

Flood Syndrome: Spontaneous Umbilical Hernia Rupture Leaking Ascitic Fluid—A Case Report

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ABSTRACT

Introduction: We report a rare case of Flood syndrome, which is a spontaneous rupture of an umbilical hernia.

Case Presentation: A 42-year-old man with decompensated hepatitis C and alcoholic cirrhosis complicated by ascites and esophageal varices presented with 1 day of ascitic fluid drainage after rupture of a preexisting umbilical hernia associated with diffuse abdominal pain and tenderness. A pigtail drain was placed in the right upper abdominal quadrant to decrease fluid drainage from the abdominal wall defect, allowing it to heal naturally.

Discussion: The spontaneous rupture of an umbilical hernia in our patient highlights a rare complication with high mortality rates and stresses the challenge of treatment that falls in the area between medical and surgical management.

INTRODUCTION

This case report presents the challenge in management of patients with Flood syndrome, the eponym for spontaneous umbilical hernia rupture, which is a rare yet potentially serious complication of the massive ascites in cirrhotic patients.¹ Medical management of these patients can be difficult because of electrolyte abnormalities and medical comorbidities.² Surgical intervention is often precluded by the high mortality risk in patients with decompensated cirrhosis. This poses the question of how to treat these patients and prevent the development of peritonitis through an open defect in the abdominal wall. We present a case of Flood syndrome managed with an interventional radiology procedure of a pigtail drain placed in the right upper abdominal quadrant.

CASE PRESENTATION

Presenting Concerns

A 42-year-old Hispanic man with decompensated hepatitis C and alcoholic cirrhosis (Child-Pugh Grade B, Model for End-stage Liver Disease Score = 15) complicated by ascites and esophageal varices presented to the Emergency Department with 1 day of ascitic fluid drainage after rupture of a preexisting umbilical hernia associated with diffuse abdominal pain and tenderness. The patient had previously received weekly paracentesis, during which 10L to 15L of fluid was removed each time. Physical examination revealed a tender, compressible umbilical hernia with ulceration of the overlying skin, draining straw-colored ascitic fluid (Figure 1). He was admitted to the Internal Medicine service for medical management. The patient was afebrile during



Figure 1. Photograph of the abdomen showing a tender, compressible umbilical hernia with ulceration of the overlying skin.

this admission, with mild hypotension and otherwise normal vital signs. After evaluation, a transplant surgeon and a general surgeon deemed the patient unfit for any surgical closure of the abdominal wall defect. In addition, he was not a candidate for a transjugular intrahepatic portosystemic shunt procedure. The patient reported that he was still drinking alcohol, and thus he was not a candidate for a liver transplant.

Therapeutic Intervention and Treatment

Initially, an ostomy bag was placed over the hernia for hygiene and to collect the one to three liters of ascitic fluid drainage each day. Optimal medical management with diuretics for ascitic fluid control was attempted but was precluded by hyperkalemia and hypotension. The patient was subsequently started on midodrine therapy for his hypotension and given a low-sodium, low-potassium diet. Although the ascitic fluid results did not meet the criteria for spontaneous bacterial peritonitis, the patient was treated with cefotaxime because the clinical picture was consistent with peritonitis. His diffuse abdominal pain resolved after he completed the course of antibiotics.

The transplant surgeon recommended placement of a peritoneal pigtail drain, which was subsequently positioned by an interventional radiologist in the right upper abdominal quadrant. On the day of discharge, there was no ascitic fluid draining from the umbilical hernia defect. The pigtail drain continued to drain clear, straw-colored fluid. The plan was to remove the pigtail

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drain after two weeks in the outpatient setting, once the umbilical hernia ulceration had healed. The patient was discharged with a prescribed regimen of sulfamethoxazole and trimethoprim daily for prophylaxis of spontaneous bacterial peritonitis.

Follow-up and Outcomes

Unfortunately, the patient canceled two subsequent appointments, and six weeks after discharge he presented to the Emergency Department for suspected peritonitis. The pigtail drain was still intact, and his umbilical hernia skin ulceration had healed and no longer drained ascitic fluid. The pigtail drain was removed without any continued leakage of ascitic fluid. The patient was treated with a course of antibiotics, which resolved his symptoms.

DISCUSSION

Flood syndrome, the eponym for spontaneous umbilical hernia rupture, is an unusual yet potentially serious complication of end-stage liver disease with ascites that has a high mortality rate of 30%.^{1,3} It was first reported in 1961 by Frank B Flood⁴ during his residency. The combination of increased intraabdominal pressure and the inherently weakened abdominal wall at the linea alba in the umbilical region causes the formation of umbilical hernias in approximately 20% of patients with cirrhosis and ascites.⁵ Paracentesis, typically therapeutic more often than diagnostic with the removal of large volumes of ascites, can increase the risk of developing hernias because of the drastic changes in pressure during the procedure.

With cirrhosis itself being a marker of adverse postoperative outcomes,⁶ surgeons have been reluctant to operate on these patients. Recent studies, however, have shown that emergent surgical repair of these hernias poses a much greater risk of the development of complications in addition to higher rates of morbidity and mortality.⁶⁻⁸ Elective herniorrhaphy is now recommended after the patient is stabilized using optimal medical management,^{2,9,10} with the possibility of a transjugular intrahepatic portosystemic shunt procedure to prevent recurrence of the ascites.^{11,12} In institutions where surgical intervention is not possible, there have been alternative methods studied, including the injection of fibrin glue into the defect to stem drainage^{13,14} or, as in our case, the placement of a pigtail drain to allow the leaking ulceration to heal naturally.

CONCLUSION

This case presents the challenge in management of patients with Flood syndrome. Although there have been case reports and studies performed on the best treatment of Flood syndrome,^{1,2,5,10,11,13,14} this condition is rarely seen, making development of a standardized treatment protocol difficult. In our case, the pigtail drain worked as a short-term solution for decreasing the amount of ascitic fluid draining out of the ruptured umbilical hernia. However, it was a source of subsequent infection, in part

because of its prolonged use, and it was not a good option for long-term treatment. The spontaneous rupture of an umbilical hernia in our patient with cirrhosis and ascites highlights a rare complication with high mortality rates and stresses the challenge of treatment that falls in the area between medical and surgical management. ❖

Disclosure Statement

The author(s) have no conflicts of interest to disclose.

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