



GLOBAL PANDEMIC- DELAYED, POSTPONED OR CANCELLED ELECTIVE CHOLECYSTECTOMIES- NATURE, A HEALER FOR GALL BLADDER PATHOLOGIES CAUSING INTESTINAL OBSTRUCTION.

General Surgery

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ABSTRACT

During the Covid-19 pandemic lockdown, elective surgeries were postponed, delayed or cancelled. Elective cholecystectomies were postponed leading to repeated attacks and complications which could have been avoided if surgical aid had been delivered on time. To our surprise nature had taken care of these dreaded complications in some patients and they got cured spontaneously or with minimum access surgery, as desired by healthcare system to combat pandemic.

Gall bladder pathologies as a cause of intestinal obstruction though rare are not unknown. The most common causes of intestinal obstruction due to gall bladder pathologies are gall stone ileus causing dynamic obstruction, gall bladder perforation and pancreatitis causes adynamic obstruction due to paralytic ileus of gut. In such cases the symptoms can be vague due to movement of stone or constant due to formation of adhesions. It can be days before symptoms manifest after the initiating event. A thorough gall bladder imaging is required to rule out any underlying cause. Patients delayed their visits to hospital due to COVID fear, surprisingly conservative approach was more fruitful and rewarding in gall stone pancreatitis and gall stone ileus with cholecystoduodenal fistula. Patient passed stone spontaneously became asymptomatic and disease free without intervention while case with perforation was managed with minimal accesses surgery and patient recovered uneventfully. Nature has proved great healer in these cases during these trying times where elective surgeries had to be postponed or were inadvertently delayed.

KEYWORDS

Intestinal obstruction, Gallstone ileus, Cholecystoduodenal fistula , Gall bladder perforation, Gallstone pancreatitis.

INTRODUCTION

Amongst the chaos of the COVID-19 pandemic across the world and in our city, our hospital was a COVID-19 designated hospital. As surgeons handling emergencies, we found that people were delaying their visits to the hospital, thereby resulting in an increase in complications and jeopardizing their own lives.^[1] But astonishingly a few complicated cases were cured by nature. In the current COVID-19 crisis, the American College of Surgeons issued the following recommendation: "Each health system and surgeon should thoughtfully review all scheduled elective procedures with a plan to minimize, postpone or cancel elective [cases] until we can be confident that our health care infrastructure can support [an increase] critical patient care needs."^[2] Despite these conflicts, one strategy to free up capacity within a hospital system is through cancellation of nonessential surgical cases that most commonly occur in an unstructured and decentralized manner. One of the surgical procedures most hit by cancellation was elective cholecystectomy which landed these cases into complications and ultimately causing bowel obstruction.

Bowel obstruction is one of the most frequently encountered surgical emergency. A wide spectrum of etiologies exist for this condition which are primarily organized into intraluminal obstruction, intramural obstruction and the most common form i.e., extrinsic obstruction due to adhesions or hernias.^[3] Gall bladder pathologies are one of the rarest causes of Intestinal obstruction. The most known cases of intestinal obstruction due to gall bladder pathology are due to gall stone ileus which is a rare complication of cholelithiasis and is one of the rarest forms of mechanical bowel obstruction.^[4]

We present here three case studies with varying gall bladder pathologies. These patients presented with cholelithiasis for which elective surgeries were postponed and all ultimately came with complications like cholecystoduodenal fistula, perforation or pancreatitis leading to intestinal obstruction

CASE REPORTS

CASE 1: The first case was of a 55 years old female patient, a known diabetic who was recently diagnosed as a case of Cholelithiasis with a past history of Exploratory Laparotomy for Perforated Appendix in 2009 presented with diffuse pain abdomen with obstipation for 03 days with multiple episodes of bilious vomiting. Clinically abdomen was distended, tenderness was elicited in all quadrants with exaggerated

