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Original Research Article

Study of cholecystectomy specimens over a period of one year in tertiary care centre

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ABSTRACT

Background: Gall bladder is among the most common surgically resected organs with various neoplastic and non-neoplastic lesions. Chronic chocystitis is the most commonly encountered lesion in India and worldwide and 78-90% are associated with calculi. Gall bladder cancer constitutes 0.5% to 1.09% including both suspected and incidental diagnosis. The objective of present study was to evaluate the various lesions of Gall bladder and the importance of grossing and histopathological examination of every cholecystectomy specimen in order to diagnose the incidental gall bladder cancer (IGBC).
Methods: A Retrospective study of cholecystectomy specimens for a period of one year, May 2015 to June 2016 was carried out. 252 Cholecystectomy specimens were received and all of them subjected for histopathological examination and the sections stained with routine Hematoxylin and Eosin stain.
Results: Commonest age group being 21-40years (41%) followed by 41-60years (40%). Gall bladder (GB) lesions are more common in females 175 (70%) and M:F ratio 1:2.2.Most commonest lesions were Chronic calculous cholecystitis constituting 155 cases (61%) followed by chronic cholecystitis 52 cases (21%). Cholelithiasis was associated with both Acute and Chronic Cholecytitis constituting 67%. Acute calculous cholecystits constitute 13 cases (5%) and Acute cholecystitis constitutes 10 cases (4%). In Congenital anomalies, 3 cases (1.2%) of Biliary atresia and 4 cases (1.2%) of choledochal cyst were diagnosed. 4 cases (1.6%) of Gall bladder carcinoma was diagnosed. Among these 3 cases were incidental gall bladder carcinoma (IGBC).
Conclusions: cholecystectomy specimens should be subjected for histopathological examination to study various lesions of GB and to detect unsuspected incidental gall bladder cancer as cholecystectomy itself is the treatment for gall bladder cancer and also other lesions of GB associated with cholelithiasis.

Keywords: Cholelithiasis, Cholecystectomy, Histopathology, Gall bladder carcinoma

INTRODUCTION

Gall bladder cancer (GBC) is the most common cancer of the biliary tract worldwide.[1] GBC is an aggressive malignancy with no well-defined signs and symptoms and it is the 5th commonest cause of mortality due to cancer and 5year survival rate is less than 5% in late stage.[2,3] Incidental GBC (IGBC) refers to GBC not suspected before or at operation and not even on gross examination of the GB specimen and is only dected for the first time on histopathological examination (HPE). In various studies the Incidence of IGBC has been reported from 0.3% -1.5%.[4] The overall prognosis of GBC is poor but IGBC is associated with better outcomes. IGBC has better prognosis as it is detected on histopathological examination (HPE) at an early stage and radical cholecystectomy being the standard treatment for IGBC. Early stage tumors for which surgical resection provides

the greatest benefit are difficult to diagnose preoperatively and missed intraoperative examination of cholecystectomy specimens. Hence it has been the standard practice to submit all cholecystectomy specimens to routine HPE to exclude GBC. In present study, we encountered 4 cases of GBC and among these 3 cases were of IGBC.

Symptomatic cholelithiasis is a common surgical problem and 10-15% of the adult western population develop gallstones and 1-4% a year develop symptoms.[5] The symptom profile of cholelithiasis vary from acute disease with acute biliary colic, acute cholecystitis, empyema and gangrenous perforation. The treatment being cholecystectomy. The most important risk factor for GBC is Cholelithiasis in 95% cases. Hence all the cholecystectomy specimens should be subjected for HPE to confirm the clinic radiological diagnosis GBC and to identify IGBC.

METHODS

Present study included 252 cases of cholecystectomy specimens that we received in present department of Pathology, Andhra Medical College, Visakhapatnam, Andhra Pradesh, India for a period of one year from May 2015 to June 2016. Relevant clinical details were noted. Gross specimens were examined and morphological features noted. Full thickness sections were given from neck, fundus, and body and additional sections were given from suspected areas or mass lesions and subjected to conventional processing and sections were stained with hematoxylin-eosin (H&E) and studied for various lesions of GB.

