International Journal of Scientific Research and Management
(IJSRM) ||Volume||5||Issue||03||Pages||5216-5221||2017||
Website: www.ijsrm.in ISSN (e): 2321-3418

Study of Various Histopathological Lesions In Resected Gall Bladder Specimen: A Study In Consecutive 898 Cholecystectomies

Dr.Roshan Verma[1],Dr.Nidhi Binnani[2],Dr.Vanita kumar[3],Dr.Neelu Gupta[4]

[1]Resident,Department of Pathology,S.P.medical college,Bikaner,Rajasthan
[2]Assistant Professor, Department of Pathology,S.P.medical college,Bikaner,Rajasthan
[3]Professor, Department of Pathology,S.P.medical college,Bikaner,Rajasthan
[4]Professor,Department of Pathology,S.P.medical college,Bikaner,Rajasthan

Abstract

The histopathological spectrum of gall bladder is extremely variable depending on sex, race, age, countriesand institutes. There is a wide spectrum of pathologies affecting the gall bladder ranging from congenitalanomalies, calculi and its complications, non inflammatory, inflammatory to the neoplasticlesions.Gallstones are one of the major causes of morbidity and mortality all over the world. Cholelithiasis isvery common particularly in fatty, fertile and female of forty to fifty and affects male and children also.Gallstone may lead to several complications such as cholecystitis, hydrops, mucocele, internal biliary fistulaand carcinoma.Other histological alterations include acute cholecystitis, chronic cholecystitis and its variantssuch as lymphoplasmacytic and sclerosing cholecystitis, follicular cholecystitis, eosinophilic cholecystitisand xanthogranulomatous cholecystitis.Gall bladder carcinoma ranks 6th in the gastrointestinal malignanttumour and due to non specific clinical presentation it is rarely diagnosed at an early stage.Most of theincidentally detected carcinoma are surgically resectable, with a good survival rate. Though simplecholecystectomy is said to be sufficient in stages T_{is} and T_{1a} carcinomas, radical resection is stronglyrecommended in stages beyond that. This reflects the importance of histopathological study of allcholecystectomy specimens, irrespective of clinical impression.Cholecystectomy performed with provisionaldiagnosis of benign disease based on clinical, ultrasonological and computerized tomographic scanningmisses a significant numbers of early malignant lesions of gall bladder, as histopathological detection ofcarcinoma is a gold standard and will continue to be superior to clinical and radiological examination

Keywords:Gall bladder carcinomy,Histopathology,Cholecystectomy,Cholelithiasis

Introduction

Gall bladder is the organ which stores and concentrate the bile which helps in digestion of fat. It is among the most commonly surgically resected organs, and the number of cholecystectomy has increased more than 50% in the past decade[1].Various lesions occur in the gall bladder.The most common is gall stone.

Cholelithiasis appears to be increasing in incidence over past couple of decades in India and western world due to increased intake of fatty and high calorie diet and increased consumption of alcohol, and obesity[2].It is known to produce diverse histopathogical changes in gallbladder ranging from actute or chronic inflammation to metaplasia and even malignancies .Carcinoma gall bladder carries one of the worst of cancer mortalities.India is a highly populated country with a major fraction of population of lower socioeconomic status having less access to proper health facilities, a reason why early stage malignancy may escape detection leading to poor survival.

To avoid such blunders with bad consequences, therefore every cholecystectomy specimen be routinely examined histologically.The purpose of this study is to determine the various histopathological lesions involving the gall bladder.

Materials And Methods

This was a prospective study from January 2015 to December 2016, in the department of pathology, S.P.Medical college, Bikaner, Rajasthan.
Cholecystectomy specimens received were fixed in 10% neutral buffered formalin and embedded in paraffin.Three full thickness sections were obtained from fundus,body, and neck of the gall bladder. Additional sections were taken from any grossly abnormal area if present.Sections were then stained with H and E stain and examined microscopically.

