



RARE CASE OF MALROTATION OF GUT IN AN ADULT PRESENTING WITH VAGUE CHRONIC ABDOMINAL PAIN

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**ABSTRACT**

Malrotation is a midgut developmental anomaly. Normally intestinal rotation occurs around Superior Mesenteric Artery. In case of Malrotation there is failure of rotation and fixation of intestine. Usually it is seen in children. It is seen rarely in adulthood. It is usually asymptomatic but in symptomatic cases surgical intervention may be required. While it is difficult to diagnose, prompt diagnosis and surgical intervention lead to a positive outcome. In the present report, a case of incidental intestinal malrotation with clinical findings of vague chronic abdominal pain is discussed with a literature review.

**KEYWORDS :** Intestine; Malrotation

**CASE REPORT:**

A 23 year old gentleman presented to the hospital with complaints of abdominal pain since 10 days-colicky type, aggravating after food intake. Associated with H/o Abdominal Distention aggravating after food intake, H/o Nausea and Vomiting after food intake, followed by symptomatic relief.

No H/o Diarrhea/Constipation/ Difficulty passing stools/Hard stools/Bleeding PR

No H/o Jaundice/Pruritis

H/o of similar complaints since past 17 years (from the age of 6 years) on and off, each episode lasting for around 10-15 days with a periodic frequency of once every 3-4 months associated with nausea and vomiting with pain subsiding on vomiting/taking medication.

No known comorbidities

On Examination:

Vitals were stable, Per Abdomen: Soft, No Local rise of temperature, No Tenderness/Guarding/Rigidity. Bowel Sounds were present. Per Rectal Examination revealed a roomy rectum with gloved finger stained with normal coloured stools.

**INVESTIGATIONS**

Blood profile	HB- 15.0 g/dl WBC- 6070/mm <sup>3</sup> PLT- 1.82 lakh/mm <sup>3</sup> Urea-18.1mg/dl Creatinine-0.94 mg/dl Total bilirubin-0.38 mg/dl Direct bilirubin-0.08 mg/dl T3- 1.16 ng/ml T4-7.7 ug/dl TSH- 2.33 uIU/ml
ULTRASONOGRAPHY OF ABDOMEN	Dilated D2 m/s 4.9cm. Mesenteric Lymphadenopathy with few showing loss of Fatty Hilum
CT ABDOMEN PLAIN AND CONTRAST	DJ Flexure noted displaced to right side of abdomen E/o Dilated D1 & D2 with Max Diameter m/s 4.6&4.7cm with transition part at D3-D4 junction Caecum appears to be pulled up and visualized in sub-hepatic region Whorling of SMA and its branches approx 24.8 mm from origin and inversion of SMA-SMV relationship.

	Multiple Enlarged Mesenteric LN's noted largest m/s 10x18 mm
Upper GI Endoscopy	Prolapsing Gastropathy Lax LES Hills Grade II

Diagnostic Laparoscopy revealed the following findings:

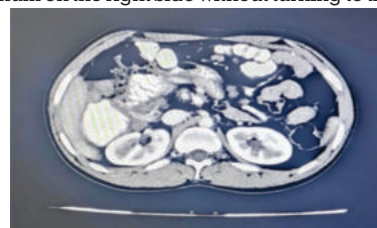
- Adhesions between Caecum and Right Hypochondrium
- Appendix in Midline position and Pulled Up Caecum
- Small Bowel present predominantly on the right side
- Narrow and torsioned Mesentery
- Midgut Volvulus.

Initially Laparoscopic release of Ladd's bands was done and on notice of Midgut Volvulus, Laparoscopic Ladd's was converted to Open Ladd's Procedure. The remainder of Ladd's Bands released, Detorsion of Mesentery and Small Bowel done and Mesentery widened. Appendix was identified and Prophylactic Appendectomy done to avoid Diagnosis of Confusion in future. B/L ADK Drains placed.

Patient was managed with adequate antibiotic coverage and pain management post operatively. Drains removed on POD-6 after observing minimal serous discharge for 3 days. Patient discharged in a stable condition on POD-8. The patient was followed up for a period of 5 months, subsequent course was uneventful.



