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Asymptomatic Finding of Portal Vein Aneurysm

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Abstract

This case study presents a 53-year-old male with a history of obstructive sleep apnea, hypertension, Gastroesophageal Reflux Disease (GERD), morbid obesity, and chronic lower extremity edema who was found to be unresponsive and was diagnosed with an incidental asymptomatic portal vein aneurysm. This patient's aneurysm was completely asymptomatic with no related findings despite this vascular anomaly usually occurring with clinical implications.

Keywords

Portal Vein Aneurysm, Asymptomatic Vascular Anomaly, Incidental Finding, Venous Aneurysm, Aneurysm Management

Introduction

Venous aneurysms, including portal vein aneurysms (PVAs), are rare vascular entities often discovered incidentally during imaging for unrelated conditions. These aneurysms can manifest either within the liver (intrahepatic) or outside it (extrahepatic) and may stem from genetic predispositions or acquired conditions such as liver disease, trauma, or degenerative changes. The asymptomatic nature of many PVAs makes them particularly noteworthy; they often go undetected until routine imaging reveals their presence.

In clinical practice, the discovery of a PVA can range from a benign incidental finding to a condition requiring urgent intervention due to potential complications like thrombosis or rupture, which could be life-threatening. Various case reports illustrate the diverse clinical presentations and management strategies for PVAs. For instance, a 55-year-old man with a rapidly growing intrahepatic PVA was treated via percutaneous embolization, highlighting an alternative therapeutic approach that successfully prevented further growth and potential complications [1]. Another case involved a 48-year-old patient with hepatitis B-related cirrhosis who presented with a 70-mm aneurysmal dilation of the distal portal vein, treated with TIPS to prevent further dilation, showcasing a successful intervention aimed at managing the aneurysm's progression [2].

These cases underscore the importance of personalized management plans in treating PVAs, emphasizing the need for vigilant imaging and careful review, especially in patients with complex medical

histories. The variability in the presentation and progression of PVAs requires a dynamic approach to diagnosis and management, incorporating advanced imaging techniques and interventional procedures tailored to the individual's specific condition and overall health.

The ongoing documentation and analysis of PVA cases are crucial for enriching the medical literature on this rare clinical entity and enhancing our understanding of its natural history, risk factors, and optimal management strategies. As the medical community gathers more data, the development of standardized guidelines for the management of PVAs will likely evolve, offering clearer pathways for diagnosis, monitoring, and treatment in clinical practice.

Case Presentation

A 53-year male with a history of Obstructive Sleep Apnea (OSA), Hypertension, morbid obesity (41 BMI), and chronic lower extremity edema was admitted to our hospital in June of 2024 after being found unresponsive on the floor of the RV during a camping trip in the mountains by his family. He was administered 3 units of Narcan on the way to which he responded well. He had poor recall of the events that occurred that night. On presentation, evaluation for encephalopathy including CT head, Chest X-ray (CXR), and infectious work was normal. The likely etiology was hypercapnic hypoxic respiratory failure 2/2 to OSA due to missed Continous Positive Airway Pressure (CPAP) which he had not used for the last few years. He was then treated with nasal cannula oxygenation and Bipap which resulted in the resolution of his symptoms.

Initially patient presented with bilateral pitting edema which was treated with lasix. Furthermore, U/S of the liver was done, which showed incidental vascular structure in the region of portal hepatitis which as seen in **Fig-1**.

CT of the abdomen and pelvis showed a portal vein aneurysm which measured 4.3 x 5.1 x 3.9cm as seen in **Fig-2**. Consultation with IR and hepatobiliary surgeon was done.

The patient's condition improved, and the labs were normal. The patient was strongly counseled to be compliant with CPAP every night. All the risks of being non-compliant with CPAP including future risk of encephalopathy and further organ damage were discussed.

