

Original article:

A Study Of Gall Bladder Malignancy In Post-Cholecystectomy specimens : A Tertiary Care Experience

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Abstract

Background: In abdominal surgeries, cholecystectomy ranks second to appendectomies. Cholecystectomy specimen (gallbladder) is frequently encountered surgical specimen in a histopathology laboratory. It shows different histopathological changes ranging from inflammation to premalignant changes and carcinoma. Incidental detection of gallbladder cancer in cholecystectomy specimen has been reported in 0.3 to 2% of all cholecystectomies performed for benign condition.

Aims and objectives: To study the different histopathological entities of the cholecystectomy specimens and to find out the frequency of gallbladder cancer in these specimens.

Material and methods: The present study is based on histopathological analysis of 100 cholecystectomy specimens from Nov 1, 2013 to Oct 31, 2014 in the Post graduate Department of Surgery, Acharya Shri Chander College of medical sciences and hospital, Sidhra, Jammu and Kashmir, India.

Results: Chronic cholecystitis (100%) was the most common finding in our study followed by fibrosis (66%) and various other mucosal pathologies of gall bladder. Female to male ratio was 1.44:1. Frequency of gallbladder cancer was 4%.

Conclusion: The study gives the different histopathological patterns of cholecystectomy specimens that attended our institute, to reveal the different patterns of gallbladder lesions on histopathological examination. Thorough histopathological analysis of cholecystectomy specimens is important to detect incidental carcinoma.

Keywords: Gallbladder, Cholecystectomy, Cholecystitis, Cholelithiasis, Cholesterolosis, Adenocarcinoma.

Introduction

Cholecystectomy is one of the most common surgical procedure performed and laproscopic cholecystectomy has been recognised as the gold standard^(1,2,3,4). Cholecystectomy specimen (gallbladder) is the most frequently encountered surgical specimen in a histopathology laboratory⁽⁵⁾. It shows different histopathological changes ranging from inflammation to premalignant changes and carcinoma. Gallbladder disease poses to be a common health issue worldwide, which require cholecystectomy⁽⁶⁾. The prevalence of gallbladder disease in Northern India is 6.20% comprising 4.40% in males and 7.30% in females. Cholelithiasis is a common disorder affecting 10% to 20% of adult population. It is common among female. More than 95% of biliary tract disease is attributed to cholelithiasis. The prevalence of gall stones in Northern India is 4.1% comprising 1.9% in males and 5.5% in females.

Carcinoma gallbladder though rare is the most common malignancy of the biliary tract⁽⁶⁾. Women have a higher risk of developing gallbladder cancer than men^(7,8). The most important risk factor for gallbladder cancer (besides gender and ethnicity) is gallstone. Gall bladder cancer is a late presentation disease; hence the prognosis is poor and associated with high

mortality rate. Several studies showed that routine histopathological examination of all cholecystectomy specimens is needed because of significant risk of incidental carcinoma. Incidental detection of gallbladder cancer in cholecystectomy specimen has been reported in 0.3 to 2% of all cholecystectomies performed for benign condition^(9,10).

Aims and objectives

The present study is carried out to study the different histopathological entities of the cholecystectomy specimens in our institute and to find out the frequency of gallbladder cancer in these specimens. In the period of two years from June 1, 2014 to May 31, 2016. Data regarding their clinical profile was collected from the Surgery department of the institute.

A total of 100 cholecystectomy specimens underwent biopsy interpretation. The specimens collected for the study was sent by the Surgery department of the institute fixed in 10% formalin. The specimens were observed grossly in the Pathology department as per guideline described by standard text book of surgical pathology⁽⁵⁾ and findings were noted in the note sheet. The biopsy tissues were then sectioned (minimum three) and processed in the conventional manner as described by J D Bancroft and Marilyn Gamble⁽¹¹⁾. Additional sections were taken from abnormal gross area of the specimens. After completion of processing, they were made in paraffin blocks and cut in rotatory microtome of about 3- 5 μ thickness. The sections were stained by conventional Haematoxylin and Eosin, mounted in DPX and examined under microscope. The microscopic slides were viewed under low power field and high power field. The findings were noted and a histopathological diagnosis was done.

Results and Observation

The study included 100 cholecystectomy specimens for histopathological evaluation. The age of the patient ranged from 15 years to 85 years. Majority of patients were in the age group of 31-40 years (Cite Table-1). Out of 100 cases, 59 (59%) were female and 41 (41%) were male with a male female ratio 0.69:1 (Cite Table-2).

The study was carried out on 100 cholecystectomy specimens in the Department of Pathology, and the Post graduate Department of Surgery, Acharya Shri Chander College of medical sciences and hospital, Sidhra, Jammu and Kashmir, India. Out of 100 numbers of cholecystectomy specimens, on histopathological interpretation, 96 (96%) specimens showed non-neoplastic pathology and 4 (4%) specimens showed neoplastic pathology (Cite Table 1).

