Original Article

Surgery

Incidence of Carcinoma in Gall Stone Disease and its Effect on People

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ABSTRACT

Background: Incidence of carcinoma of gallbladder is about 1% of cholecystectomy specimens sent to histopathologist for gall stone disease. Nowadays, in our institution it is routine, we are sending all gallbladder specimens for histopathology, for ruling out the incidental gallbladder carcinoma. Aim of our study is to assess the need of routine histopathology of all gallbladder specimens, in which cholecystectomy (laparoscopic / open) done because of gallstone disease.

Study Design: Retrospective study

Place and Duration of Study: This study was conducted in Surgical Department of Ghulam Muhammad Mahar Medical College Sukkur and Hira Medical Centre Sukkur with the time duration of nine years from 2004-2012.

Patients and Methods: This study containing all patients of gall stone disease had gone through cholecystectomy in the duration of nine years review of all patients in surgical departments of Shaheed Muhtarma Benazir Bhutto (Ghulam Muhammad Mahar Medical College Sukkur) and Hira medical centre sukkur. Hospital record of all patients was received, data, pre-operative image (ultrasound and computed tomography) finding, intra-operative, macroscopic appearance of specimen and histopathological reports were collected. Surgeon's impression of thickened gall bladder and other gross examination findings were noted from operative notes along with gross histopathological reporting.

Results: Total of twelve hundred (1200), patients were gone through cholicystectomy for gallbladder stone disease. Carcinoma gallbladder was detected only in ten patients (0.833%) and macroscopic abnormalities were found in all 10 same patients. Patients on macroscopic examination found normal gallbladder, having no evidence of carcinoma gallbladder.

Conclusion: In all cases of cholecystectomy for gall bladder stone disease, gall bladder should be incised (opened) and examine in detail for macroscopic abnormalities. Histopathology selection should be recommended for those specimens, having gall bladder wall thickening above 3mm, mucosal ulceration, polypoidal lesion, nodularity of mucosa or preoperative suspicious of malignancy. This selection policy will reduce the cost of patients and pathologist workload without compromising patient's treatment.

Key Words: Incidence of carcinoma gallbladder, routine histopathology of specimens.

INTRODUCTION

Cholilithiasis accounts 10-15% of western people, [1, 2] with incidence of 1 in 200 per year. In india, studies were conducted and they found 6-12% incidence with 9.6% women and 3.1% men.[3] Gall bladder stones were mostly silent but, only 1-4% become symptomatic yearly. Gold standard treatment for symptomatic gall bladder stone is laparoscopic cholecystectomy. Incidence of carcinoma gall bladder is 0.5-1.1% of laparoscopic cholecystectomy done because of gall bladder stone disease, [4-8] at the same time 74-92% patients have gallbladder stone in cases of carcinoma gall bladder.

It is routine and recommended practice of all surgeons that all specimens should be sent for histopathological reporting, instead of knowing that, it is rare disease but aggressive gastro-intestinal malignancy with 5 years survival rate not exceeding above 5%. Keeping in mind that all patients of incidental gall bladder carcinoma have certain features on pre-operative imaging and intra operative grass examination finding.[10-13] some studies has given conclusion that "Gall bladder carcinoma is always associated with macroscopic finding, therefore histopathology should be restricted on positive finding specimens for saving cost and work load on pathologist."[30]

Aim of our study is to assess the necessity of histopathological reporting in laparoscopic / open cholecystectomy for gall stone disease.

PATIENTS AND METHODS

This is retrospective study containing all patients of gall stone disease had gone through cholecystectomy in the duration of nine years from 2004-2012 review of all patients in surgical departments of Shaheed Muhtarma Benazir Bhutto (Ghulam Muhammad Mahar Medical College Sukkur) and Hira medical centre sukkur. Hospital record of all patients was received, data, pre-operative image (ultrasound and computed tomography) finding, intra-operative, macroscopic appearance of specimen and histopathological reports were collected. Surgeon's impression of thickened gall bladder and other gross examination findings were noted from operative notes along with gross histopathological reporting. All gall bladder specimens

were incised and findings were noted. Gall bladder wall thickness ranging 1-2mm was considered normal. If thickness is 3mm or above this on ultrasound or surgeons wording "thick wall gall bladder" were considered thick. Staging of carcinoma gall bladder done with reference of AJCC, TNM staging.

