

e-ISSN 2723-7494

Volume 51 Nomor 1 (2024)



JURNAL ILMU BEDAH INDONESIA

Diterbitkan oleh:

Ikatan Ahli Bedah Indonesia



CONCURRENT GASTRO-GASTRIC INVAGINATION AND INTESTINAL MALROTATION IN ADULT: A CASE REPORT

¹Rini Suswita*, ¹Muhammad Iqbal Rivai, ¹Irwan*, ¹Avit Suchitra, ²Edo Bagus Tanyo, ²Muhammad Abror

¹Digestive Surgery Division, Department of Surgery dr. M. Djamil General Hospital/Faculty of Medicine Universitas Andalas

²Specialist of Surgery Programme, Faculty of Medicine Universitas Andalas

Introduction: Intestinal malrotation and invagination are two rare disorders that typically affect children and can present with vague symptoms. Intestinal malrotation occurs when the intestine fails to rotate and fixate normally, while invagination is when one intestinal organ enters another. In adults, intestinal malrotation is very rare, accounting for 0.2 - 0.5% of cases. Gastric invagination, on the other hand, occurs in 10% of cases and can be challenging to diagnose, even with adequate examinations. Recently, a case was reported of a close loop duodenum resulting from gastric obstruction caused by gastro-gastric invagination and concomitant intestinal malrotation.

Case Report: A 40-year-old woman admitted to the emergency department (ED) with severe vomiting for one day. History of chronic right upper abdominal and epigastric pain for the last one year. Founded gastric obstruction through endoscopy and considered to perform exploratory laparotomy. There was a gastro-gastric invagination with a leading point gastrointestinal stromal tumour in the major curvature of the gastric corpus and intestinal malrotation. Wedge resection of the tumor and untwist of the malrotation were performed.

Conclusion: The diagnosis of gastric invagination and small bowel malrotation in adults is difficult and challenging due to clinical symptoms that mimic other intestinal disorders. Increasing awareness of these cases will certainly reduce the time to diagnosis, expedite action and improve patient outcomes..

Keywords: Intestinal malrotation; Gastro gastric invagination

INTRODUCTION

Intestinal malrotation is an abnormal condition of the intestine due to disrupted rotation and fixation of the midgut during the embryonic period. This abnormality can be detected at an early age. However, the symptoms are sometimes asymptomatic and vague, so that in adulthood malrotation is found accidentally with chronic symptoms.^{1,2}

Invagination is a condition where part of the intestine gets into the lumen of the other intestine. It can occur spontaneously, without any obvious aetiology in children but invagination can occur due to other diseases or as a result of malignancy in adults.^{3,4}

Intestinal malrotation is a rare case. Only 0.2%-1% of the total population is reported to experience intestinal malrotation and 0.2%-0.5% of all malrotation cases are in adults. Of all invaginations, 5% are in adults and only 10% are in the stomach.^{2,4,5}

CASE REPORT

On physical examination, it was found that the general condition appeared moderately ill, cooperative compositional consciousness with stable haemodynamics. Abdominal examination revealed no distension, right upper abdominal tenderness with no muscular rigidity. Routine blood laboratory

examination and clinical chemistry were within normal limits except albumin with a level of 2.3 gr/dL.

Gastrointestinal endoscopy was performed to rule out other differential diagnoses. During endoscopy, the scope could not pass through the gastric corpus due to stenosis with suspicion of extra lumen mass suppression. After informed concern, it was decided to perform diagnostic laparoscopy. Diagnostic laparoscopy revealed severe dilatation of the duodenum, obscuring the field of view of the gaster and a 'bulky' mass in the gastric corpus region. Laparotomy was performed to evaluate and treat this disorder. Laparotomy revealed gastro-gastric invagination at the level of the gastric corpus, severe dilatation of the duodenum, and a bulky mass at the corpus gastric area.

A laparotomy was carried out to evaluate and treat a medical condition. The results showed that there was gastro-gastric invagination at the level of the gastric corpus, severe dilatation of the duodenum, a small intestine on the right side of the abdomen pushing the right colon medially, and no Ladd band. Further exploration revealed jejunal knotting without Treitz ligament on the left side of the abdomen. It was concluded that there was gastro-gastric invagination and intestinal malrotation with jejunal knotting, resulting in gastric obstruction and duodenal close

loop at the same time.

The following actions were taken: the malrotation was untwisted by returning the small bowel to the medial colon, the defect in the hepatic flexure mesocolon was repaired, and the viability of the small bowel was evaluated. The entire small bowel was viable, and the duodenal passage was good and decompressed. During the surgery, the invagination spontaneously released, and an intraluminal mass with a diameter of less than 5 cm was evaluated in the gastric corpus on the major curvature side, following which a gastric wedge resection was performed.

After the surgery, the patient was encouraged to be active mobilization and was given liquid food on the first day, which was gradually increased in volume and consistency, along with education. The patient was discharged on the fifth day without any complications.