Amongst non-neoplastic we got predominantly inflammatory lesions mostly chronic cholecystitis followed by cholesterolosis, empyema, xanthogranulomatous cholecystitis, eosinophilic cholecystitis and various other pathological entities. We got 6 case of chronic cholecystitis with intestinal metaplasia, 5 case chronic cholecystitis with pyloric metaplasia among the non-neoplastic specimens, which can be considered as pre-malignant lesions but not true neoplastic lesions. So these cases were included in the non-neoplastic category instead of neoplastic category in the study. Out of 4 neoplastic lesions, we found benign tumour as nil. All 4 neoplastic lesions were malignant tumours and all of them were adenocarcinoma. One was moderately differentiated adenocarcinoma, which was a male patient of 40 years age. Remaining 3 were well differentiated adenocarcinoma, which were female of age group 30-60 years age. The frequency of incidental carcinoma in the study was 4%.

Table 1 : Age Distribution:

Diagnosis	Age≤30				Age≥31			
	Ch. Infl.	Fibrosis	Metaplasia	Dysplasia	Ch. Infl.	Fibrosis	Metaplasia	Dysplasia
Mild	14	7	0	0	29	27	0	1
Moderate	7	5	0	0	33	13	0	0
Severe	4	0	0	0	13	10	0	3
Positive	0	0	2	0	0	0	9	0

The table shows that the histological changes in gall bladder were predominant in age group above 30 years as compared to age below 30 years.

Table 2: Sex distribution

Diagnosis	Male				Female			
	Ch. Infl.	Fibrosis	Metaplasia	Dysplasia	Ch. Infl.	Fibrosis	Metaplasia	Dysplasia
Mild	17	16	0	1	26	22	0	0
Moderate	20	8	0	0	20	10	0	0
Severe	4	2	0	0	13	8	0	3
Positive	0	0	2	0	0	0	9	0

The table shows that there is female preponderance as compared to males in all the histological changes seen in gall bladder.

Discussion

Gallbladder disease poses to be a common health issue worldwide, which require cholecystectomy. We did histopathological study of 100 cholecystectomy specimens during the study period.

Regarding the age of the patients in the study, it ranged from 15 years to 85 years and maximum numbers of patients were in the 31 to 40 years group. Similar results were observed by other authors like Mohan et al 2005, Khan et al 2014, Unisa et al 2011^(12,13,14). But there are some studies like Mittal et al 2010, Bawasaheb et al 2013, Arathi NA et al 2013 and Awasthi N 2016^(15,16,17) who had maximum number of patients in the 41 to 50 years age group. Deranged cholesterol mechanism which increases with age probably leads to increase in prevalence of gallstone formation and bile saturation.

Out of 100 cases 59 (59%) were female and 41 (41%) were male with a male female ratio 0.69:1, which was consistent with other studies. Females were more affected than males in gallstone diseases probably due to sedentary habits and sex hormones role.

In our study, 100% cholecystectomy specimens have chronic inflammation ranging from mild, moderate to severe. This value is similar with other study like Khan S , Jetley S, Hussain M 2013 (77.70%), Awasthi N 2014 (79.80%), Samroo AG., Jarwar M, Ali SA, Nzamani NB, Memon AS 2013 (66.41%) and Khan F, Manzoor A, UI Haq MB 2014 (89.15%)^(13,18,19,20).

In our study, 15 cases of cholesterolosis (15%) which was similar to Mohan et al, Sabina et al and Faran et al. The age of patients with cholesterolosis ranged from 23 -78 years out of which 8 (53.33%) were females and 7 (46,66%) were males which was almost similar to a study by Khairy et al⁽²¹⁾.

We found one cases (1%) of Xantho-granulomatous cholecystitis in our study, which shows marked wall thickening and mimic with carcinoma grossly. Its microscopic diagnosis is therefore important. We also found 11 case of chronic cholecystitis with metaplasia, which can be considered as pre-malignant lesions but not true neoplastic lesions. So these three cases were included in the non-neoplastic category instead of neoplastic category in our study. This gives a variety of inflammatory and pre-malignant histopatholcical pattern of the study cases.

In our study we found 4 % cases of neoplastic lesions. We did not found any benign tumour but all 5 cases (4%) as malignant tumours. All malignant cases were adenocarcinoma , which is similar with other studies like Khan F et al 2014 (0.21%), Mohan et al 2005 (1.09%), Shrestha R et al 2007 (1.40%), Ghirima et al 2011 (1.28%), Kaur et al 2012 (0.78%), Khoo JJ et al 2005 (0.62%) and Mittal R et al 2010 (1.00%)^(8,12,22,23,24,25,26). All 4 cancer cases were incidental carcinoma. The frequency of incidental carcinoma in the study was 4%. Other studies shows that the frequency of incidental gallbladder cancer is between 0.2% to 2.8% either intra-operatively or post operatively diagnosed.

Conclusion

Gallbladder disease poses to be a common surgical health issue requiring cholecystectomy world wide. Thorough sampling of the cholecystectomy specimens and routine histopathological examination is of utmost importance to detect non neoplastic complications and incidental gallbladder cancer. The main strength of this study is that it gives the most comprehensive picture of different histopathological pattern and frequency of incidental diagnosis of gall bladder cancer of cholecystectomy specimens done in the institute. The major limitations of this study include the small sample size and short study period.

