A RARE CASE OF SPLENIC TORSION WITH MIDGUT MALROTATION

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ABSTRACT

The purpose of this article is to report a case of 22 year old female with splenic torsion and midgut malrotation. Patient came with history of severe pain abdomen in left upper quadrant and vomiting since 5 days which was not relieved by symptomatic medication. Plain and contrast enhanced Computed Tomogram of abdomen was performed from just above diaphragm until pubic symphisis using 1mm slice thickness. CECT abdomen demonstrated enlarged spleen with minimal post contrast enhancement in infero medial pole of spleen. The splenic vessels could not be followed to the splenic hilum. Superior mesenteric vein (SMV) is seen anterior to superior mesenteric artery (SMA) in upper quadrants and to the left of SMA in lower quadrants. Duodenoejunal juction and jejunal loops noted in right abdominal quadrants. The ileocecal junction and caecum visualised in mid pelvis with ascending and transverse colon in left lower quadrant of abdomen.

INTRODUCTION

Splenic torsion is a rare cause of acute abdominal pain caused by the absence or abnormal development of the splenic suspensory ligaments (1-2). Early diagnosis of splenic torsion by imaging helps in splenic salvage procedures. Intestinal malrotation in adult is rarely suspected on clinical grounds and usually an incidental imaging finding in association with abdominal situs abnormalities. Till date few cases of splenic torsion 3 and few in association with gastric volvulus1, hindgut4 malrotation have been reported. We are reporting a rare case of splenic torsion with mid gut malrotation and bronchiectasis in a young female.

Case report

A 22 year old female presented with history of severe pain abdomen in left upper quadrant and vomiting since 5 days which was not relieved by symptomatic medication. On clinical examination the abdomen was tender on left side with no palpable upper quadrant mass. Laboratory data showed increased total leucocyte count and patient presented with ultrasonography report which revealed splenomegaly with decreased colour flow in splenic vessels on colour Doppler Imaging protocol for computed tomography of abdomen

Imaging of the Patient’s abdomen was done with 16 slice MDCT Toshiba activion machine. Topogram of abdomen was performed for planning the image acquisition. The plain images were taken from just above diaphragm till pubic symphisis using 1mm slice thickness. Following which contrast enhanced tri phasic study was performed by injecting the patient with 70 ml Iopromide (Bayers Zydu ultravist) ionic iodinated contrast and 30 ml of 0.9% normal saline at the rate of 4 ml/sec through double bore Medrad saline pressure injector in 18 gauze intravenous needle.

The images were acquired post contrast in Arterial phase -18 sec post contrast, Late portal venous phase-50 sec post contrast, venous phase-80 sec post contrast injection. Image reconstruction was carried out using Soft tissue algorithm with window width of 400 and window length 40.Slice thickness of 1mm with pitch size of 1.1 was used. The images were viewed in Apple desktop using osirix software.

Imaging findings

Plain CT findings: Images showed enlarged spleen in left upper quadrant with hilum facing the diaphragm causing mass effect by displacing kidney inferiorly (Fig 1). Malrotated mid gut with Duodenoejunal juction and jejunal loops noted in right abdominal quadrants (Fig 1) . The ileocecal junction and caecum visualised in mid pelvis with ascending and transverse colon in left lower quadrant of abdomen. (Fig 2, a, b). Cystic bronchiectatic changes noted in lower lobe left lung (Fig 3).
Contrast enhanced computed tomography

**Arterial Phase:** Demonstrated enlarged spleen with minimal post contrast enhancement in inferomedial pole of spleen. The splenic vessels could not be followed to the splenic hilum (Fig 4).