RESULTS

Total 252 Cholecystectomy specimens were studied for various GB lesions. Most common age group being 21-40years (41%) (Table 1) followed by 41-60years (40%) and the median age 40.6years. GB lesions more common in females, 175 cases out of 252 which constitutes 70% (Table 2) and M:F ratio is 1:2.2.

Table 1: Age wise distribution of gall bladder lesions.

Age (years)	Total	Percentage
0-20	16	6%
21-40	104	41%
41-60	100	40%
61-80	32	13%
Total	252	100%

Out of 252 cases of GB lesions, commonest lesion being Chronic Calculous Cholecystitis accounts for 155 cases (61%) (Table 3) followed by chronic cholecystitis 52 cases (21%) (Table 3).

Chronic Cholecystitis is usually associated with Cholelithiasis (Figure 1) in more than 90% of cases and Acalculous occurs due to repeated bouts of acute cholecystitis. Grossly chronic cholecystitis shows thickened GB wall and histologically shows fibrosis of wall and lymphocytic infiltrates (Figure 2).

Table 2: Sex-wise distribution of gall bladder lesions.

Sex	Number
Male	77 (30%)
Female	175 (70%)
Total	252 (100%)

2 cases of Xantho-granulomatous Cholecystitis observed in our study. One case presented in M 65 years with Cholelithiasis and mucocele and histologically showed dense fibrosis, foamy macrophages, foreign body giant cells. Other case presented in M 24 years with Cholelithiasis. In present study, acute calculous cholecystitis accounts for 13 cases (5%), Acute Cholecystitis 10 cases (4%), Acute on Chronic Cholecystitis accounts for 4 casses (1.6%). Acute suppurative cholecystits 2 cases (0.8%) (Table 3).

Table 3: Various lesions of gall bladder.

Type of lesion	No. of cases	Percentage
Acute calculous cholecystitis	13	5%
Acute cholecystitis	10	4%
Acute on chronic cholecystitis	4	1.6%
Acute suppurative cholecystits	2	0.8%
Chronic calculous cholecystitis	155	61%
Chronic cholecystitis	52	21%
Xanthgranulomatous cholecystitis	2	0.8%
Biliary atresias	3	1.2%
Choledochal cysts	4	1.6%
Polyps	3	1.2%
Adenocarcinomas	4	1.6%
Total	252	100%

Figure 1: Cholecystectomy specimen showing gall bladder with pigment stones.

On gross examination in Acute Cholecystitis GB showed edematous and congested mucosa. Histologically there was edema, hyperaemia, extravasation of RBC and fibroblastic proliferation (Figure 3).

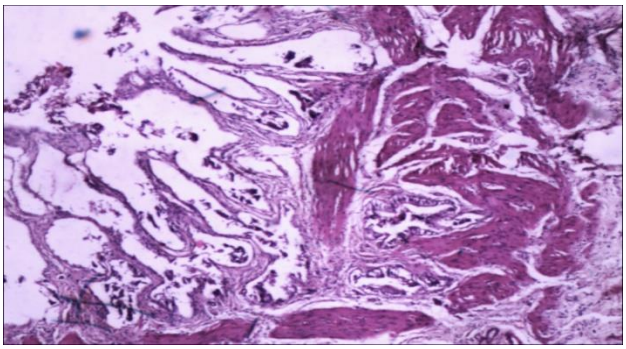

Figure 2: Chronic cholecystitis showing Rokitansky-Aschoff sinus, subepithelialfibrosis and hypertrophy of muscularis with mononuclear inflammatory cell infiltrates insubepithelial and perimuscular layers. (H&E,40X).

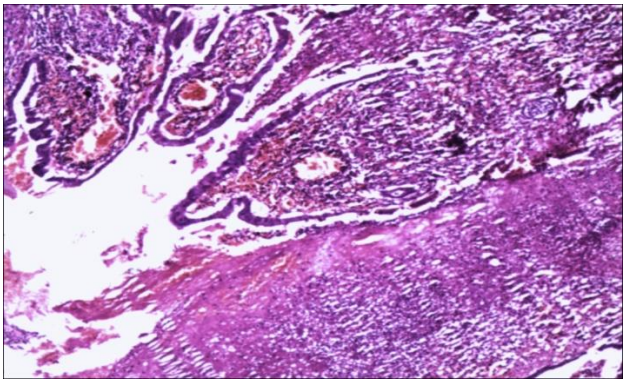

Figure 3: Acute cholecystitis showing mucosal ulceration, neutrophilic exudate, necrosis and congested blood vessels in adjacent mucosa (H&E,100X).

