

Gastric Ultrasound as an Aid to Determine Pulmonary Aspiration Risk Following Consumption of a Bulk-Forming Fiber Laxative

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Introduction

Every Anesthesiologist has faced the difficult decision on proceeding with an elective case where NPO status is not clear. While the American Society of Anesthesiologists (ASA) has formal guidelines related to clear liquids, milks, and solid foods, a vast amount of gray area remains. When factoring in that these guidelines do not guarantee complete gastric emptying, the decision to proceed can sometimes feel like a guessing game. The utilization of gastric ultrasound has emerged as a point of care tool to aid in the determination of gastric volume as well as solid versus liquid contents to better quantify pulmonary aspiration risk in the perioperative period.

Case Presentation

As the case report is devoid of patient identifiable information, it is exempt from IRB review requirements as per UNC policy. Patient informed consent was obtained for submission of a case report. We present the unique case of a 55-year-old male requiring general anesthesia for anorectal exam and internal anal sphincter chemodenervation with botulinum toxin. Two hours prior to his surgical time, he consumed a prescribed 3.4g packet of psyllium mixed in 10-16 ounces of water. The patient believed he had appropriately followed his NPO instructions as his last consumption of solid food was over eight hours prior and his medication was taken with a clear liquid. A gastric ultrasound was performed two hours after the consumption of psyllium/water mixture in the supine position demonstrating no evidence of solid material in the stomach and a cross-sectional area (CSA) of 4.18 cm². The patient was then placed in the right lateral decubitus position and the gastric antrum was identified. The CSA was again calculated resulting in an area of 4.16 cm². Based on this information, with assistance from the ASRA Pain Medicine Aspiration Risk Assessment Tool, he was deemed low risk for aspiration. The decision was made to proceed with the case without delay. General anesthesia was maintained with a propofol infusion and native airway. The entire anesthetic duration was nine minutes and was uneventful. The patient was transported to recovery and was discharged home forty-three minutes following the end of the procedure.

