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A Rare Case of Gall Bladder Perforation in a Neonate Resulting in Pericholecystic Abscess Secondary to Biliary Calculi

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Abstract: ***Perforation of Gall bladder in neonates is a rare entity .Till date only 8 cases have been described in English literature. We successfully treated a case of 19 days old female neonate who presented with abdominal distension since 9th day of life, fever since 12th day of life and acholic stools since 18th day of life. Ultrasound scan showed gall bladder perforation resulting in pericholecystic abscess secondary to biliary calculi. Although rare and unusual, this case shows that this disorder should be considered in neonates presenting with abdominal distension and demands early intervention to prevent further complications.***

Keywords: Gallbladder, Acholic stools, Abdominal distension, Biliary calculi, Pericholecystic abscess, Neonate, Cholangiogram, Cholelithiasis

1. Introduction

Gall bladder perforation among the pediatric population is a rarity. Till date only 8 cases have been described in English literature. Gall bladder perforation is a complication of cholecystitis, which accompanies severe inflammation of the gall bladder with or without cholelithiasis. Thus gallbladder perforation is a diagnostic challenge due to its vague clinical presentation and rarity. The exact cause remains unclear in majority of the cases.

2. Case Report

A 19 days old term female neonate brought by the parents with complaints of abdominal distension since 9th day of life, fever since 12th day of life, passing pale coloured stools since 18th day of life. No history of vomitings. Passing pale coloured stools regularly. On examination assymetrical abdominal distension present more in the upper abdomen, minimal guarding in the right hypochondrium, liver non tender and palpable 3cm below the right costal margin. Bowel sounds were sluggish . Routine blood tests showed of leukocytosis of 25, 300/cummm. The total bilirubin was 3.54 mg/dl with a direct bilirubin of 2.01 mg/dl. ALP was 350IU/L.C- reactive protein was positive with 4.8mg/dl. Urine for bile salts and bile pigments positive.

X ray erect abdomen revealed gas distended bowel loops. [Figure 1].Ultrasound of abdomen showed contracted gall bladder with perforation at the fundus and Pericholecystic collection measuring 4.6X3.2cms at the fundus of gallbladder with evidence of 1-2mm hyperechoic foci noted in gall bladder suggestive of gall bladder calculi [Figure 2]

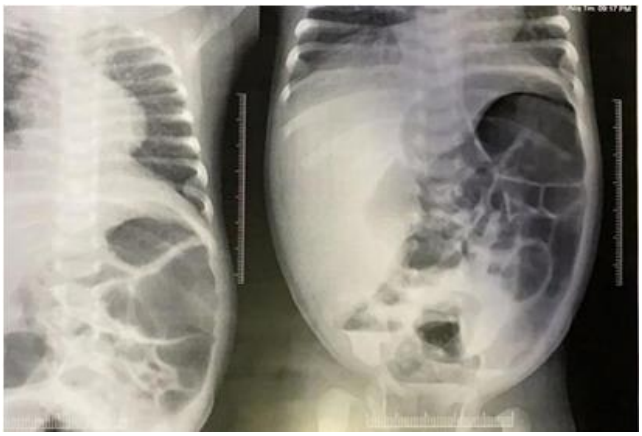

Figure 1

Figure 2

An Emergency exploratory laparotomy and procedure was done under general anesthesia. Intra operatively liver was found enlarged and congested. There were thick adhesions

between Liver, Gall bladder, Colon and a loop of small bowel [Figure 3].In an endeavour to separate adhesions thick light green pus was drained out of the abscess cavity which has got communication with the fundus of gall bladder. [Figure 4], [Figure: 5]. Few small pigmented stones were found in the pus [Figure 6]. There was no clear demarcation between gall bladder and abscess cavity it is decided to do cholecystectomy.

