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GALLBLADDER PERFORATION, THOUGH A RARE PRESENTATION OF ACUTE ABDOMEN NEEDS IMMEDIATE INTERVENTION AND UTMOST EXPERTISE IN ITS MANAGEMENT

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Abstract :

ABSTRACT- INTRODUCTION Gallbladder perforation is an unusual presentation that is rarely diagnosed preoperatively in a case of acute abdomen. It has a high mortality rate between 15-45 percent because of delay in diagnosis. Timely intervention by an expert surgical team is the key in reducing morbidity and mortality.AIM To stress the importance of gallbladder perforation which should always be borne in mind as one of the differential diagnosis of acute abdomen because timely and optimal intervention saves the life of the patient.METHODS We present a series of 8 cases of gallbladder perforation which we encountered in our institution between August 2009 to August 2011. All cases presented with features of acute abdomen. These patients were diagnosed to have perforation based on their clinical presentation. All the patients were

taken up for emergency laparotomy. Open cholecystectomy with peritoneal lavage and drainage was performed. Patients were given intensive post-op care, complications when encountered were managed accordingly.RESULTS All our patients presented with clinical features suggestive of perforative peritonitis The mean duration between admission and surgery was around 8 hrs. 6 had type I perforation and 2 had type II perforation with fundus being the most common site affected. One patient died of sepsis in the early post operative period.CONCLUSION-An aggressively oriented investigation strategm and surgical treatment of gallbladder perforation are of crucial importance in significantly reducing the morbidity and mortality of this condition which remained high throughout the literature.

Keyword :Gallbladder perforation, Early diagnosis, Emergency surgery, Niemeier classification

INTRODUCTION:

Gallbladder perforation is a rare but life threatening complication of acute cholecystitis(15). The incidence of gall bladder perforation is around 5% of cases of acute cholecystitis(15). The mortality rate is reported to be high between 15-45%(1,3,16). This high mortality is often due to delay in making the diagnosis of gall bladder perforation(1,2,3). Most cases can only be diagnosed at the time of surgery(1,4). Thus gall bladder perforation continues to remain an important challenge for the surgeons both in terms of its diagnosis and also in further management.

MATERIALS AND METHODS:

A total of 8 patients who received surgical treatment for gallbladder perforation in our institution between August 2009 to August 2011 were reviewed retrospectively. The parameters including age, gender, duration between time of admission and time of surgery, investigations done, type of perforation (according to Niemeier's classification), site of perforation, surgical management, post operative morbidity and mortality were evaluated. Routine blood investigations, abdominal X ray, sonogram of abdomen and pelvis, computed tomography were performed. Open cholecystectomy (either total or subtotal) with peritoneal lavage and drainage were done for all the patients.

RESULTS:

There were 6 male and 2 female patients in our study. The mean age was 58 yrs (range, 45-70yrs). Their clinical features included symptoms like abdominal pain, vomiting, fever, not passing stools and flatus and signs like abdominal tenderness, guarding, rigidity and absent bowel sounds. Of the 8 patients four had associated co morbid medical disorders. Their mean duration of symptoms varied between 3-7 days.

Abdominal X ray erect view and chest X ray PA view did not reveal any air under diaphragm for all the patients. Ultrasonogram of abdomen and pelvis showed gallstones and fluid collection in all the patients. CT was done for 4 of the 8 patients and it identified gallbladder wall thickening, gallstones and fluid collection in all the 4 patients. CT was not able to identify the site of gallbladder perforation in any of these patients.

All the patients were taken up for surgery based on their clinical features and a preoperative diagnosis of perforative peritonitis. All the patients were preoperatively managed with intravenous fluids, analgesics, antibiotics (third generation cephalosporins with metronidazole) and Ryle's tube insertion. The mean duration between their time of admission and time of surgery was around 8 hrs (range 4-24hrs). Laparotomy was done for all the patients. Of the 8 patients, 6 had type I gallbladder perforation and 2 had type II gallbladder perforation. 5 had perforation at the fundus of the gallbladder, 2 at the body and 1 at the neck of the gallbladder, thus making fundus to be the most common site to get perforated.





fig 1: Gallbladder perforation at the neck of the gallbladder

fig 2: Total cholecystectomy being performed

All the 8 patients underwent open cholecystectomy including the perforated area with thorough peritoneal lavage using normal saline and drains were placed for postoperative drainage; Of the 8 patients, 6 underwent total cholecystectomy and remaining 2 were managed with subtotal (partial) cholecystectomy as dense adhesions precluded them from undergoing total cholecystectomy. All the patients were given intensive postoperative care. One patient died of sepsis and multi organ failure in the early postoperative period; one patient developed pneumonia and was treated with antibiotics; one of the 8 patients developed acute renal failure in the postoperative period for whom nephrologist opinion was sought and treated accordingly. The mean postoperative day in which the patient was discharged was on POD-12 (range 10-18days).