bowel sounds. On radiological evaluation, X ray abdomen showed multiple air fluid levels with dilated jejunal loops. USG abdomen showed contracted Gall Bladder with echogenic content with an ill-defined hypoechoic area seen in segment IVa of liver. CECT Abdomen showed dilated small bowel loops with transition zone in the terminal ileum just before ileo-caecal junction. A round hypodense lesion measuring 29 x 22 mm is seen in the lumen of the terminal ileum with fatty contents within suggestive of gall stone (Figure 1C). Large bowel loops were collapsed. Gall bladder was contracted with air foci seen within its lumen continuous with the lumen of 2nd part of duodenum suggestive of cholecystoduodenal fistula (Figure 1B). Air was also seen in the intrahepatic biliary tree (Figure 1A). Many endoscopic and surgical techniques have been described in the management of Cholecystoduodenal fistula, but this case was managed conservatively. It was managed as a case of Gall stone ileus and on digital rectal examination on 2nd day of admission a gall stone of size 3.5 x 2.5cms was evacuated per rectally (Figure 1D). Repeat CT scan revealed significant resolution of previous findings with non-visualization of gall stone. Patient improved symptomatically, passed flatus and stools next day and obstruction got relieved. She was started on oral diet which she tolerated well and thus nature prevented a major surgery and patient recovered spontaneously and discharged subsequently. On regular follow up she is asymptomatic.

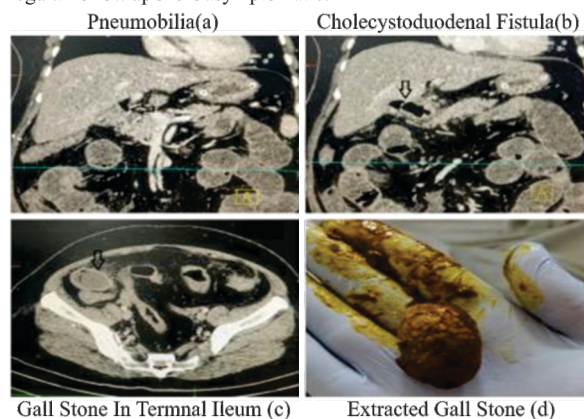


FIGURE 1: CASE 1

CASE 2: The second case was a 50 years old male a known case of Cholelithiasis. He was initially admitted twice as a case of cholecystitis and managed conservatively. He presented with pain abdomen predominantly in the Rt upper quadrant with passage of high colored urine, clay colored stools, generalized pruritis and other features of Surgical Obstructive Jaundice. On evaluation Serum Bilirubin was 8.0 mg/dl with predominant direct component. He subsequently developed severe epigastric pain radiating to the back and obstipation for 02 days and symptoms of obstructive jaundice were relieved (passed stone). Clinically abdomen was distended with tenderness in all quadrants, guarding in the right hypochondrium with positive murray's sign and sluggish bowel sounds. Liver function tests: AST/ALT/ALP-526/482/363mg/dl, Amylase/lipase-250/1641mg/dl. USG Abdomen was suggestive of Calculous cholecystitis with free fluid in Gall bladder fossa, peri-hepatic space and peri-splenic space with gas filled dilated small bowel loops. CECT Abdomen showed bulky pancreas (3.1x2.8x1.8 cm) with peripancreatic fat stranding (Figure 2B). Gallbladder distended with edematous wall(Figure 2A) with no calculi within (Figure 2C). Modified CTSI-6/10. MRCP depicted multiple calculi of size 4-5mm seen in gallbladder with diffusely edematous wall, edema in pancreas with peripancreatic fat stranding, suggestive of Acute Calculous cholecystitis with Acute Pancreatitis. Patient was managed conservatively with Bowel rest, Ryle's tube aspiration and antibiotics(Figure 2D). He passed flatus and stools on the 4th day of admission. He gradually responded well to the treatment and obstipation was relieved, tolerated oral diet and was discharged subsequently. Interval cholecystectomy was planned after 6 weeks.

