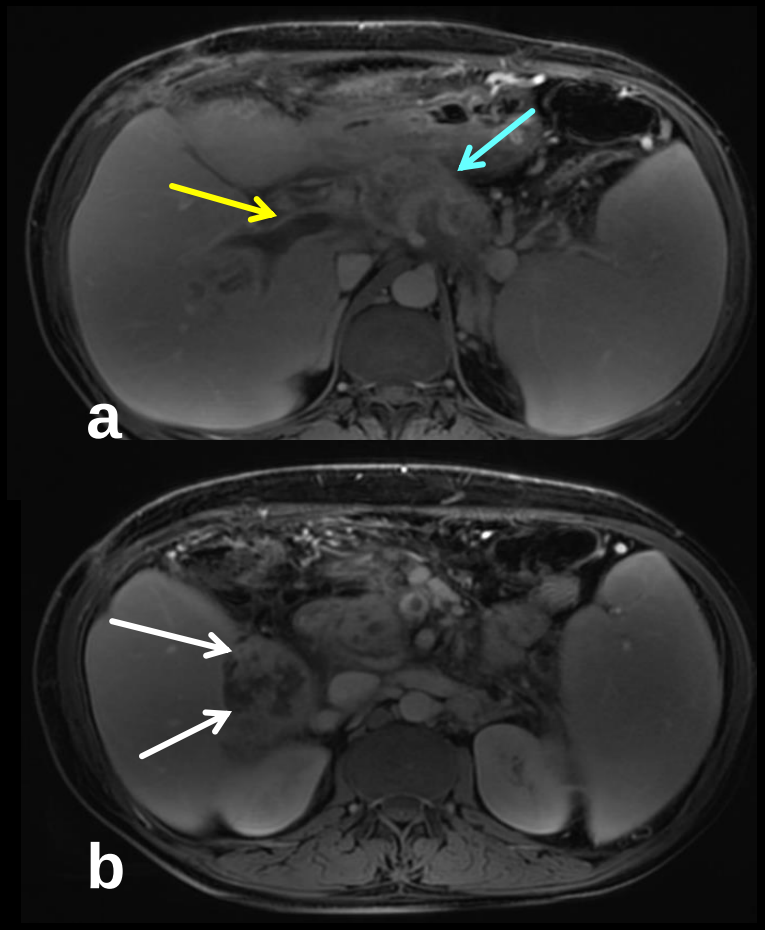


Figure 6: Transverse (a,b) and coronal (c) CT images of a patient with cholangitis secondary to choledocholithiasis (white arrow). There is complication with septic thrombosis of portal vein and its left branch, showing thickened walls (yellow arrows).

Pylephlebitis and Acute Pancreatitis



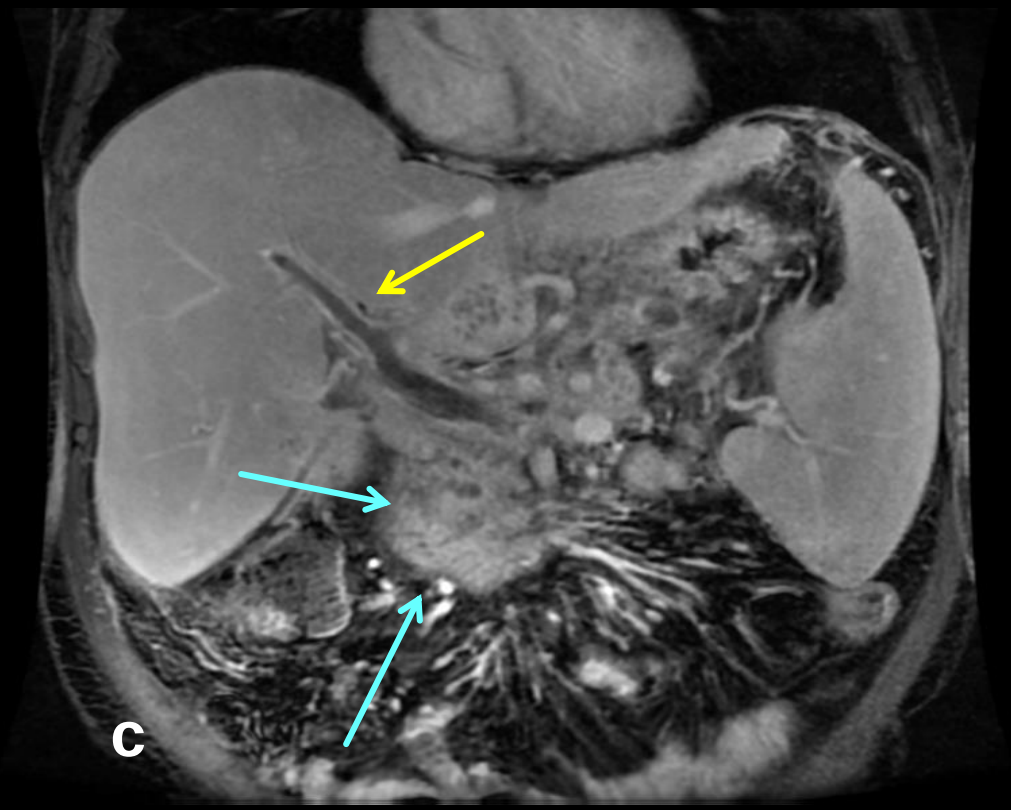


Figure 7: Transverse (a,b) and coronal (c) post contrast MRI - T1WI of a patient with acute pancreatitis complicated by septic portal vein thrombosis (pylephlebitis). Note portal vein and right branch with thickened walls and thrombus (yellow arrows) and enlarged inflammed pancreas (blue arrows). Hepatic abscess is also present (white arrows).

