Original Article

Routine Histopathological Examination After Cholecystectomy
Md Abu Bakar Siddique¹, Firoz Mahmud², M Fardil Hossain Faisal¹, Md Fazlur Rahman³, Bidhan C Das⁴, Riaz Mahmud⁶.

Abstract

Background: Cholecystectomy is one of the commonest surgeries in medical practice. Sometimes malignant condition cannot be assessed pre-operatively. Histopathology require for tissue diagnosis. Objective: To assess whether the histopathological examination is really needed for all bladder specimens resected for cholelithiasis and cholecystitis. Materials and Methods: This observational study was carried out in the General Surgery Unit, Department of Surgery, Bangabandhu Sheikh Mujib Medical University, Dhaka from May, 2016 to April, 2017. A total number of 95 patients were included in this study. Results: Total of 95 gallbladder specimens were submitted for histopathological examination where 33.7% were males and 66.3 % were females with mean age of 46±12.86 years. Chronic cholecystitis was the most common finding in 91.6% of cases whereas Xanthogranulomatous 2.1%. Six of the gall bladders showed adenocarcinoma (6.3%), of which four had changes on ultrasound and macroscopic gall bladder analysis (MGAS) disturbances were found in 5 cases and 1 case was found incidentally on histopathological examination. On ultrasound, only four (66.66%) and per-operative macroscopic examination by surgeon only 5(83.3%) had a clue of carcinoma. Conclusion: It could be concluded that, routine histopathological examination of gallbladder after cholecystectomy is necessary as USG sometimes can not differentiate neoplastic lesion from inflammatory one.

Keywords: Cholecystectomy, histopathology, gall bladder carcinoma.

Introduction

Gallstones are the most common biliary pathology. It is estimated that gallstones affect 10-15% of the population in western societies. In Asian population its prevalence is around 3-5%. Four out of 100 patients with gallstones present with symptoms ranging from simple biliary colic to complications related to it. Laparoscopic cholecystectomy is now a recommended gold standard treatment for symptomatic gall stone patients. It has been a point of discussion that patients with incidental histopathological finding of gall bladder malignancy have suspicious features on investigations and preoperative and per-operative findings.

Materials and Methods

The present study was carried out at the department of general surgery in Bangabandhu Sheikh Mujib Medical University, Dhaka over a period of one year from May, 2016 to April, 2017. Ninety five patients with the diagnosed of cholelithiasis and cholecystitis were included in this study. Disturbances at macroscopic gall bladder analysis (MGAS) disturbances were found in 5 cases and 1 case was found incidentally on histopathological examination. On ultrasound, only four (66.66%) and per-operative macroscopic examination by surgeon only 5(83.3%) had a clue of carcinoma. It could be concluded that, routine histopathological examination of gallbladder after cholecystectomy is necessary as USG sometimes can not differentiate neoplastic lesion from inflammatory one.

Keywords: Cholecystectomy, histopathology, gall bladder carcinoma.

DOI: https://doi.org/10.3329/kyamcj.v10i4.45716

1. Medical officer, Sreepur health complex, Gazipur, Bangladesh.
2. Assistant Professor, department of Surgery, Monno Medical College Hospital, Manikgonj, Bangladesh.
3. Assistant Professor, Department of Surgery, Khwaja Yunus Ali Medical College Hospital, Enayetpur, Sirajgonj. Bangladesh.
4. Phase B Resident, General surgery, Bangabandhu Sheikh Mujib Medical University, Bangladesh.
5. Associate Professor, Department of Hepato-biliary and Pancreatic surgery, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh.
6. Assistant Professor, Taherunnessa Medical College Hospital, Tongi, Gazipur, Bangladesh.

Correspondent: Dr. Md Abu Bakar Siddique, Medical officer,Sreepur health complex, Gazipur, Bangladesh.
Email: dr.masumsurgeon@gmail.com . Phone: 01712892541
In the second step, the gall bladder was incised longitudinally and the mucosa was irrigated, observed and palpated. During the serosa and mucosa exploration, the surgeon was look for abnormalities that included (masses, indurations, thickness, papillary, nodularity, mucosal irregularity). Photograph of the gall bladder was taken and saved for further analysis of macroscopic data. Histopathological analysis after the MGAS, the gall bladder was placed in formaldehyde and sent to the pathology department. The pathologist had no knowledge of the macroscopic gall bladder analysis performed by the surgeon/resident. A proper report was prepared and information was given to the treating surgeon/resident.

