


CASE REPORT

A continuous leak from within: a case report on flood syndrome

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Abstract

Flood syndrome is a very rare complication that can be found in patients with end-stage liver cirrhosis with concurrent ventral hernias. If the hernia ruptures, ascites can begin to leak uncontrollably from the opening which can become a nidus for infection if left untreated. This scenario is known as Flood syndrome, which was first described by Frank Flood in 1961. Flood syndrome is very difficult to manage for physicians as these patients are poor candidates for surgery but the ascitic leak will continue without surgical intervention. Currently, there is no standard of care for Flood syndrome. As such, physicians must rely on case reports to help guide their treatment plan. Our case report highlights the case of a 66-year-old cirrhotic patient with an ascitic leak from a ruptured umbilical hernia with discussion of both medical and surgical approaches to managing this very rare syndrome.

INTRODUCTION

Flood syndrome is an aptly named complication of refractory ascites and end-stage liver cirrhosis where ascitic fluid bursts through the opening created by a spontaneous rupture of an umbilical hernia. Flood syndrome was first described by Dr Frank Flood in 1961. It continues to be a very rare complication of end-stage liver cirrhosis despite the fact that umbilical hernias occur in 20% of patients with end-stage liver cirrhosis complicated by ascites [1]. Although the exact etiology of spontaneous umbilical hernia rupture in cirrhotic patients remains unknown, it is believed that a combination of fascial and abdominal muscle weakness due to a malnourished state as well as increased abdominal pressure from ascites leading to expansion of pre-existing weaknesses in the fascia are important contributors to the development of the umbilical hernias [2]. It has been well-described that conservative treatment of abdominal wall hernias in cirrhotic patients leads to worse outcomes such as increased morbidity and mortality. As such, elective hernia repair is the preferred choice of treatment [3]. Patients with Flood syndrome, however, are very poor candidates for surgery. Therefore, there is no gold standard for treatment of Flood syndrome and most treatment plans are obtained from case reports. As such, we present a rare case of Flood syndrome with both surgical and medical management.

CASE REPORT

A 66-year-old Caucasian male with a past medical history of NASH cirrhosis, type 2 diabetes, Chronic Obstructive Pulmonary Disease, umbilical hernia, and Coronary Artery Disease with a sudden burst of ascitic fluid after his umbilical hernia spontaneously ruptured with no inciting event or trauma. The ascites had been progressively getting worse since the patient underwent his last therapeutic paracentesis (2 weeks prior to admission) which drained 12.5 L. Empiric antibiotics were started due to increased risk of bacterial peritonitis. IV albumin was also given to maintain oncotic pressure and prevent 'third-spacing'. Of note, patient was not given any additional fluids due to his hyponatremic state. General surgery and hepatology was consulted and recommended a binder with gauze changes as necessary since patient was a very poor candidate for surgery with a MELD score of 26. MELD scores are an excellent predictor of morbidity and mortality for patients with end-stage liver disease. After the patient was admitted, an attempt was made to control the ascitic leak via a pursestring suture. The patient's abdomen was prepped and draped in the standard sterile fashion. Lidocaine was used to anesthetize the skin of his umbilicus. There was about 2 cm diameter of gangrenous area with a hole leaking ascites in the middle. A pursestring suture of 3-0 chromic gut absorbable suture was placed around the defect to tightly close the wound. The patient tolerated the

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procedure well. There was no leak detected with the Valsalva maneuver after the placement of the pursestring. Two days later, however, the pursestring failed and the ascites began to leak again around the pursestring through the previously existing defect. Six days later, the patient was transferred to palliative care and later discharged despite the continued ascitic leak since he was not a transplant candidate or a candidate for surgery per surgery and hepatology. Patient was advised to continue weekly therapeutic paracenteses to manage the ascitic leak. The patient presented again 12 days later due to abdominal pain from a loop of small bowel being incarcerated and strangulated at the umbilical hernia. Despite being a poor surgical candidate, the patient and his wife agreed to undergo an umbilical hernia repair with mesh and small bowel resection due to the emergent nature of his case. The surgery was performed successfully and the patient was discharged from the hospital eleven days later in stable condition.

DISCUSSION

Management of umbilical hernias in patients with liver cirrhosis can be managed conservatively or with surgical repair. Although surgery is risky in cirrhotic patients [4], conservative management of umbilical hernias in this patient population leads to a greater rate of umbilical hernial incarcerations, which must be repaired in an emergency setting. On the other hand, if the umbilical hernia is intervened on early with elective surgery, patients tend to have a lower rate of morbidity [5]. Furthermore, if the umbilical hernia ruptures, it can lead to a rare case of Flood syndrome which can complicate the eventually necessary hernial repair.

Our patient's case highlights the difficulty of managing Flood syndrome. There is currently no standard in terms

of treating Flood syndrome because it is such a rare complication. Due to the patient's frailty and increased risk of postoperative mortality, we attempted to manage the patient conservatively without surgery. The patient's umbilical hernia, however, eventually became incarcerated which led to his umbilical hernia being repaired in an emergency setting. Another intervention that was considered but ultimately not performed was a pigtail catheter placement because the catheter would not be an option for long-term usage and could prove to be a nidus for infection [6]. Thus, Flood syndrome is a rare complication of end-stage liver cirrhosis with ascitic leakage that must be managed medically and surgically in order to ensure the best patient outcome, as illustrated by our patient's progression.

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