Results

A total of 898 cholecystectomies were received during the period of January 2015 to December 2016.This included open cholecystectomy, laproscopic cholecystectomy, and partially resected specimens.The age of patient ranged from 11 years to 90 years with mean age 44.53 years(Table1).Male to female ratio was 1 : 3.91(Table2). Of these 674 cases (83.4%) had association with stone(Table3).Chronic cholecystitis alone was the most common pathology reported in 679 cases (75.6%), out of which 540 were females and 139 were males, out of 679 cases, gall stone was associated with 508 cases (56.6%).(Fig.1)

Table-1 Distribution of Cases According to Age Group (Years)

Age Group	No. of Cases	Percent
≤20	28	3.1
21-30	199	22.2.
31-40	186	20.7
41-50	181	20.2
51-60	165	18.4
61-70	108	12.0
>70	31	3.5
Total	898	100.0
Mean age (years)	44.53±15.41	

Table-2. Distribution of cases according to sex

Sex	No. of Cases	Percent
Female	715	79.6
Male	183	20.4
Total	898	100.0

Table 3Distribution of Cases According to Stones

Association with Stone	Sex				Total	
	Female		Male			
	No.	%	No.	%	No.	%
No	168	18.7	56	6.2	224	24.9
Yes	547	60.9	127	14.1	674	75.1
	715	79.6	183	20.4	898	100

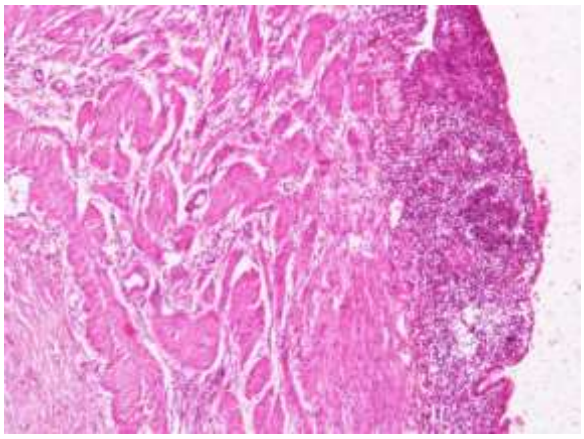

Figure1:Chronic Cholecystitis.(H&E,40X) showing dense infiltrate of closely packed inflammatory cells(lymphocytes,plasma cells and eosinophilic leucocytes).The eosinophilic muscle coat is thick from hypertrophy,and infiltrated by chronic inflammatory cells.
One case of chronic cholecystitis with formation of foreign body giant cell granuloma against vegetable cell was reported.
A total 87(9.7%) patients had acute cholecystitis, out of which 70 cases (7.8%) were associated with stone.
Cholesterolosis was identified in 60 cases (6.7%), of which 54 were females and 6 were males. All cases of cholesterosis were associated with chronic cholecystitits. 41(4.6%) patients had coexisting gallstones, whereas 19(2.1%) were reported to have acalculous cholesterolosis.(Fig.2)

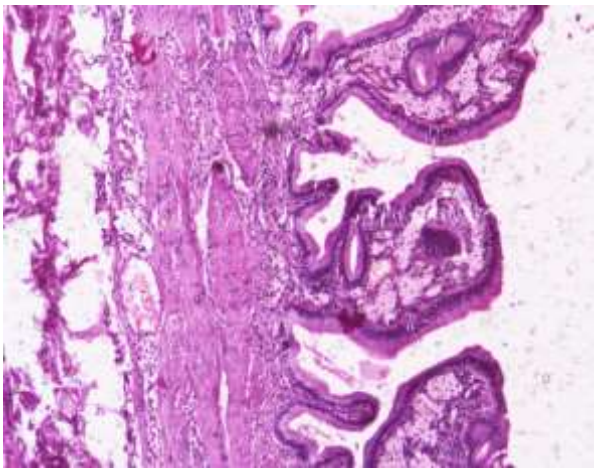

Figure-2: Gallbladder-Cholesterolosis,(H&E,10X)showing numerous foamy macrophases in the lamina propria.