Results

The mode of age distribution of the patients was in 41-50 years age range. The mean age of the patients is 46.33 years. Female were predominant 63(66.3%) and male 32(33.7%). maximum 87 (91.6%) patients had chronic cholecystitis followed by 6 (6.3%) patients had adenocarcinoma and 2 (2.1%) patients had Xanthogranulomatous (Table I). malignancy was higher in male (83.3%) than female (16.7%), malignancy was higher among the patients above 50 years old. USG shows abnormal feature in 4 malignant cases out of 6 and 2 cases having no feature suspicion on malignancy (Table II). Out of 6 cases 5 had abnormal feature on macroscopic examination by surgeon but one had no such feature that was confirmed by histopathology (Table III), sensitivity, specificity, positive predictive value, negative predictive value and accuracy of surgeon's per-operative opinion in the diagnosis of malignancy in gall bladder are 83%, 80%, 33%, 86% and accuracy of surgeon's per-operative opinion in the diagnosis of malignancy in gall bladder are 83%, 80%, 33%, 86% and 81% respectively (Table IV).

Discussion

Gall bladder carcinoma is an aggressive disease with late presentation, rapid progression, early recurrence and dismal outcome. Available literature reveals that 0.3% to 2.85% of the patients who undergo cholecystectomy for presumed benign disease are found to have carcinoma of gall bladder. Mean age of the patients is 46.33 ± 12.85 years and age range 20-70 years. This is in accordance with study conducted by Khan et al.5 shows mean age was 46.22 ± 10.15. In our study shows that most of the patient were female. Female 63(66.3%) and male 32(33.7%). This is in accordance with study conducted by Khan et al, Almuslamani et al, Talreja et al.7,8 where malignancy was found 6.15%. Some studies from other areas of Pakistan and India have reported even higher percentages (i.e. 6% to 11%) of such patients with gall bladder carcinoma.9 These large differences in the frequencies may be due to some geographical and environmental factors.

Malignancy was significantly higher among the patients above 50 years old. Mean age of the malignancy and non malignancy cases were 55.0 ± 4.47 and 45.75 ± 13.04 years there was no significant difference between two groups. Older age group seems to have higher predilection for development of carcinoma gall bladder. This is in accordance with study conducted by Ahsan et al8 in where malignancy over 50 years. Talreja et al7 where average age of patients was 61.5 years, Khan et al5 shows mean age 68.5.

In our study shows histopathological findings of the gall bladders of the study subjects. Maximum 87 (91.6%) patients had chronic cholecystitis followed by 6 (6.3%) patients had adenocarcinoma and 2 (2.1%) patients had Xanthogranulomatous. This is in accordance with study conducted by Ahsan et al8 in where malignancy was found 6.15%. Some studies from other areas of Pakistan and India have reported even higher percentages (i.e. 6% to 11%) of such patients with gall bladder carcinoma.9 These large differences in the frequencies may be due to some geographical and environmental factors.

In our study Malignancy was significantly higher in male (83.3%) than female (16.7%). Similar study conducted by Darmas et al11 in where Malignancy was significantly higher in male (83.3%) than female (16.7%), Elshaer et al12 in where men 72% women 28%. But female patient were found more in study conducted by Sajjad et al,13 Bawahab et al.14

### Table I: Histopathological findings of the gallbladders of the study subjects (n=95)

<table>
<thead>
<tr>
<th>Histopathological findings</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic cholecystitis</td>
<td>87</td>
<td>91.6</td>
</tr>
<tr>
<td>Xanthogranulomatous</td>
<td>2</td>
<td>2.1</td>
</tr>
<tr>
<td>Adenocarcinoma</td>
<td>6</td>
<td>6.3</td>
</tr>
</tbody>
</table>

