

Portal Vein Aneurysm: Incidental Ultrasound Diagnosis of an Uncommon Entity

Radiodiagnosis

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ABSTRACT

Portal vein aneurysm is a relatively uncommon entity. It is often an incidental, asymptomatic finding. With the increasing availability of advanced imaging modalities like Doppler ultrasound, computed tomography and magnetic resonance imaging, portal venous system aneurysms are being increasingly reported. We report two cases of intra hepatic portal vein aneurysm diagnosed incidentally on ultra-sonography.

KEYWORDS:

Introduction:

Portal vein aneurysm is defined as focal dilatation of either extra hepatic or intra hepatic portal venous system. Though earlier thought to be rare entity, portal vein aneurysm is being increasingly documented due to more wide spread use of sonography. Ultrasonography with colour Doppler imaging is a reliable modality to make the diagnosis. Although seen in patients with chronic liver disease and portal hypertension, a number of patients are detected incidentally on imaging.

Case Report:

CASE 1

A 40 year old patient presented to our department with complaint of abdominal pain which was generalized, dull aching, not associated with vomiting or fever and having complain of chest pain.

His routine ultrasound study showed an intrahepatic cystic lesion at the junction of right & left portal vein. On colour doppler mode this cystic lesion showed colour filling and diagnosis was made as intrahepatic portal aneurysm. The diameter of dilated intra hepatic Portal vein was 23 mm. Colour Doppler study showed turbulent flow in dilated segment of main Portal vein. Branches of Portal Vein were seen to be arising from the dilated segment. No other segmental branch showed any abnormal dilatation. Normal hepatopetal flow was seen in Portal vein. No signs of portal hypertension such as splenomegaly, ascites were seen. Liver and Spleen were normal in size and echo texture. Diameter of portal vein at porta was 10 mm & splenic vein at hilum measuring 4 mm. Pancreas was normal. Patient was nonalcoholic and had no other previous positive history or episode of abdominal pain. With no other positive history or findings, a diagnosis of idiopathic intrahepatic portal vein aneurysm was made. Patient was kept on conservative management with no active treatment required.

CASE 2

Second patient presented with complaints of abdominal pain and distension. He was alcoholic.

On Ultrasonography, portal cavernoma formation was seen at porta and dilated cystic lesion seen at confluent of right & left portal vein. On colour Doppler the cystic lesion showed colour filling. There was splenomegaly, but no ascites or changes of cirrhosis. Diagnosis was made as portal aneurysm with portal cavernoma formation, etiology most probably was portal hypertension.

Discussion:

Portal vein aneurysm usually occurs at the junction of the superior mesenteric vein and splenic veins or at the Hepatic hilum at the bifurcation of the right and left portal veins. Whereas small aneurysms tend to be asymptomatic, large extra hepatic aneurysms may give rise to various complications including right upper quadrant pain, jaundice due to compression of adjacent organs such as the duodenum and the bile duct, rupture, or complete occlusion of the portal vein by

thrombosis.

Although uncommon, an aneurysm of the portal venous system is the most common site of visceral venous aneurysms. They can occur in the intra hepatic or extra hepatic segment of portal vein, extra hepatic being more common. It commonly occurs at the junction of the superior mesenteric and splenic vein, or at the hepatic hilum at the bifurcation of the right and left portal veins. Though exact mechanism is unknown, various etiologies ranging from congenitally defective regression of right primitive vitelline vein to acquired causes such as portal hypertension, liver cirrhosis, trauma, pancreatitis, liver biopsy or tumor invasion have been reported.

In our cases, one patient has diagnosis of congenital origin can be suggested because no other cause was found.

Second patient has changes of portal hypertension, so cause of aneurysm is acquired.