RESULTS

One thousand two hundred nine (1209) patients with female 60% had gone through cholecystectomy because of gall stone disease during study period. Record of nine patients was missing, so those were excluded from our study. Age of patients was ranging from 14-84 years with mean 55.6.

Histopathological report of all 1200 patients was reported by histopathologist is mentioned in table: 1 that is, Chronic calculus cholicystitis in 837, cholesterosis in 100, Xanthogranulomatosis cholicystitis in 28, Acute cholicystitis in 200, Adenoma/ metaplasia in 4, Dysplastic changes in 1, miscellaneous diagnosis was made in 20, and in 10 cases Carcinoma of gall bladder was found. Out of 10 cases of carcinoma of gall bladder 3were male and 7 were female, age ranging from 30-72 years and mean is 51.4. Three patient were selected for conventional cholecystectomy and remaining seven for laparoscopic cholecystectomy. In seven patients of laparoscopic cholecystectomy three were converted into open cholecystectomy because of dense adhesion and inability to find out callot triangle anatomy and remaining four were successfully operated laparoscopically. Pre-operativly sonologist has detected thick wall gall bladder only in 3(30%) cases but macroscopic abnormalties were found in all ten cases of carcinoma of gall bladder.

Table No.1: Histopathological reporting of gall bladder specimen

Diagnosis	Number
Chronic calculus cholecystitis	837
Cholesterosis	100
Xanthogranulomatous cholicystitis	28
Acute cholicystitis	200
Metaplasia/adenoma	04
Dysplasia	01
Carcinoma	10
Miscellaneous	20

Table No.2: Age and Sex-wise detail of malignant cases

No	Age/sex	GB ultrasound	surgery	Macroscopic finding	pathology	TNM stage
1	55/F	Normal	Lap: chole:	Thick wall gall bladder 4mm	Moderate differentiated	T2
2	72/F	Normal	Lap: conv:	Thick wall gall bladder 5mm	Moderate differentiated	T2
3	30/M	Thick wall	Open	Thick wall gall bladder 6mm	Poorly differentiated	T3
4	50/F	Normal	Lap: chol:	Nodular mucosa	Moderate differentiated	T2
5	60/F	Normal	Lap: chol:	Thick wall gall bladder 4mm	Moderate differentiated	T2
6	62/M	Normal	Lap: chol:	Thick wall gall bladder 3mm	Well differentiated	T2
7	58/F	Normal	Lap: chol:	Mucosal ulcer	Carcinoma in situ	Cis
8	55/F	Normal	Lap: conv:	Thick wall gall bladder 3mm	Moderate differentiated	T2
9	45/F	Thick wall	Open	Thick wall gall bladder 6mm	Well differentiated	T3
10	65/M	Thick wall 3mm	Open	Thick wall gall bladder 5mm	Moderate differentiated	T2

As above mentioned table eight patients 80% have thick wall gall bladder, one patient 1% has mucosal ulceration, and one patient 1% has nodularity of mucosa. One patient 1% has carcinoma in situ, seven patients have T2 lesion and two had T3 lesion.

One important thing was noted that no any case of histopathological detected carcinoma of gall bladder had normal looking gall bladder specimen finding.

Discussion: Most common malignancy of extra hepatic biliary tree is carcinoma gall bladder, [14] and their presentation is always at advance stage, and has a bad prognosis. Treatment and prognosis of carcinoma gall bladder is depending on staging. T_{is} and T_{1a} is adequately treated by simple cholecystectomy.[6, 7, and 15. 16] At stage T_{1b} there are two school of taught, one follows simple cholicystectomy[17,18] while other by radical cholecystectomy.[6,7,16] More advance stage tumor may be treated by radical resection if an R_0 resection can be achieved, or by palliative treatment alone.[16] Adjuvant therapy have no success role in treatment as well as in survival.

