Surgicel Emboli Presenting as Right Atrial Mass Caused by Laparoscopic Morgagni Hernia Repair

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Figures

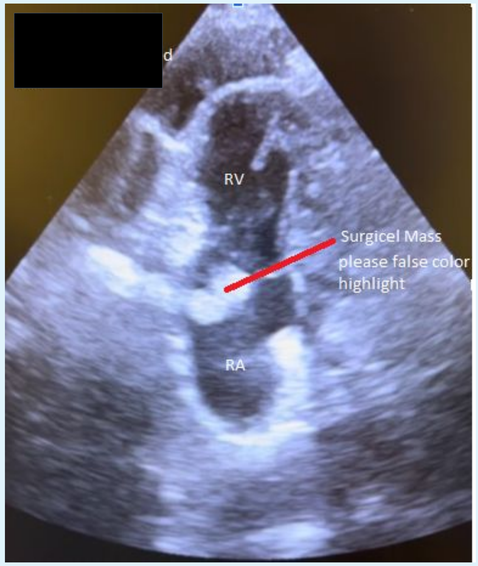

Figure 1: TTE image of surgicel migrating from the pericardial sac through a perforation in the right atrium

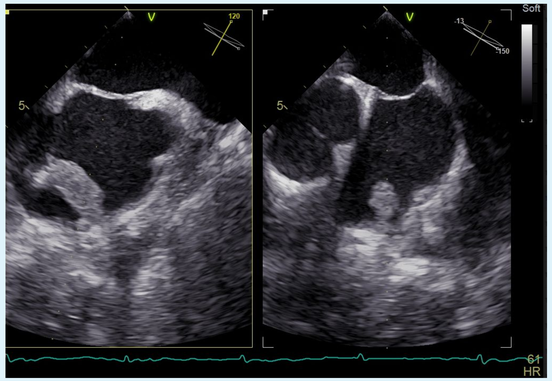

Figure 2: Intraoperative multi-D TEE image of surgicel in the right atrium

Introduction

Morgagni hernias are a rare type of congenital diaphragmatic defect typically located in an anterior and retrosternal position and, if left untreated, can result in bowel obstruction. Repair of these hernias can be achieved through open or minimally invasive techniques. The former approach allows for the identification of bilateral defects, while the latter is considered safer for reducing herniation and offers better visualization of right-sided defects.

In this case report, we present a laparoscopic repair of a high-risk Morgagni hernia that involved the colon. The intraoperative course was complicated by the breach of the pericardial sac, which was repaired with Surgicel. In this report, we discuss the postoperative diagnostic course that revealed the migration of Surgicel to the right ventricle and the immediate intervention.

Case Description

PREOPERATIVE COURSE: A 65-year-old male presented to the hospital for a high-risk repair of a laparoscopic Morgagni hernia repair containing the colon. He had a PMH of severe emphysema, COPD requiring 2 L oxygen at home, hyperlipidemia, hypertension, CHF, CAD, and a history of coronary artery bypass grafting (CABG) x3 one year prior. A physical exam showed a well-developed, well-nourished individual in no apparent distress. The cardiac exam revealed a regular rhythm with no murmur. The lungs revealed diminished breath sounds bilaterally. He had a median sternotomy incision healing well with no signs of infection. The abdomen was soft, non-tender, and non-distended. He had pitting edema in bilateral lower extremities. Neurologically, the patient was A&O, with a normal gait and no focal deficits. Lab works were normal. EKG showed NSR with old inferior MI. Pre-op Echo showed Normal LV size, EF 60%. Normal wall motion. Normal RV size & systolic function with Trivial AR. Normal RVSP at 32 mmHg.

Case Description (continued)

INTRAOPERATIVE COURSE: The patient was intubated with a size 8 ETT, and a 20-gauge peripheral IV was inserted. Given the high-risk nature of the surgery and the patient's complicated medical history, the anesthesia team took several precautions to minimize the risk of postoperative complications, including titration of oxygen and using intraoperative ventilation strategies to optimize lung function. During the surgery, episodes of hypotension were noticed, requiring boluses of phenylephrine followed by a continuous infusion at 40 mcg/min.In the middle of the procedure, the surgeon encountered sudden significant bleeding in the diaphragmatic/pericardial region which was controlled by packing with surgicel. An arterial line was placed, and a second large-bore IV was started. The further evaluation suggested that there was a breach in the pericardial sac. Surgicel was placed at the site, with apparent intra-op good results. In the end, Pt was extubated awake and transferred to the PACU on a phenylephrine drip. He received 1250ml LR, EBL 500ml, and no UOP recorded. Vitals on arrival to PACU were HR: 86; BP 88/62. RESP:23 Sat 95% on oxygen.

POSTOPERATIVE COURSE: Pt. was awake and communicative. but complained of upper abdominal pain. He received a couple of doses of hydromorphone with some relief. He continued to be hypotensive despite A-line calibrations. Hemoglobin level decreased from 13 to 10 while requiring an increase in pressors. The systolic blood pressure remained around 70-80s over 40-50s with a MAP around 50's, on 80 mcg of Neo-Synephrine. One-unit PRBCs were hung. Preliminary bedside TTE at the bedside showed: Normal Left ventricular systolic function; Dilated RV; Moderate pericardial loculated effusion on the right side without any tamponade; Moderately reduced RV systolic function and Large echogenic mass that appears to be entering the right atrium from the lateral wall and entering the RV via tricuspid valve. (Figures1,2) Upon this discovery, the cardiothoracic surgeon was immediately notified, and the patient was emergently taken to the operating room for an open-heart surgery via median sternotomy. The Surgicel was removed, and RV got repaired. Following the surgery, he remained in the ICU on significant doses of vasopressor support and was eventually weaned off and extubated.

Discussion

Morgagni syndrome is a rare form of diaphragmatic hernia that often goes undetected until adolescence or adulthood. In this case report, the patient presented with a high-risk Morgagni hernia repair involving the colon, complicated by a complex medical history that amplified the risk of perioperative complications. Minimally invasive techniques through the thoracic cavity were used to reduce complications such as herniation of the abdominal organs.

The postoperative course was complicated by hypotension and hypoxia, which created a challenging situation. Despite using vasopressors, the patient's continued hypotension created an early utilization postoperative transthoracic echocardiogram, which revealed a pericardial loculated effusion that gave rise to the patient's hemodynamic instability. TTE showed the immigration of the surgicel to the right atrium through the perforation and into the right ventricle. Prompt recognition of the problem allowed open-heart surgery by the cardiothoracic surgeon to repair the right ventricle and remove the surgicel, leading to a positive outcome.

This case report highlights the critical role of early recognition, vigilant postoperative monitoring, and the swift use of TTE in managing high-risk surgical patients. In this case, timely intervention and quick detection of potential complications averted a catastrophic outcome if the problem had remained undetected for an extended period. It emphasizes the need for a multidisciplinary approach in high-risk surgical patients and the critical role of an anesthesiologist in PACU to ensure positive outcomes.

Acknowledgements & Discussion

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