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Unsuspected Postpartum Complication: Case Report of a Post-Cesarean Gastric Rupture

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Abstract

Background: Although rare, acute gastric dilatation is associated with life threatening complications. While several cases have been documented in various settings, there are very few cases documented in association with gynecological surgeries.

Objective: We report a case of acute gastric dilatation with subsequent necrosis and perforation in 35-year-old postpartum patient two days following a primary cesarean section. The patient's medical history was significant for diabetes and intellectual disability. Despite treatment and resuscitative measures following gastric rupture, the patient continued to decompensate, suffering respiratory failure, anoxic brain injury, and subsequently death.

Conclusion: Gastric necrosis is a postoperative complication of which any surgeon should be aware. While there are very few documented cases of gastric necrosis and perforation after gynecologic surgery, pelvic surgeons should still be cognizant of this often fatal complication. Obstetricians must maintain a high suspicion of ileus in any post-cesarean patient with nausea or vomiting, particularly in patients with a history of diabetes mellitus and intellectual impairment who are at risk for gastric necrosis. Awareness of this potential complication may help providers initiate treatment modalities quickly, thus reducing mortality.

Case

A 35-year-old African American woman G1P0 diagnosed with intellectual impairment, pre-eclampsia, and type II diabetes mellitus initially presented to Labor and Delivery for a scheduled induction of labor at 37 weeks 3 days of gestation. She had a Bishop score of 7 and was started on oxytocin. 24 hours into her induction, the fetal heart tracing became non-reassuring, and the decision was made to proceed with a cesarean section. She underwent a primary low transverse cesarean section and bilateral tubal ligation without any complications, delivering a singleton at 37 weeks 4 days. Her peripartum status was stable for the next 36 hours.

Early on the second morning after delivery, the patient developed diarrhea and vomiting with approximately 200 mL of non-bilious emesis. By 2350 that day, her oxygen saturation decreased to 90%. She became progressively more uncomfortable with mild tachypnea and increasing shortness of breath. By 0030, she was also found to be diaphoretic and tachycardic. Her EKG at that time showed a prolonged QT interval with a rate in the 120s. It was suspe-

cted she had a pulmonary embolus, so she was anticoagulated per protocol and placed on 2 liters of oxygen via nasal cannula while awaiting a CT Angiogram.

As the patient was being prepped for the CT, she was noted to have a rapid change in status with acute onset abdominal distension, elevation of heartrate to the 150s, and worsening tachypnea. She additionally had visible retractions with respirations and tympany on abdominal exam. She was transferred to the Intensive Care Unit (ICU) and intubated. At this point, the patient was continued on low molecular weight heparin for anticoagulation. The CT scan could not be obtained due to her unstable condition. The patient then suffered cardiac arrest. Return of spontaneous circulation was achieved with cardiopulmonary resuscitation. A chest x-ray showed free air under the diaphragm and a severely enlarged stomach. Acute care surgery was consulted and the decision was made to proceed with emergent exploratory laparotomy in the ICU as the patient was not stable enough to transfer to the operating room.

Upon entering the abdomen, the patient was found to have acute gastric necrosis thought to be secondary to acute gastric dilatation. Three liters of turbid fluid with food particles were evacuated. The small bowel was ischemic and dusky throughout the entire length and grossly dilated with no perforation or injury. The colon appeared normal and intact. Two-thirds of the anterior and proximal stomach was necrotic with a nasogastric (NG) tube perforating through a large area of necrosis. A subtotal gastrectomy followed. The spleen showed multiple areas of bleeding, so it was removed as well to prevent any further complications. After this, a washout of the abdomen was done and a temporary closure device was placed with plans to return 24-48 hours later for a second look after the patient was stabilized and resuscitated. The patient had immediate improvement in oxygenation, but remained critically ill on maximum doses of three pressors. She was subsequently transferred to the surgical ICU.

At 0919 on postpartum day 5 (post-operative day 2 from the exploratory laparotomy), the patient remained intubated off sedation. All reflexes were absent and she did not withdraw to pain. The family decided to withdraw care, and she was extubated and taken off pressors at 0930. The patient passed away 7 minutes later. The cause of death was determined to be an ileus and severe gastric dilatation leading to abdominal compartment syndrome with acute gastric necrosis leading to respiratory failure and anoxic brain injury.

Discussion

Acute gastric dilatation leading to subsequent necrosis and perforation is an exceedingly rare complication of abdominal surgery. While there have been several previous reports of gastric necrosis or perforation in pregnancy related to ascariasis or other unknown causes, the literature has no documented cases of gastric perforation in post-partum patients with diabetes. The stomach has an abundant blood supply from many vessels and collateral circulation, so it is rare for gastric necrosis to occur. However, there are risk factors such as gastric outlet obstruction, retroperitoneal tumors, anorexia nervosa and bulimia, psychogenic reasons, diabetes mellitus, trauma, electrolyte disorders, cerebral palsy, diaphragmatic hernia, and gastric volvulus that can lead to its occurrence.[2] The likely sequence of events was that our patient developed a severe ileus and subsequent gastric dilatation leading to abdominal compartment syndrome, and that her history of diabetes and potential impaired vascularity of the stomach wall placed her at greater risk for gastric necrosis. Thus, she sustained a gastric perforation upon placement of the NG tube in the ICU setting.

In regards to this patient's intellectual impairment, it may have been a potential risk factor as well. Psychogenic and neurologic factors can influence behaviors, which may lead to severe complications such as gastric necrosis.[3] Examples of a psychogenic factors are pathologic aerophagia, which is swallowing excessive amounts of air, and overeating due to impaired intrinsic mechanisms which alert that the person is full.[3,5] It also is possible that our patient was unable to adequately verbalize symptoms such as abdominal pain or difficulty breathing due to her mental disability.

Signs and symptoms of gastric necrosis include vomiting, abdominal pain, abdominal bloating, and distension. Imaging may reveal a severely enlarged stomach with free air under the diaphragm, which suggests perforation. If a diagnosis of gastric necrosis or perforation is made, swift actions must be taken due to the high mortality rate of 50-80%.[5] Treatment is emergent surgery with the procedure usually including surgical decompression, partial gastrectomy or total gastrectomy, and esophagojejunostomy.[4] Delayed treatment may lead to worse prognosis, so it is imperative to initiate treatment as soon as possible. Many patients die even with efficient treatment due to multisystem organ failure and sepsis.[1,3] Unfortunately, our patient became

hypoxemic secondary to respiratory failure from her abdominal compartment syndrome, which led to circulatory collapse requiring cardiopulmonary resuscitation. Due to her prolonged hypoxemia, she suffered anoxic brain injury and ultimately brain death.

Conclusion

Although rare, gastric necrosis and perforation are life threatening postoperative conditions if they occur. Quick treatment modalities must be implemented in order to reduce mortality. Obstetricians must maintain a high suspicion of ileus in any post-cesarean patient with nausea or vomiting, particularly in patients with a history of diabetes mellitus and intellectual impairment who are at risk for gastric necrosis.[1,3] Early imaging is crucial. If a NG tube needs to be placed, care needs to be taken to avoid perforation.

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