Cirrhotic ascites and abdominal compartment syndrome – an under-reported association.

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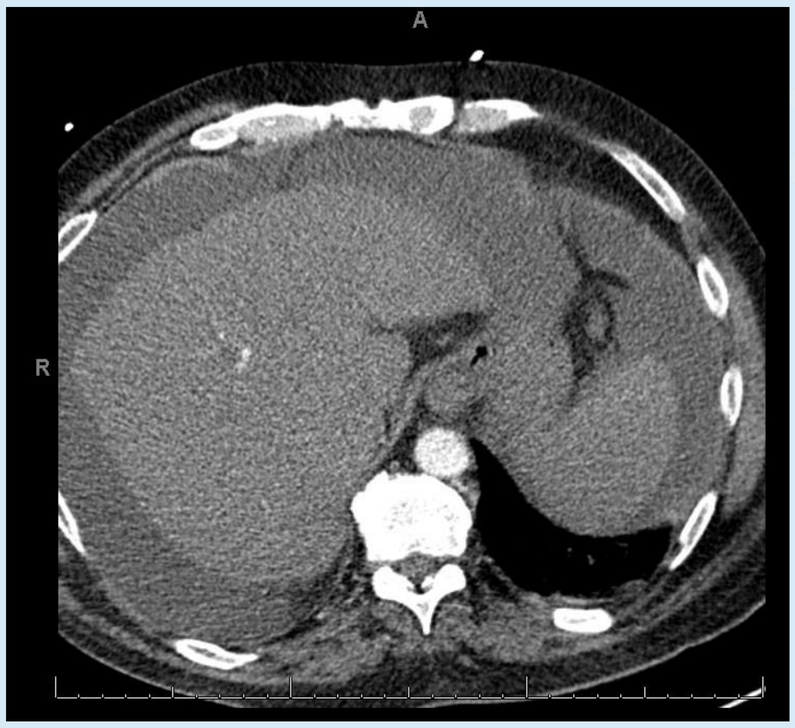
INTRODUCTION

Abdominal compartment syndrome (ACS) is defined as a sustained intra-abdominal pressure (IAP) >20 mmHg associated with new organ dysfunction/failure. Some cases of ACS may require urgent decompression to prevent permanent dysfunction.



CT Scan of the abdomen showing cirrhotic liver with moderate ascites.

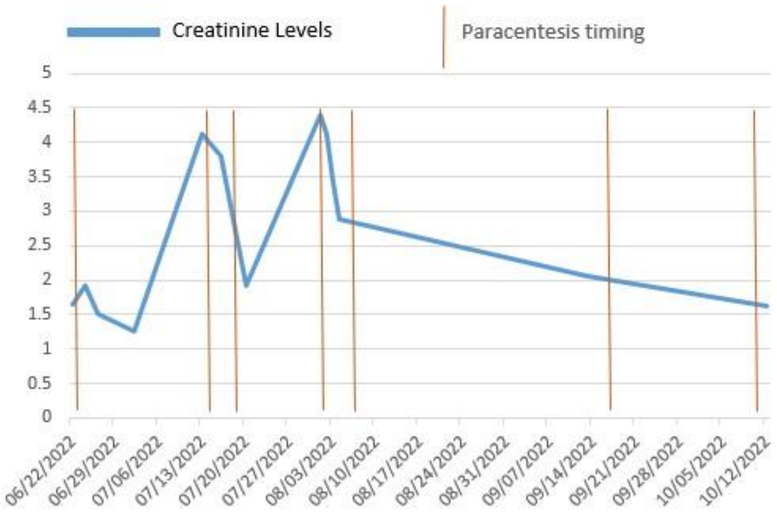
CASE DESCRIPTION

A 58-year-old gentleman who is a known case of alcohol-induced liver cirrhosis with recurrent ascites and acute kidney injuries (AKI) in the past 2 months, presented with abdominal distension, shortness of breath, and anuria. He was hypotensive (84/56 mmHg), tachypneic (22 breaths/min), and in acute distress with abdominal discomfort. His abdomen was non-tender, tensely distended with full flanks and shifting dullness. The rest of the examination was remarkable for spider angiomas.

His laboratory workup showed acute kidney injury (creatinine 4.4 mg/dL). He was started on 25% albumin, midodrine, and octreotide for suspected hepatorenal syndrome (HRS). Intraabdominal pressure (IAP) was measured with a bladder catheter and it was 24 mmHg pre-paracentesis. Over 10 L of ascitic fluid was drained, and post-paracentesis bladder pressure dropped to 0 mmHg. After this, patient's blood pressure improved and his shortness of breath and abdominal discomfort resolved. Urine output significantly increased over 2-3 days and creatinine improved to 2.99 mg/dL. He was discharged with scheduled paracentesis appointments. Ten weeks follow-up showed no new episodes of AKI with creatinine further improved to 1.63 mg/dL. Patient was eventually referred for TIPS procedure for his recurrent ascites.

DISCUSSION

Acute kidney injury in ascites is usually due to hypovolemia, dehydration, or HRS. AKI due to abdominal compartment syndrome is not commonly reported with cirrhotic ascites. Kamimura et al. reported a case of cirrhotic individual diagnosed with HRS and ACS, with kidney autopsy revealing ACS-mediated renal congestion likely secondary to renal vein collapse. Hence, any patient presenting with tense abdominal ascites on exam and AKI should have ACS as a differential. Their intraabdominal pressure can be measured using a foley catheter to help with the diagnosis of ACS. Early decompression can potentially help improve kidney function.



A simple graph to show how Creatinine levels varied with large volume paracentesis done over time.