It is our routine practice to send every specimen of gall bladder for histopathology in which surgery is performed because of gall stone disease. Reason behind that practice is incidence of carcinoma gall bladder which is about 0.5-1.1% [4, 8]and that is not detected pre as well as intra- operative examination. Early stage carcinoma gall bladder is difficult to distinguish from chronic cholicystitis, because both have same presentation, as thickened gall bladder wall.[20]

In our study which consists of 1200 patients, incidence of carcinoma gall bladder is found in10 cases (0.833%) and all of these patients have evidence of macroscopic findings concerned to disease in the form of all

thickening, nodularity, or ulceration, and we have not found any incidental carcinoma gall bladder in those cases which had macroscopic normal finding.

Royal college of pathologist recommend routine histopathology of all gall bladder specimen because they follow [as significant pathology may present with normal gross morphology].[9] Limited research material is available that follows the above school of thought but in against of that thought, lot of material is available.[10-13]

Dix et al[12] study, which consist of 1308 patient have found only 5 cases (0.38%) of carcinoma gall bladder and all five had remarkable abnormal macroscopic finding on gross examination. So, author concluded that selective approach to histopathology of gall bladder is more evidence based. Bonzoua et al[11] study covering 2890 patients and they found only 5 cases of malignancy (0.17%) and all had macroscopic finding of malignancy. Darmas et al.[10] have also conclusion of "more selective policy to gall bladder histology would not miss any malignancy because it is cost effective and reduce work load on pathologist. Same type of conclusion is made by Tayler et al.[13]

By reviewing all histopathological reporting of carcinoma gallbladder, we found that gall bladder cancer can be grouped infiltrative, nodular and mixed form.[21, 22] Thickening of gall bladder wall represent infilterative form, polypoidal lesion with frond like projection in papillary form and circumcised masses present nodular form.[21] After selecting the patients on gross examination finding, we limited the patient for histopathology and treated accordingly. Now concerned was raised about dysplasia and early mucosal carcinoma gall bladder, so in these cases simple cholecystectomy is curative treatment,[6,7,15,16] and radical resection do not Improve survival. So this group of patients has received appropriate treatment and do not require any further intervention.

Mirrizi syndrome and Xanthogranulomatous cholicystitis have shown the increased association with carcinoma gall bladder. Prasad et al[25] shows 5.3% association of carcinoma gall bladder with Mirizi syndrome. Rao et al, [23] study shows 6% association between xanthogranulmatous cholicystitis and gall bladder carcinoma whereas, Kwon et al[24] have reported 10% association. It is observed that incidence of carcinoma gall bladder is higher in certain geographical areas such as, Karachi to Kalkatta belt in Indian subcontinent[26, 28] and that need further study for evaluation of type and cause but, patients in our group belongs to different geographical area.

Routine histopathological reporting is expensive and adding workload on pathologist[29] certain studies had shown that up to 25-40% of all laboratory test may be unnecessary[29] and in absence of macroscopic abnormalities, routine histopathological reporting should be omitted. Average cost of processing histopathology of one gall bladder specimen by Agha Khan Laboratory in sukkur is PKR 4500 (approximately 45 US$; 1US$=100PKR) and pathologist spent time on each specimen is about 20 minutes. Eight hundred thirty seven (69.75%) of our patients had macroscopically normal gall bladder. Thus by selecting histopathology we can save 3766500 PKR (37665 US$) during this study. On other hand by selecting histopathology, we can reduce workload on pathologist resulting in saving of 279 working hours.

In our study there were ten cases of carcinoma gall bladder and all have sonological as well as macroscopical finding of malignancy. If very selective policy is adopted for histopathological reporting, we can save lot of money. As the estimated cost of diagnosing one carcinoma gall bladder is 163350 which are 23 times less than amount used in routine histopathology. The major limitation of our study was its retrospective type and in future prospective study may be more appropriate for recommendation to use selective histopathology in cases of cholecystectomy for gall bladder stone disease.

CONCLUSION

In all cases of cholecystectomy for gall bladder stone disease, gall bladder should be incised (opened) and examine in detail for macroscopic abnormalities. Histopathology selection should be recommended for those specimens, having gall bladder wall thickening above 3mm, mucosal ulceration, polypoidal lesion, nodularity of mucosa or pre-operative suspicious of malignancy. This selection policy will reduce the cost of patients and pathologist workload without compromising patient's treatment.

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