Left sided perforated appendicitis in an adult with malrotated gut

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Abstract
The most common surgical emergency is acute appendicitis that requires urgent surgical intervention in majority of emergency departments. Intestinal malrotation is not a common surgical entity. Left sided lower abdominal pain commonly raises the possibility of acute diverticulitis.

We present a very rare case of 50 year old male patient who presented in Emergency Room of our hospital with left sided abdominal pain, vomiting and constipation. His abdominal examination revealed tenderness and rebound tenderness left iliac fossa. White cell count was elevated to 11500. Chest and abdominal radiograph did not reveal gas under diaphragm. Emergency laparotomy revealed midgut malrotation with gangrenous appendix in the left iliac fossa. Appendicectomy done and the patient has uneventful recovery.

Conclusion: Though left sided appendicitis is a very rare surgical entity, one should always have high index of suspicion in such conditions so that early surgical intervention may save the life of an individual.

Keywords: midgut rotation, inflamed perforated appendix

Introduction:
While appendicitis is the most common abdominal disease requiring surgical intervention seen in the emergency room setting, intestinal malrotation is relatively uncommon. Left sided abdominal pain most commonly raises the diagnostic question of possible diverticulitis, creating a diagnostic dilemma in these patients. Clinical symptoms due to malrotation may present in some patients early in life as acute intestinal obstruction, while in others, vague long term abdominal pain may be the only complaint. However, a large majority of intestinal malrotations are diagnosed incidentally due to unrelated abdominal pathologies.

Case summary:
A 50 year old male patient was admitted with continuous pain in the lower abdomen with intermittent and bilious vomiting since 3 days and constipation since 2 days. On physical examination, the patient had tachycardia (110/min) and tenderness with guarding which was present in the lower abdomen. Bowel sounds were absent and per rectal examination revealed bogginess in the rectovesical pouch. Laboratory tests were normal except for mild leukocytosis (white blood cell count =11,500/cu.mm). Radiological investigations (Chest X Ray – PA view and X Ray abdomen in erect position) were also normal. Ultrasonography of the abdomen revealed probe tenderness all over the abdomen with fluid seen in interbowl loops with internal echoes and sluggish peristalsis giving an impression of peritonitis. Emergency exploratory laparotomy was performed. Midgut malrotation (non rotation) was found with an inflamed perforated appendix. Appendicectomy was then performed. Other abdominal organs were found in normal position. Post operative period was uneventful.

Discussion:
Intestinal malrotation is a congenital anomaly referring to either non-rotation or incomplete
rotation of the primitive midgut and hindgut loop around the axis of the superior mesenteric artery during fetal development. Normally the straight short primitive gut begins its rotation at the fourth week of gestation, and the process is terminated by the 12th week following a 270° counterwise rotation. Errors of rotation may occur at any point throughout this period resulting in seven different types and degrees of malrotation (Stringer classification)\(^1\). Incidence of Intestinal Malrotation is 1 in every 500 live births (0.03 - 0.5%). About 60% of the patients present in the 1st month of life and 20% of patients present between 1 and 12 months\(^2\). The most common anomaly develops at the first stage of rotation at about the sixth week of gestation and is estimated to be an incidental finding in 0.2% of adults\(^1\). Depending on the embryonic state of development of the disorder, different abnormal intestinal positions may occur. These may influence the clinical presentations and outcome of the disorder. The most common anomaly develops at the first stage of rotation at about the sixth week of gestation. In this type of rotation (type Ia), the duodenum and large bowel stop rotating after 90°, so that the proximal small bowel, including the duodenojejunal junction, lies on the right and the caecum lies on the left. Because the root of the mesentry is long, most patients with type Ia anomaly are asymptomatic\(^1\). In general, adults with intestinal malrotation present in one of three ways\(^1\). a) acute obstructive symptoms and signs of impending abdominal catastrophe, b) chronic abdominal complaints that include both pain and intermittent obstruction, c) some present with atypical symptoms common to abdominal diseases unrelated to intestinal malrotation such as in our present report. Our patient had type Ia anomaly which was asymptomatic throughout his life and was not diagnosed until the onset of acute abdominal pain, vomiting and constipation. The investigation of choice in case of intestinal malrotation is CT scan of abdomen which was not done in our patient.

**Conclusion:**

Gut malrotation is a rare entity. The case presented here represents the difficulty of diagnosing common intestinal diseases such as acute appendicitis in patients with midgut malrotation. Such atypical presentations can result in delays in delivery of definitive therapy and potentially increase morbidity and mortality. Therefore the Surgeon and the Radiologist should be aware of these unique clinical presentations so that appropriate imaging can be initiated for hastening diagnosis and guiding intervention.

**References:**