



## A Rare Case of Midgut Volvulus In an Adult

Ajay Abraham and Alex Arthur Edwards

Department of General Surgery

Tirunelveli Medical College, Tirunelveli

### ABSTRACT

We report the case of a 65 year old adult male who presented in our emergency department with acute abdomen, in shock. Patient was evaluated and investigations including x-ray abdomen and ultrasound abdomen revealed intestinal obstruction. Emergency exploratory laparotomy revealed a midgut volvulus with gangrenous bowel which was resected and end-to-side ileo-transverse anastomosis was done. The case is being published because of its rarity. Rotational abnormalities commonly present in infancy and early childhood. Presentation of a rotational anomaly like midgut volvulus in an adult as intestinal obstruction is a rare entity. This further confirms and validates that "Abdomen is a Pandora's box".

**KEY WORDS:** Midgut volvulus, Intestinal obstruction, Resection and anastomosis

### INTRODUCTION

Midgut volvulus is a rare rotational anomaly. Incidence of midgut volvulus is about 1 in 6000 births. It usually presents in paediatric age group, within first month of life. Presentation of midgut volvulus in an adult individual is a rare incident.

### CASE REPORT

A 65 year old male, native of Srivaikundam, manual labourer by profession, admitted on 13/12/2016, with complaints of abdominal pain and abdominal distension of 1 day duration. Abdominal pain was of insidious onset and progressive nature. The pain was diffuse, all over the abdomen. It was colicky type of pain, with episodic exacerbations. There was no radiation/ postural variation/ relation to food intake.

The abdominal distension was also of 1 day duration which was progressively increasing since the morning.

The patient did not have any other known comorbidities. No history of any previous surgeries.

On examination, the patient was in shock. Abdomen was distended. Diffuse tenderness and guarding present. No mass palpable, no organomegaly. Per rectal examination showed normal faecal staining.

His blood investigations were within normal limits. X-ray abdomen showed dilated small bowel loops with multiple air-fluid levels. Ultrasound of the abdomen showed presence of free fluid.

Patient was resuscitated and emergency exploratory laparotomy was performed. Abdomen was opened by midline incision and thorough laparotomy was done. It revealed a volvulus of midgut derivatives with gangrene of jejunum, ileum, caecum, ascending colon and proximal transverse colon. About 500ml free fluid present in peritoneum.

Resection of the gangrenous bowel and an end-to-side ileo-transverse colon anastomosis was done in two layers with inner 2-0 vicryl and outer 2-0 silk. Post operatively patient was put on total parenteral nutrition to tide over the nutritional requirement.



Figure 1: X-ray abdomen showing dilated small bowel loops and multiple air fluid levels.

Figure 2

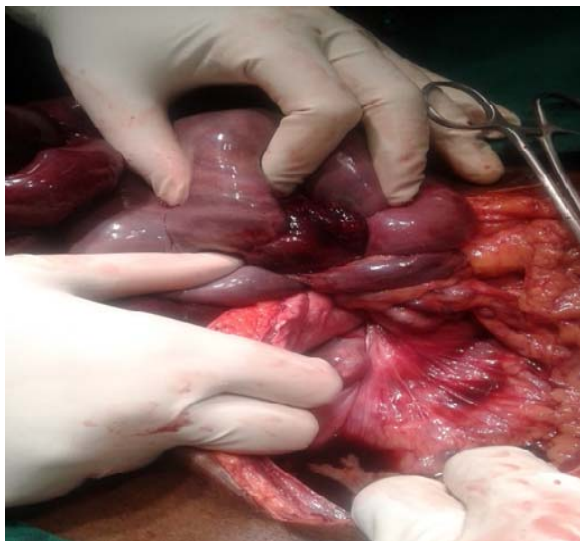


Figure 3

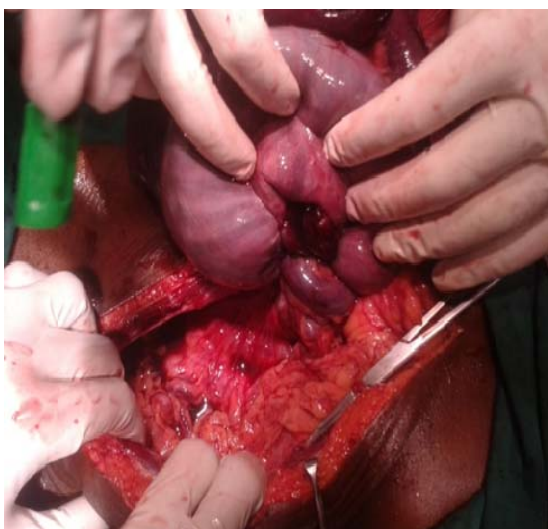


Figure 2 and 3 - demonstrates the midgut volvulus – dilated gangrenous bowel loops twisted around its own vascular axis.

