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A study of a series of patients of gall bladder perforation (due to cholelithiasis) in a tertiary care centre in Asia

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ABSTRACT

Aim: We present profile of a series of adult patients admitted in our hospital in whom the diagnosis made was gall bladder perforation secondary to cholelithiasis.

Material and methods= it was a retrospective study of 27 patients who were diagnosed as gall bladder perforation between September 2016 to September 2018.

Results: Out of all cases of acute cholecystitis 3.7 percent cases developed perforation. Usually the patients with comorbidity developed perforation. Most of the patients got helped by percutaneous drainage. 7 percent patients died.

Conclusion: gall bladder perforation is a serious problem in terms of morbidity and mortality. USG and CECT abdomen should be used judiciously in management of such patients.

Keywords:gallbladder perforation, gallstone ileus, cholecystoenteric fistula, acute cholecystitis INTRODUCTION

Gall bladder perforation is a big test in front of a surgeon because of usual delay in recognition , high mortality and morbidity(1)(2). Neimer classified the gall bladder perforation into three categories=type1, type 2 and type3 depending on the status of GB perforation(3). The new management techniques especially radiological have helped us to decrease the percentage of mortality and morbidity in such patients. We present a series of patients who were admitted us and managed by us over 2 years.

Material and methods

This is a retrospective study of 27adult patients admitted with a diagnosis of gall bladder perforation (due to cholelithiasis)in the department of surgery,Govt Medical College, Srinagar.The study was done in between September 2016 to September 2018 . Patients who had traumatic or iatrogenic perforation were excluded from the study. Also the patient of malignany GB were excluded from the study. The study was purely confined to GB perforation caused by stones.

Results

The results shown in table 1 depict that we had more female patients than male patients (67 versus 33 patients) in whom GB perforation (secondary to cholelithiasis) was diagnosed. If we see the types of perforation we find that the three catregories of patients got equal number of patients(9 patients each out of 27) as shown in table 3. We can see from table

International Journal of Medical Science and Current Research | November-December 2020 | Vol 3 | Issue 6

5 that comorbidity was present in 7 patients out of

which 5 had diabetes mellitus.

Gender	Numberofpatients(percentage)
Male	9(33)
Female	18(67)
Total	27

Table 1 showing gender distribution of patients

Gender	Range of age	Mean age
Male	45 to 90 years	63
Female	36 to72 years	45

Table 2 showing range of age range and mean ageof each gender

Type of perforation	Number (percentage)
Type 1	9(33)
Type 2	9(33)
Type 3	9(33)

Table 3 showingdistribution of patients as pertype of perforation.

Presentation	Number(percent)
Pain	18(67)
Fever	23(85)
Shock	4(15)
Jaundice	5(19)
Abdominal mass	3(12)

Table 4 showing various types of presentationswith number of patients

Comorbidity	Number(percent)
Diabetes mellitus	5(19)
Rheumatoid arthritis	1(4)
SLE	1(4)

Table 5 showing comorbidity of patients

Lab investigation	Number(percent)
Leucocytosis	11(41)
Deranged KFT	4(15)
Deranged LFT	4(15)
Raised CRP	5(19)
Low platelets	2(8)

Table 6 showing deranged laboratory value invarious number of patients.

Procedure	Number (percent)
Laparotomy with cholecystectomy	5(19)
Percutaneous GB drainage	6(22)
Enterolithotomy	1(4)

Table 7 showing various proceduresdoneinvarious patients in emergency admission.

