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IMAGING IN ABDOMINAL EMERGENCIES: A SPECTRUM OF RARE CASES

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ABSTRACT

Spectrum of conditions from benign self-limiting disease to surgical emergencies can present with acute abdominal pain. Imaging is often a fundamental part in the evaluation of abdominal emergencies. Computed tomography (CT) is worth focused attention because of its usefulness in a variety of emergency department settings. We report imaging findings of few rare and life threatening causes of acute abdominal pain.

KEYWORDS: Abdominal emergencies, computed tomography, acute abdominal pain.

INTRODUCTION

- Acute abdominal pain can represent a spectrum of conditions from benign and self-limiting disease to surgical emergencies. Evaluating abdominal pain requires an approach that relies on the likelihood of disease, patient history, physical examination, laboratory tests, and imaging studies. The American College of Radiology has recommended different imaging studies for assessing abdominal pain based on pain location. Ultrasonography is recommended to assess right upper quadrant pain and computed tomography is recommended for right and left lower quadrant pain.

Study location: This was a tertiary care teaching hospital based imaging case series done in Department of Radio-diagnosis, Indira Gandhi Medical collage Shimla, Himachal Pradesh, India.

Case No.1

60 year female presented with pain abdomen and vomiting since 10 days. Ultrasonography revealed cholelithiasis with grossly distended stomach, 1st and 2nd parts of duodenum. Contrast enhanced computed tomography was done for further evaluation.

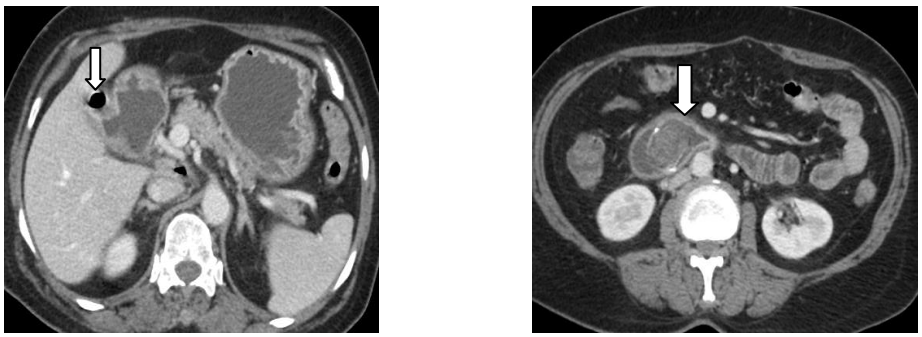

Fig. 1: CECT Abdomen (Axial images) show dilated stomach and duodenum with air in the gall bladder & hyperdense area in the third part of duodenum (white arrow) suggestive of calculus.

Based upon the findings the diagnosis of cholecystoduodenal fistula with gallstone obstruction of the small intestine i.e Bouveret's syndrome was made. The findings were confirmed on surgery.

Bouveret's syndrome is gastric outlet obstruction caused by duodenal impaction of a large gallstone through a cholecystogastric/ Cholecystoduodenal fistula. It was first described by Leon Bouveret.[1] Common in women with a mean age of 68.5 years.[2] In 85% patients, stones

pass spontaneously whereas in 15% of patients bowel obstruction develop.

Case No. 2
76 year female presented with complaints of pain abdomen from 1 week. USG findings were of gross ascites. CECT findings were ascites and pneumoperitonium as shown below.

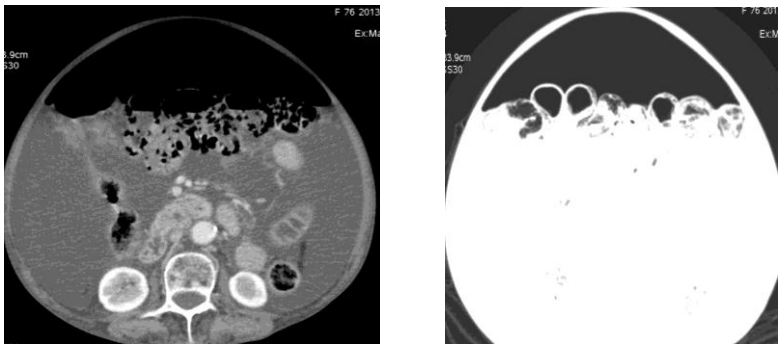

Fig. 2: CECT Abdomen axial images showing ascites, pneumoperitoneum and air containing cysts in intestinal wall.

