

“Case Report: Intrahepatic Portal Vein Aneurysm”

Alper Karacan¹, Keziban Karacan², Yasemin Gündüz¹

¹ Department of Radiology, Faculty of Medicine, University of Sakarya, Turkey

² Department of Anatomy, Faculty of Medicine, University of Sakarya, Turkey

Abstract

The purpose of this study was to offer a case case of an asymptomatic portal vein aneurysm diagnosed at multidetector computed tomography. Portal vein aneurysms are uncommon and challenging to diagnose or evaluate. However there are lots of imaging procedure that can help to facilitate diagnose or evaluate. Hence, the radiologist must be aware of these aneurysms and their imaging features..

Keywords Aneurysm, multidetector computed tomography, portal vein

Introduction

Portal vein aneurysms (PVAs) are rarely and moreover incidence of which is less than 3% of all venous aneurysms¹⁻³. PVAs can be intrahepatic or extrahepatic, and their origin can be congenital or more often acquired⁴. Acquired lesions generally related to hepatic cirrhosis or portal hypertension^{3,5}. But most of PVAs are uncomplicated and asymptomatic and noticed incidentally during diagnostic work-up⁶. According to literature, an extrahepatic diameter of > 2.0 cm and intrahepatic diameter of > 0.9 cm is considered aneurysmal^{1,7-10}.

Notice of the clinical aspects and imaging characteristics of portal venous system aneurysms is useful on the control of complications. The coming of cross-sectional imaging technology, particularly multidetector computed tomography (MDCT), has facilitated radiologists to diagnose many more venous variations and anomalies, including portal venous system aneurysms, of late years^{7,11}. This article reports a case study involving an individual diagnosed with intrahepatic PVAs. We report a case of an asymptomatic portal vein aneurysm diagnosed at multidetector computed tomography.

Case Report

A 65-years-old man, before now, was presented to right lower quadrant pain of approximately 2 weeks time. Physical examination was normal. There was no history of jaundice, hematemesis, melena, hematochezia, abdominal inflammation or trauma. He never underwent liver biopsy or surgery and had no history of chronic liver disease. Laboratory analysis including hepatic-related enzymes was within normal limits. He has a history of variable hypertension.

On MDCT examination, an aneurysmal sac connected to the left portal in segment IV. PVAs showing homogeneous enhancement equal to that of portal vein was detected. As a result confirming the diagnosis of PVAs. MDCT scan results were inspected with the patient, revealing an aneurysm measuring 21x19x14 mm, projecting distal bifurcation of the left portal vein. The aneurysm was fusiform configuration (Figure 1).

Gray-scale ultrasonography (US) represented an anechoic, 21 mm in sagittal diameter, rounded lesion in the IV hepatic segment. The maximal anteroposterior diameter of the aneurys-

mal dilatation measured 19 mm.

Color Doppler US analysis revealed whole filling of the lesion and bidirectional color owing to circular flow within aneurysm. Continuous nonpulsatile monophasic wave-form within the lesion was determined, which is typical for portal venous flow. A clear communication with the left portal vein was indicated. These findings were suitable with a left PVAs.

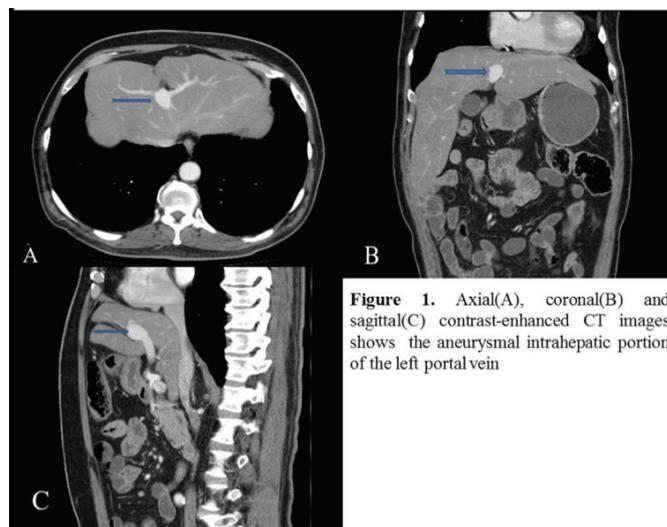


Figure 1. Axial(A), coronal(B) and sagittal(C) contrast-enhanced CT images shows the aneurysmal intrahepatic portion of the left portal vein

