

Malrotation of the gut causing intestinal obstruction and mimicking peptic ulcer disease in an adult: a case report

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Abstract: We report a case of sigmoid volvulus and recurrent acute appendicitis mimicking peptic ulcer disease in a previously undiagnosed malrotation of the gut in an adult. Our patient is a 34 year old woman, with recurrent left upper abdominal pain and acute on chronic intestinal obstruction secondary to sigmoid volvulus with malrotation of the gut, whose previous upper abdominal pain was misdiagnosed as recurrent peptic ulcer disease. Intraoperatively the patient appendix and sigmoid colon were found at the left upper abdomen and the right lower abdomen respectively resulting in atypical presentation of acute appendicitis. This case emphasize the importance of upper gastrointestinal endoscopic study prior to treatment of peptic ulcer disease and high index of suspicion / consideration of malrotation of the gut in adult patients with persistent abdominal pain often diagnosed as non specific abdominal pain. The diagnosis of malrotation of the gut is rarely considered in adult and often leads to delay and incorrect diagnosis of ordinarily common conditions. Thus a high index of suspicion is required when evaluating adult patients with non specific abdominal pain or lack of response to instituted treatment.

Keywords: acute appendicitis, malrotation of gut, peptic ulcer, abdominal pain, intestinal obstruction.

INTRODUCTION

Malrotation of the gut is a congenital anomaly resulting from abnormal rotation of the gut with resulting malpositioning of the bowel and malfixation of the mesentery. It is estimated to affect 1 in 500 live births [1]. The actual incidence may be difficult, as many cases remain asymptomatic and only diagnosed at autopsy [2]. Majority of cases of malrotation are often symptomatic within the first month of life. And greater than 90% of cases present within the first year of life [3]. This rare anomaly is often an incidental finding in adult patients being investigated for other abdominal conditions as seen in our patient. We report a case of 34 year old woman with recurrent left upper abdominal pain and acute or chronic intestinal obstruction secondary to sigmoid volvulus with malrotation of the gut. This case was of interest as this patient's recurrent appendicitis had been mimicking peptic ulcer disease for which she was periodically placed on anti ulcer regimen and the chronic colicky abdominal pain previously diagnosed as non specific abdominal pain.

CASE REPORT

A 34 year old woman admitted to our accident and emergency department with five days history of

progressively worsening colicky abdominal pain and progressive abdominal distension with absolute constipation eight days following prolonged labour and subsequent spontaneous vaginal delivery in a primary health care centre. While on admission she had six episodes of projectile, non postprandial, bilious vomiting. She was managed for recurrent left upper abdominal pain, which was erroneously diagnosed as a case of peptic ulcer disease and was treated as such for about 13 years.

On examination, the patient was in painful distress, moderately dehydrated with pulse rate of 124/minute, blood pressure of 130/76 mm Hg, respiratory rate of 28/minute and temperature of 38.4^o C. The abdominal examination shows grossly distended abdomen with physical signs in keeping with generalised peritonitis and absent bowel sound. Vaginal examination was not remarkable while per rectal examination revealed empty rectum suggestive of mechanical intestinal obstruction.

The laboratory investigations showed elevated white blood cell count of 13,450/mm³ with neutrophilia, packed cell volume of 28% and platelet count of 265,000/mm³, except for mild hypokalaemia of

2.8mm/l and elevated urea of 5mm/l otherwise the result of electrolytes were not remarkable. The plain abdominal X-ray of our patient was in keeping with mechanical large bowel obstruction suggestive of sigmoid volvulus.

After initial correction of fluid and electrolyte imbalance patient was explored through a lower midline incision that was later extended up, with intraoperative findings of 700ml of free intraperitoneal serous fluid collection and malrotation of the gut (figure 1, 2 and 3).



Fig-1: showing the appendix, cecum and ascending colon in upper left abdominal quadrant.



Fig-2: showing the sigmoid colon in right lower abdomen.



Fig-3: showing gastro duodenal junction.

The patient then had division of multiple congenital adhesion bands, incidental appendectomy, cecopexy, descending colopexy, sigmoidopexy and copious saline peritoneal irrigation. Post operative upper gastrointestinal endoscopy was done to exclude previously informal diagnosed peptic ulcer disease and result was in keeping with normal upper gastro intestinal endoscopic study. Presently patient is one year seven months post operation without anti ulcer regimen and free of abdominal pain.

