

## Imaging Features of Internal Hernias in Association with Risk of Small Bowel Strangulation

PT118-GI

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**BACKGROUND AND AIMS:** Internal hernias are an uncommon cause of small bowel obstruction and can be either congenital or acquired, which are life-threatening if strangulation is present. Therefore, surgical intervention is often required. The purpose of our study is to determine the imaging features of internal hernias in association with risk of small bowel strangulation.

**METHODS:** From January 2008 to October 2012, 15 patients with surgically proved internal hernia with preoperative computed tomographic (CT) studies are included into study. Their medical records, CT images and surgical results were reviewed. Of the total 15 patients, three were transmesenteric, one foramen of Winslow, two intersigmoid, and 9 secondary to an adhesive band. The CT studies were reviewed for the presence of CT signs suggestive of small bowel strangulation, including thickened bowel wall, mesenteric stranding, mesenteric edema or fluid accumulation, poor contrast enhancement of bowel wall, and Whirl sign. The CT images and operative findings between patients with and without small bowel resection were compared.

**RESULTS:** All of the patients with internal hernias had CT image finding of closed-loop obstruction. Surgical results revealed vascular compromised bowel loops in 13 patients (86 %), reperfusion after enterolysis in 6 patients, and small bowel strangulation was found in 7 patients (46 %, 5 secondary to adhesive bands, one transmesenteric type, and one intersigmoid type) underwent bowel resection and primary anastomosis. The presence of poor contrast enhancement of bowel wall was significantly correlated with small bowel strangulation (80% versus 13%,  $p = .032$ ). There were no significant difference in other CT signs, including mesenteric edema or fluid accumulation ( $p = .119$ ), thickened bowel wall ( $p = .569$ ), and mesenteric stranding ( $p = 1$ ) and whirl sign was found only in one patient with small bowel strangulation. Besides, there is no statistically significant correlation between small bowel strangulation and the duration from CT study to the operation. The overall morbidity and mortality rate were 33% and 6%, respectively.

**CONCLUSION:** Closed-loop bowel obstruction as internal hernia have high incidence of vascular compromise and are associated with risk of small bowel strangulation. It is important to familiar with the imaging features in association with strangulated internal hernia so that timely surgical intervention can be promoted and resection of the involved bowel loops can be avoided.

## Non-Gastrointestinal Tract Related Pneumoperitoneum and Peritonitis: Seven Cases Report

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**BACKGROUND AND AIMS:** Pneumoperitoneum with peritonitis was often caused by gastrointestinal tract perforation. But other intraabdominal organ with gas-forming and perforation could have the similar clinical presentation and image findings of hollow organ perforation.

**METHODS:** Seven patients presenting with acute abdomen and generalized peritonitis received CT scan examination under the impression of hollow organ perforation. All cases turned out to be non-GI tract related cause after image findings and surgical proof.

**RESULTS:** Three cases of liver abscess, two cases of pyometra, one case of complicated pancreatic pseudocyst and one case of emphysematous cystitis were diagnosed. Gas-forming in the primary lesions site with free air in the peritoneal cavity, ascites, dirty peritoneal fat plane could be found in CT scan of all cases. Operation was performed in all cases and the diagnosis was confirmed.

**CONCLUSION:** Pneumoperitoneum with peritonitis is usually caused by gastrointestinal tract perforation. However, other rare case mimicking hollow organ perforation clinically, but not related to GI tract should be considered in the differential diagnosis. Intraabdominal infection with gas-forming, perforation is usually the cause. The primary lesion should be carefully searched during image interpretation.