Discussion

Intrahepatic PVAs are rare vascular abnormalities and the origin of PVAs remains unclarified^{3,12-15}. The cause of PVAs, either congenital or acquired, has been defined, but it is still controversial^{16,17}. Causes include abnormality of the internal walls of the vessel or failure in the closure of the right primitive vitelline vein. On the other hand, most cases published in the literature are associated with hepatic or non-hepatic diseases that lead to portal hypertension; traumas and pancreatitis have also been involved in the development of these aneurysms^{5,10,18-21}. Our case is very probably congenital because no other cause was found.

There are some case reports of PVAs (extrahepatic or intrahepatic) in the literature^{8,22}. It has been reported that extrahepatic PVAs are more often and larger than intrahepatic PVAs^{3,12}.

The most frequent clinical presentations are abdominal pain, gastrointestinal bleeding, incidental finding and miscellaneous

ous symptoms, which include abdominal swelling, fever, jaundice, malaise and weight loss ^{7,23-26}. The clinical aspects are related to PVAs size. If PVAs are small, they may not produce symptoms. Complications of PVAs are portal vein thrombosis, portal hypertension, compression of the adjacent structures and aneurysmal rupture. Most PVAs require no treatment; follow-up is adequate³.

Diagnostic imaging used includes color Doppler ultrasound, CT scan/MRI, angiography and direct or indirect portography^{1,23,25,27,28}. Color Doppler sonography and CT have been considered accurate and dependable methods for the diagnosis and follow-up imaging of PVAs and their complications^{3,9,12,29}. There is no literature consensus to imaging follow-up, owing to the infrequent nature of the diagnosis^{1,7}.

As a consequence PVAs are uncommon and challenging to diagnose or evaluate. However there are lots of imaging procedure that can help to facilitate diagnose or evaluate. Hence, the radiologist must be aware of these aneurysms and their imaging features.