DISSCUSSION

Anomalies of gut rotation are more often seen in children and uncommon in adult with incidence reported ranges from 0.0001% to 0.19% [4]. The normal development of the gut involve the physiological herniation of the developing gut into the umbilicus, due to the rapid elongation of the developing gut in relatively small abdominal cavity at the fourth week of gestation. However, between the seventh and tenth week of gestation the herniated gut gradually return to the abdominal cavity and this is accompanied by 270° rotation of the gut around the axis of the superior mesenteric artery in counter clockwise direction and fixation of the gut, thus fixing the duodenojejunal junction to the left upper peritoneum and fixing the cecum to the right lower abdomen, this is accompanied by a broad mesentery of small bowel extending from left upper abdomen (ligament of Trietz) to right lower abdomen around ileocecal junction, thus preventing midgut volvulus, a process completed by the end of the twelfth week of gestation. A rotation short of this is described as malrotation or non rotation (return of the gut to the abdomen without rotation). Failure of this normal physiological process leads to varying degree of anomaly including abnormal location of the bowel, fixation and formation of congenital band such as classical Ladd's band which run from undescended cecum located on the upper left abdomen over the duodenum to the right side of the abdomen [5]. The clinical presentation of malrotation of the gut in adult are often non specific and the clinical diagnosis is difficult, due to non specific clinical presentation and low index of suspicion in adult as symptoms in adult often misdiagnosed as other abdominal condition like pancreatic, biliary and peptic ulcer disease [6]. this is also the case in our case report whose initial upper left quadrant abdominal pain was misdiagnosed as a case of peptic ulcer disease. Recognition of this abnormal gut rotation is of importance as this group of patients may create a diagnostic dilemma for the attending surgeon/physician with higher incidence of wrong diagnosis and treatment resulting from abnormal location of the abdominal viscera.

Two distinct patterns of presentation has been reported in malrotation of the gut in adult: acute and chronic [7]. With chronic presentation more common in adult as episodic abdominal discomfort or pain with or without other abdominal symptoms such as bloating, vomiting and nausea, thus this may suggest need to consider malrotation of the gut in otherwise young healthy adult rather than entertaining the broad diagnosis of non specific abdominal pain in a patient who is suffering from a surgically correctable condition.

The diagnosis of malrotation of the gut can be diagnosed by radiological studies, Ultrasound scan (USS), computed tomography scan (CT), magnetic resonance imaging and mesenteric angiograph and plain

abdominal radiograph. Plain abdominal X ray is of little help in absence of volvulus however, absence of cecal gas shadow with predominant localization of small bowel to right side of the abdomen should raised a suspicion of malrotation of the gut [8]. However, computed tomography examination of the abdomen is preferred investigation of choice as this will help in diagnosing other associated anomalies. Correct pre operative diagnosis of this condition will help and guide the selection of appropriate therapeutic choice, surgical intervention and choice of the surgical incision.

Complication resulting from malrotation of the gut undeniably required surgical intervention this may not be the case with incidentally diagnosed asymptomatic cases as the role of surgery still remain an area of controversy. In a review of 177 cases by Choi et al over a period of 35 years was able to conclude that the risk of volvulus is low and opined that close follow up is suffice rather than routine investigation, screening and elective surgery [9]. however this was in contrary to some other authors who advocate surgery in all suitable patient as it is impossible to predict the patient who will develop catastrophic complication [10]. and this was also the view of the authors' especially in an area with poor surgical emergency services. Some other surgeons also share this view of immediate aggressive surgical intervention as to prevent emergent acute complications later.

The operative procedure for management of intestinal malrotation was first described by William Ladd in 1936 and this classical Ladd's procedure include division of the Ladd's band, widening of the narrow mesenteric root of the small bowel, division of the adhesion around the SMA and Appendectomy. The classical Ladd's operation was described for paediatrics population and this classical procedure may not be the rule in management in adult population however various methods had been used to prevent risk of bowel volvulus such as ceacopexy, duodenopexy, retro peritonealisation of ascending colon by colopexy in right abdomen [11]. Our own patient had appendectomy, sigmoidopexy, ceacopexy and descending colopexy to right side of the abdomen. Our patient is presently one year post operation and has been symptom free.

CONCLUSION

Occurrence of malrotation of the gut is a rare occurrence and this condition remains an area of diagnostic difficulty and required high incidence of suspicion for diagnosis. Careful assessment of simple plain abdominal X ray and use of USS may be of great assistance especially in emergency condition in area of low resource environment where CT scan may not be considered due to availability and cost.

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