In present study encountered Congenital anomalies of GB like Biliary atresia 3cases (1.2%) and choledochal cyst 4 cases (1.6%) (Table 3). 2 cases of Biliary atresia presented in 2 months and one case in 84/365 days' infant. Grossly 2-3 cms of grey brown bits were received and on histological examination GB mucosa identified with foci of chronic inflammatory cells in Biliary atresia. Choledochal cyst presented in the age group of 6-8years and clinically with obstructive jaundice. Grossly we received GB with dilated Bile duct and histologically Choledochal cyst showed distortion of mucosal linning with hemorrahges and inflammatory cell infiltrates and GB showed features of chronic cholecystitis.

In present study, Neoplastic lesions of GB includes 3 cases of Polyps (1.2%) (Table 3) and 4 cases (1.6%) (Table 3) of Adenocarcinoma of GB. Polyps of GB presented Grossly as 3x3 cm Polypoidal mass attached to the fundus of GB. Histologically Chronic Cholicystitis with Poly showed fibrous tissue with organized hematoma. Poyps of GB are three types-cholesterol polyps, inflammatory polys and adenomatous polys. Inflammatory polyps are associated with chronic cholecystits. All the three cases in our study were Inflammatory polyps.

Figure 4: Gall bladder adenocarcinoma showing irregular grey white growth invading the entire wall and filling the lumen near the fundus and body.

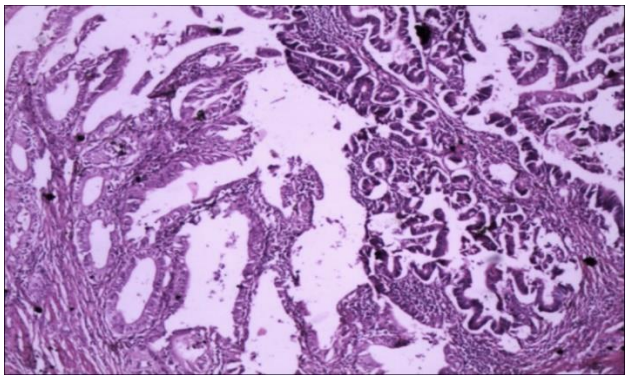

Figure 5: Photomicrograph of well differentiated adenocarcinoma gall bladder showing tubular glands of variable sizes lined with atypical columnar cells. (H&E,40X).

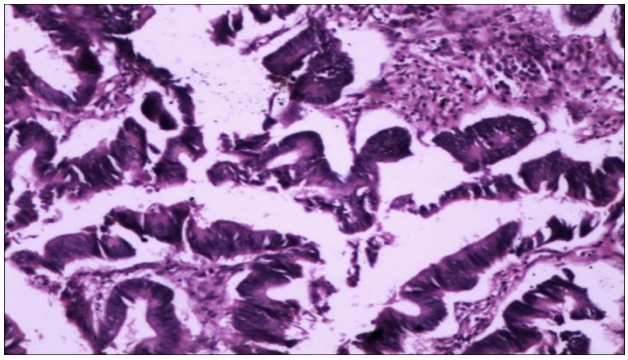

Figure 6: Adenocarcinoma gall bladder showing nuclear crowding and stratification exhibiting marked pleiomorphism. (H&E,100X).

In present study Adenocarcinoma of GB (Figure 4) includes 4 cases (Table 3). 3 cases presented in females

and one case in male. In females presented at 48years,55years and one at 27years age group and all three presented clinically with gall stones. Male patient presented at 31years with empyema Gall bladder. 3 cases grossly showed GB wall thickening and histologically diagnosed as well differentiated adenocarcinoma (Figures 5-8) There were three cases of Incidental GB Carcinoma (IGBC). In one case, grossly there was thickened GB wall with friable growth. 3 cases were associated with Cholelithiasis.

