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Recanalized Umbilical Vein in a Patient with Cirrhosis

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Clinical Image

41-year-old man with history of alcohol associated cirrhosis complicated by ascites presented with hematemesis. On admission he underwent a CT angiography which revealed portal hypertension manifested by a recanalized paraumbilical vein and portosystemic collaterals. EGD revealed Grade II esophageal varices and portal hypertensive gastropathy.

A recanalized umbilical vein is a commonly reported finding on imaging in patients with portal hypertension and can be seen in up to 30% of patients with cirrhosis [1]. In adults without portal hypertension the umbilical vein is not visible and forms the round ligament [2]. Paraumbilical veins are collapsed veins found in the falciform ligament and connect to the left branch of the portal vein to the ventral abdominal veins that drain into the systemic circulation [2]. In patients with cirrhosis or portal hypertension, the increased pressure in the portal system causes the paraumbilical veins to open and this is one of the sites of formation of a portosystemic shunt [1]. Portosystemic collaterals, also



Figure 1: A large recanalized umbilical vein is marked with a white arrow and can be seen in the transverse, coronal and sagittal planes.

known as portosystemic shunts or collateral circulation, are alternative blood vessels that can develop when there is an increased resistance or obstruction within the portal venous system or liver circulation [1,2,3]. These collaterals provide alternative pathways for blood to bypass the liver and directly enter the systemic circulation. These collateral vessels can form between various abdominal vessels, such as the portal vein, splenic vein, and systemic veins like the inferior vena cava [1]. Common sites for portosystemic collateral formation include the esophagus (esophageal varices), stomach (gastric varices), rectum (rectal varices), and abdominal wall (caput medusae) [2].

Presence of a recanalized umbilical or paraumbilical veins on imaging should alert you to think the patient has portal hypertension and causes of portal hypertension should be investigated.

References

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