Xanthogranulomatous cholecystitits was reported in 32 cases (3.6%) out of which 28 cases (3.1%) were associated with stone. The mean age was 52.6 years in our study and male to female ratio of 3:1. Grossly this entity showed marked thickening of gall bladder.(Fig.3)

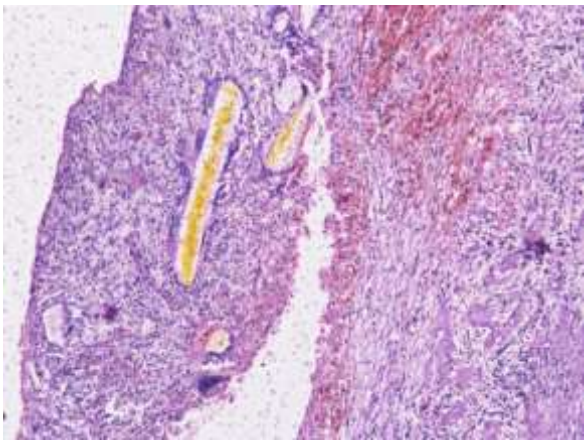

Figure-3:Xanthogranulomatous Cholecystitis.(H&E10x).The inflammatory infiltrate in the thickened gall bladder wall is composed predominantly of foamy macrophases,admixed with foreign-body type giant cells & pigments

Eosinophilic cholecystitis was identified in 15 cases (1.67%) aged between 20 to 60 years. The patients with EC comprised of 9 females and 6 males with median age of 39.8 years. Seven out of 15 cases of Eosinophilic cholecystitis had associated gallstone. One patient had bilious perforation with peritonitis.(Fig.4)

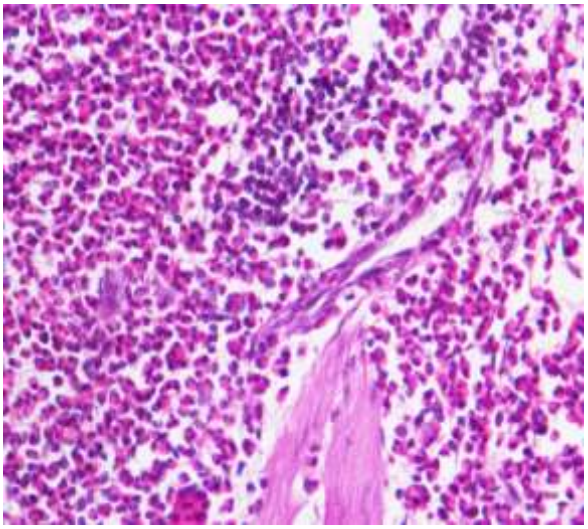

Figure-4: Eosinophilic Cholecystitis .Histopathological slide of patient showing eosinophilic infiltration of gall bladder wall. (H&E,40X)

Follicular cholecystitis was found in 2 cases (0.2%), both of which were female(Fig.5). Adenomyomatosis change was present in 0.1% of case.

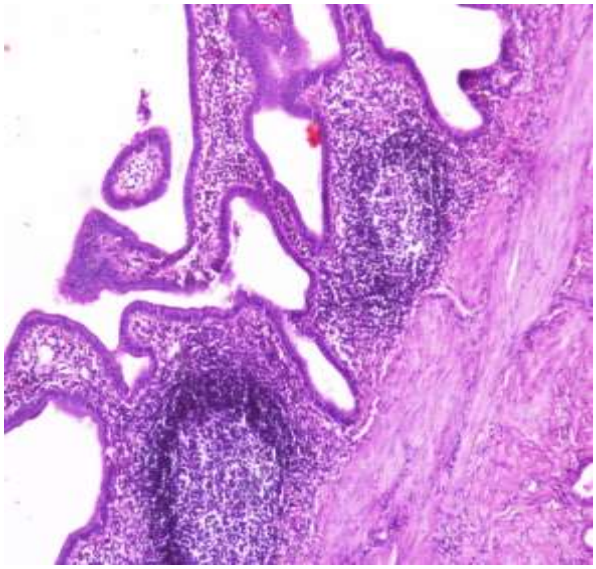

Figure-5:Follicular Cholecystitis.Histopathologial slide of patient showing prominent lymphoid follicles in the lamina propria(H&E,10X).

Twenty one cases (2.3%) of carcinoma were diagnosed out of which 18(2%) were females and 3(0.3%) were males(Table4&5).

