

Case Report

Lethal Complication in a Newly Diagnosed Patient with Hypertension

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Abstract

Polyarteritis Nodosa (PAN) is a rare but lethal systemic vasculitis that affects the medium-sized arteries. Although it is mostly idiopathic, few underlying etiologic agents have been identified and cause secondary PAN. Hepatitis B virus (HBV) is one of them. Early recognition of HBV-associated PAN is critical to improve the patient's outcomes. We describe a case of 59-year-old gentleman who presented to multiple medical facilities over a few months with non-specific symptoms of unexplained abdominal pain and weight loss in addition to a new onset of hypertension. His clinical course deteriorated, and he was admitted to the intensive care unit with a hemorrhagic shock before he was diagnosed and treated for HBV-associated PAN resulted in renal arterial microaneurysms rupture. This case highlighted the importance of early management of PAN to prevent its fatal consequences. Therefore, we recommend screening for HBV or considering PAN – especially where HBV is endemic – in patients presenting with non-specific symptoms and unexplained weight loss with a new-onset diastolic hypertension.

Keywords: hepatitis B virus, polyarteritis nodosa, diastolic hypertension

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Introduction

Hepatitis B virus (HBV) is one of few infectious agents which causes secondary Polyarteritis Nodosa (PAN). PAN is a rare multi-organ necrotizing vasculitis and has a high mortality rate of 34 percent¹. PAN can be categorized as primary or secondary. Secondary PAN needs prompt treatment of the underlying etiology for survival. We present a middle-aged man with a newly diagnosed HBV infection manifesting as life-threatening PAN. We also discuss HBV-associated PAN with an emphasis of reviewing its clinical presentations for the purpose of improving early detection in the primary care settings.

Case Description

A 59-year-old man presented to multiple clinics and Emergency Departments over a three-month period reporting intermittent abdominal pain, anorexia, and approximately sixteen Kilograms of unintentional weight loss. Initial Computed Tomography (CT) of the abdomen, esophagogastroduodenoscopy (EGD), and colonoscopy were grossly unremarkable. He was sent home from the

Emergency Department (ED) with a new diagnosis of hypertension. He later returned to the ED with ongoing symptoms in addition to severe fatigue. On further assessment, he had a fever of 38.5 degrees Celsius, tachycardia, and leukocytosis. He was started on broad-spectrum antibiotics and admitted with a presumed sepsis diagnosis with unknown source. Despite antibiotic therapy, he had persistent abdominal pain, leukocytosis and rising levels of inflammatory markers which led to consideration of connective tissue diseases and repeat CT of the abdomen. The new CT showed innumerable renal arterial aneurysms and wedge-shaped infarcts in the kidneys bilaterally. High dose corticosteroids were initiated for the diagnosis of idiopathic PAN. The next day, he developed acute worsening of abdominal pain and was transferred to the intensive care unit for hemorrhagic shock. An emergent CT angiogram (CTA) showed left perinephric hemorrhage with an area of active arterial contrast extravasation suggestive of renal aneurysmal hemorrhage (Figure 1). The hemorrhage was successfully controlled with endovascular embolization (Figure 2). Additional

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work-up revealed an active HBV infection with HBV DNA PCR of 28 million international unit/ml. A Multi-disciplinary team of Rheumatologists, Nephrologists and Infectious Disease physicians were involved, and a combination treatment of corticosteroids, anti-viral regimen and plasmapheresis was initiated. A positive response in clinical symptoms, a decreased level of viremia, a stability of aneurysms on imaging and decreased level of inflammatory markers were achieved and maintained over a two-month outpatient follow-up.



Figure 1: Left perinephric hemorrhage with an area of active arterial contrast extravasation best visualized on CTA coronal image and likely from renal aneurysm rupture



Figure 2A: Left renal arteriogram image demonstrates small extravasation emanating from a microaneurysm within the left upper renal pole



Figure 2B: Left renal arteriogram post embolization image demonstrates no further signs of bleeding with coils in place

Discussion

HBV has been identified as the underlying etiology in 7 to 36 percent of PAN cases². Based on the prevalence of HBV infection in a population, the annual incidence of PAN has been reported to be between 2 and 77 per million². The lower prevalence has been seen in the countries with effective HBV immunization and blood products screening programs². HBV-associated PAN commonly complicates the picture early in the course of HBV infection and is infrequently co-occurred with jaundice or the typical hepatitis manifestations and laboratory findings². Since PAN is a systemic disease, it may affect almost any organ with the exception of the lungs³. Early presenting symptoms are usually non-specific such as polyarthralgia, fatigue, fever, and abdominal pain which have broad differential diagnoses. In this phase, the findings of elevated blood pressure specifically new diastolic hypertension, and unintentional weight loss can be important clues. Eventually, the focal symptoms developed due to involvement of the vasculatures of specific organ systems such as the kidneys, the skin and the nervous system⁴. The American College of Rheumatology (ACR) has established ten criteria to help the clinical diagnosis in a suspected PAN case. The presence of three criteria or more, has been associated with the sensitivity and specificity of 82.2 percent and 86.6 percent respectively in a cohort of patients with vasculitis⁵. In our patient,

four of these criteria were met; unexplained weight loss of four or more kilograms, new onset elevated diastolic blood pressure of greater than 90 mmHg, evidence of HBV infection, and the characteristic arteriographic abnormalities of microaneurysms in the renal arteries.

Conclusion

HBV immunization has made secondary PAN rare, making it lower on the differential of diagnosis

for the frontline healthcare providers such as Internal Medicine, Emergency Medicine and Family Medicine physicians. The early diagnosis and treatment of PAN is crucial given the high morbidity and mortality associated with delayed management. A new diagnosis of hypertension in a patient with weight loss, fatigue, or unexplained abdominal pain may warrant screening for HBV or consideration of PAN.

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