CASE REPORT

Flood syndrome: a rare case of spontaneous rupture of umbilical hernia in a cirrhotic patient

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Abstract
Flood syndrome is a rare and potentially fatal complication of long-standing ascites resulting from a spontaneous rupture of an umbilical hernia. We present the case of a 67-year-old male with a medical history of diastolic heart failure, cocaine abuse, hepatitis C and cirrhosis secondary to daily alcohol consumption who presented to the emergency department with spontaneous rupture of an umbilical hernia with continuous, perfuse drainage of ascites from a 3 cm hernia defect. In this case report, we highlight the successful temporizing and definitive management of flood syndrome, as the patient presented to and was temporized a community hospital and was subsequently transferred to a tertiary care center for definitive management.

INTRODUCTION
Flood syndrome is a rare and potentially fatal complication of long-standing ascites resulting from a spontaneous rupture of an umbilical hernia. Peritonitis becomes a feared complication due to the open defect in the abdominal wall. However, surgical intervention is often complicated with the risk of high mortality due to the patient populations’ decompensated liver cirrhosis.

CASE DESCRIPTION
We present the case of a 67-year-old male with a medical history of diastolic heart failure, cocaine abuse, hepatitis C and cirrhosis secondary to daily alcohol consumption (MELD 15, Child-Pughes B) who presented to the emergency department with spontaneous rupture of an umbilical hernia 1 h prior to presentation. The patient had previously been seen for a small ulcer at the inferior base of the umbilicus, which was sutured closed with plans for surgical intervention electively on an outpatient basis. The patient did undergo paracentesis every 2–3 weeks for management of ascites. Pending scheduling of the intervention, the patient presented with spontaneous rupture of the umbilicus through an ∼3 cm skin defect causing continued flow of ascitic fluid from the umbilicus. Due to the large size of the defect, ascitic fluid continued to pour from the umbilical hernia. The defect was sufficiently closed with two figure of eight stitches followed by the placement of an abdominal binder, allowing time for the patient to be transferred to a specialized care center for definitive treatment. Following transfer, a computed tomography of the abdomen and pelvis was obtained with evidence of an umbilical hernia containing serpiginous loculated ascites with rim enhancement. Preoperatively the patient was appropriately corrected for any lab-based abnormalities. Intraoperatively, a 10 cm elliptical incision was made to drain the multiloculated hernia sac, the hernia sac was ligated, nearly 4 L of ascitic fluid was suction with infusion of albumin due to transient hypotension. The peritoneum was with a running 3–0 PDS, the fascia closed in a vest-over-pants manner using interrupted 0 prolene sutures, the dermis was closed with a running 3-0 PDS sutures and the skin closed with a 2–0 nylon horizontal mattress suture. The patient presented in the case was not a candidate for liver transplantation due to ongoing ethanol use. Outpatient follow-up information included Q2 week paracentesis PRN, establishment with hepatology for ongoing surveillance, a low sodium diet, outpatient esophagogastroduodenoscopy to screen for varices.

DISCUSSION
There are no formal guidelines regarding management and treatment of flood syndrome, a rare complication of long-standing ascites with a mortality rate reaching ∼30% [1] Review of the limited literature does provide several different methods of successful management.
One case described utilization of ostomy appliances placed around hernia site with subsequent pigtail peritoneal drain allowing the umbilical ulcer to heal; however, the course of treatment was complicated with infection requiring removal of the drain [2] Elective repair is the most effective choice of repair, requiring control of ascites prior to and following surgical intervention. Review of the literature demonstrates that cirrhotic patients undergoing umbilical hernia repair have a high rate of intensive care unit admission, longer length of stay, aspiration pneumonia, pulmonary compromise, myocardial infection and metabolic derangement. One randomized study evaluated mesh vs tissue repair in cirrhotic patients with evidence of lower rates of recurrence in the mesh arm, 2.7% vs 14.2%, respectively [3] Morbidity is significantly recued in cirrhotic patients with elective umbilical hernia repairs [1, 4, 5] Emergent surgery should take place at experienced centers with aggressive control of preoperative electrolytes, diuretic therapy, percutaneous paracentesis and appropriate postoperative monitoring [5] Another case report proposed patients be initially evaluated for Transjugular intrahepatic protosystemic shunt in order to relieve portal pressures and subsequent intraabdominal pressures followed by a surgical umbilical hernia repair through the presentation of successful management of a 42-year-old male with flood syndrome [6]

CONCLUSION
In conclusion we present the case of a patient that was temporized in our care, and transferred to a specialized center for definitive treatment of flood syndrome. We highlight the necessity for awareness of temporizing options of the patient, and methods for successful treatment of this rare and potentially fatal complication of cirrhosis.

CONFLICT OF INTEREST STATEMENT
None declared.

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REFERENCES
1. Triantos CK, Kehagias I, Nikolopoulou V, Burroughs AK. Surgical repair of umbilical hernias in cirrhosis with ascites. Am J Med Sci 2011;341:222–6.
2. Nguyen ET, Tuedt-Hans LA. Flood Syndrome: Spontaneous Umbilical Hernia Rupture Leaking Ascitic Fluid-A Case Report. Perm J 2017;21:16–152.
3. Ammar SA. Management of complicated umbilical hernias in cirrhotic patients using permanent mesh: randomized clinical trial. Hernia 2010;14:35–8.
4. Eker HH, van Ramshorst GH, de Goede B, Tilanus HW, Metselaar HJ, de Man RA, et al. A prospective study on elective umbilical hernia repair in patients with liver cirrhosis and ascites. Surgery 2011;150:542–6.
5. Odom SR, Gupta A, Talmor D, Novack V, Sagy I, Evenson AR. Emergency hernia repair in cirrhotic patients with ascites. J Trauma Acute Care Surg 2013;75:404–9.
6. Fasullo M, Oranefo J. A Rare Case of Flood Syndrome and a Perspective on Management. American Journal of Gastroenterology 2017;112:S1256.