Table-4 Clinicopathological features of gall bladder carcinoma found in this study

S.N.	Clinicopathological features	Number of Cases
1.	Incidence	21/898
2.	Female:Male	6:1
3.	Mean Age	44.53±15.41 years
4.	Association with Gall stones	15/21

Table 5.Histological diagnosis of gall bladder carcinoma found in this study

Histopathological Diagnosis	Sex				Total	
	Female		Male			
	No.	%	No.	%	No.	%
Adenocarcinoma	12	1.3	2	0.2	14	1.5
Mucin.Secreting Adenocarcinoma	3	0.3	0	-	3	0.3
Papillary Adenocarcinoma	3	0.3	1	0.1	4	0.4
Total	18	2.0	3	0.3	21	2.3
Mean Age of Carcinoma Patients	44.53±15.41 years					

Among 21 cases of carcinoma, adenocarcinoma not otherwise specified (with well, moderate and poor differentiation) was found in 14 cases, mucin secreting adenocarcinoma in 3 cases and papillary adenocarcinoma in 4 cases.(Fig.6,7,8,9)

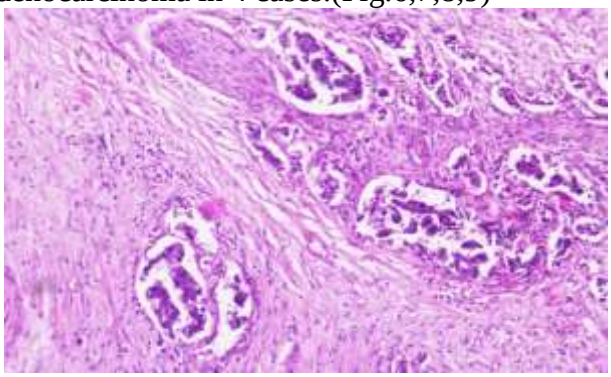

Figure-6: GallbladderAdenocarcinoma(H&E,10X) showing clusters of malignant glands invading the gall bladder wall.

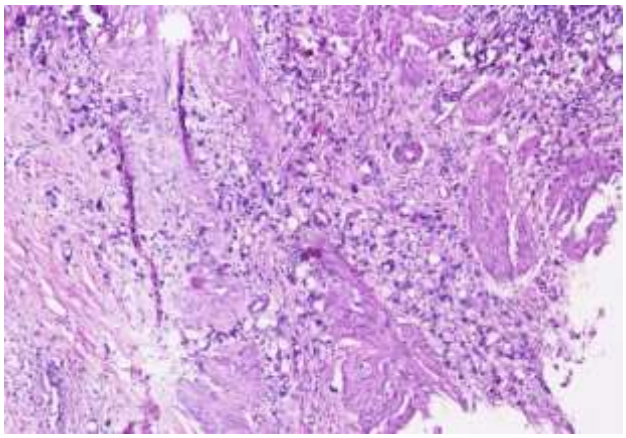

Figure-7: Gallbladder-Mucin secreting Adenocarcinoma (H&E,10X) showing tumour cells in small clusters, invading the gall bladder wall with signet ring appearance due to intracytoplasmic mucin accumulation.

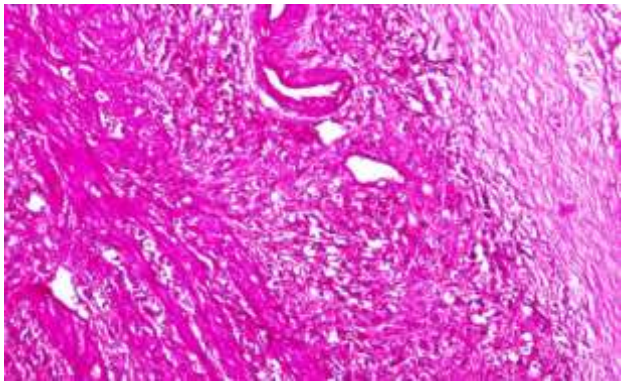

Figure-8;Gallbladder-MucinsecretingAdenocarcinoma(PAS,10X) showing clusters of PAS+ tumour cells invading the gall bladder wall.

