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A histopathological study on cholecystectomy specimen in a tertiary care hospital

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ABSTRACT

The gallbladder is a pear-shaped organ and the main function of it is to store and concentrate the bile secreted by the liver and then deliver it into the intestine for digestion and absorption of fat. Congenital anomalies, inflammation, benign and malignant tumors can occur in the gallbladder. Cholecystectomy is one of the most commonly performed general surgery procedures. The principle aim of this study is to review the pathology results from gallbladder specimens sent for routine pathology with clinical parameters correlation. A retrospective study of 115cholecystectomy specimens for a period of 6 months in the year 2018 was carried out. All specimens subjected for histopathological examination and the clinical correlation was done. Commonest age group being 41-45 years (25%) with the male-female ratio of 1:1.7. The most common lesions were Chronic calculous cholecystitis constituting 67 (58%) followed by chronic cholecystitis 24 cases (21%). Acute calculous cholecystitis constitute 4 cases (3.5%), acute cholecystitis and acute on chronic cholecystitis constitutes 9 cases (8%). One case of adenomyoma (0.8%) and incidentally detected Gall bladder adenocarcinoma (0.8%) were diagnosed. A spectrum of lesions that affect the gallbladder necessitates the importance of histopathological examination of all cholecystectomy specimens with or without abnormal clinical, radiological and macroscopic findings.

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INTRODUCTION

The gallbladder is a pear-shaped organ and the main function of it is to store and concentrate the bile secreted by the liver and then deliver it into the intestine for digestion and absorption of fat. Congenital anomalies, inflammation, benign and malignant tumors can occur in the gallbladder. Gallstone disease is the most common among various lesions in the gall bladder. Cholecystectomy is one of the most commonly performed general surgery procedures for both benign and neoplastic lesions.

Cholecystitis is one of the complications of gallstone diseases, but it can also occur without gallstones, called acalculous cholecystitis and the incidence is only 10% (Bridges *et al.*, 2018).

Gall bladders with gall stones frequently show chronic cholecystitis, which often shows epithelial denudation, muscle hypertrophy, lymphocytic infiltration, and varying degrees of fibrosis. It can be associated with cholesterolosis, metaplastic changes and Rokitansky Aschoff sinuses.

Carcinoma gallbladder carries one of the worst of cancer mortality. The most important etiology for gallbladder carcinoma is long-standing chronic inflammation by gallstones and it played a major

Table 1: Spectrum of histopathological lesions

Histopathological diagnosis	Number of cases (Total cases :115)	Percentage (%)
Chronic calculus cholecystitis	67	58
Chronic cholecystitis	24	31
Acute cholecystitis	9	8
Acute on chronic cholecystitis	9	8
Acute calculus cholecystitis	4	3.5
Adenomyoma	1	0.8
Adenocarcinoma	1	0.8

role in carcinogenesis. The incidence of carcinoma gallbladder associated with gallstones varies from 0.3 to 12 % (Inui *et al.*, 2011).

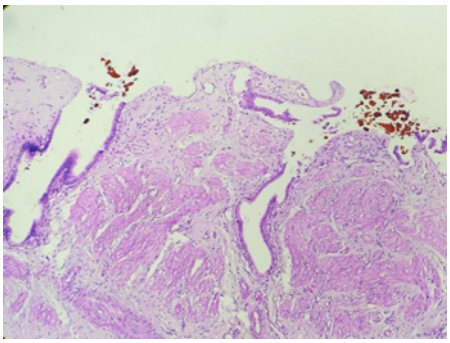

Figure 1: (H&E, 10X) Chronic cholecystitis with epithelial denudation, Rokitansky-Aschoff sinuses

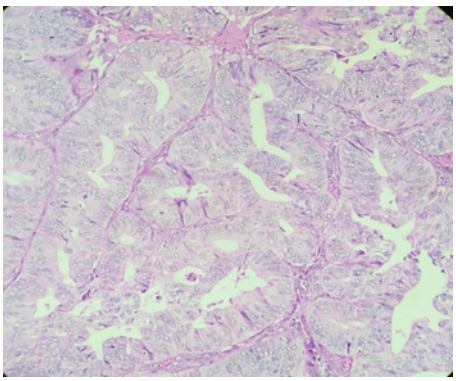

Figure 2: (H&E, 40X) Adenocarcinoma of gallbladder showing pleomorphic cells in a papillary and glandular pattern

Routinely cholecystectomy was performed for benign disease and it has been sent for histopathological examination, but this practice has been the subject of controversy and the reason behind this is economical limitations involved in the cost of histological evaluation (Agarwal *et al.*, 2012). There are studies suggesting that the rate of incidental carcinomas has on rising reinforcing the importance of histopathological examination in all routine cholecystectomy specimens (Siddiqui *et al.*, 2013). The principle aim of this study is to review the pathology results from gallbladder specimens sent for routine pathology with clinical parameters correlation.