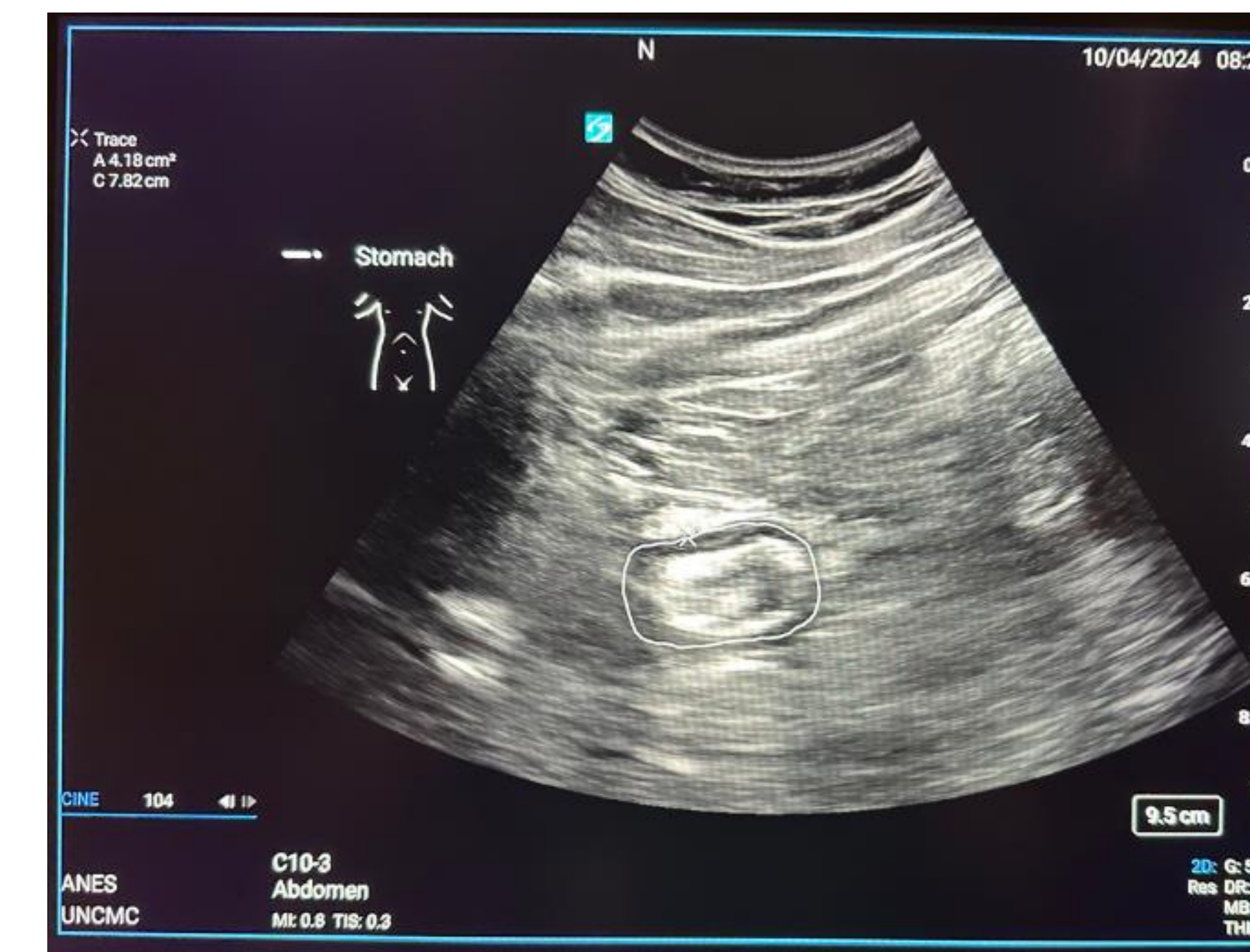


Figure 1: Gastric ultrasound with patient in supine position

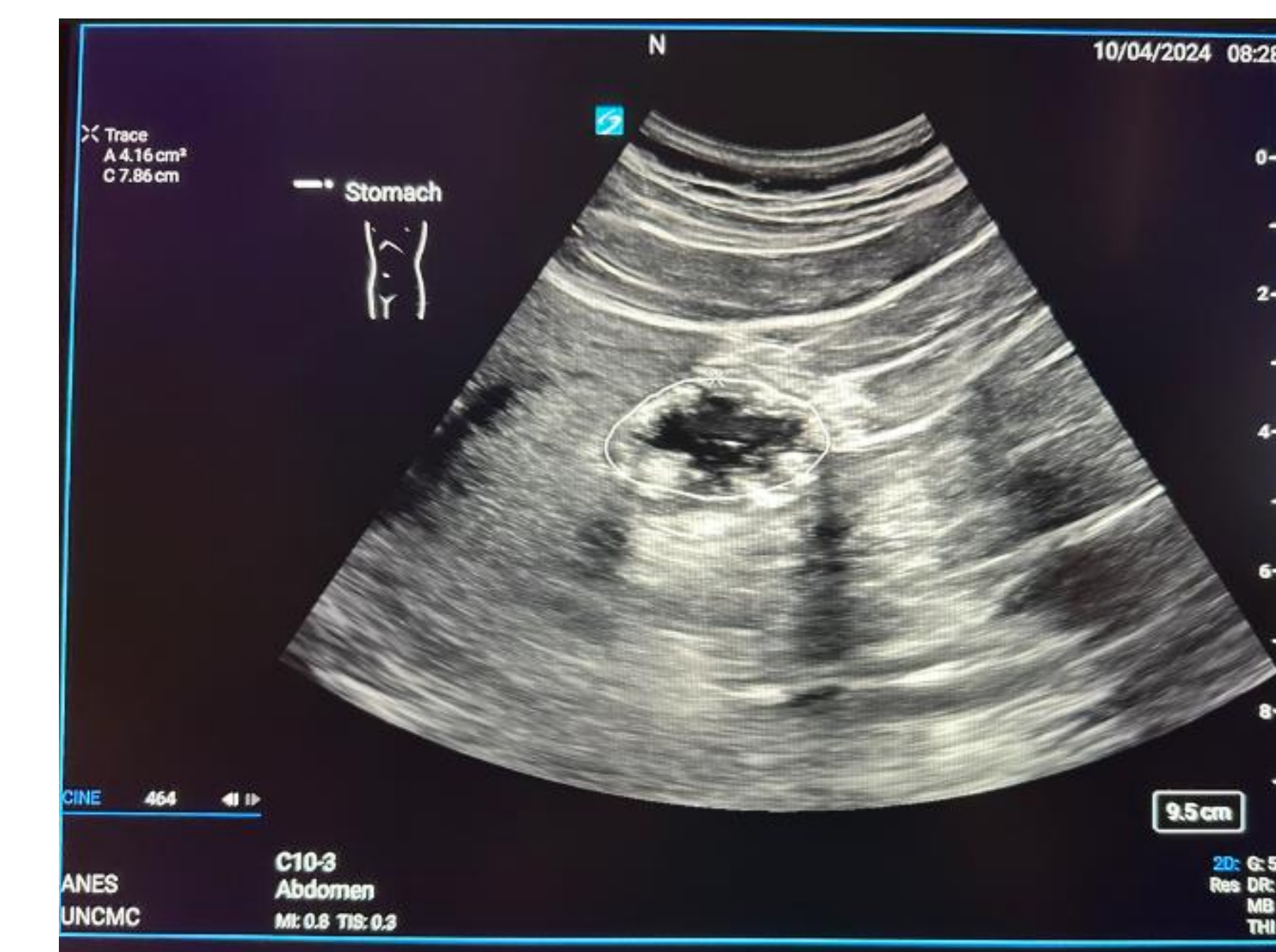


Figure 2: Gastric ultrasound identifying antrum of stomach

Discussion

It is well known that pulmonary aspiration in the perioperative period carries a high morbidity and mortality and has been quoted to be the leading cause of death related to airway events. Appropriately characterizing a patient's aspiration risk is an area where Anesthesiologists can improve. Bulk-forming laxatives are commonly prescribed or taken over the counter as stool softeners or appetite suppressants and their effects on gastric emptying is largely unstudied. To our knowledge, this is the first reported use of gastric ultrasound to confirm gastric volume in a patient who had recently consumed a bulk-forming fiber laxative. This case report highlights the need for more research to be performed surrounding NPO guidelines for bulk-forming laxatives

References

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