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## GB perforation- A surgical emergency

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### Abstract

**Background:** Gallbladder perforation is rare but life threatening complication following acute cholecystitis. Series of events occur that leads to gallbladder perforation. Hence; the present study was undertaken for assessing the surgical management of gallbladder perforation patients.

**Materials & methods:** The present study was conducted in the department of general surgery with the aim of assessing the surgical management of gallbladder perforation patients. Complete demographic data of all the patients was obtained. Records of all patients diagnosed to have gall bladder perforation were analysed. Ultrasonography and Abdominal computerized tomography findings of all the patients were obtained. Details of surgical treatment followed was recorded and analysed.

**Results:** Out of 10 patients with gallbladder perforation, four patients had type I perforation, four patients had type II perforation and remaining two patients had type III perforation. Diagnosis was acute cholecystitis in 7 patients while 3 patients had peritonitis. There were 3 females while 7 males. Biliary sphincterotomy with Open cholecystectomy was carried out in 1 patient. Open cholecystectomy was done in 1 patient with type I perforation. In one patient with diagnosis of peritonitis, laparoscopic cholecystectomy was done. ERCP, Biliary sphincterotomy and Open cholecystectomy was carried out in one patient. Open cholecystectomy along with segmental resection of transverse colon was carried in two patients (type III perforation). Laparoscopic cholecystectomy, Common bile duct exploration and Choledochoduodenostomy were done in another patient. Laparoscopic cholecystectomy converted to open cholecystectomy in two patients.

**Conclusion:** Gall bladder perforation is life threatening condition. Early diagnosis and emergency surgical treatment of gallbladder perforation is of crucial importance. If the patient is stable, then intervention after optimizing has better outcome.

**Keywords:** Gallbladder, perforation, surgical

### Introduction

Gallbladder perforation is rare but life threatening complication following Acute cholecystitis. Acute cholecystitis is associated with gall stones in 90-95% cases. Series of events occur that leads to gallbladder perforation. Obstruction of cystic duct by gall bladder stone leads to gall bladder distension, inflammation, edema of gall bladder. Acute cholecystitis is an inflammatory process mediated by mucosal toxin lysolecithin, bile salts and platelet aggravating factor. Gall bladder wall becomes grossly thickened with subserosal haemorrhages, in severe cases leads to ischemia, necrosis of gall bladder. In some cases secondary bacterial infection occurs, in some cases gangrenous cholecystitis occurs.<sup>1-3</sup> Neimeier classification used for gallbladder perforation can be classified as:<sup>[4]</sup>

- Type 1 (acute) : free perforation with generalized peritonitis
- Type 2 (subacute) : localized peritonitis
- Type 3 (chronic) : cholecystoenteric fistula of gallbladder with or without gall bladder stones<sup>[4-6]</sup>.

GBP is a rare but life threatening complication of acute cholecystitis. Sometimes GBP may not be different from uncomplicated acute cholecystitis with high morbidity and mortality rates because of delay in diagnosis. Thus GBP still continues to be an important problem for the surgeons. Most cases can only be diagnosed during surgery. Male acute cholecystitis cases with high fever, high white blood cell (WBC) count, and associated systemic diseases should be meticulously investigated<sup>[5-8]</sup>. Hence; under the light of above mentioned data, the present study was undertaken for assessing the surgical management of gallbladder perforation patients.

## Materials & methods

The present study was conducted in the department of general surgery with the aim of assessing the surgical management of gallbladder perforation patients. Complete demographic data of all the patients was obtained. Records of all patients diagnosed to have gall bladder perforation were analysed. Inclusion criteria for the present study included patients with perforations due to trauma/ iatrogenic causes. Exclusion criteria for the present study included: Gall bladder malignancies and patients who discontinued treatment at the hospital against medical advice. After meeting the inclusion and exclusion criteria, ten patients were enrolled. Ultrasonography and Abdominal computerized tomography findings of all the patients were obtained. Details of surgical treatment followed was recorded and analysed. SPSS software was used for evaluation of level of significance.

## Results

The patients underwent surgery after administration of intravenous electrolyte solutions, and were treated with

analgesics and antibiotics within the first 36 h (mean 9 h) after admission. Out of 10 patients with gallbladder perforation, four patients had type I perforation, four patients had type II perforation and remaining two patients had type III perforation. Diagnosis was acute cholecystitis in 7 patients while 3 patients had peritonitis. There were 3 females while 7 males. Biliary sphincterotomy with Open cholecystectomy was carried out in 1 patient.