On lung window images there were multiple air containing cysts in intestinal wall. However no definite signs of gut perforation were seen. On surgery there was no evidence of gut perforation but there was ascites and pneumoperitoneum along with multiple air tubercles seen in the bowel wall. These findings were diagnostic of Pneumatosis cystoides intestinalis with pneumoperitoneum & ascites.

Pneumatosis cystoides intestinalis is characterized by gas filled cysts in the intestinal submucosa and subserosa. It is a rare disease with reported incidence of 0.03% and can occur in any age.[3] It is two types- primary and secondary. Primary imply to a chronic, benign idiopathic etiology.[4] Secondary type refers to radiological findings of linear, mocrovesicular or more circumferential appearing intramural gas caused by various predisposing factors.[5]

Case No. 3
65 years old female presented with acute onset of pain in left iliac fossa. No abnormality was revealed on USG abdomen. CECT was done in emergency which shows findings suggestive of epiploic appendagitis**.**

Fig. 3: CECT axial images show ovoid pericolic lesion of fat density abutting the anterior colonic wall with adjacent fat stranding (white arrow).

Epiploic appendagitis is a rare self limiting ischemic /inflammatory process involving appendix epiploica of colon. This term along with omental infarction is grouped under intraperitoneal focal fat infarction.[6] It presents with pain and guarding. CT appearance is typical. Ovoid pericolic lesion of fat density abutting the colonic wall is seen. Few signs are described on CT. Hyper attenuating ring sign is hyperdense rim surrounding ovoid lesion representing inflamed visceral peritoneum.[7] Central dot sign is central hyper attenuating round area representing engorged or thrombosed central vessels. Chronically, an infarcted epipolic appendage may calcify and detach to form an intraperitoneal lose body.

Case No. 4
11 years female child presented with complaints of pain abdomen & abdominal distension since 4 days. USG abdomen revealed dilated bowel loops with gross ascites. There was no history of prior surgery. CECT abdomen was done for further evaluation.

Fig. 4: CECT axial, coronal & sagittal images show a well circumscribed intraluminal soft tissue density mass in distal ileal loop in pelvis containing air foci (white arrow) with upstream bowel dilatation-suggestive of bezoar.

Bezoars are the accumulations of indigestible foreign contents with gastrointestinal tract. They are classified according to the materials of which they are composed. Trichobezoar are bezoar formed from hair. Phytobezoar are formed from skin, seeds & fibers of fruit or vegetable matter. Trichophytobezoars are bezoars formed from hair & food.

Bezoars usually form in the stomach and can pass into small bowel where they may cause obstruction. Trichobezoars do not usually migrate towards the small bowel.[8] Small bowel obstruction is most frequent presentation of phytobezoars, although they are responsible for only 0.4-4% of all intestinal obstruction.[9] The CT findings are well defined oval intraluminal mass with air bubbles retained within the interstices, a dilated small bowel proximal to the mass and normal or collapsed distal loops.

Case No. 5

61 years female presented with abdominal distension & pain abdomen from since 3 days. On conventional radiograph, the features were suggestive of small bowel obstruction. CECT was done for determining the cause of obstruction.

Fig 5: Axial and coronal images show ovoid bowel loop between obturator & pectineus muscles(white arrow) with dilated bowel loops diagnostic of obturator hernia with bowel obstruction.

Obturator hernia is rare type of abdominal hernia however a significant cause of mortality and morbidity. Most common age group affected is 70-90yrs. Females are commonly affected because of broader pelvis and large triangular obturator canal. Therefore this disease is nicknamed as “little old lady’s hernia”. CT scans are considered to be the standard means of preoperative obturator hernia diagnosis with high sensitivity and specificity. Because of non specific signs and symptoms a correct pre-operative diagnosis is usually made only in 20-30% cases.[10]

CONCLUSION

Considering the above imaging case series, we conclude that acute abdominal pain can represent benign self limiting to potentially life threatening condition. The diagnosis of few rare causes is often challenging because of non specific signs and symptoms. So contrast enhanced computed tomography is absolutely mandatory for correct early diagnosis and thereby reducing mortality and morbidity.

Conflicts of interest

None.

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None.

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