**Figure 1:** CECT Abdomen showing Stomach continuing into the duodenum on the right side without turning to the left



**Figure 2:** CECT Abdomen showing SMA and SMV in opposite to normal anatomical position



**Figure 3:** Intra-op picture showing narrowed mesentery leading to internal volvulus

## DISCUSSION

Malrotation of the midgut is an abnormality in the development of the GIT. By the 4th week IUL, the gastrointestinal tract is in the form of an endoderm-lined tube. Around the 5th week, the gut is divided into foregut, midgut and hindgut by the development of a vascular pedicle. Midgut is supplied by the Superior Mesenteric Artery. Intestinal rotation primarily involves the midgut. The rotation of gut has been divided into three stages. Stage 1 occurs between 5<sup>th</sup>-10<sup>th</sup> week, largely brought about by the development of the liver. It includes extrusion of the midgut into the extra-embryonic cavity, a 90° counterclockwise rotation, and return of the midgut into the fetal abdomen. The pre-arterial segment moves to the down and right forcing the post-arterial segment to move upwards and to the left. Stage 2 occurs at 10<sup>th</sup>-11<sup>th</sup> week and involves further counter-clockwise rotation within the abdominal cavity, thus completing a 270° rotation. The duodenum crosses behind the upper part of SMA, transverse colon crosses in front of the SMA, descending colon pushed to the left flank and caecum into the right loin. The small intestine is seen placed from left upper to right lower segments of the abdomen. Stage 3 occurs between 11<sup>th</sup> week to shortly after birth and involves fusion and anchoring of the mesentery, descent of the caecum into the right iliac fossa and the ascending and descending colon attach to the posterior abdominal wall. Stage 1 anomalies include omphalocele caused by failure of the gut to return to the abdomen. Stage 2 anomalies include nonrotation, reversed rotation and malrotation. Stage 3 anomalies include subphrenic caecum, right lumbar caecum, pelvic caecum, mobile proximal colon, volvulus and torsion. Midgut mal- and nonrotation refers to a failure in the counter-clockwise rotation of the midgut, which results in the misplacement of the duodenojejunal junction to the right of midline.

Adult presentation of Midgut volvulus is rare. Most acute presentations are seen in the first month of life. In adults with malrotation, the most common cause of bowel obstruction is midgut volvulus. Chronic cases present with chronic abdominal pain, bloating, vomiting, constipation or diarrhea. Volvulus occurs around the primitive dorsal mesentery, causing constriction and compression of superior mesenteric vessels thereby hampering venous drainage causing involved bowel wall getting filled with blood. The infarcted bowel will then bleed into its lumen, and if the volvulus is then relieved spontaneously, the patient will pass blood-stained diarrhea signifying the end of the attack. At operation, Ladd's bands should be released, the volvulus completely untwisted in a counter-clockwise direction, and then the viability of the bowel assessed. If gangrene is evident, the affected gut is resected and the bowel anastomosis done. If gut viability is uncertain, reoperate 24 to 48 hours later. Limited resection may then be possible. Prophylactic Appendectomy is to be done in such patients to avoid Diagnosis of Confusion in case of an episode of Acute appendicitis in future. In conclusion, during surgery,

the mesentery must be sutured to the posterior abdominal wall to prevent further episodes of volvulus.

## REFERENCES

1. Lee McGregor's Synopsis of Surgical Anatomy
2. Selim Sözen, Kerim Güzel. Intestinal malrotation in an adult: case report. *Ulus Travma Acil Cerrahi Derg.* 2012; 18(3): 280-282
3. Hsu SD, Yu JC, Chou SJ, Hsieh HF, Chang TH, Liu YC. Midgut volvulus in an adult with congenital malrotation. *Am J Surg* 2008;195:705-7.
4. Sadler TW, Langman J. *Langman's medical embryology*. 9th ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2004. p. 60-110.
5. Pelucio M, Haywood Y. Midgut volvulus: an unusual case of adolescent abdominal pain. *Am J Emerg Med.* 1994 Mar;12(2):167-71. doi: 10.1016/0735-6757(94)90239-9. PMID: 8161389..
6. Spigland N, Brandt ML, Yazbeck S. Malrotation presenting beyond the neonatal period. *J Pediatr Surg* 1990;25:1139-42.
7. Seymour NE, Andersen DK. Laparoscopic treatment of intestinal malrotation in adults. *JLS* 2005;9:298-301.