Maximum extra hepatic portal vein diameter has been reported ≤ 1.5 cm in normal individuals and ≤ 1.9 cm in cirrhotic patients, with values of >2.0 cm considered aneurysmal. The cut-off value for diagnosing intrahepatic portal vein aneurysm is less universally agreed upon, although some authors consider a diameter of intrahepatic portal vein >0.7 cm in normal individuals and >0.8 cm in cirrhotic patients as aneurysmal.

The clinical effects of portal venous system aneurysm depend on the size and its complications. The most common manifestation is abdominal pain followed by incidental detection on imaging studies. Portal vein thrombosis, portal hypertension, compression of adjacent structures and aneurysmal rupture are the reported complications. However, most of the portal venous system aneurysms are stable and have low risk of complications.

Ultrasonography with colour doppler which displays the typical spectral pattern, is a reliable modality for diagnosis of this condition. Colour Doppler imaging helps differentiate this condition from other lesions such as a simple hepatic cyst or cystic metastasis. These data suggest that neither the relationship between portal aneurysm and portal hypertension nor the relationship between portal aneurysm and chronic hepatic disease is as strong as previously understood. The affirmative etiology still needs to be investigated for a long time with analysis of more entities. Neither of our patients had history or clinical evidence of underlying liver disease, portal hypertension, or other disease states that would predispose them to the development of aneurysms though most of the patients with portal vein aneurysm were asymptomatic or presented with mild abdominal pain, some patients presented with jaundice and gastrointestinal bleeding. Complications of portal vein aneurysm include thrombosis, aneurysmal rupture, and complete occlusion of the portal vein, portal-systemic shunt and pressure effects on adjacent viscera. Large extra hepatic portal vein aneurysms can cause obstruction of the common bile duct and

duodenum. Patients may present with recurrent abdominal pain and obstructive jaundice. Acute thrombosis of the portal vein aneurysm can result in severe life threatening portal hypertension. The two cases were both discovered by color Doppler ultrasonography. Portal vein aneurysm can easily and confidently be established by color Doppler ultrasonography, and it is not very expensive. So colour Doppler ultrasonography can be used in follow-up of most of the patient.

Most of the uncomplicated portal venous system aneurysms does not require treatment and follow up is sufficient. Anti-coagulation therapy is recommended in the setting of acute portal vein thrombosis in portal vein aneurysms with 80% of patients showing partial or complete recanalization. Percutaneous thrombolysis or thrombectomy is indicated in patients failing anticoagulation therapy or with extensive thrombus burden or in patients with symptoms related to aneurysm mass effect. Porto-systemic bypass surgery or aneurysmorrhaphy is performed if the recanalization procedures fail or if the aneurysm size enlarges.

Conclusion:

In conclusion, ultrasonography with colour Doppler evaluation is the initial tool for the diagnosis of portal vein aneurysm. It is confirmatory and in asymptomatic patients there is no need of further investigation.

CASE 1: Ultrasonography images –intrahepatic portal aneurysm (figure 1) with application of colour Doppler (figure 2 and 3)

Figure 1



Figure 2

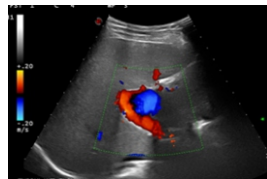
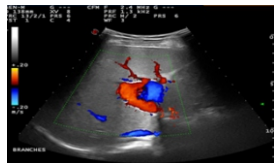


Figure 3



CASE 2- Ultrasonography images –portal cavernoma (figure s1) with application colour Doppler (Figure 2 and 3)

Figure 1

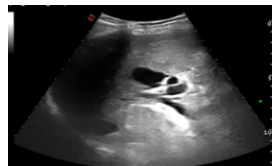


Figure 2

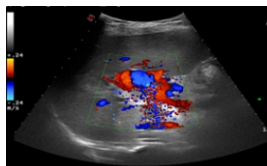
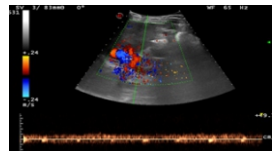


Figure 3



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