### Table II: USG findings of gallbladders in positive and negative malignancy (n=95)

<table>
<thead>
<tr>
<th>USG findings</th>
<th>Malignant (n=6)</th>
<th>Nonmalignant (n=89)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>2 (33.3)</td>
<td>57 (64.0)</td>
<td></td>
</tr>
<tr>
<td>Abnormal (Thickened wall,contracted)</td>
<td>4 (66.7)</td>
<td>32 (36.0)</td>
<td>0.195</td>
</tr>
</tbody>
</table>

### Table III: Macroscopic features of gallbladder in positive and negative malignancy (n=95)

<table>
<thead>
<tr>
<th>Macroscopic features</th>
<th>Malignant (n=6)</th>
<th>Non-malignant (n=89)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>1 (16.7)</td>
<td>74 (83.1)</td>
<td></td>
</tr>
<tr>
<td>Abnormal (Thickened wall, Nodular, Focal mass)</td>
<td>5 (83.3)</td>
<td>15 (16.9)</td>
<td>0.001</td>
</tr>
</tbody>
</table>

### Table IV: Validity parameters of surgeon's opinion in the diagnosis of malignancy in gall bladder

<table>
<thead>
<tr>
<th>Validity parameters</th>
<th>Percentage</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity</td>
<td>83%</td>
<td>5.3–100.0</td>
</tr>
<tr>
<td>Specificity</td>
<td>80%</td>
<td>98.9–100.0</td>
</tr>
<tr>
<td>Positive predictive value (PP)</td>
<td>33%</td>
<td>5.3–100.0</td>
</tr>
<tr>
<td>Negative predictive value (NP)</td>
<td>86%</td>
<td>98.9–100.0</td>
</tr>
<tr>
<td>Accuracy</td>
<td>81%</td>
<td>97.9–100.0</td>
</tr>
</tbody>
</table>
In our study 4 out of 6 malignant cases had thick wall gall bladder in USG, in comparison of USG findings of the gall bladders in positive and negative malignancy there is no significant difference between malignancy and nonmalignant cases. This is in accordance with study conducted by Byars and pursnani. Five out of seven had thick wall gall bladder on USG, Ahsan et al shows thick wall gall bladder 10 out of 16 malignant case that indicate thick wall gall bladder one of the most important risk factor and should be consider for histopathological examination.

In malignancy cases, 4 (4.21%) had thickened wall, 1 (1.05%) had focal mass 1 (1.05%) had no macroscopic abnormality, identified on histopathology but in non malignancy cases, maximum 72 (80.9%) had normal features followed by 15 (16.9%) had thickened wall and 2 (2.2%) had nodular gall bladder. Similar study by Tiwari et al shows gallbladder cancer was found to be 1.25% of total gall bladder specimen following histopathology. Talreja et al shows 14 (0.73%) incidental carcinomas with no gross abnormalities, subsequent staging revealed 7 adenocarcinomas in stage IA, 3 adenocarcinoma in stage IIA and 4 adenocarcinomas in stage III. Kalita et al shows incidentally detected cases comprised 0.44%, in contrast Byars et al shows all patients (100%) satisfied the criteria in the study for being referred to histology on suspicion of cancer on the basis of intra-operative macroscopic abnormalities. Mittal et al reported on a 10-year retrospective series in which they detected 13 gallbladder carcinomas. Suspicion was raised pre-operatively and/or intra-operatively in every case. In our study sensitivity, specificity, positive predictive value, negative predictive value and accuracy of surgeon’s opinion in the diagnosis of gallbladder malignancy are 83%, 80%, 33%, 86% and 81% respectively. This is in accordance with study conducted by González et al.

Conclusion
The frequency of gall bladder carcinoma in our population was much higher than other parts of the world. Ultrasonography could miss malignant lesions and macroscopic examination by surgeon could miss malignant lesions. Procedure of careful macroscopic examination of surgeon describe in this study could detect malignancy up to pathological stage pT1b onward. Therefore, present study highlights the importance of careful gross and histopathological evaluation of all the gall bladder specimens.

Acknowledgement
We are extremely grateful to Professor Dr. Zulfiqur Rahman Khan, Chairman, department of surgery and Dr. Bidhan C. Das, associate professor of Hepato-biliary and Pancreatic surgery for their endless support during the study period.

References