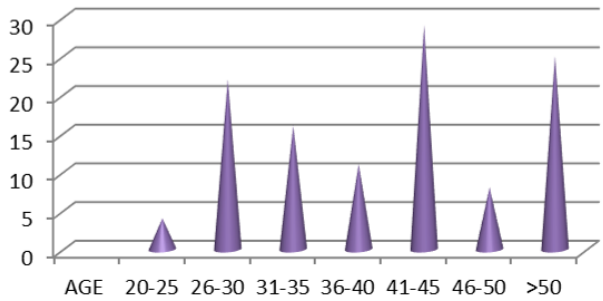

Chart 1: Age distribution

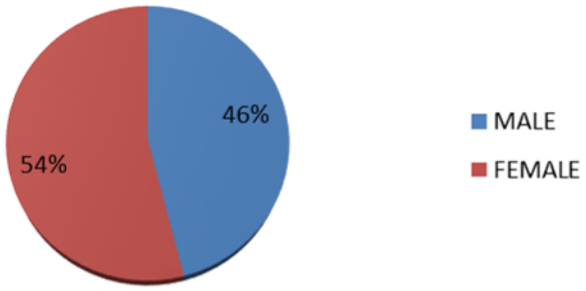

Chart 2: Sex distribution

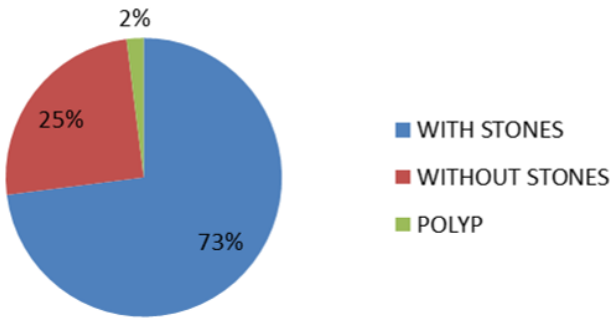

Chart 3: Gross features

MATERIALS AND METHODS

We performed a retrospective study of all cholecystectomy specimens sent for routine histopathological analysis over a period of six months in the year 2018. Ethical approval was obtained before conducting the study. 10% formalin was used to fix the cholecystectomy specimens for 24 hours. The detailed gross examination was carried out and three full-thickness sections were obtained from neck, body and fundus. If any gross abnormality was noticed, additional bits were taken. Sections were stained with Hematoxillin and Eosin stain and examined microscopically for a specific diagnosis.

Histopathological analysis of each case was evaluated and correlation of those histopathological diagnoses with other parameters was carried out. The parameters include age, sex of the patients, type of surgery, gross findings like wall thickness, polypoid lesions, and type of stones. The data were retrieved from the archives of Pathology and medical records.

RESULTS AND DISCUSSION

A total of 115 Cholecystectomy specimens was studied over a period of six months. The most common age group being 41-45 years (25%) followed by 50 years and above (22%), as shown in Chart 1. In a study by (Bharathi *et al.*, 2017), the median age group of the presentation was 40 years. The mean age of 32.25±5.3 years was found in a study conducted by Siddiqui *et al.* (2013).

Chart 2 reveals the sex distribution of patients. Male contributed 53 cases (46%) and females 62 cases (54%), with a male to female ratio of 1:1.7. The previous studies conducted by

(Giridharan and Madhivadhanam, 2017; Khan *et al.*, 2013) have also reported that females show a higher predominance than males for gallbladder disease.

On gross examination, out of 115 cases, 84 (73%) cases presented with calculi. Pigment stones were found in 31 cases (27%) and cholesterol stones noticed in 53 cases (46%). Cholecystectomy specimens without stones were seen in 29 cases (25%). The polyp was found only in 2 cases (2%), as depicted inChart 3.

A study conducted by (Bharathi *et al.*, 2017), 1.2 % of cases showed polyps. In our study, the incidence was found to be high, that is 2%. Microscopically one case turned out to be adenomyoma and the other one was adenocarcinoma.

Out of 115 cases of cholecystectomy specimens, the commonest lesion being Chronic Cholecystitis accounts for 91 cases (79%), among which calculus cholecystitis was most common (67 cases (58%)) as shown in Table 1. Both cases histopathologically showed epithelial denudation, chronic inflammatory cell infiltrate, fibrosis and Rokitansky –Aschoff sinuses (Figure 1). This similar finding also was seen in a study conducted by Wrenn *et al.* (2017) but incidence is high (89%) compared to our study.

Acute lesions found in 22 cases out of which acute acalculous cholecystitis (8%) were more common than the acute calculus cholecystitis (3.5%). This finding is correlating with (Indar, 2002), that acute acalculous cholecystitis accounts for 5-14% of all cases of cholecystitis and is life-threatening. One case was Adenomyoma (0.8%) it showed the nodular proliferation of smooth muscle cells, ducts and glands in a disorganized manner.

Gallbladder adenocarcinoma found incidentally in one case (0.8%)(Figure 2) without any clinical, radiological and gross suspicion. It was seen in a male patient in the age group of 57 years with the clinical diagnosis of chronic calculus cholecystitis. Grossly it showed only a small polyp without any other features. Incidentally detected carcinomas (0.5%) also found in a study conducted by (Panebianco, 2013). These features stressed the importance of sending all cholecystectomy specimens for routine histopathological processing even there is no suspicious for carcinoma.

CONCLUSION

After cholecystectomy, the histopathological spectrum of gallbladder disease was found to be quite diverse. Both sexes are affected more or less equally and commonly seen in the age group of 41-45 years. The common histopathological diagnosis was chronic cholecystitis. But the incidental detection of gallbladder carcinoma was found in our study. It reflects the importance of histopathological examination of all cholecystectomy specimens with or without abnormal clinical, radiological and macroscopic findings.

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