The cystic duct identified, cannulated and intraoperative Cholangiogram was done, with some resistance and flushing the dye freely entered into duodenum without delineating proximal biliary tree. [Figure 7]. Cystic artery identified ligated then cystic duct ligated and cholecystectomy done, hemostasis secured, right flank drain was placed. Liver congestion got reduced and abdomen closed in layers. From 2nd postoperative day onwards patient passed cholic stools distension of abdomen has come down. Accepting full normal feeds from 3rd postoperative day. Pus culture was positive for Escherichia coli sps. Histopathological examination of the excised specimen of gall bladder showed acute cholecystitis. The abscess wall showed non-specific granulation tissue. Stone analysis showed positive for phosphate. Patient was discharged on 10th postoperative day, and followed for 6months in the outpatient was found doing well, and weight gain was normal.

Figure 3

Figure 4

Figure 5

Figure 6

Figure 7

3. Discussion

- Even though the etiology of stones found in the fetal period is yet unknown; prematurity, sepsis, parenteral nutrition, blood group incompatibilities, metabolic diseases and dehydration of newborns are among the causes of formation of gallstones in pediatric age groups. Gallbladder stones along with perforation are a rare entity in neonates and pediatric age group.
- Symptomatic gallstones need cholecystectomy and same is true for complicated gallstones but there is no consensus about the management of asymptomatic gallstones in neonates.
- Neonates with gallstones should be divided into two groups. Those with typical symptoms like cholestatic jaundice, transient acholic stools, abdominal pain, and sepsis, gallbladders have to be removed. Asymptomatic neonates with nonspecific symptoms can undergo safe follow up. These neonates will require observation into adulthood to determine their lifetime risk of developing symptoms (1, 5).
- Gall bladder perforation is rare in neonates and several etiologies have been described in the literature and range from anomalous union of the pancreatic-biliary ductal system, congenital weakness of the ductal system, choledochal cysts and trauma.
- Gallbladder perforation can occur in the setting of cholelithiasis, cholecystitis, trauma, neoplasm, steroid use, or vascular compromise (6, 7).
- Steroid administration and in particular hydrocortisone, has been shown to decrease mucin production in the gallbladder thereby removing the protective coat for the gallbladder epithelium against bile. Coupled with prematurity and periods of asphyxia which can decreases splanchic blood flow may contribute to gallbladder perforation (9,).
- Gallbladder perforation has been classified into three types: (1) acute free perforation into the peritoneal cavity, (2) subacute perforation with pericholecystic abscess, and(3) chronic perforation with cholecystoenteric fistula formation.(2, 8)
- Perforation is most often a complication of severe acute cholecystitis, occurring in approximately 8% to 12% of cases. The Clinical signs and symptoms of gall bladder perforation may be nonspecific and may be indistinguishable and patients may present with abdominal distension, bacteremia, septic shock, bile peritonitis (3). Ultrasonography helps in early diagnosis. At sonography, the gallbladder wall is irregular or ill-defined, there is a large amount of pericholecystic fluid or a loculated pericholecystic collection .A focal defect in the wall of the gallbladder is a more specific finding but may not always be visualized. Fundus is the most common site of perforation (4).
- Perforation and abscess formation should be suspected clinically in patients with acute cholecystitis who become toxic for unexplained reasons or whose clinical course rapidly deteriorates. Despite this, the discovery of spontaneous perforation is most often made at the time of surgery. The reported management of spontaneous perforation of the gallbladder and biliary tracts among infants and neonates is primary repair or parital or complete cholecystectomy (10).High degree of suspicion is necessary for coming to a definitive diagnosis.
- We have reported a case of 19days old female diagnosed with Gall bladder perforation secondary to biliary colic and treated successfully at our institution.

4. Conclusion

Gallbladder perforation in neonates is a rare but very serious condition and should be diagnosed and treated as soon as possible to decrease morbidity and mortality as it is a special diagnostic and surgical challenge. Early diagnosis and emergency surgical treatment of gallbladder perforation are of crucial importance. Upper abdominal CT for acute cholecystitis or USG will contribute the diagnosis, in which pericholecystic fluid may increase the rate of preoperative diagnosis of gallbladder perforation. If promptly diagnosed and treated aggressively by laparotomy and cholecystectomy, the patient's outcomes are improved.

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