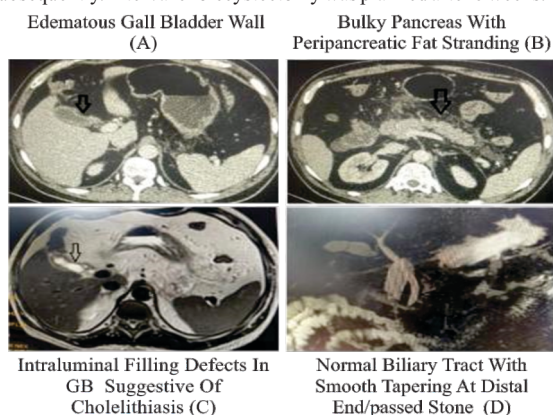


FIGURE 2: CASE 2

CASE 3: The third case was of a 30 years old female who presented with pain upper abdomen with multiple episodes of vomiting and obstipation for 02 days. Clinically abdomen was slightly distended, guarding in the right hypochondrium with positive murray's sign, sluggish bowel sounds(Figure 3A). On evaluation, USG abdomen showed distended Gall Bladder with sludge within, wall thickness-5mm with anechoic collection noticed along the medial wall along with distended small bowel loops. The collection along the medial wall could be due to a perforated Gall bladder or a duodenal perforation. CECT Abdomen showed no spillage of the oral contrast from the duodenum into the collection(Figure 3C) and there was no pneumoperitoneum. Findings were suggestive of Gall Bladder perforation with pericholecystic collection(Figure 3B). The biliary peritonitis resulted in intestinal obstruction. Patient was initially managed conservatively with bowel rest, ryle's tube aspiration and antibiotics, however there was no improvement and hence a Laparoscopic Cholecystectomy with adhesiolysis was done. Intra op findings showed thickened, edematous and gangrenous gall bladder with 2x2 cm sloughed off medial wall, bilious ascites in the morrison's pouch, frozen calot's triangle with dense adhesions with small bowel (Figure 3D & 3E). Post op patient passed flatus and stools recovered uneventfully (Figure 3F) and was subsequently discharged.

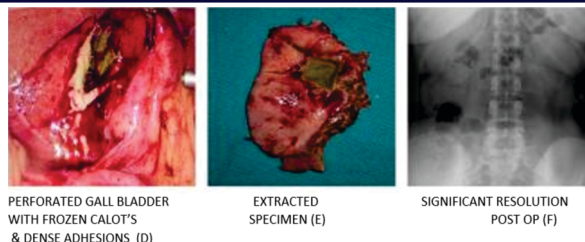
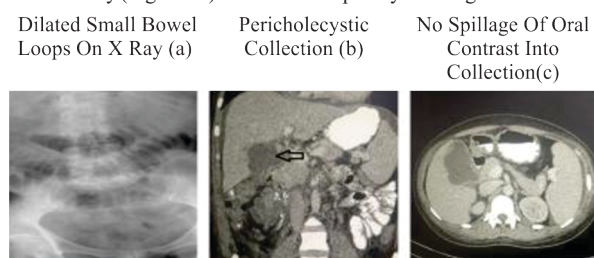


FIGURE 3: CASE 3

DISCUSSION

A response to any health emergency has to be tailored to the specific threat, be it infectious like COVID-19, bioterrorism or natural disasters. The role of surgical services in a health-related emergency are important and have potentially modifiable components related to healthcare delivery. Keeping higher threshold for surgery, in 2011, researchers reported a structured system of categorizing surgical procedures based on the potential impact on inpatient surge capacity if a procedure was to be cancelled or delayed.^[1] Keeping this in mind a number of elective cholecystectomies were either cancelled or postponed. 3 of these cases landed up in intestinal obstruction secondary to complications of cholelithiasis.

Gall bladder pathologies are rarely known to cause intestinal obstruction. The most frequently encountered gall bladder pathology known to cause intestinal obstruction is gall stone ileus. Incidence of gall stone ileus is found to be 1-4% in all patients and this rate rises to about 25% in elderly population. Only about 0.1% of mechanical bowel obstruction has been attributed to gall stone ileus.^[2] Factors which are found to be associated with gallstone ileus are prolonged history of cholelithiasis, repeated episodes of cholecystitis and large stones(> 2cm).^[5,6] Gall stone ileus is a result of adhesion formed between inflamed gall bladder and adjoining bowel structures, the most common being duodenum, ultimately leading to formation of cholecysto-duodenal fistula and in turn passage of gallstone into duodenum.^[3] Most common site of lodgment of gallstone is ileocaecal junction owing to narrow lumen and decreased peristalsis. In our case also the site of lodgment was ileocaecal junction.^[4] The diagnosis is often delayed as symptoms are nonspecific and usually intermittent in nature. Timely CT however helps in localizing the site of obstruction and also helps to reveal the etiology of the obstruction.^[7,8] The main therapeutic goals in the gall stone ileus are management of cholelithiasis, closure of fistula and extraction of gallstone. Various surgical options are available like enterolithotomy and cholecystectomy and fistula closure.² In our case the gallstone was removed per-rectally and the need for surgical intervention was avoided as patient was stable.

