

Histopathological study of Cholecystectomy Specimens in a Tertiary Care Hospital in North Telangana – The day to day common health problem

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Abstract: Gallbladder stones are commonest disorder among gall bladder lesions and are usually asymptomatic. Its frequency in cholecystectomy specimens is not clear. The aim of this study is to report the morphological variants and frequency of different lesions in cholecystectomy specimens. The present study is a retrospective and prospective study done for a period of 3 years in Prathima Institute of Medical Sciences, Karimnagar. A total of 100 cholecystectomy specimen's received were studied in the present study. Out of 100 cholecystectomy cases, highest number of cases were chronic cholecystitis with cholelithiasis(69), followed by chronic cholecystitis without cholelithiasis (24), acute cholecystitis(02), one case each of adenoma, adenocarcinoma, mucocele, normal study and xanthogranulomatous cholecystitis. Females are more affected than males and age group between 31-40 are more affected. Gallbladder lesions were common indication for surgical intervention and pathological evaluation. Most of them were inflammatory lesions with cholelithiasis, however thorough examination is important as these lesions may progress to fatal malignancies.

Keywords: Cholecystectomy, cholecystitis, adenocarcinoma.

INTRODUCTION

The gallbladder is a pear shaped organ, 9cm in length and has a capacity of approximately 50ml.

The main function of the gallbladder is to store and concentrate the bile secreted by the liver and then deliver it into the intestine for digestion and absorption of fat. The concentrating ability of the gallbladder is due to its absorptive mucosal surface that has numerous folds. Normally the liver secretes approximately 500ml of bile per day and the gallbladder concentrates it 5-10 times. The motility, concentration and relaxation of the gall bladder are under the influence of a peptide hormone, cholecystokinin, released from neuroendocrine cells of the duodenum and jejunum. Gallstones are formed from constituents of the bile along with other organic components. Accordingly, the gallstones commonly contain cholesterol, bile pigment and calcium salts in varying proportions. They are usually formed in the gallbladder, but sometimes may develop within extrahepatic biliary passages, and rarely in the larger intrahepatic bile duct.

MATERIALS & METHODS

The present study is a retrospective and prospective study done for a period of three years. A total of 100 cholecystectomy cases were studied. All cholecystectomy cases which were operated for the specific indication were sent to department of Pathology, specimens were fixed in formalin and serial sections were taken and observed under microscope. Final diagnosis is made based on the histopathology.

RESULTS

Chronic cholecystitis with cholelithiasis was the most common lesion observed in our study (69) followed by chronic cholecystitis, acute cholecystitis, mucocele, adenoma and xanthogranulomatous cholecystitis. One case of adenocarcinoma was also observed. Normal study was observed in one case [Table 1]. Females are more prone in our study compared to males and age group between 31-40 years are more diagnosed [Table 2].

Table-1: Showing various lesions of Gallbladder

Sl. No	Lesion	No. of cases
1.	Normal study	01
2.	Acute cholecystitis	02
3.	Chronic cholecystitis without calcili	24
4.	Chronic cholecystitis with cholelithiasis	69
5.	Mucocele	01
6.	Adenoma	01
7.	Adenocarcinoma	01
8.	Xanthogranulomatous cholecystitis	01
Total		100

Table-2: Showing age distribution

Sl No	Age group	No of cases
1	0-10	03
2	11-20	17
3	21-30	30
4	31-40	38
5	41-50	09
6	51-60	03
Total		100

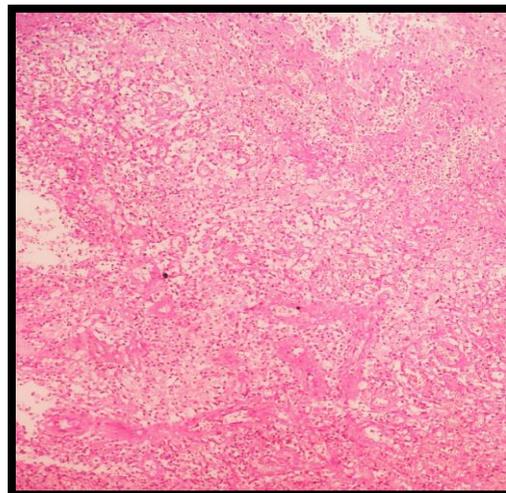


Fig-1: Section studied shows many foamy macrophages along with inflammatory infiltrate – Xanthogranulomatous cholecystitis (100x, H&E)

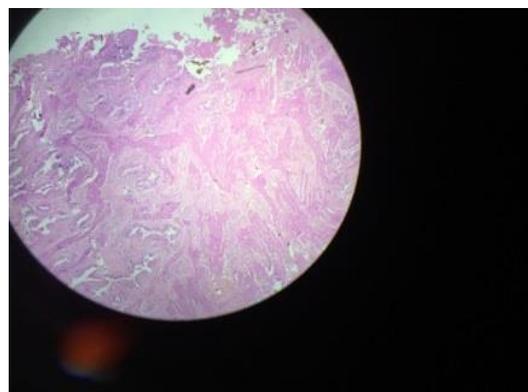


Fig-2: Section studied showing features of chronic cholecystitis with cholelithiasis