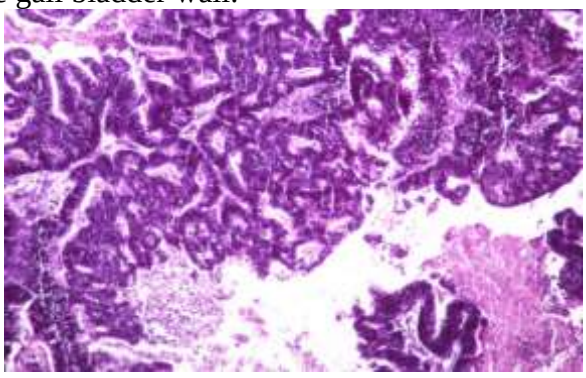

Figure9:
GallbladderPapillaryadenocarcinoma(H&E,10X)showing papillary formation with fibrovascular care covered by malignant cells.There is

significant cytologic atypia with disorganization of the lining epithelium.

On pathological staging, this study revealed T_2 (13 cases, 61.9%) and T_{1b} (7 cases, 33.3%) and T-is (1 case, 4.7%). Perineural invasion was seen in 1 case.

Discussion

In our study, the age of the patients ranged from 11 years to 90 years with mean age 44.53±15.41 years slightly higher than that reported in other studies[3]

The histopathological spectrum of gall bladder disease after cholecystectomy is found to be quite diverse. In present study, lesions of gall bladder were more common in females than in males with a male to female ratio of 1:3.91 which was similar to other study carried out by Rahul et al[4], Asuquo et al[5], Tantia et al[6] and John et al[7], reported male to female ratio of 1:4.8; 1:5, 1:2.8 and 1:4 respectively.

Most of the patients presented with pain upper abdomen, nausea and/or vomiting, which is consistent with findings by Laghari et al[8].

The most common histopathological finding in our study was chronic cholecystitis : 679(75.6%) specimens were reported as chronic inflammation with mucosal ulceration, denudation and wall infiltration by chronic inflammatory cells like neutrophils, macrophages, plasma cells and varying degree of fibrosis. Out of 679 cases of chronic cholecystitis, gall stone was associated with 508 cases (56.6%). A similar study by Memon[9] also reported chronic cholecystitis as major histopathological finding, identified in 64.8% cases.

In the presents series, acute cholecystitis was found in 87(9.7%) of cases out of which 70(7.8%) cases were associated with stone. They were characterized by phlegmanous nutrophilic infiltration with frequent ulcer formation, gangrenous changes, and abscess formations. Two cases showed acute perforation of gall bladder. In a study made by Meirelles-Costa et al[10] in 2010 to determine histological alterations in gall bladder specimens found acute cholecystitis in 174 patients out of 1091 patients (10.3%). Cholesterosis was identified in 60 cases (6.7%) of which 54 were females and 6 were males. All cases of cholesterosis were associated with chronic cholecystitis. 41(4.6%) patients had coexistent gall stones, whereas 19(2.1%) were reported to have acalculous cholesterolosis.Our incidence was slightly low compared to the study of Mohan et al[11] and Tadashi-Terada[12] who reported an incidence of 10.1% and 11% respectively.

In the present study, xanthogranulomatous cholecystitis was reported in 32 cases (3.6%) out of which 28 cases were associated with stone. The mean age was 52.6 years and with female to male ratio of 3:1. It is characterized by diffuse infiltration of macrophages and other inflammatory cells. On macroscopic examination, this entity showed marked thickening of gall bladder.

In a study made by Sujata et al[13] to determine spectrum of histopathological lesion in cholecystectomy specimens found 0.5% cases of follicular cholecystitis. In the present study 2 cases (0.2%) of follicular cholecystitis were found. Our study was slightly lower compared to above study.

The incidence of eosinophilic cholecystitis is low in India. Studies across the world showed its prevalence to be 0.25 to 6.4% with average age of presentation being 37 years[14]. In our study 15 out of 898 cholecystomies patients (1.7%) aged between 20 to 60 years showed eosinophilic cholecystitis. The patients with eosinophilic cholecystitis comprised of 9 females and 6 males with median age of 39.8 years.