**Late Porto venous Phase:** Spleen appears to be twisted on itself with displaced pancreatic tail posteriorly and superiorly. Superior mesenteric vein (SMV) is seen anterior to superior mesenteric artery (SMA) in upper quadrants and to the left of SMA in lower quadrants (Fig 5 a,b)

**Venous Phase:** non enhancing spleen with enhancement in inferomedial pole of spleen noted (Fig 6)

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**Fig 1** The splenic hilum facing superomedially (large arrow). Duodenojejunal flexure noted in the right side (small arrow)

**Fig 2 a** Ileoceacal junction (arrow) and Caecum (astrix) in mid pelvic region

**Fig 2 b** Ascending colon (asterix) and descending colon (arrow) both noted in left aspect of pelvis

**Fig 3** Cystic Bronchiectasis noted in left lower lobe

**Fig 4** Arterial phase: Enlarged spleen with absent splenic vessels near splenic hilum

**Fig 5 a,b** SMV (yellow arrow) is seen anterior to SMA (blue arrow) in upper quadrants (image a) and to left to SMA in lower quadrants (image b)

**Fig 6** Venous phase-non enhancing spleen with minimal enhancement in inferomedial region (asterix)
DISCUSSION

The occurrence of splenic torsion is rare, having been diagnosed in approximately 0.3% of 1,413 splenectomised cases. Diagnosis of splenic torsion is a challenging task, which requires imaging as necessity for early diagnosis. In our case splenic torsion of a wandering spleen was identified during surgery. The occurrence of wandering spleen and malrotation of gut is noted.

Wandering spleen is caused by the absence or abnormal development of the splenic ligaments which predispose the spleen to torsion. The splenic ligaments include the gastrosplenic and splenorenal ligaments. The former attaches the spleen to the greater curvature of the stomach, whereas the latter attaches the spleen to the posterior abdominal wall. The phrenicocolic ligament supports the spleen inferiorly. The spleen typically migrates inferiorly and is usually intraperitoneal. Acquired wandering spleen may occur during adulthood due to injuries or other underlying conditions that may weaken the ligaments that support the spleen. Few case reports on wandering spleen with gastric volvulus have been reported, the occurrence of can be explained by the laxity of ligaments derived from dorsal mesogastrium.

Swischuk et al. describe twisting of the pedicle with or without twisting of the pancreatic tail as having a whorled appearance, a finding that is valuable in making the diagnosis at CT. The currently recommended treatment for splenic torsion associated with infarction is splenectomy. High clinical suspicion and imaging is required for early diagnosis of splenic torsion where splenic salvage procedures can be carried out.

Partial malrotation of the bowel results when the embryonic mid-gut fails to complete the normal 270° counter clockwise rotation during gestation. Adults are often asymptomatic, and such cases are usually diagnosed as incidental findings when imaged for other conditions. Ultrasound, CT or upper gastrointestinal studies may identify the typical characteristics. On axial CT, the normal superior mesenteric vein (SMV) is located ventral and to the right of the superior mesenteric artery. Deviation from this normal anatomical relationship (the SMV rotation sign) should prompt a careful search for further evidence of bowel malrotation. Further signs include an abnormal caecal position, right-sided duodenal-jejunal junction and small bowel, left-sided colon, hypoplasia of the pancreatic uncinced process and absence of transverse colon crossing the abdomen. Partial malrotation of the bowel is commonly asymptomatic. However, the anatomic derangements may result in atypical presentations of common intra-abdominal pathology. It’s vital that surgeons are aware of the anatomical features of malrotation, as undiagnosed cases may occasionally present at laparotomy. As said in our case, malrotation of the bowel loops noted with duodenum not crossing midline, large bowel on left quadrant, jejunum on right quadrants. Caecum visualised in midline in pelvic region. SMV is seen anterior to SMA in upper quadrants and it goes left to SMA in lower quadrants.

Few congenital syndromes like Kartagener syndrome, Prune belly syndrome, and Heterotaxy are described, where the occurrence of wandering spleen, malrotation of gut and bronchiectasis is identified.

The occurrence of splenic torsion and bronchiectasis is observed to occur commonly in William Campbell syndrome, a rare form of congenital cystic bronchiectasis, in which distal bronchial cartilage is defective.

Our case presented with splenic torsion of wandering spleen, midgut malrotation and bronchiectasis, genetic workup is recommended to arrive at syndromic diagnosis.

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Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

References


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