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Fish Bone Injury -Uncommon Cause of Caecal Perforation

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Abstract:
Foreign bodies causing perforation are very uncommon, accounting for less than 1% of all hollow viscus perforations. Fish bone causing intestinal perforation is relatively rare but can occur at acute bends in gastro-intestinal tract like ileo-caecal junction and rectosigmoid colon. We encountered one such case with confusing imaging findings initially, but confirmed on surgery. The presentation, imaging features and diagnostic challenges are discussed in this report.

Key Words*: Caecal perforation, acute abdomen, fish bone injury.*

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I. Introduction

Gastrointestinal (GI) perforations are common emergencies accounting for 3% of acute abdomen (1). There are a number of causes of GI perforations including peptic ulcer, inflammatory bowel disease (IBD), bowel ischemia, trauma, neoplastic lesions and various foreign bodies (FB). Most of the ingested foreign bodies pass through the GI tract in 7days. Foreign bodies causing perforation accounts for <1% (2). Fish bone is the most common ingested foreign body causing bowel perforation. There are certain predisposing factors like extreme age, denture, rapid eating. In certain acute bends in GI tract like ileo-cecal junction and rectosigmoid colon predispose to the lodging FB and cause perforation (3,4).

Case report

A 66-year-old male was diagnosed as a case of carcinoma stomach (Adenocarcinoma) a few months back and had gastrojejunostomy and jejunojejunostomy and he was on adjuvant chemotherapy with regular follow up with medical oncology department. One day he complained of sudden onset of pain abdomen around umbilicus. He also had burning micturition and hematuria for 3 days. There were no other constitutional symptoms. On examination pulse rate was 98 per minute and respiratory rate was 16 per minute. Blood pressure was 110/70 mm Hg. There was diffuse tenderness over peri-umbilical region and abdomen was distended; guarding was present. Hb 8.5gm/dl, mild thrombocytopenia and mildly elevated neutrophil count 88%. SGOT, SGPT mildly elevated, serum sodium, urea, creatine are mildly elevated. PT, PT INR, APTT are mildly elevated. Working diagnosis was acute peritonitis secondary to hollo viscus perforation and AKI.

Erect abdomen was taken and it showed large gas under diaphragm (Figure 1). NECT abdomen showed large pocket of gas under dome and multiple pockets of free air in peritoneal cavity (Figures 2 ,3). Caecum was dilated up to 8.5cm. There was a defect in caecum with free communication with the large pocket of air best demonstrated in sagittal reconstructed image. Mesenteric stranding, ascites, right pleural effusion along with adjacent atelectasis were present. The possibility of ischemic perforation was entertained. Perinephric stranding and perirenal fascial thickening were attributed to pyelonephritis. The gastrojejunostomy site was identified. There were multiple surgical clips and atheromatous changes of aorta. Prostate was also enlarged.