The second case of gall bladder perforation leading to intestinal obstruction was a unique case as we could find only 1 publicized previous case report by Hoffmann GL.^[9] They reported a case of intestinal obstruction caused due to cholecystitis leading to adhesions between ileum and inflamed gall bladder, leading to kinking at that point and ultimately intestinal obstruction. A known complication of untreated cholecystitis is gall bladder perforation with release of contents into the peritoneum. These ultimately lead to inflammation and adhesion of the bowel loops with inflamed gall bladder resulting in strictures or kinking of bowel loops followed by intestinal obstruction.^[4] Main aim of management in such cases should again be removal of offending gall bladder with adhesiolysis. In our case the patient was managed by cholecystectomy and adhesiolysis after which the obstruction was resolved.

The third case in this series is again a unique case of intestinal obstruction caused due to gall stone pancreatitis. Acute pancreatitis is a life threatening emergency which is most commonly caused by gallstones with half of the cases attributable to gallstones.^[10,11] The underlying pathology is reflux of bile into the pancreatic duct due to transient obstruction of ampulla of Vater.^[12] The diagnosis of gallstone pancreatitis should be suspected in a case with a previous history of cholelithiasis. A known but less discussed and described complication of acute pancreatitis is bowel obstruction which can either be due to enzymatic action or due to pseudo cyst formation. Enzymatic action can lead to ischemia and necrosis of bowel loops whereas pseudocyst can lead to mechanical obstruction of bowel.^[13] Though the most common site of obstruction is splenic flexure of colon, the small bowel is also susceptible to retroperitoneal inflammation because of its proximity to the anterior surface of the pancreas.^[11] In this case the patient was a known case of cholelithiasis with repeated episodes of

cholecystitis. The presentation was a typical case of gall stone induced pancreatitis with symptoms of small bowel obstruction. The treatment of mild gallstone pancreatitis is usually conservative, including bowel rest and intravenous fluid replacement^[14,15] however ERCP should be performed if there is a possibility of retained CBD stone. Cases with severe pancreatitis and those with ascending cholangitis are likely to benefit from early ERCP to decompress the biliary tree. Sphincterotomy and cholecystectomy can be undertaken to remove any future incidence of gallstone pancreatitis but should only be undertaken after several weeks to allow the pancreatitis to resolve^[13]. No aggressive surgical management was undertaken in this case, with patient being managed conservatively by bowel rest and ryle's tube aspiration. The obstruction and pancreatitis was resolved on 2nd day, jaundice got relieved and patient became asymptomatic. On follow up evaluation patient was asymptomatic and Gall bladder thickness was normal with no stones.

CONCLUSION

In these trying times of COVID pandemic where all the elective health care deliveries have taken a backburner in response to generating bed capacity for COVID patients, surgical services have taken a huge hit with numerous elective procedures being postponed or patients being too scared to visit the health facility. A careful risk stratification is needed for all elective cases keeping in mind any potential serious complications the patient might land into following cancellation of their surgeries. Nevertheless surgical emergencies have to be managed irrespective of the pandemic. Cholelithiasis induced intestinal obstruction is one such emergency. History of cholecystitis and cholelithiasis should always be asked to rule out any past or current gall bladder pathology. Aggressive gall bladder imaging should be undertaken in all the cases of intestinal obstruction to rule out any underlying gall bladder pathology which could have caused the obstruction. Early intervention and removal of underlying gall bladder pathology is necessary for complete resolution of symptoms and prevention of recurrent episodes of bowel obstruction. In spite of these cases landing into dreaded complications like cholecystoduodenal fistula, biliary pancreatitis, gall stone ileus, gall bladder perforation with peritonitis and intestinal obstruction, nature has healed them spontaneously with little requirement of surgical aid.

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