Open cholecystectomy was done in 1 patient with type I perforation. In one patient with diagnosis of peritonitis, laparoscopic cholecystectomy was done. ERCP, Biliary sphincterotomy and Open cholecystectomy was carried out in one patient. Open cholecystectomy along with segmental resection of transverse colon was carried in two patients (type III perforation). Laparoscopic cholecystectomy, Common bile duct exploration and Choledochoduodenostomy were done in another patient. Laparoscopic cholecystectomy converted to open cholecystectomy in two patients.

**Table 1:** Clinical and treatment details

S. No.	Age/Gender	Clinical diagnosis	Type of perforation	Management
1	75/M	Acute cholecystitis	II	Biliary sphincterotomy, Open cholecystectomy
2	69/M	Peritonitis	I	Open cholecystectomy
3	61/F	Acute cholecystitis	II	Laparoscopic cholecystectomy
4	53/M	Acute cholecystitis	I	ERCP, Biliary sphincterotomy, Open cholecystectomy
5	67/F	Peritonitis	I	Open cholecystectomy
6	59/M	Acute cholecystitis	I	Laparoscopic cholecystectomy converted to Open cholecystectomy
7	49/M	Acute cholecystitis	II	Laparoscopic cholecystectomy converted to Open cholecystectomy
8	52/F	Peritonitis	II	Laparoscopic cholecystectomy, Common bile duct exploration, Choledochoduodenostomy
9	63/M	Acute cholecystitis	III	Open cholecystectomy along with segmental resection of transverse colon
10	64/M	Acute cholecystitis	III	Open cholecystectomy along with segmental resection of transverse colon

## Discussion

Gallbladder perforation is a rare but life-threatening complication of acute cholecystitis, with a reported mortality rate of 12-42%. Papers describing variants of type III perforation, adapting novel imaging techniques into the original Niemeier classification and individual case series describing new treatment modalities, have since been published [4, 6-10]. Hence; under the light of above mentioned data, the present study was undertaken for assessing the surgical management of gallbladder perforation patients.

In present study, out of 10 patients with gallbladder perforation, four patients had type I perforation, four patients had type II perforation and remaining two patients had type III perforation. Diagnosis was acute cholecystitis in 7 patients while 3 patients had peritonitis. Open cholecystectomy was done in 1 patient with type I perforation. In one patient with diagnosis of peritonitis, laparoscopic cholecystectomy was done. ERCP, Biliary sphincterotomy and Open cholecystectomy was carried out in one patient. In a previous study conducted by Deric H et al., authors presented their clinical experience with gallbladder perforation cases. Records of 332 patients who received medical and/or surgical treatment with the diagnosis of acute cholecystitis were reviewed retrospectively. Sixteen (4.8%) of those patients had gallbladder perforation. Seven patients had type I gallbladder perforation, 7 type II gallbladder perforations, and 2 type III gallbladder perforation according to Niemeier's classification. Two patients died of sepsis and multiple organ failure in the early postoperative period. Subhepatic abscess, pelvic abscess, pneumonia, pancreatitis, and acute renal failure were found in 6 patients. They concluded that early diagnosis and emergency surgical treatment of gallbladder perforation are

of crucial importance [11].

In the present study, open cholecystectomy along with segmental resection of transverse colon was carried in two patients (type III perforation). Laparoscopic cholecystectomy, Common bile duct exploration and Choledochoduodenostomy were done in another patient. Laparoscopic cholecystectomy converted to open cholecystectomy in two patients. Cholecystectomy, drainage of abscess, if present, and abdominal lavage are usually sufficient to treat gallbladder perforation. Cholecystectomy may be difficult in type III gallbladder perforations. If a cholecystectomy is performed, additional surgical procedures such as repair of the fistula may be required. Cholecystectomy can be performed after the infection is relieved by US guided percutaneous drainage in type II gallbladder perforations. Laparoscopic cholecystectomy can be performed for acute, gangrenous, and/or perforated cholecystitis as well as uncomplicated cholecystitis, but a conversion may be necessary in case of difficulties like an unclear anatomy [12-14]. In another study conducted by Tubachi P et al, authors represented the surgical experienced of gallbladder perforation. Total of 583 patients underwent laparoscopic or open cholecystectomy. Out of these, eleven patients had perforated gallbladder (1.9%). Out of the eleven cases, eight were clinically diagnosed to be acute cholecystitis and three were clinically diagnosed to have peritonitis. The cases diagnosed to have peritonitis underwent immediate intervention. The remaining eight cases were initially managed conservatively with intravenous antibiotics, imaging and workup was done, following which intervention was done. Early diagnosis and emergency surgical treatment of gallbladder perforation with peritonitis is of crucial importance [15].

## Conclusion

Gall bladder perforation is life threatening condition. Early diagnosis and emergency surgical treatment of gallbladder perforation is of crucial importance. If the patient is stable, then intervention after optimizing has better outcome.

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