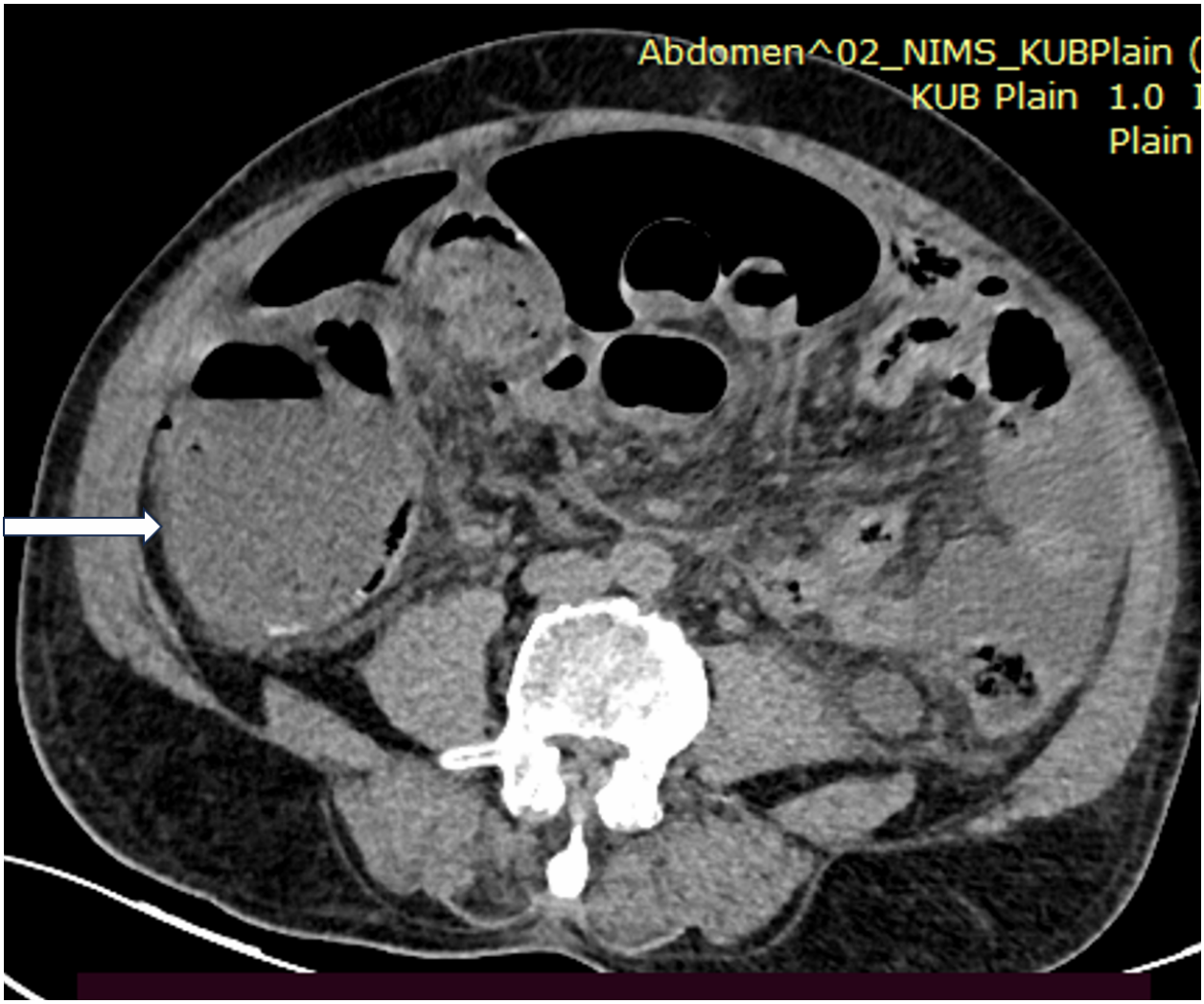
Figure-1

Topogram reveals large pocket of free air under right dome and in mid abdomen. Caecum is air filled and dilated.

Figure-2

Sagittal reconstruction of noncontrast CT in lung window reveals the site of perforation indicated by arrow.

Figure-3



Axial image of abdomen shows dilated caecum measuring 8.5 cms

Intra operatively moderate free fluid was noted in abdomen. There was gross fecal contamination and a fish bone was found. A large perforation of 1x1cm was noted in dilated caecum. Ascending colon was adherent to surrounding parietal wall with lots of adhesions and proximal dilatation of bowel, ascending colon and caecum. Abdominal cavity lavage was done and food particles and fish bone were evacuated.10 cm of ileum, caecum, appendix, ascending colon had to be resected after mobilizing right colon. Distal ileostomy was done.

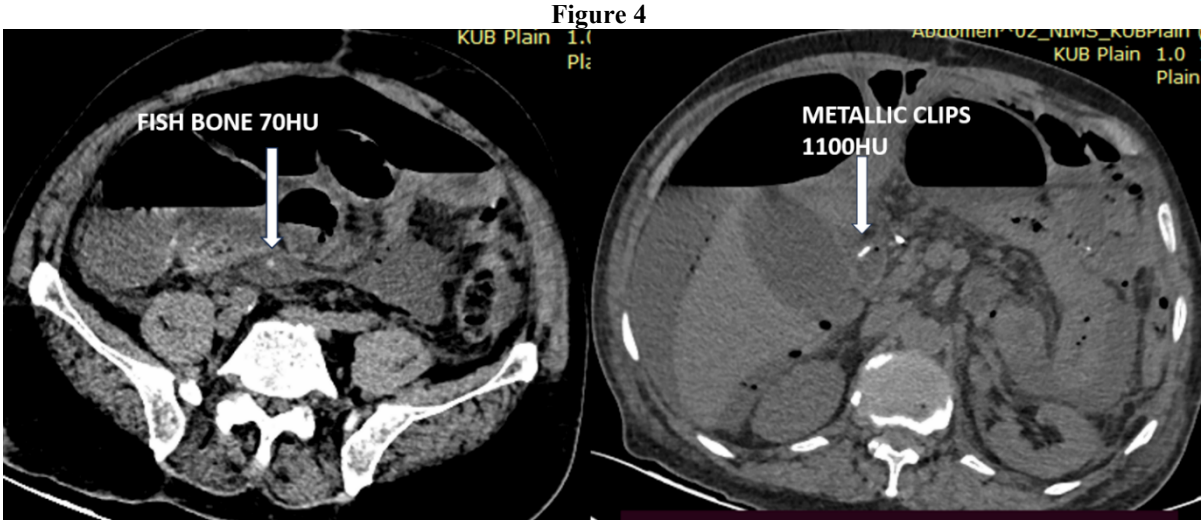
II. Discussion

Gastrointestinal perforations are common emergencies and need urgent surgical intervention. They have overall mortality rate of 16.9% to 19.6% (5). Most common ingested foreign bodies are chicken bone, dentures, tooth pick, cocktail sticks, rarely fish bones. These foreign bodies migrate to adjacent viscera causing fistulisation, abscesses. CT is the diagnostic modality in identifying the site of perforation and the cause which facilitates the treatment. Diagnosis of site of perforation is based on focal defect in wall of GIT, collection and concentration of free air, segmental bowel wall thickening. Other features may be perivisceral fat stranding, features of bowel obstruction. In colonic perforation abundant air is collected intraperitoneally both supra and infra mesocolic compartments (6).

