


CLINICAL IMAGE

Gastrorenal shunt: a cause of hyperammonemia

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Clinical Question: What is the cause of hyperammonemia in this patient?

A 72-year-old male patient presented with sudden loss of consciousness and hyperammonemia, with

Key Clinical Message

Gastrorenal shunts may induce hyperammonemia. Portosystemic shunts should be suspected when hyperammonemia occurs in patients with chronic kidney disease.

Keywords

Chronic kidney disease, gastrorenal shunt, hyperammonemia.

blood ammonia levels that were much higher than the levels 2 days prior (increase from 129 to 340 $\mu\text{g/dL}$). Because of diabetes, chronic heart failure, and chronic kidney disease (CKD) (creatinine, 4.35 mg/dL), he

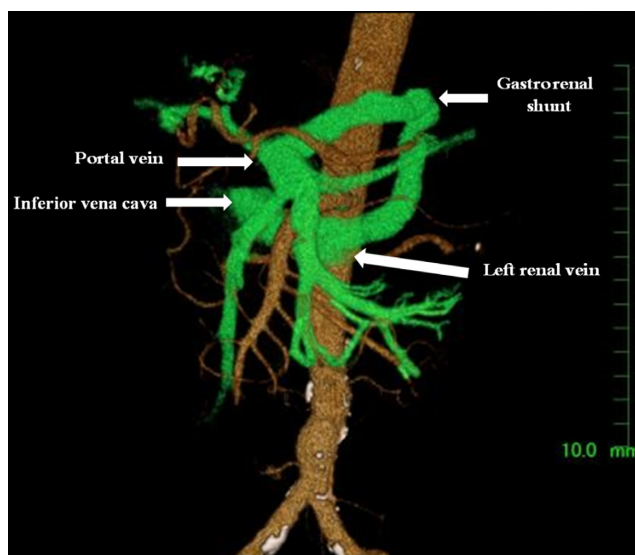


Figure 1. Gastrorenal shunt: Three-dimensional reconstruction of abdominal-enhanced computed tomography image.

developed fluid overload. However, he had no history of abdominal surgery or liver dysfunction. He was given a laxative, and a solution containing branched-chain amino acids was administered. His level of consciousness improved after excess fluid, and solutes were removed by hemodialysis (HD). Abdominal-enhanced computed tomography revealed a gastorenal shunt (Fig. 1).

In patients on maintenance hemodialysis, a gastorenal portosystemic shunt can easily develop due to fluid overload and increased backflow with hemodialysis-related fluid removal [1]. However, there is little information on hyperammonemia induced by gastorenal shunting in patients with CKD in the absence of HD treatment. This case emphasizes the need to suspect portosystemic shunting when hyperammonemia occurs in patients with CKD.

Authorship

YN: wrote the first draft of the manuscript. IO: revised the manuscript critically, made critical revisions, and approved

the final version. YG and HG: developed the structure and arguments jointly for the paper. All the authors reviewed and conceded the final version of the manuscript.

Conflict of Interest

None declared.

Reference

1. Oi, K., T. Okado, H. Togo, S. Iimori, N. Yui, E. Sohara, et al. 2015. Two cases of hemodialysis-associated Chronic Portal-systemic Shunt Encephalopathy (CPSE) with opposite changes in the blood ammonia concentrations during hemodialysis: a case report and literature review. *Intern. Med.* 54:1375–1380.