



UNUSUAL CASE OF JEJUNAL DIVERTICULUM RUPTURE WITH SEALED OFF PERFORATION

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ABSTRACT Diverticula are small sacs of mucosa and submucosa that protrude through the muscle layer. Complications of diverticulitis may be highly variable. Complications of diverticulitis may be highly variable, and it may be difficult to diagnose diverticulitis as an underlying cause of severe complications. One of the rare complications is diverticulum rupture. Severity of inflammation, involvement of bowel segment and local & distant complications of diverticulitis can be assessed with CT.

KEYWORDS : Diverticula, diverticulitis, complications, rupture, imaging features, CT

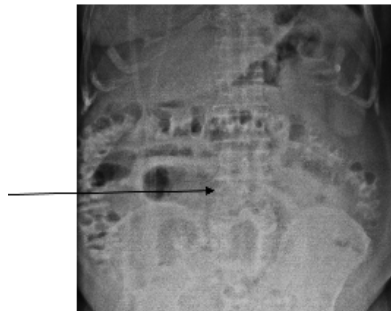
INTRODUCTION

- Diverticula are small sacs of mucosa and submucosa that protrude through the muscle layer of the wall of the intestinal loop at the point of penetration of the blood vessel.
- The duodenum is the second most common location for intestinal diverticula following the colon. Duodenal diverticula are approximately five times more common than jejunoileal diverticula.
- Diverticulitis is one of the most frequent bowel emergencies presenting with acute abdomen.
- Complications of diverticulitis may be highly variable. Rupture of inflamed diverticulum is uncommon phenomenon and has to be detected early and treated.

CLINICAL INFORMATION:

- A 70-year-old male came with the complaints of abdominal distension, pain & vomiting for the past 5 days.
- Complains of cough with expectoration x 4 days.
- Radiograph of Abdomen and CECT-Abdomen was proceeded for further evaluation.

FIG-1



AP abdomen radiograph shows dilation of the small bowel loops.

FIG-2

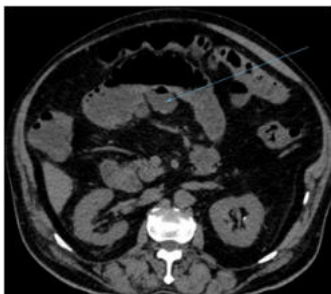
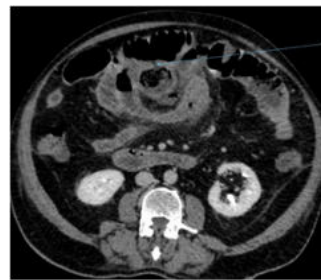
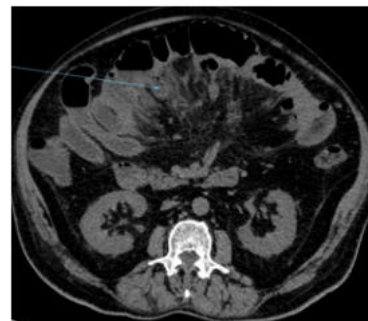


FIG-3



Plain (FIG-2) and contrast CECT Abdomen (FIG-3) (axial sections) showing diverticula arising from the jejunum

FIG-4



NCCT abdomen -multiple diverticula noted arising from the jejunum with surrounding inflammatory changes- diverticulitis (blue arrow)

FIG-5 & FIG-6

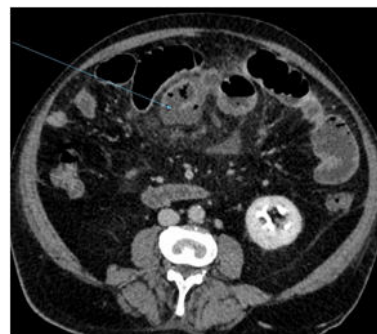


FIG-7

CECT abdomen showing heterogenous fluid density outpouching with peripheral enhancement (blue arrow) and surrounding inflammatory changes.

