

Evidence Discussion (AB 43.1)

Hepatic Arteries and Veins

- In cases of acute liver failure, chronic liver disease, including portal hypertension, cirrhosis, or hepatocellular carcinoma imaging is important for both management of disease, complications, and for surveillance after interventions.
- In cases of Primary Budd-Chiari syndrome assessment of hepatic/portal vasculature with Doppler ultrasound is widely used to evaluate the relevant vasculature. Ultrasonographic evaluation is associated with advantages such as high sensitivity and specificity, and also high positive and negative predictive values.¹
- Advantages of Doppler ultrasound include relatively low cost (compared with CT scan), wide availability and acceptance, and lack of radiation exposure.¹
- Disadvantages of Doppler ultrasound include limited evaluation of certain anatomies, such as extension of portal vein thrombus into splanchnic vessels.¹
- CT scan may be appropriate to evaluate hepatic vasculature, with sensitivity, specificity, PPV and NPV in the range of 90-99%.¹
- Advantages of CT scan include better visualization of structures (such as thrombus extension) not well-visualized by ultrasound. Another advantage of CT is that it allows for concomitant evaluation of bowel.¹
- Disadvantages of CT scan include increased cost (relative to ultrasound), radiation exposure, and use of contrast which can have potential complications.¹
- MRI and MRA may more appropriate as alternative to CT. Advantages include lack of radiation and a “better safety profile.”¹ Disadvantages include longer image acquisition time, higher cost, and various technical limitations., including signal loss, overestimation of stenoses, and contraindications/complications related to implanted metallic devices.¹

References:

1. Simonetto DA, Singal AK, Garcia-Tsao G, Caldwell SH, Ahn J, Kamath PS. ACG Clinical Guideline: Disorders of the Hepatic and Mesenteric Circulation. The American Journal of Gastroenterology. 2020;115(1):18-40.
2. Lee, EW; Eghtesad, B, Garcia-Tsao, G; et al. AASLD Practice Guidance on the use of TIPS, variceal embolization, and retrograde transvenous obliteration in the management of variceal hemorrhage. Hepatology. 2024. 79(1): 224-250, January 2024.