#### DISCUSSION

Normal rotation of midgut occurs in three stages.

- Stage 1 – extends from 4<sup>th</sup> to 8<sup>th</sup> week of intrauterine life. Midgut supplied by SMA grows rapidly and protrudes into umbilical cord – physiological hernia
- Stage 2 – extends from 10<sup>th</sup>-12<sup>th</sup> week. Midgut migrates back into coelomic cavity. Small bowel returns to left side of abdomen. Then caeco-colic loop returns to left lower abdomen and then it rapidly rotates 270 degree counter clock wise to reach the right

iliac fossa. Then the duodeno-jejunal segment rotates 270 degree to left of SMA and behind colon.

- Stage 3 – fusion of different parts of mesentery and posterior peritoneum.

Errors of rotation in each stage give rise to different anomalies.

- Stage 1 – Exomphalos major/minor and gastroschisis
- Stage 2 – Considered under malrotation. Includes nonrotation, incomplete rotation, reverse rotation, hyper rotation.
- Stage 3 – Final defect in fixation. Causes mobile caecum and ascending colon leading to caecal volvulus<sup>6</sup>.

Midgut volvulus is a rare rotational anomaly. It occurs as a result of an error of rotation in stage 2 of normal rotation of gut. It usually presents in the paediatric age group, usually within 1 month of birth<sup>4</sup>. Presentation of midgut volvulus in an adult is a rare incident. Its incidence in adults is as rare as 0.00001 – 0.19%<sup>3</sup>. When an adult person with a rotational anomaly presents with features of intestinal obstruction, we should always think of the possibility of a volvulus.

CT scan is the investigation of choice in a midgut volvulus<sup>1</sup>. "Whirlpool pattern" produced by the relation of the bowel loops to the superior mesenteric artery is diagnostic<sup>2</sup>. Ladd's band<sup>6</sup> – it is a peritoneal band connecting caeco-colic loop to posterior abdominal wall. It is one of the causes for midgut volvulus. It compresses 2<sup>nd</sup> part of duodenum. Entire midgut hangs down along with SMA with a narrow based mesentery, causing Midgut volvulus. Ladd's procedure is the treatment.

Midgut volvulus is a surgical emergency. It often requires and results in massive bowel resections.

Short bowel syndrome – it is one of the major complications of massive bowel resection, especially involving jejunum and ileum. Minimum length of bowel to be retained to avoid this is 1.2 meters. Inclusion of ileo caecal junction in resection is significant as the junction determines the intestinal transit time.

Treatment of short bowel syndrome<sup>5</sup> includes:

- Medical – Elemental diet, Glutamine, TPN
- Surgical – 1. Bianchi procedure

- 2. STEP procedure – Serial Transverse Enteroplasty

#### CONCLUSION

Midgut volvulus in an adult is a rare incident. It is a surgical emergency. Nutritional support plays a big role post operatively. This case is being reported for its rarity.

#### REFERENCES

1. Sabiston Textbook of Surgery the Biological Basis of Modern Surgical Practice, 20<sup>th</sup> edition 2016
2. Epelman M. The Whirlpool sign. Radiology. 2006;240 (3):910-911

3. Nicholson O., el Khairi S.M., Schreiber H. Primary midgut volvulus in the adult: two case reports. Am. J. Gastroenterol. 1992; 87(3):395-398.
4. Pelayo JC, Lo A. Intestinal Rotation anomalies. Pediatr Ann. 2016 Jul 01;45(7):e247-50.
5. Bailey & Love's Short practice of Surgery, 26<sup>th</sup> Edition
6. Maingot's Abdominal Operations 12<sup>th</sup> Edition.