

Midgut Volvulus A Rare Cause of Acute Abdomen in the Adult Patient

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Background

- Midgut Volvulus caused by intestinal malrotation that typically occurs within the first year of life. It can be diagnosed prior to birth on some occasions.
- Prevalence by CT Colonography suggests 0.17% in the adult population. [1]
- Frequency of Symptomatic malrotation in neonates is about 1 in 6000 live births.
- Due to this disparity, Morbidity is increased in the adult population. This includes up to 40% of Adult patients requiring reoperation. [2]

Case Presentation

- An otherwise healthy 48-year-old female with no past medical history of prior abdominal surgeries, presented to the Emergency Department with acute onset diffuse abdominal pain that began earlier in the day. She described the pain as 10/10 and denied any prior occurrence of similar pain. Initially the patient was hemodynamically stable leading to stat CT abdomen and pelvis examination. CT findings consistent with volvulus. CT findings were pathognomonic for Midgut volvulus demonstrated by swirl sign around the superior mesenteric artery.
- Physical exam findings included non localized peritonitis and pain out of proportion to examination.
- Given CT and Physical exam findings, the decision was made to take the patient emergently to the operating room.
- During the initial operation, the patient underwent exploratory laparotomy, reduction of internal hernia, Small bowel resection, abthera placement.
- Post operative day 2 the patient was taken back to the OR for Jejunal-ileal Anastomosis, and closure of mesenteric defect.
- Final diagnosis included acute abdomen, bowel strangulation, internal hernia, and midgut volvulus. Patient ultimately had 140cm of small bowel resected however total hospital stay was 5 days and patient did not require an ostomy.

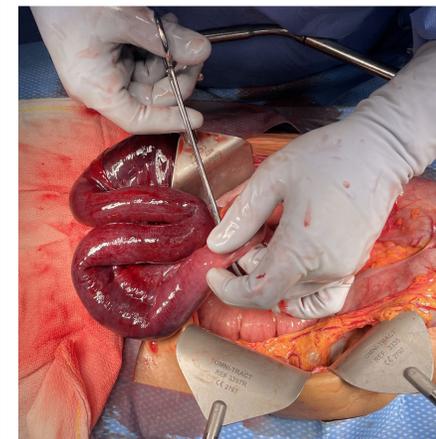
Images



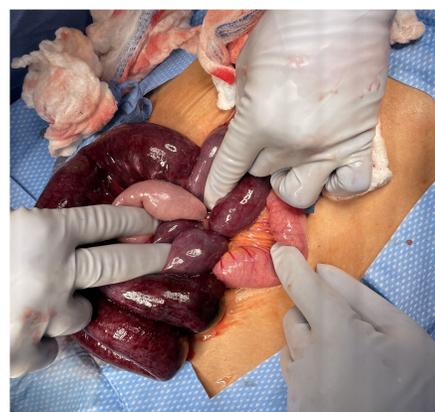
• Figure 1: Initial CT abdomen pelvis



• Figure 2: Initial CT abdomen pelvis Coronal view



• Figure 3: Intraoperative photo of ischemic bowel.



• Figure 4: Intraoperative photo of ischemic bowel.



• Figure 5: 140cm of ischemic bowel resected

Discussion

- In this case, the patient had an optimal outcome for the diagnosis.
 - Post operative complications can reach up to 60% and 44% of patients may require reoperation. [2]
- In one study from 2015 there were 2 million cases of small bowel obstruction in the United States of those, 169 cases were due to intestinal malrotation. [3]
- Given the rarity of the diagnosis in the adult population, Most patients, if hemodynamically stable, undergo CT examination prior to Surgical intervention.
- Given this patients state of health, and lack of prior abdominal surgeries the surgery and recovery was optimal leading to the best patient outcome that could occur given the extent of the bowel ischemia.
 - The patient was able to go home with close follow up and in continuity within 5 days of the initial operation

Conclusion

- This case illustrates the prompt and accurate diagnosis of acute abdomen due to midgut volvulus with optimal patient outcome.
- Volvulus should be considered in the differential diagnosis in the acute abdomen in the healthy adult patient
- Abdominal CT is the preferred method of diagnosis [4]
- Expedient presentation and diagnosis is key to optimal patient outcomes

References

1. [Perez AA, Pickhardt PJ. Intestinal malrotation in adults: prevalence and findings based on CT colonography. Abdom Radiol \(NY\) 2021; 46:3002.](#)
2. [Durkin ET, Lund DP, Shaaban AF, et al. Age-related differences in diagnosis and morbidity of intestinal malrotation. J Am Coll Surg 2008; 206:658.](#)
3. [Coe TM, Chang DC, Sicklick JK. Small bowel volvulus in the adult populace of the United States: results from a population-based study. Am J Surg 2015; 210:201.](#)
4. [Neville JJ, Gallagher J, Mitra A, Sheth H. Adult Presentations of Congenital Midgut Malrotation: A Systematic Review. World J Surg 2020; 44:1771.](#)