In the present study adenomyomatous changes was present in 0.1%. It was associated with acute cholecystitis. This was characterized by many RASs and muscular hypertrophy. No international metaplasia was recognized in the present series.

In our study 21 (2.3%) case of carcinoma out of which 18 were females and 3 were males. Mean age of patients was 44.53 years.

This study revealed T_2 (13 cases 61.9%) and T_{1b} (7 cases 33.3%) and T_{is} (1 case 4.7%). Perinural invasion was seen in 1 case. Histological examination of the tumors revealed findings similar to other study[15]. Among all 21 cases, we found adenocarcinoma not otherwise specified with well, moderate and poor differentiated in 14

cases, mucin secreting adenocarcinoma in 3 cases, and papillary adenocarcinoma in 4 cases.

References

1. Albores-Saavedra J, Menck HR, Scoazee JC, Soenendeo N, Wittekind C, Sriram PVS, Spira B. Carcinoma of the gall bladder and heterohepatic bile ducts. In : Mamilton SR, Aaltonan LA, editors WhO Classificaiton of tumors. Pathology and genetics of tumours of the digestive system. Lyon : IARC Press; 2000 pp 203-214.
2. Marginaghine A, Ciambro M, Baccelliera P et al. Biliary sludge and gallstones in pregnancy: incidence risk factors and naturohistory. Ann Intern Med 1993; 119:116-20.
3. Laghari AA, Talpur KAH, Malik AM, Khan SA, memon AI. Oaparoscopic cholecystectomy in complicated gallstone disease. J Liaquat Univ Med Health Sci 2008; 7(1):18-24.
4. Rahul K, Rashmi C, Mohan K. Histological changes in gall bladder due tos tone disease. Ind J Surg 2006; 68:201-204.
5. Asuquo ME, Umoh MS, Nwabgbara V, Inyang A, Agbor C. Cholecystectomy: Indication at university of Calabar Teaching Hospial, Calabar Nigeria; Annals of Afr Med 2008; 7(1):35-37.
6. Tantia O, Jain M, Khanna S, Sen B. Incidental carcinoma gall bladder duing laparoscopic cholecystectomy for symptomatic gall stone disease. Surg Endosc 2009; 23:2041-2046.
7. Paraskevopoulos JA, Ross B, Dennison AR, Johnson AG. Primary carcinoma of gall bladder: a 10-year experience. Annals of Royal College of Surgeons of England 1992; 74:222-224.
8. Bazoua G, Humza N, Iazim T. Do we need histology for a normal looking gall bladder? J Hepatobiliary Pancreatic Surg 2007; 14(6): 564-568.
9. Memon W, Khanzada TW, Samad A, Kumar B. Histopathology spectrum of gall bladde specimens after cholecystectomy. Pak J Med Sci 2011; 27(3):533-536.
10. Meirelles-Costa A, Bresciani CJ, Perez RO, Bresciani BH, Siqueira SA, Cecconello I. Are histological alterations observed in the gall bladder precancerous lesion? Clinics (Sao Paulo) 2010; 65(2):143-59.
11. Mohan H, Punia RP, Dhawan SB, Ahal S, Sekhon MS. Morphological spectrum of gallstone disease in 1100 cholecystectomies in North India. Indian J Surg 2005; 67(3):140-142.
12. Terada T. Histopathologic features and frequency of gall bladder lesions in consecutive 540 cholecystectomies. Int J Clin Exp Pathol. 2013; 6(1):91-6.
13. Sujata JSR, Sabina K, Mj H, Jairajpuri ZS. Incidental gall bladder carcinoma in laparoscopic cholecystectomy: a report of 6 cases and a review of the literature. J Clin Diagn Res. 2013; 7(1):85-8.
14. Dabbs DJ. Eosinophilic and lymphoeosinophilic cholecystitis. Am J Surg Pthol 1993; 17:497-501.
15. Hamdani NH, qadri SK, Aggarwalla R. Clinicopathological study of gall bladder carcinoma with special reference to gallstones. Our 8 year experience from Eastern India. Asian Pac J Cancer Prev 2012; 13:5613-17.