References

- Gaba RC, Hardman JD, Bobra SJ. Extrahepatic portal vein aneurysm. *Radiology Case Reports* 2009;4(2):291.
- Andraus W, Amico EC, Machado MA, et al. Portal vein aneurysm; Letter to the Editor. *Clinics* 2007;(2):62.
- Lopez-Machado E, Mallorquin-Jimenez F, Medina-Benitez A, et al. Aneurysms of the portal venous system: ultrasonography and CT findings. *Eur J Radiol* 1998;26:210–214.
- Brock PA, Jordan PH Jr, Barth MH, Rose AG. Portal vein aneurysm: a rare but important vascular condition. *Surgery* 1997;121:105–108.
- Dognini L, Carreri AL, Moscatelli G. Aneurysm of the portal vein: ultrasound and computed tomography identification. *J Clin Ultrasound* 1991; 19:178–182.
- Okur N, Inal M, Akgul E, Demircan O. Spontaneous rupture and thrombosis of an intrahepatic portal vein aneurysm. *Abdom Imaging* 2003;28:675–677.
- Koc Z, Ulsan S, Oguzkurt L, Tokmak N. Venous variants and anomalies on routine abdominal multidetector row CT. *Eur J Radiol* 2007; 61:267–278.
- Ozbek SS, Killi MR, Pourbagher MA, et al. Portal venous system aneurysms: Report of five cases. *J Ultrasound Med* 1999;18:417–22.
- Gallego C, Velasco M, Marcuello P, et al. Congenital and acquired anomalies of the portal venous system. *adiographics* 2002;22:141–159.
- Ohnishi K, Nakayama T, Saito M, et al. Aneurysm of the intrahepatic branch of the portal vein: report of two cases. *Gastroenterology* 1984; 86:169–173.
- Erbay N, Raptopoulos V, Pomfret EA, Kamel IR, Kruskal JB. Living donor liver transplantation in adults: vascular variants important in surgical planning for donors and recipients. *AJR* 2003; 181:109–114.
- Ohnami Y, Ishida H, Konno K, et al. Portal vein aneurysm: report of six cases and review of the literature. *Abdom Imaging* 1997; 22:281–286.
- Weinreb J, Kumari S, Phillips G, Pochaczewsky R. Portal vein measurements by real-time sonography. *AJR* 1982; 139:497–499.
- Shirohara H, Endo M, Sakai K, et al. Enlarging splenic vein aneurysm associated with stagnation of splenic venous blood flow. *Am J Gastroenterol* 91:385, 1996.
- Malde HM, Chadha D. Extrahepatic portal vein aneurysm in non-cirrhotic portal fibrosis. *Australas Radiol* 37:221, 1993.
- Barzilai R, Kleckner MS. Hemocholecyst following ruptured aneurysm of portal vein. *Arch Surg* 1956;72:725–727.
- Kumano H, Kinoshita H, Hirohashi K. Aneurysm of intrahepatic portal vein shown by percutaneous transhepatic portography. *Am J Roentgenol* 1994;163:1000–1001.
- Novello P, Derghal K, Lambert A, Labadie H, Dyan S, Licht H. Malformation aneurismale de la veine porte extrahepatique. *Gastroenterol Clin Biol* 1994; 18: 81–83.
- Yamaguchi T, Kubota Y, Seki T, Kunieda K, Ogura M, Mizuno T, Inoue K, Katoh T. Acquired intrahepatic portal vein aneurysm. *Dig. Dis. Sci.* 1992; 37: 1769–71.
- Astigarraga E, Lopez I, Munoz F, Cotero A, Lopez, Rodriguez O. Aneurisma del sistema venoso portal, diagnosticado por ecografia Doppler color. *Radiologia* 1992; 4: 296–298.
- Chagnon SF, Vallee CA, Barge J, Chevalier U, Le Gal J, Blery MV. Aneurysmal portahepatic venous fistula: report of two cases. *Radiology* 1986; 159: 693–695.
- Ascenti G, Zimbaro G, Mazziotti S, et al. (2001) Intrahepatic portal vein aneurysm: three-dimensional power Doppler demonstration in four cases. *Abdom Imaging* 26:520–523.
- Giannoukas AD, Sfyroeras GS. Current management of visceral venous aneurysms. *Phlebology* N 68 2010;16 (12):130-36.
- Sung W, Cho J, Wallis M, et al. Extrahepatic portal vein aneurysm—Report of six patients and review of the literature. *J Gastrointest Surg* 2008;12:145–52.
- Luo H-F, Wang H-J, Li B, et al. Diagnosis and management of extrahepatic portal vein aneurysm: A case report. *Hepatobiliary Pancreatic Disease Int* 2006;5:311-3.
- Moreno A, Fleming MD, Farnell MB, et al. Extrahepatic portal vein aneurysm. *J Vasc Surg* 2010.
- Yukawam N, Takahashi M, Sasaki K, et al. Ultrasonography and 3D-CT follow-up of extrahepatic portal vein aneurysm: A case report. *Case Report Med* 2010.
- Belo-Oliveira P, Rodrigues H, Belo-Soares P, et al. Thrombosed portal vein aneurysm. *Euro Rad* 2006.
- Atasoy KC, Fitoz S, Akyar G, Aytac S, Erden I. Aneurysms of the portal venous system: grayscale and color Doppler ultrasonographic findings with CT and MRI correlation. *Clin Imaging* 1998; 22:414–417.