A rare case of huge intrahepatic portal vein aneurysm

**Muharrem Battal, Mustafa Ozer Ulukan, Burhan Akdana,
Rabia Karasu, Uğur Temel**

ABSTRACT

Introduction: Our case was incidentally diagnosed large aneurysm of the main portal vein. The incidence of intrahepatic and extrahepatic portal vein aneurysms (PVAs) is not clear. Portal vein aneurysm usually occurs at the junction of the superior mesenteric vein and splenic veins or at the hepatic hilus at the bifurcation of the right and left portal veins [1].

Case Report: Color Doppler and contrast-enhanced dynamic computed tomography scan and computed tomography angiography clearly showed a well-circumscribed, 44x34 mm intrahepatic portal vein aneurysm.

Conclusion: The aim of this study is to evaluate the imaging features of portal vein aneurysm.

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CASE REPORT

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Keywords: Portal vein, Aneurysm, Liver, Angiography, Intrahepatic

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INTRODUCTION

Portal vein aneurysm usually occurs at the junction of the superior mesenteric vein and splenic veins or at the hepatic hilus at the bifurcation of the right and left portal veins [1]. It is very rarely diagnosed disorder that has been observed by ultrasonography in 0.067% of the patients [2]. In our case dilatation was at intrahepatic portion of portal vein and it is very rare. Whereas small aneurysms tend to be asymptomatic, large extrahepatic 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 [3, 4].

CASE REPORT

A 54-year-old female was presented with non-specific upper quadrant pain and dyspepsia. The laboratory tests of the patient were normal. She was evaluated with ultrasonography and intrahepatic cystic lesion was detected. This lesion was evaluated by magnetic resonance imaging (MRI) scanner and 44x34 mm diameter intrahepatic portal vein dilatation was found (Figure 1). The diagnosis of intrahepatic portal vein aneurysm was corrected on color Doppler ultrasonography. Color Doppler ultrasonography showed color flow in the lesion (Figure 2) and duplex Doppler ultrasonography showed the characteristic monophasic waveform. On computed tomography (CT) scan, portal vein aneurysm was seen as a well-circumscribed enhanced mass communicating with the portal vein (Figure 3A–B). Three-dimensional and volume rendered contrast-enhanced dynamic computed tomography and angiography images clearly showed aneurysmal dilatation of the umbilical portion of the portal vein and the relation between the aneurysm and portal vein branches (Figure 4).

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DISCUSSION

Portal vein aneurysms are most often diagnosed sporadically, and the incidence is ambiguous because most patients are asymptomatic. The reported frequency in the ultrasonography is 0.067% [2]. Although the cause of portal vein aneurysm is unknown, two origins, congenital and acquired, have been proposed. Hepatocellular disease and portal hypertension are etiologies of acquired origin portal vein aneurysm. A portal venous system aneurysm may be congenital or may be acquired as a result of weakening of the vascular wall [5]. Congenital factors include an abnormality of the internal walls of the vessel, incomplete regression of the distal right primitive vitellin vein or a variant branching pattern of the portal vein [6]. Portal vein aneurysms may lead urgent surgical operations if they make complications as thrombosis, portal hypertension, rupture, embolism, and compression of the duodenum and inferior vena cava [7]. In this case, the hypothesis of a congenital origin can be suggested because no other cause was found. The

Figure 1: Portal vein aneurysm was seen as a well-circumscribed enhanced mass on magnetic resonance imaging scanner.

Figure 2: Portal vein aneurysm. Color Doppler ultrasonography showing color flow in the lesion.

Figure 3: (A) Portal vein aneurysm was seen as a well-circumscribed enhanced mass on computed tomography scan, (B) Aneurysm was seen in axial section of computed tomography scan.

Figure 4: Computed tomography angiography images clearly showing aneurysmal dilatation of the umbilical portion of the portal vein.

diagnosis is generally based on color Doppler ultrasound. Color Doppler sonography showed a constant hepatopetal flow along the aneurysmal wall, which immediately led to the diagnosis. We stress the usefulness of color Doppler sonography for studying the hemodynamics of this vascular anomaly and contrast-enhanced dynamic computed tomography and angiography clearly showed a well-circumscribed, 44x34 mm portal vein aneurysm. Large 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 [3, 4]. Operative treatment is required in these complications. The prognosis depends on complications and underlying liver disease. Therefore, this patient requires careful follow-up

CONCLUSION

As having complications such as thrombosis, portal hypertension, rupture, embolism, and compression of the duodenum and inferior vena cava, these aneurysms should be appreciated in emergency situations.

Author Contributions

Muharrem Battal – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Mustafa Ozer Ulukan – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Burhan Akdana – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Rabia Karasu – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Uğur Temel – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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