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References:

1. Schoenfield I, Lachin J. The Steering Committee TNCGSG. Chenodiol (chenodeoxycholic acid) for dissolution of gallstones study. *Ann Intern Med.* 1981;95:257-282.
2. Schoenfield I, Berci G, Carnovale R, et al. The effect of ursodiol on the efficacy and safety of extracorporeal shockwave lithotripsy of gallstones. *N Engl J Med.*1990;232:1239-1245.
3. Soper NJ, Stockmann PT, Dunnegan DL, et al. Laproscopic Cholecystectomy: the new 'gold standard'? *Arch Surg.*1992;127S:917-921.
4. Soper NJ, Brunt LM, Kerbl K. Laproscopic general surgery. *N Engl J Med.*1994;330:409-419.
5. Juan Rosai (2004), Rosai & Ackermann's Surgical Pathology, 9th Edition.
6. Kumar V, Abbas Abul K, Robbins & Cotran Pathological Liver and GallBladder Pathology Page 875.

7. Chin KF, Mohammad AA, Khoo YY. Impact of routine histopathological examination on cholecystectomy specimens from an Asian demographic. *Ann R Coll Surg Engl.* 2012; 94: 165-69.
8. Khan F, Manzoor A, Haq MB. Histological examination of cholecystectomy specimens. *Journal of Rawalpindi Medical College (JRMH);* 2014; 18(2): 240-242.
9. Mishra S, Chaturvedi A, Mistake NC(2006). Gallbladder Cancer. *Curt Treat Options Gastroenterologist,* 9, 95-106.
10. Kalita D et al. Impact of routine histopathological examination of gallbladder specimens on early detection of malignancy. A study of 4115 cholecystectomy specimen. *Asian Pacific J Cancer prev.* 2013. 14(5), 3315-3318.
11. John D. Bancroft and Marilyn Gamble. *Theory and Practice of Histological Techniques.*
12. Mohan H, Punia RP, Dhawan SB , Ahal S, Sekhon MS. Morphological spectrum of gallstone diseases in 1100 cholecystectomies in North India. *Indian J Surg* 2005; 67: 140-2.
13. Khan S, Jetley S, Husain M. Spectrum of histopathological lesions in cholecystectomy specimens: Study of 360 cases at a teaching hospital in South Delhi. *Arch Int Surg.* 2013; 3(2):102-05.
14. Unisa S, Jagannath P, Dhir V, Khandelwal C, Sarangi L, Roy T k; Population based study to estimate prevalence and determine risk factors of gallbladder diseases in rural Gangetic basin of North India. *HPB (Oxford)* 2011;13;117-25.
15. Mittal R, Jesudason MR, Nayak S. Selective histopathology in cholecystectomy for gallstone diseases. *Indian J Gastroenterol* 2010; 29:211.
16. Bawasaheb M A, Maksoud W M, Amri F S, Ali H F, Salman A N. Does routine histopathological examination of gallbladder after cholecystectomy add in additional value? *Bahrain Med Bull* 2013;35:193-5.
17. Arathi NA, Awasthi S, Kumar A. Pathological profile of cholecystectomies in a tertiary centre. *Natl J MED Dent Res* 2013; 2:28-38.
18. Awasthi N; A retrospective histopathological study of cholecystectomies. *IJHAS* April 2016 IP:223.176.57.19.
19. Soomro AG, Jarwar M, Ali S A, Nizamani N B, Memon A S; Frequency of Carcinoma in a Gallbladder Specimens sent for histopathology in a University Hospital; *JLUMHS,* January-April 2013; Vol12: No .01.
20. Khan F, Manzoor A, Haq MB. Histological examination of cholecystectomy specimens. *Journal of Rawalpindi Medical College (JRMH) ;* 2014; 18(2): 240-242.
21. Khairy GA, Guraya S A, Murshid K R. Cholesterosis incidence correlation with serum cholesterol level and the role of laparoscopic cholecystectomy, *Saudi medical J* 09/2004, Vol25(9): 1226-8
22. Shrestha et al. Incidental gallbladder carcinoma: value of routine histological examination of cholecystectomy specimens. *Nepal Med Coll J* 2010;12 (2):90-4.
23. Ghimire P, Yogi N, Shrestha BB. Incidence of incidental carcinoma Gallbladder in cases of routine cholecystectomy. *Kathmandu Univ Med J* 2011;34(2)3-6.
24. Kaur A, Dubey V K, Mehta K S. Gallbladder mucosal changes associated with chronic cholecystitis and their relationship with carcinoma gallbladder. *Surgery ASCOMS, JK Science.org* Vol. 14(2)April- June 2012.
25. Khoo JJ, Nurul AM: A clinicopathological study of cases of gallbladder carcinoma in 1122 cholecystectomies in Johar, Malaysia; *Malaysian Journal of Pathology,* 2008;30(1):21-6.
26. Mittal R, Jesudason MR, Nayak S. Selective histopathology in cholecystectomy for gallstone diseases. *Indian J Gastroenterol* 2010; 29:21.