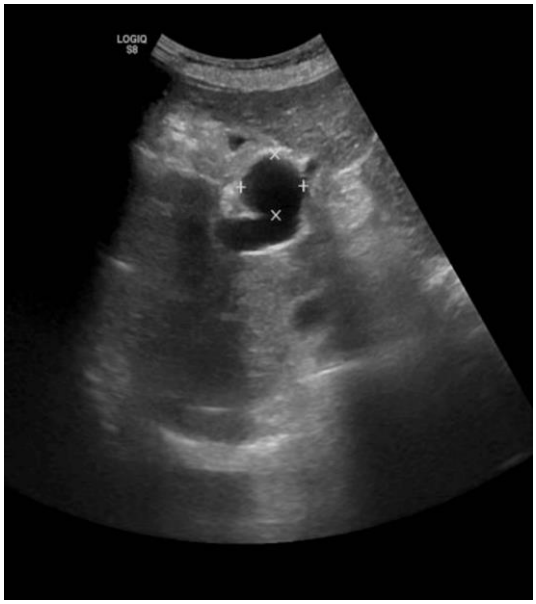

Fig-1: Hepatic Portal Vein Aneurysm

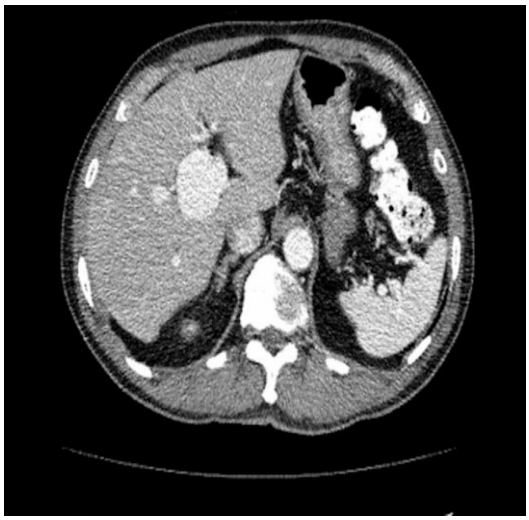

Fig-2: CT Scan Showing Portal Vein Aneurysm

Discussion

Portal vein aneurysms (PVAs), while uncommon, present a range of clinical challenges and often appear incidentally on imaging for unrelated medical issues. These vascular dilatations may be either congenital, often linked to genetic predispositions, or acquired due to factors such as liver cirrhosis, trauma, or infection, which can weaken the vascular wall leading to aneurysm formation [3]. Although many PVAs remain

asymptomatic and may not require immediate intervention, they necessitate routine monitoring due to the risk of severe complications, including thrombosis or rupture, which could necessitate emergent care [4,5].

In clinical practice, the management of PVAs is further complicated by patients' broader health contexts. For example, comorbidities such as obesity not only exacerbate respiratory and cardiovascular conditions but also increase the surgical and procedural risks associated with any necessary interventions for PVAs. Therefore, treatment strategies are often tailored to manage and optimize the patient's existing conditions to prevent further health deterioration and to address the PVA conservatively where possible [6,7].

The broader implications of detecting a PVA include revisiting and potentially revising long-term management plans for patients, especially those with extensive comorbid conditions. The medical community continues to explore and document the prevalence, natural history, and optimal management strategies of PVAs through clinical studies and literature reviews. These efforts aim to establish clearer guidelines for managing these rare but potentially dangerous anomalies and to ensure that patients with PVAs receive care that is both proactive and responsive to the evolution of their overall health and specific vascular risks.

Conclusions

The incidental finding of a portal vein aneurysm in a patient with multiple significant health challenges underscores the importance of comprehensive imaging and vigilant management of underlying conditions. This case reinforces the role of regular follow-up and tailored therapeutic strategies in managing complex patients to improve overall outcomes and prevent potential complications. Further studies are recommended to better understand the natural history of PVAs and to refine management guidelines for incidentally discovered asymptomatic aneurysms in high-risk populations.

Conflict of Interest

The authors have read and approved the final version of the manuscript. The authors have no conflicts of interest to declare.

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