DISCUSSION:

Gallbladder perforation is one of the severe complications of acute cholecystitis. Others include empyema gallbladder, gallstone ileus, cholecystoenteric fistula, emphysematous cholecystitis and biliary peritonitis; these complications are associated with increased morbidity and mortality and can develop at a high rate if the condition is left untreated (14); Despite the fact that early recognition and treatment decreased the morbidity and mortality, the gallbladder perforation continues to remain a diagnostic dilemma for many surgeons(13).

Gallbladder perforation commonly occurs following an attack of acute calculous cholecystitis, but rarely can develop following acalculous cholecystitis. Incidence of gallbladder perforation is reported to be around 5% of acute cholecystitisin various studies(15). It is commonly encountered in elderly males (50-80 yrs of age)(15). It is one of the indications for urgent cholecystectomy. In our study, male patients made upto 75% of the study population with the mean age of presentation being 58yrs.

Pathogenesis include a gallstone obstructing the cystic duct which increases the tension within the gallbladder leading to decreased vascular supply and bacterial infection; soon this is followed by gangrene of gallbladder culminating in gallbladder perforation. Niemeier(7) in 1934 classified gallbladder perforation as follows: Type I (acute) - free gallbladder perforation and generalized biliary peritonitis. Type II (sub acute) - pericholecystic abscess and localized peritonitis Type III (chronic) - cholecystoenteric fistula.' Recent studies have cited type II perforation to be more common when compared to other types(15); but in our study we encountered high rates of type I or acute perforation as compared to other types. Roslyn et al reported that type I and type II perforations tend to occur in the age of around 50 yrs whereas type III perforations are more

common in the elderly(1).

Gallbladder perforation can occur at the the most important factor that decided fundus, body, neck or cystic duct; Derici et the mortality and morbidity of patients, al reported that gallbladder fundus, the most distal part with regard to blood supply. is the most common site of perforation followed by body and neck with cystic duct perforation being the rarest(15). Our study scess if present are usually sufficient to also reported fundus to be the most frequent site to be perforated followed by body and neck in the decreasing order of frequency.

All of our patients presented with clinical features suggestive of peritonitis.

Taimur et al reported that most patients with gallbladder perforation will have associated medical co morbidities(13). In our study group, 2 of the 8 patients had associated Ischaemic heart disease, 1 had systemic hypertension, 1 had diabetes mellitus. Derici et al reported ischemic heart disease in 21% and diabetes mellitus in 25% of patients with gallbladder perforation. Such high rates are due to vascular disorders caused by these systemic diseases(15).

Sood et al noted that sonographic hole sign in which the defect in gallbladder wall is visualized as the only reliable sign of gallbladder perforation(2). Kim et al (12) reported that the site of defect could not be visualized on ultrasound in any of their patients, which is similar to our study. Derici et al reported that the defect could not be visualized even in CT in 70% of patients with gallbladder perforation(15); but we were not able to detect the gallbladder wall defect in CT for all the 4 patients for whom CT was performed. Tanaka et al reported that only one patient had a concrete diagnosis preoperatively in their series of 9 patients(11). In our study we were not able to reach the diagnosis of gallbladder perforation preoperatively in any of the patients. All the patients were taken up for surgery based on high index of clinical suspicion only; also the mean duration between their time of admission and time of surgery,

was around 8 hrs in our study which is low when compared to other similar studies.(15)

Cholecystectomy, drainage of abtreat gallbladder perforation(1-4). Patients with type III perforation may need repair of the fistula(9,10). Cholecystectomy can be performed by either open or laparoscopic method, but we proceeded with open method in all our patients. Also either total or subtotal cholecystectomy including the perforated part can be done (if total cholecystectomy is precluded by dense adhesions). We performed total cholecystectomy in 6 patients and subtotal cholecystectomy in 2 patients. Asher Hirshberg aptly reported subtotal cholecystectomy as "it is better to remove 95% of gallbladder (i.e. subtotal cholecystectomy) than 101% (together with a piece of bile duct) The various post operative complications include subhepatic abscess, pelvic abscess, pneumonia, pancreatitis, acute renal failure and sepsis leading to multi organ failure and death(1,15). Glenn and Moore (16) reported that the mortality rate of gallbladder perforation is 42% but other studies reported that the mortality rates have decreased to around 20%(6-8). In our study the mortality rate was only 12.5%. Our study reported a morbidity rate of around 37.5% which is similar in figures as reported by Derici et al. The mean duration of hospital stay in our patients was 12 days. Derici et al also reported a mean duration of hospital stay of around 15 days(26).

CONCLUSION:

Gall bladder perforation though an unusual initial presentation is a life threatening complication of acute cholecystitis. High morbidity and mortality rates are often related to the delay in diagnosis. High degree of clinical suspicion with aggressively oriented investigation strategm clinches the diagnosis. Hence early diagnosis and emergency but optimal surgical intervention are of crucial importance to save the life of the patient. Thus gallbladder perforation, although a rare presentation of acute abdomen, should always be borne in mind as one of the differential diagnosis to reduce the morbidity and mortality to the patient.

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