DIAGNOSIS:

- Diverticulitis.
- Ruptured jejunal diverticulum with sealed off perforation

MANAGEMENT

- Initially, the patient was managed conservatively as the patient passed flatus and was hemodynamically stable.
- Based on the imaging findings, he was posted for emergency exploratory laparotomy with resection and side to side jejuno-jejunal anastomosis.
- Intraoperatively there was sealed off perforation in the mesenteric border of the jejunal loop & collection with pus (~25cm from the duodeno-jejunal flexure).

FOLLOW UP AND CARE

- Pus culture showed heavy growth of klebsiella and e-coli. Patient was started on antibiotics and managed in ICU conservatively.
- Patient improved symptomatically and hence discharged.

COMPLICATIONS (What to look for in an emergency setting?)**1. PERFORATION:**

- Abdominal X-ray – subdiaphragmatic free air.
- MDCT: Direct signs -focal bowel wall discontinuity, extraluminal gas, and extraluminal enteric contrast agent leakage.
- Indirect findings - Segmental bowel wall thickening, abnormal bowel wall enhancement, perivisceral fat stranding and abscess formation.
- Endovascular air bubbles can be seen in mesenteric veins and portal vein in advanced cases.

2. ABSCESS:

- Detected in up to 30 % of cases with acute diverticulitis.
- Abscess typically manifests as a loculated fluid collection containing air.
- An avidly enhancing wall is another characteristic feature of an abscess.

3. PYLEPHLEBITIS

(Ascending septic thrombophlebitis)

- Diverticulitis - most common underlying cause (30 %) of septic thrombophlebitis of the mesenteric and portal venous system.
- CECT - Endoluminal thrombus is seen as a filling defect in the contrast filled mesenteric veins.
- In Portal vein thrombosis, central or peripheral hypoattenuating areas in the liver may be detected as a sign of abnormal hepatic perfusion.
- Septic thrombosis in the inferior vena cava may also be seen after diverticulitis, which may result in septic pulmonary emboli.

4. BOWEL OBSTRUCTION:

- Severe intestinal obstruction in patients with diverticulitis is rare; however, partial obstruction secondary to wall edema and peripheral inflammation or abscess formation may occur.
- Jejunal diverticulitis, can presents with adhesion of the epiploic band, resulting in subsequent internal hernia.
- Obstructive malignant mass in the colon is a main differential diagnosis in cases of acute colonic diverticulitis. Involvement of a long colonic segment (>10 cm) favors diverticulitis.
- Perilesional mesenteric lymph nodes with a short axis diameter exceeding 10 mm are more common in cancer than acute diverticulitis.

5. BLEEDING:

- Lower GI bleeding commonly occurs in chronic colonic diverticulitis.
- NCCT- hyperdense endoluminal bowel content.
- CECT in the arterial phase can demonstrate active extravascular contrast extravasation into the diverticulum and bowel lumen.
- Progressive contrast pooling in the bowel lumen is another confirmatory sign of active bleeding from the diverticulitis

6. FISTULA FORMATION:

- They occur when a diverticular abscess breaches the wall integrity of the adjacent anatomic structure.
- Common with colonic diverticula – can present as colovesical, coloenteric and colouterine forms
- Colovesical fistula present with free air in the bladder with thickening of the adjacent bladder wall.

- Administration of rectal contrast may be helpful for outlining the exact trajectory of the fistula tract.

CONCLUSION

- Diverticulitis being one of the most frequent bowel emergencies can show varied presentations.
- MDCT is essential for the primary diagnosis of the acute diverticulitis and its complications.
- Radiologists should be cognizant of the complex unusual complications as they may require a multi-disciplinary treatment approach.

Teaching points:

- Acute colonic diverticulitis is the most common complication of diverticular disease.
- Imaging findings of diverticulitis include edematous thickening of the bowel wall with inflammatory changes within the adjacent mesenteric fat. US demonstrates inflamed diverticulum as a noncompressible outpouching of a bowel wall with thickened and hypochoic wall. Adjacent bowel wall edema and thickening with edematous hyperechoic mesentery can be visualized on US
- Complications of diverticulitis may be highly variable, and it may be difficult to diagnose diverticulitis as an underlying cause of severe complications.
- Hence, MDCT is essential for the primary diagnosis of the acute diverticulitis and its complications. Severity of inflammation, involvement of bowel segment and local and distant complications of diverticulitis can be assessed with CT.

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