



**ORIGINAL RESEARCH PAPER**

**Surgery**

**ACUTE ACALCULOUS CHOLECYSTITIS CAUSING GALL BLADDER PERFORATION IN ADOLESCENT MALE PATIENT: A CASE REPORT**

**KEY WORDS:** Acalculous Cholecystitis, Gall Bladder Perforation

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**ABSTRACT**

Gallbladder perforation is difficult to diagnose and to diagnose it preoperatively is really challenging for clinicians. It is usually a sequelae of both acute and chronic cholecystitis, empyema gallbladder and emphysematous cholecystitis. It is usually seen in elderly patients (>60 years) and are rare in children and adolescent. Here we presenting a case of 17 year old male patient with dengue Ig-G positive who presented with right upper abdomen pain, nausea, vomiting without fever. On radiological investigation it was diagnosed as gall bladder perforation. Patient underwent for open cholecystectomy. Intra-operatively gallbladder perforation with Empyema gall bladder was found.

**INTRODUCTION**

Gall bladder perforations after cholecystitis are usually seen in elderly patients (>60 years) and are rare in children and young<sup>[1]</sup>. Acalculous cholecystitis causes approximately 5%-10% of all cases of acute cholecystitis and is usually associated with more serious morbidity and higher mortality rates than calculous cholecystitis. It is most commonly observed in the setting of very ill patients (eg, on mechanical ventilation, with sepsis or severe burn, the injuries, after severe trauma). Ultrasound is the definitive initial radiological investigation followed by CT/MRI for diagnosis of cholecystitis. In addition, acalculous cholecystitis is associated with a higher incidence of gangrene and perforation compared to calculous disease.

We report a case of acute abdomen in the 17 year old male patient. clinically diagnosed as Dengue with acute abdomen and detected as GBPs on CT/MRI followed by laparotomy.

**Case Report**

An 17-year-old male without any known medical comorbidity presented with a 3-day history of sudden onset moderate grade of fever with chills, nonbilious vomiting, bodyache, headache, abdominal pain in right upper abdomen.

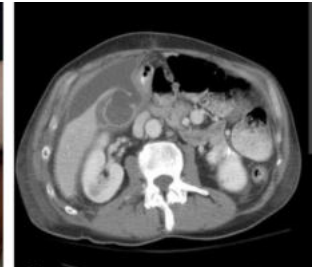
His vital signs were stable, except for tachycardia. His abdomen was soft and non tender, guarding on palpation was absent. His bowel sounds were sluggish. The laboratory tests revealed leukocytosis (wbc -14770) with neutrophilia, dengue ig-G positive and negative for typhoid and malaria. His serum amylase, lipase, Billirubin, SGOT, SGPT and serum electrolytes were all within normal limits. Abdominal radiographs showed no signs of intestinal obstruction or pneumoperitoneum. Ultrasound of the abdomen showed Mesentric lymphadenopathy with Hepatitis and rest of the small and large bowel loops, visualized pancreatic parenchyma, liver, biliary tree were reported as normal. CECT Abdomen and MRCP showed contained gall bladder wall perforation with thickened GB wall and peri gall bladder wall collection.

Patient underwent for open cholecystectomy. Intra operative finding revealed the gall bladder was found densely adherent to the liver and surrounding structure. On adhesiolysis, gall bladder empyema with a 0.5 cm perforation was found on the fundus of the gall bladder. 100 ml of pus was drained, cholecystectomy done, post operative period was uneventful. Histopathology of the specimen showed a gall bladder lined by mucosa with focal ulceration and the wall showing necrosis. There is mixture of acute and chronic inflammatory cell in the wall extending in to the muscle coat finding suggestive of acute on chronic

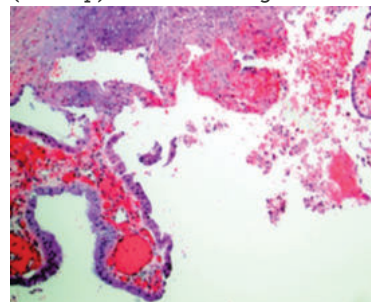
cholecystitis. A pathological diagnosis of acute on chronic cholecystitis with gall bladder empyema with perforation was made.



**Image 1:** Gall Bladder Perforation (intra Op)



**Image 2:** CT of abdomen showing GBP



**Image 3:** Pathological slide cholecystitis

**DISCUSSION**

Only 5-10% of the patients with acute cholecystitis are associated with acalculous cholecystitis<sup>[2]</sup>. GBP occurs in 2-11% of acute cholecystitis patients<sup>[1-4]</sup>. It is more likely to be found in patients with recent severe trauma, critical illness, cardiovascular surgery or severe burns. The mortality rate is in the range of 12-16%<sup>[5,6]</sup>.

Perforation results from occlusion of the cystic duct (most often by a calculus), which causes a rise of the intraluminal pressure due to retained intraluminal secretion.

Neimeier proposed a classification of the acute perforation of the gall bladder based on his findings and therapeutic approaches (Table 1) [7],[8]. The sites of perforation in decreasing frequency described in literature are junction of cystic and common hepatic duct, common hepatic duct and junction of cystic duct and gallbladder and lastly gallbladder itself.

**Table : Classification of perforations of the gall-bladder by Niemeier in 1934**

Type	State	Description
Type I	Acute	Is associated with generalized biliary peritonitis
Type II	Subacute	Consists of fluid localization at perforation site, pericholecystic abscess
Type III	Chronic	Includes the formation of internal or external fistulas

Our patients probably developed spontaneous GBP due to ischaemia of the gall bladder wall with inflammation and acalculous cholecystitis. Infections, malignancy, trauma and drugs (e.g., corticosteroids) and systemic diseases such as diabetes mellitus and atherosclerotic heart disease are common predisposing factors<sup>[3]</sup>. Fundus, followed by the body, are the most distal part with regards to blood supply and therefore this makes them the most common sites for perforation<sup>[2,6]</sup>.

Acute uncomplicated cholecystitis is more common among females, with a female to male ratio of 2:1. However, GBP is more frequent in the male gender<sup>[4]</sup>.

Perforation of the gall bladder can occur as early as 2 days after the onset of acute cholecystitis, or after a few weeks<sup>[2]</sup>. The perforation in our patient had occurred within 72 hour of the onset of symptoms.

Abdominal X-rays may not always show pneumoperitoneum, as seen in our patient, and hence they are not always helpful. Ultrasonography and computerized tomography (CT) may demonstrate abdominal fluid but lack specificity to diagnose GBP. Significant ultrasound findings of gall bladder thickening (>3.5mm), distension, pericholecystic fluid and positive sonographic Murphy sign seen in cases of acute acalculous cholecystitis<sup>[10]</sup>. may also be sometimes present in GBP, although none of them is very specific.

Early surgical intervention is an important step in the management of GBP. Although, clinically, it is difficult to predict the diagnosis of GBP, it is commonly assumed as bowel perforation when a patient presents with features suggestive of perforative peritonitis<sup>[2,4,6]</sup>. In our patient sign of peritonitis were absent. Cholecystectomy and drainage of an abscess, with peritoneal lavage, are usually sufficient as treatment.

**CONCLUSION**

Gallbladder perforation (GBP) is a rare event occur in children and adolescents in the absence of pre-existing cholelithiasis. GBP is a diagnostic and therapeutic challenge due to its non-specific presentation and smaller perforation size .Early diagnosis and immediate surgical intervention are of prime importance in decreasing morbidity and mortality associated with this condition

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