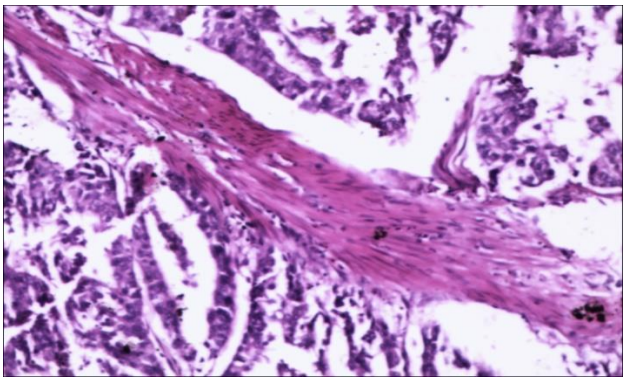

Figure 7: Adenocarcinoma gall bladder showing tumour cells invading the muscularis (H&E,100X).

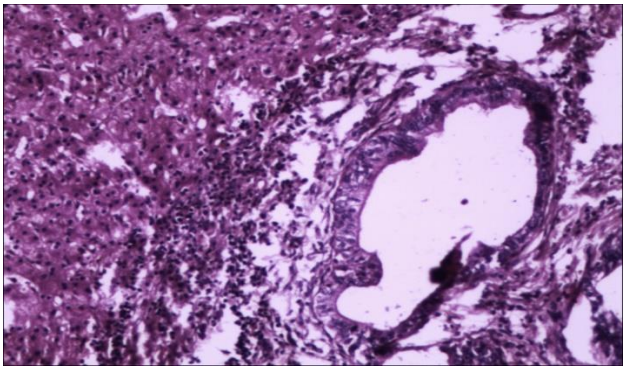

Figure 8: Photomicrograph of adenocarcinoma gall bladder showing tumour cells invading the liver. (H&E,100X).

Table 4: Cholelithiasis associated with gall bladder lesions-177cases (70%).

Type of lesion	No. of cases	Percentage
Acute calculous cholecystitis	13	7.4%
Chronic calculous cholecystitis	155	88%
Xanthomatous cholecystitis	2	1.1%
Acute on chronic cholecystitis	2	1.1%
Acute supparative cholecystitis	2	1.1%
Adenocarcinoma	3	1.7%
Total	177	100%

In present study cholethiasis was associated with 155 cases of chronic calculous cholecystitis, 13 cases of acute calculous cholecystitis, 2 cases of xanthomatous cholecystitis, 2 cases of acute on chronic cholecystitis, 2 cases of acute suppurative and 2 cases of GB Adenocarcinoma.

DISCUSSION

In the present study age-wise distribution of GB lesions show median age of 40.6years and the commonest age group of presentation being 21-40years (41%) followed by 41-60years (40%) (Table 1) similar to study by Harsha Mohan et al.[6]

Sex wise distribution of GB lesions show male:female ratio of 1:2.2 indicating that GB lesions are more common in females constituting 175 cases (70%) out of 252 cases (Table 2). This well correlated with study by Vani BR et al.[7]

Out of 252 cases of GB lesions the commonest lesion in our study being Chronic Cholecystitis which constitutes 82.14% correlated with study by Vani BR et al 85.13% and Zoysamim De et al 88.8%.[7,8] Among these 155 cases (61%) are Chronic Calculous Cholecystitis (Table 3) followed by 52 cases (21%) of Chronic acalculous Cholecystits ((Table 3). Chronic Calculous Cholecystitis correlated with study by Vani BR et al 65.8%and Chronic acalculous chlolecystitis correlated with study by Vani BR et al 19.33%.[7]

In present study 2 cases of Xantho-granulomatous cholecystits observed and both the cases presented with Cholelithiasis. Xantho-granulomatous Cholecystitis is an uncommon form of Chronic Cholecystitis representing 0.7% and 13.2% of GB Lesions.[9,10] It is important to diagnose as it mimicks clinically and radiologically with Carcinoma of GB.[11,12] Presence of calculi or obstruction play an important role and our cases also presented with cholelithiasis.[10,13]

Acute Cholecystitis accounts for 23 cases and 13 cases of these are associated with Cholelithiasis and 10 cases are Acalculous Cholecystits (Table 3). Acute on chronic cholecystitis accounts for 4 cases (16%). Acute suppurative cholecystitis accounts for 2 cases (0.8%).

