

# Case Report: Ladd's Procedure in Case of Intestinal Malrotation in Adult: Rare Entity

Dr Jignesh Dave, Dr Nisheel Ghetiya, Dr Vidit Jethwa

**Abstract:** *Intestinal Malrotation is rare in adults. Patients may present with acute obstruction or chronic abdominal pain. These symptoms are caused by Ladd's bands and narrow mesentery resulting from incomplete gut rotation. Barium, computed tomography (CT) and magnetic resonance imaging (MRI), angiography and sometimes explorative laparotomy are used for diagnosis. Ladd's procedure is the treatment of choice. We report a case of Open Ladd's procedure done in case of adult malrotation presenting with chronic abdominal pain. The diagnosis is made by CT. Open Ladd's procedure (release of bands, broadening of mesentery and appendectomy) was performed. Patients was discharged on postoperative day 5. At 6 months follow - up, all are symptom free.*

**Keywords:** Intestinal malrotation, ladd's procedure

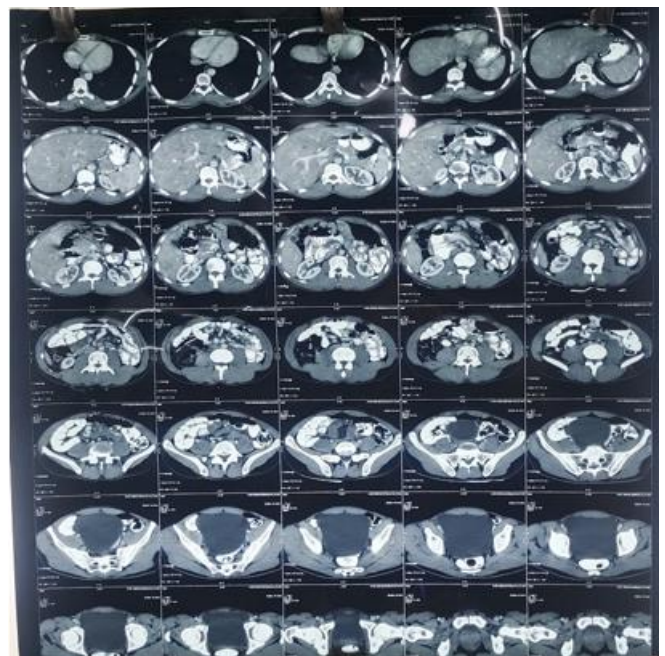
## 1. Introduction

Intestinal malrotation is a failure of gut to rotate completely (270 degree anticlockwise) in utero. It can cause small intestinal obstruction and strangulation in infants due to midgut volvulus. Adult patients may present with symptoms range from acute obstruction to chronic abdominal pain. Ladd's procedure is established for intestinal malrotation.

## 2. Case Report

A 25 - year male presented with a history of mild abdominal pain associated with Nausea and vomiting for 10 days. Patient had similar complaints every 2 - 3 monthly for previous 4 years without any significant past history and comorbidity. Patient was vitally stable and Routine blood investigation was within Normal limits and Ultrasound was suggestive of content loaded bowel loops without any Obstruction. CT abdomen showed

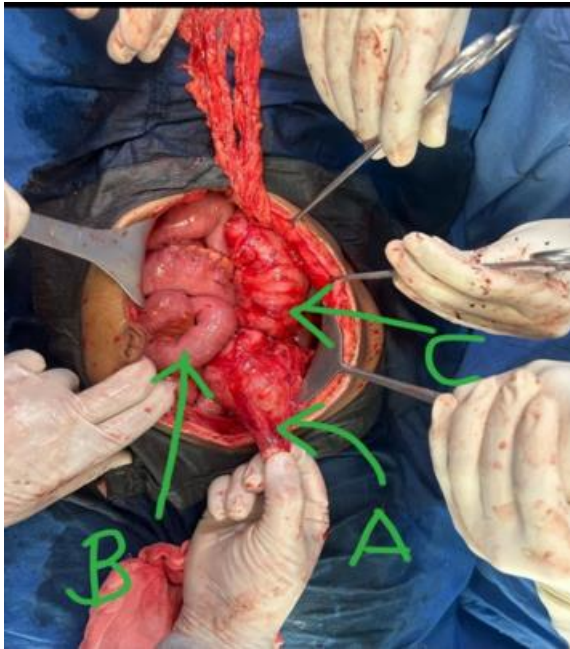
- 3<sup>rd</sup> part duodenum fail to cross midline with DJ flexure on right side.
- Rotation of SMV over SMA
- Mild proximal jejunal dilatation s/o Malrotation with Volvulus



cect (abdo+pelvis) of Patient with Intestinal malrotation with volvulus

Operative technique. Open ladd's procedure with adhesiolysis of Multiple interbowel adhesions and Ladd's band arising from Right side of abdominal wall to caecum was divided followed by straightening of DJ flexure was done followed by appendectomy with Small bowels placed in Right side of abdomen and large bowels placed in left side of abdominal cavity.

Immediate post operative period was uneventful and diet started on post operative day 2 and discharged on post operative day 5.



A: - Ladd's band  
 B: - small bowel In Right side of abdomen  
 C: - Large Bowel in Left side of abdomen

### 3. Discussion

The incidence of intestinal malrotation in adults is approximately 0.2%. Many a time, it is an incidental discovery at imaging or laparotomy. When symptomatic, patients present with acute obstruction or chronic abdominal pain or nonspecific complaints. In patients with chronic symptoms, workup includes a barium or CT /MRI abdomen. Imaging shows small bowel in the right and colon up and to the left. Angiography shows SMA /SMV axis alteration (whirl sign - SMA going around SMV) with possibility of intestinal ischemia. As in pediatric patients, physical examination and abdominal imaging, followed by diagnostic laparoscopy/laparotomy and Ladd's procedure is the treatment of choice in adults. Often the anomaly is discovered incidentally at laparotomy. If identified, Ladd's procedure is recommended to avoid the risk of midgut volvulus.

The surgical steps consist of division of Ladd's band and other congenital fibers and adhesions constricting the base of mesentery, appendectomy and functional positioning of the intestine with or without fixation. At the end, widening of the mesentery base and straightening duodenum occurs. Duodenum descends along the right gutter, small intestine lie on the right and the caecum and ascending colon in the midline or left side of the abdomen. The SMA and its branches lie exposed. Appendectomy helps avoiding future diagnostic confusion and also help fixation of caecum.

It Is reported in some series that pathophysiology of pain and other chronic symptoms may not correlate with the extent of radiological anomaly seen, especially the obstructive component. our case had twist of the narrowed mesenteric pedicle that was easily reversed after peritoneal band lyses. Peritoneal bands may have a restrictive effect on normal duodenal motility and duodenal malrotation often coexists with other parts of intestinal malrotation. Complex neurohumoral or neuromuscular changes that occur as the

result of release of entrapped bowel also contribute to symptom resolution.

It is the embryological origin of the malrotation is kept in mind and the systematic steps are followed to divide the bands and release the bowel rather than try to bring caecum to right and small bowel to left, the procedure becomes straightforward and can be done Open and laparoscopically.

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