Morbid Outcome of treatment	Number(percent)
Sepsis	4(15)
Wound infection	3(11)
Death of patient	2(7)
Embolism	1(4)

Table 8 showing variouspatients with morbidoutcome

Method of diagnosis	Number (percent)
USG	12(44)
CECT	12(44)
Per-operative	3(12)

Table 9 showing different methods by which wediagnosed GB perforation

Discussion

We admitted a total of 720 patients of acute cholecystitis in our department during this period. 27

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patients were diagnosed as gall bladder perforation.It means the percentage of patients of acute cholecystitis who got perforation was 3.7 percent. It correlates well with the literature where it is 2-10 percent (4)(5). In our series it seems that incidence of GB perforation has decreased over a period of last decade. It was previously felt that incidence of GB perforation may not have decreased even after widespread use of USG and advent of laparoscopic cholecystectomy (6). They attributed it to long waiting list in hospitals before doing cholecystectomy. But obviously with the increased use of USG and other gadgets, early detection of cholelithiasis (then doing cholecystectomy) will decrease the incidence of acute cholecystitis and also decreased the incidence of GB perforation.

It was Neimer (3) who classified GB perforation into three categories. Type 1 included patients with free perforation of GB and peritonitis. Type 2 included those with localised perforation. Type 3 included those with cholecystoenteric fistula with or without gallstone ileus.In our series there is an equal incidence of three types of perforation. In one study previously it has been found that there was a high incidence of type 1 and type 3 perforations but a low incidence of trype 3 peforation(7). In another series incidence of type 2 was found to be the highest i,e 45 percent(8). In our series each category has equal percentage of patients (each category had 9 percent of patients).We do not know why there is so much difference between various percentages in types of perforation in different studies but we can assume that the site of perforation depends on various factors like the site of stone, pressure generated in GB, type of stone etc.

We have done USG abdomen in all patients but final diagnosis of GB perforation was made in almost 45 percent patients by CT Scan. It has previously been noted also that the increae in the use of USG and CT Scan has lead to increase in diagnosis of GB perforation(9).

Patients with type 1 perforation have cholecystitis followed by rupture. Most of these patients are immunocompromised that prevents the localisation of inflammation and so leads to free perforation leading to peritonitis. In our series 19 percent patients were diabetic and all of them had type 1 perforation.Patiens with type 2 perforation have features of acute cholcystitis and a repeated USG exam or CT will get the diagnosis. Patients with type 3 injury have same features as chrinc cholecystitis and are diagnosed when the patient has features of intestinal obstruction.

It has been seen that USG could not specifically identify type 1 perfoations, it has been helpful in determining need for surgical intervention as it can identify the presence of free fluid(8).USG guided tapping of free fluid left no doubt in pathology.

Laparotomy with cholecystectomy was done in 5 patients. Percutaneous GB drainage was done in 6 patients and enterolithotomy was done in 1 patient. USG guideded percutaneous drainage of GB has been used by Sonnenberg etal in 1991(10). We have used it as a mode of treatment, and thus have seen the low mortality in our series which is very low (7 percent) in the series.Type 1 perforation needs to be identified early as it causes frank peritonitis.

An important point matter in this matter is to closely monitor the patients which are identified as high risk. Then timely intervention in the form of percutasneous cholecystostomy of cholecystectomy would definitely lead to better results.

2 patients in our series died (ie mortality in our series was 7 percent). In our series it was low probably due to modern methods of early detection, new antibiotics, etc. Probably percutaneous GB drainage also helped in this direction. The previous recommendation of operating upon these patients by early emergency cholecystectomy had probably lead to increased mortality. Higher incidence of complications was due to comorbidity and old age(4)(7)(11).

The efficacy of USG and CECT is same in detecting the GB perforation in our series. But USG was done in all patients. In only 44 percent it could detect perforation. Another 56 percent were missed by USG. Out of which another 44 percent were diagnosed by CT Scan. The rest of 12 percent were picked up on laparotomy. This rate of detection by USG is probably low as compared to other studies in the past. The sensitivity of USG in detection of GB perforation been higher has in other studies(9)(12)(13). There must be some reason. Probably the expertise of the sonologist, or small undetectable perforation ,or a small number of

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patients in the study or the odd timing when these USG are done(in the night usually).

Conclusion

Overall we can conclude that a number of improvements in recognition and management of this complication in last few decades which led to decrease in mortaliy (14)(15).

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