

## ASCENDING COLON PERFORATION IN A CASE OF NON ROTATION OF GUT ALONG WITH MECKEL'S DIVERTICULUM IN A MALE ADOLESCENT – A RARE CASE REPORT

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### ABSTRACT

Non rotation of the intestine is a very rare congenital abnormality of the mid gut, occurring due to an error in the process of rotation. The incidence of non rotation is 1:500 and found incidentally in most of the cases. This may be associated with other anomalies like Meckel's diverticulum, intestinal duplication cyst, peritoneal adhesions etc. Meckel's diverticulum is another congenital anomaly representing a persistent portion of the vitello-intestinal duct, occurring in 1-2% of individuals. Here we are reporting a case of non rotation of midgut along with Meckel's diverticulum which was found incidentally in an adolescent male who underwent exploratory laparotomy for intestinal perforation. Intra operative finding included a gangrenous perforation in the ascending colon that occurred due to obstruction caused by peritoneal bands.

**KEYWORDS :** Non rotation, Meckel's diverticulum, Perforation, Gangrene.

### INTRODUCTION

Congenital volvulus arises if the midgut loop does not rotate appropriately. Various types of this condition have been identified such as non rotation, mixed rotation, reversed rotation. Non rotation refers to the failure in the last 270° counter clockwise rotation of the gut resulting in left sided colon.(1) It often presents within the first month of life. Because of the nonspecific presentation and the index of suspicion for malrotation decreases in the older population, clinical diagnosis of non rotation is missed in the initial evaluation.

### CASE REPORT

A 17 year old male presented with complaints of acute onset generalized abdominal pain and bilious vomiting for 7 days with abdominal distension and not able to pass stool and flatus for five days. On further clinical examination, the patient was found to be in a state of shock with features of peritonitis. Plain radiographs of chest and abdomen erect view revealed air under diaphragm suggestive of intestinal perforation. The patient was planned for emergency laparotomy after initial fluid resuscitation. Intra-operative findings included fecal contamination of the peritoneal cavity. The bowel was traced and examined. There was difficulty in exteriorizing the entire bowel due to dense peritoneal adhesions present in the left iliac fossa with the bowel loops. There were two circumferential bands surrounding the colon which were cut, which revealed caecum with appendix and ascending colon in the left iliac fossa. There was gangrenous changes in the base of the caecum and a single perforation of size 1.5cm\*1.5cm in the ascending colon 7cm distal to IC junction. On running the entire bowel, duodenum, parts of colon which normally gets retroperitonealized were absent. The entire small bowel was in the right half of the abdomen and the large bowel to the left side of the abdomen freely hanging (Fig.3). An interesting finding found here was the presence of Meckel's diverticulum (Fig.2) about 50 cm proximal to IC junction. We proceeded with a right hemicolectomy (Fig.1) in this case with side to side ileo-transverse anastomosis. Post op period was uneventful



**Fig 1. Resected right Hemicolectomy specimen**



**Fig 2. Meckel's Diverticulum**



**Fig 3. Gangrenous Caecum with Ascending Colon Perforation with free lying large gut (taken from foot end of patient left side)**

### DISCUSSION

During gestation, the development of midgut is a dynamic process extending from the 5th to 10th week. During this period, the midgut tube herniates through a defect in the umbilicus as a physiological hernia and returns back in well organized and sequential manner. Errors in this procedure has lead to the anomalies such as non rotation, malrotation and reversed rotation, subphrenic caecum, mobile proximal colon etc.(2)

Non rotation occurs where the umbilical ring is wider leading to enmasse entry of bowel loop, resulting in small bowel loops on the right side and large bowel to the left of the midline. It also leads to aberrant position of appendix and caecum.(3) They are mostly associated with diffuse peritoneal bands between bowel loops and peritoneum as well as inter bowel loops. Early diagnosis can prevent complications of volvulus. The upper gastrointestinal series remains the standard for diagnosis of malrotation.(4) There remains considerable controversy over how the asymptomatic patient with a malrotation should be managed.(5)

The case being discussed here is non rotation of gut with

Meckel's diverticulum. Meckel's diverticulum is an omphalomesenteric duct remnant on the antimesenteric border of the distal ileum. It is asymptomatic in up to 90% of cases. Complications include inflammation, perforation, small bowel volvulus and obstruction; all of which may lead to an acute presentation.

The management of symptomatic Meckel's diverticulum comprises surgical resection. Due to the difficulty of diagnosing a pathologic Meckel's diverticulum pre-operatively, many surgeons recommend prophylactic diverticulectomy in those found incidentally. This recommendation is based on lower morbidity rates when compared to the resection of pathologic diverticula.(6) The results of surgical excision are generally excellent.

Two cases of concurrent Meckel's diverticulum and malrotation have been described in the literature to date.(7) Most commonly presents later in childhood and adolescents with complaints of chronic vague abdominal pain, signs and symptoms of intestinal obstruction. Immediate resuscitation and supportive measures should remain the first priority before taking the patient for laparotomy.

### CONCLUSION

Asymptomatic patients with intestinal malrotation are usually diagnosed incidentally during surgical procedures or at autopsy. Regardless of patient age, surgical treatment of quiescent malrotation should be considered because surgery remains the only real safeguard against complications. Diagnosis in case of symptomatic individuals requires high index of suspicion. Laparotomy or laparoscopy is the standard way of confirming the diagnosis. Surgical intervention is mandatory to avoid or reverse ischemic insult.

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