We encountered 7 cases of Congenital anomalies of GB like 3 cases (1.2%) of Biliary atresia and 4 cases (1.6%) (Table 3) of Choledochal Cyst. In Biliary atresia GB may be absent or represented by fibrous cord without lumen. Present cases presented in 2 months and one case in 84/365 days infant. On histopathological examination GB mucosa was identified with foci of chronic inflammatory cells. Choledochal cyst commonly presents with obstructive jaundice in childhood beyond infancy but it may also present in Adulthood. In present study all four cases presented in 6-8years of age group with obstructive jaundice.

In present study, neoplastic lesions of GB include 7 cases and among these 3 cases are Polyps (1.2%) (Table 3) and 4 cases are Adenocarcinoma (1.6%) (Table 3). Polyps are 3 types: Inflammatory Polyps, Cholesterol Polyps and adenomatous polyps. inflammatory polyps result from chronic inflammation. Cholesterol polyps account for 50% of all polypoid lesions of GB. Adenomatous Polyps are benign epithelial neoplasms with malignant potential. In our study 2 cases Polyps presented in females around 39 years and 40years and one case presented in male 40years. All the three cases Polyps in our study presented grossly as polypoidal mass in the lumen attached to fundus of the GB and on HPE diagnosed as Inflammatory Polyps. Inflammatory Polyps usually associated with chronic cholecystitis and in our study also associated with chronic cholecystitis.

Gall Bladder cancer is uncommon and it is the fifth most common gastrointestinal malignancy. In present study 4 cases of Adenocarcinoma of GB were encountered. Female to male ratio for GB cancer about 3:1 and incidence of the disease peaks in seventh decade of life and in our study 3 cases presented in females and one case in males which accounts for 3:1 and presented at 55years, 48years, 31years and 27years age group. Common risk factor for GB cancer is Cholelithiasis in 75%-90% of GB cancer cases. In present study, all the 3 cases presented with cholelithiasis which accounts for 75%. Grossly 3 cases of GB cancer showed GB wall thickening and one case showed friable growth. Histologically all the four cases diagnosed as well differentiated adenocarcinoma (Figure). Among these 3 cases were Incidental GB carcinoma (IGBC). Several authors have reported that preoperative imaging and intraoperative gross examination may not be reliable in identifying malignancy.[14,15] Loshiriwat et al. reported 24cases of IGBC diagnosed by HPE of 4317 cholecystectomy specimens examined over a peroid of 8 years.[16]Silecchia et al identified six IGBC of which 3 needed further surgical resection.[17] All these studies therefore recommend routine histological evaluation of every GB specimens not only on the basis of the frequency of IGBC but also the requirement for additional treatment needed for IGBC.

Out of 252 case of GB lesions in our study 177 cases associated with Cholelithiasis which accounts for 70%. (Table 4). Cholelithiasis presented in155 cases of Chronic calculous cholecystitis, 13 cases of acute calculous cholecystitis, 2cases of xanthomatous cholecystitis, 2 cases of acute on chronic cholecystitis, 2 cases of acute supurrative cholecystitis and 3 cases of GBC. Obesity is a known risk factor for Cholelithiasis and thus related to GB cancer which occurs in Females, at Forty years of age group.

CONCLUSION

In present setup, the main indication for cholecystectomy is cholelithasis. The incidence of GB cancer is higher in obese and older females due to higher incidence of cholelithiasis. Detection of GB cancer at early stage is not possible through all ancillary techniques such as Ultrasound abdomen as sensitivity of transabdominal ultrasound is up to 70% and Histopathological diagnosis of GB cancer is still the Gold Standard and superior to clinical and radiological examination. Hence every Cholecystectomy specimen should be subjected for histopathological examination to detect unsuspected IGB cancer to have overall better prognosis and survival rate as Cholecystectomy itself is the mainstay treatment for GBC and also for other lesions of GB associated with Cholelithiasis.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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