Our case had large amount of air under right dome and in mid abdomen as evidenced in figure 1. The rent was also well appreciated on CT (figure 2). There was ascites and mesenteric stranding. Whenever there is large amount of free air in abdomen a proximal GIT perforation that is stomach, duodenum or intraperitoneal colon are to be suspected (6). Fish bones appear as linear calcified lesions surrounded by area of inflammation on MDCT. Mostly these mimics calcification of blood vessels. However definite diagnosis is by identification

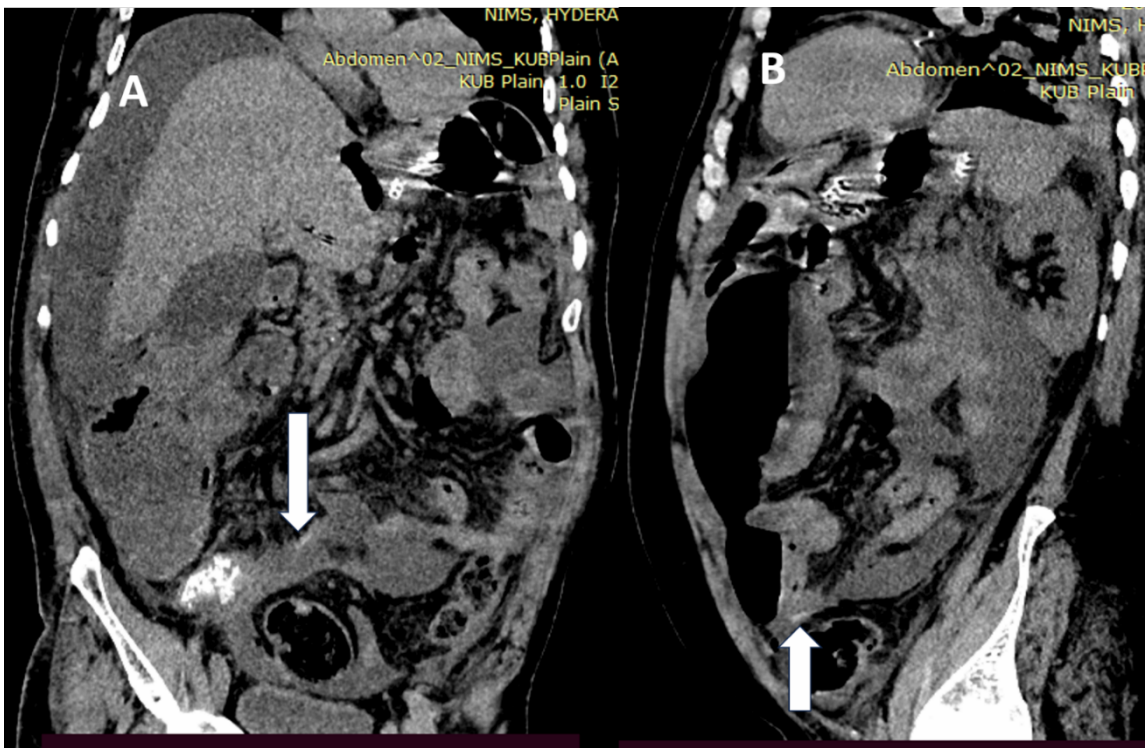
on surgery. In our case caecum was grossly dilated with thinning of wall (Figure 3) and there was large defect with free communication caecum with free air. We thought the cause may be ischemic because of age and atherosclerosis of abdominal aorta and thin wall of caecum. During surgery the fecal contamination and finding of fish bones confirmed that there was a rent of 1x1cms in caecum by fish bones. Because of postsurgical clips and atherosclerotic calcification of vessels and noncontract scan the fish bones were missed on initial image review (Figure 4). Patient also did not reveal the history of fish intake. On retrospective review and in MPR images the fish bones were identified (Figures 4,5).

Figure 4



Axial images at the level of gastrojejunostomy showing metallic surgical clips and the fish bone at the level of hypogastrium

Figure-5



Coronal and sagittal reconstructed images reveal the fish bone that appears as faintly calcified linear structure in ascitic fluid

In a study by Goh BK et al the detection of fish bone was 71.4% in an initial report of their series. On retrospective review it was 100% (7). The main limitation was lack of awareness. The site of perforation in their series were duodenum, pylorus, antrum, transverse colon, stomach, jejunum. None of the cases had free air in abdomen. Because perforation is by impaction of fish bone leading to erosion which subsequently covered by fibrin, omentum, adjacent loop limiting passage of air into peritoneal cavity. Pancreatic mass, peritonitis, intra-abdominal abscess were differentials.

III. Conclusion

High degree of suspicion, good history and meticulous study of images of CT scan help in early and most probable diagnosis that help in timely surgical salvage.

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