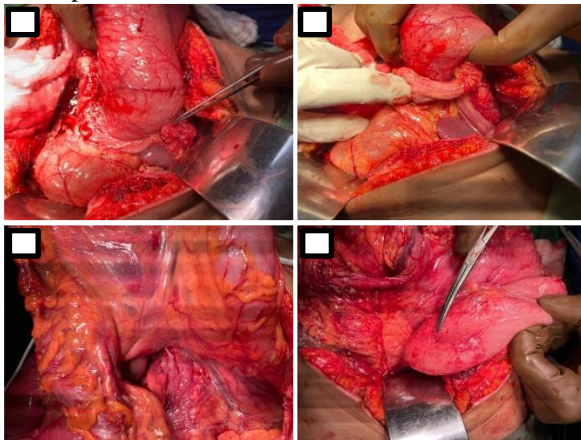


Figure 1. (A) and (B) gastro-gastric invagination, (C) the small intestine passes into the hepatic flexure, (D) the leading point of invagination

DISCUSSIONS

It is challenging to establish the diagnosis of gastric invagination as a cause of upper gastrointestinal obstruction, due to its rare occurrence in adults (<5%) and many other differential diagnoses.^{5,6}

In this case, we found gastro-gastric invagination caused by a tumor at the greater curvature. Tumors are the most common aetiology and act as the leading point of an invagination. Based on the type of tumor, more than half of adult invaginations are caused by gastrointestinal tumours (GIST). The rest are caused by an adenoma, lipoma, leiomyoma, polyp, and adenocarcinoma. The histopathological examination of this patient was a gastrointestinal stromal tumour (GIST).^{7,8}

Intestinal malrotation is defined as abnormal rotation of the midgut during embryonic life. Generally, the intestine will rotate 270° by the sixth week of gestation and return to its original position by week 10.⁸

Clinically, intestinal malrotation is categorised into two types: non-rotation and incomplete rotation.¹⁰ Incomplete rotation refers to partial

rotation anomalies in the duodenum or right colon.¹¹ Reverse rotation may occur but is rare. The non-rotational type is most common in adulthood. In this patient, there was malposition of the colon and small intestine with the duodenum and jejunum on the right side of the abdomen and the colon on the left side.

Intestinal malrotation is a rare condition that can occur in adults. At first, patients may not experience any symptoms, but some may have long-lasting abdominal discomfort or acute abdominal pain.¹² To diagnose this condition, physicians rely on the patient's medical history, physical examination, laboratory investigation, and CT-scan. The patient had chronic abdominal complaints such as discomfort, nausea, and vomiting. The patient also experienced colicky pain that was sometimes very intense. As a result, the patient was afraid to eat, which led to malnutrition, weight loss, and chronic anemia. The patient even required a blood transfusion several months before surgery, but the cause of the anemia was unclear.

Co-incidence of gastric invagination and malrotation leading to jejunal knotting, causing symptoms of upper gastrointestinal obstruction in the form of severe vomiting. Abdominal pain can be caused by severe dilatation of the duodenum due to close loop and ischaemic pain due to knotting. After surgery, the patient was discharged without complication and a follow-up immunohistochemical examination was planned to confirm the GIST and plan for targeted therapy.

CONCLUSION

Gastro gastric invagination and intestinal malrotation are conditions that rarely occur together. Clinical symptoms are chronic and vague. It is important to raise awareness of this diagnosis as one of the causes of upper gastrointestinal obstruction to increase management and improve patient outcomes due to delays in diagnosis.

REFERENCES

1. Vidal EA, Rendon FA, Zambrano TA, et al. Intestinal Malrotation in Patients Undergoing Bariatric Surgery. *Arq Bras Cir Dig* 2016;29,Suppl.124-26.
2. Ribeiro T, Greene B, Bennett S, Msallak H, Karanicolas P. Variations of intestinal malrotation in adults: a case report of midgut volvulus and literature review for the surgeon. *Int J Surg Case Rep* 2022;91:106750.
3. Zhornitskiy A, Le L, Tareen S, Abdullahi G, Karunasiri D, Tabibian JH. Gastro-gastric intussusception in the setting of a neuroendocrine tumor: A case report. *World J Clin Cases* 2019;7(21):3517-3523.
4. Behrooz A, Cleasby M. Gastrogastroic intussusception in adults: a case report with review of the literature. *BJR Case Rep* 2018;4(4):20180006.
5. Đokić M, Novak J, Petrić M, Ranković B, Štabuc M, Trotovšek B. Case report and literature



- review: Patient with gastroduodenal intussusception due to the gastrointestinal stromal tumor of the lesser curvature of the gastric body. BMC Surg 2019;19(1):158.
6. Gambardella C, Allaria A, Siciliano G, et al. Recurrent esophageal stricture from previous caustic ingestion treated with 40-year self-dilation: Case report and review of literature. BMC Gastroenterol 2018;18(1):3-7.
 7. Zhang W, Chen H, Zhu L, Kong Z, Wang T, Li W. Gastroduodenal intussusception caused by gastric gastrointestinal stromal tumor in adults: a case report and literature review. J Int Med Res 2022;50(5) :3000605221100772.
 8. Indiran V, Vinoth Kumar R, Maduraimuthu P. Gastrointestinal stromal tumor presenting as gastroduodenal intussusception. Indian J Gastroenterol 2015;34(4):347-348.
 9. Langer JC. Intestinal Rotation Abnormalities and Midgut Volvulus. Surg Clin North Am 2017;97(1):147-159.
 10. Ghahremani GG. Imaging congenital anomalies of the ileum in adults:a pictorial review. Abdom Radiol 2023;48(2):502-509.
 11. Pickhardt PJ, Bhalla S. Pictorial essay. Intestinal malrotation in adolescents and adults: Spectrum of clinical and imaging features. Am J Roentgenol 2002;179(6):1429-1435.
 12. Bhatia S, Jain S, Singh CB, Bains L, Kaushik R, Gowda NS. Malrotation of the gut in adults: an often forgotten entity. Cureus 2018;10(3):e2313.



This work is licensed under
a Creative Commons Attribution