Pylephlebitis of unknown etiology

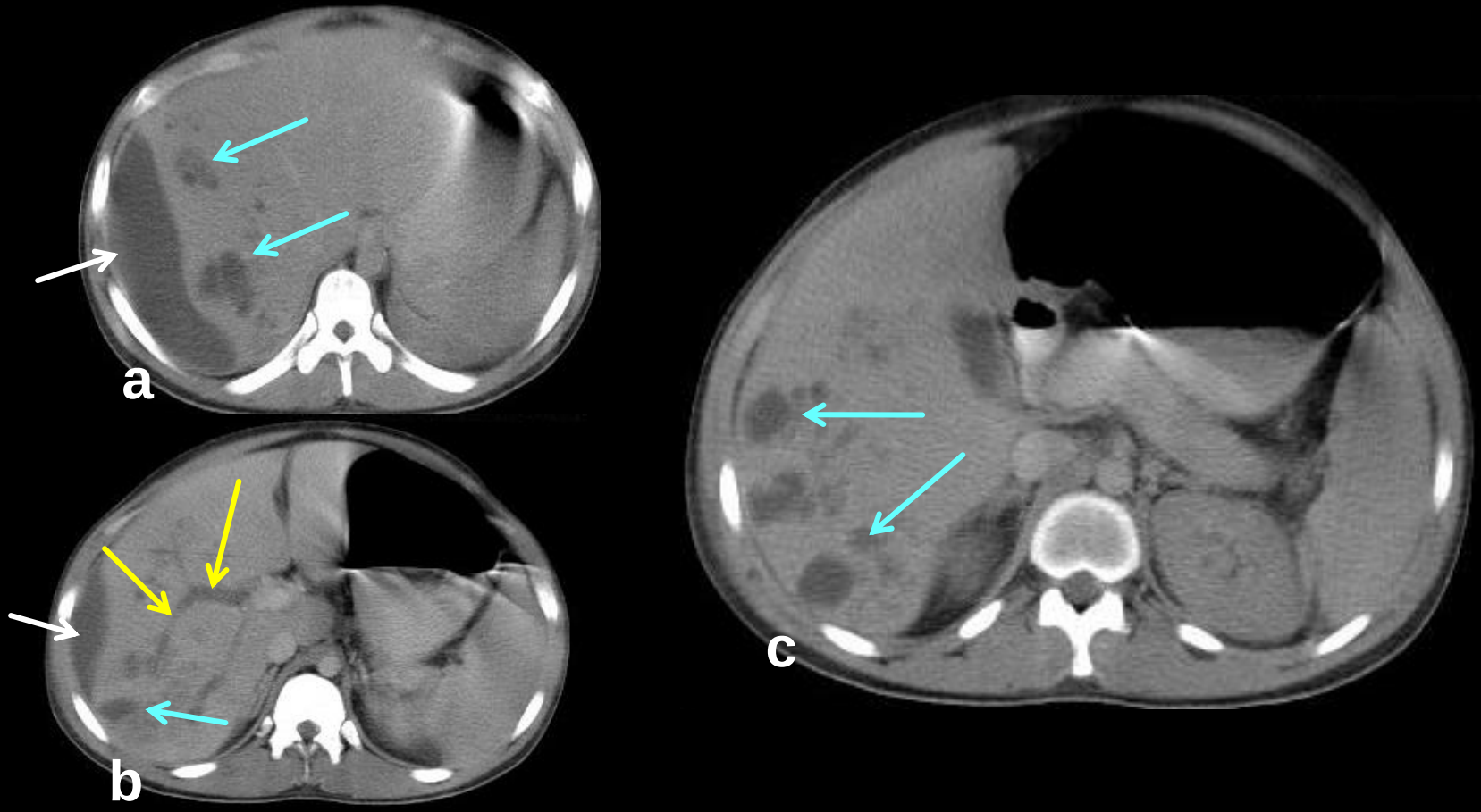


Figure 8 : Transverse CT images (a,b,c) of a patient with septic thrombophlebitis of portal vein(yellow arrows) and associated pyogenic liver abscesses (blue arrows). A subcapsular collection was also present (white arrows). A direct cause of pylephlebitis was not found . A primary source of infection cannot be identified in 70% of patients.

CONCLUSION

Pylephlebitis is an uncommon and potentially fatal complication of abdominal inflammatory processes. Imaging provides information to recognize this illness, to be treated early.

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