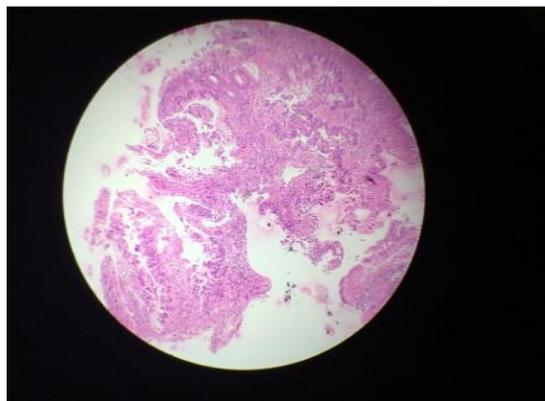


Fig-3: Section showing tumour tissue arranged in glandular pattern Adenocarcinoma (100 xs, H&E)

DISCUSSION

Gallbladder is one of the organs having a wide spectrum of diseases ranging from congenital anomalies, calculi and its complications, noninflammatory, inflammatory to the neoplastic lesions. So the classification of various histomorphological types of gallbladder lesions is important to categorize into non-neoplastic and neoplastic lesions of gallbladder. In the present study gallbladder lesions were more common in females than in males with a male to female ratio of 27:79 which was similar to other studies carried out by NT, Damor A *et al.*[1], Tadashi Terada *et al.*[2], Gudeli Vahini *et al.* [3], Asuquo *et al.*[4] Tantia *et al.*[5] reported male to female ratio 1:2.3, 213:327, 1:1.5, 1:5, 1:2.8 respectively.

Damor NT. *et al.* [1] and Khanna *et al.* [6] reported that majority of non-neoplastic lesions of Gallbladder occurred in 3rd to 5th decades. While Bazoua *et al.*[7] studied that neoplastic lesions developed in patients of age more than 50 yrs and maximum in age group 50 to 70 years.

Gallstones afflict 10% to 20% of adult populations in developed countries. It is estimated that over 20 lakhs persons in the United States have gallstones. Nevertheless, the vast majority of gallstones (>80%) are silent and most individuals remain free of biliary pain or stone complications for decades. There are two main types of gallstones. In the West, about 80% are cholesterol stones, containing more than 50% of crystalline cholesterol monohydrate. The remainder are composed predominantly of bilirubin calcium salts and are designated pigment stones. Cholesterol gallstones are more prevalent in industrialized societies and uncommon in developing societies. The predominant type of gallstones in non-western populations when they occur is pigment gallstones, primarily arising in the setting of bacterial infections of the biliary tree and parasitic infestations.

Estrogenic influence, including oral contraceptives and pregnancy, increases the expression

of hepatic lipoprotein receptors and stimulates hepatic HMG-CoA reductase activity. Thus both cholesterol uptake and biosynthesis respectively are increased. When cholesterol concentrations exceed the solubilizing capacity of bile (supersaturation), cholesterol can no longer remain dispersed and nucleates into solid cholesterol monohydrate crystals.

Acute calculous cholecystitis is an acute inflammation of the gallbladder, precipitated 90% of the time by obstruction of the neck or cystic duct. It is the primary complication of gallstones and the most common reason for emergency cholecystectomy. Acute calculous cholecystitis results from chemical irritation and inflammation of the obstructed gallbladder. The action of mucosal phospholipases hydrolyzes luminal lecithins to toxic lysolecithins. The normally protective glycoprotein mucus layer is disrupted, exposing the mucosal epithelium to the direct detergent action of bile salts. Prostaglandins released within the wall of the distended gallbladder contribute to mucosal and mural inflammation. Gallbladder dysmotility develops; distension and increased intraluminal pressure compromise blood flow to the mucosa. These events occur in the absence of bacterial infection only later in the course may bacterial contamination develop.

Xanthogranulomatous cholecystitis (XGC) is a rare variant of common pathology of gallbladder. XGC develops as a process of intense acute or chronic inflammation, characterized by asymmetrical thickening of gallbladder wall with formation of nodule.

The dense inflammation is responsible for dense adhesion to the surrounding viscera; therefore, the condition has been related to difficult cholecystectomy. The clinical features could be of chronic or acute cholecystitis and the radiological imaging could mimic gallbladder carcinoma with mass in the wall. The reported incidence of XGC varies from different geographic region from 0.7% -9%. Though xanthogranulomatous cholecystitis presents with similar symptoms as chronic cholecystitis, histological features

will give a confirm diagnosis. It is important to identify and diagnose xanthan granulomatous cholecystitis histopathologic ally, as it sometimes mimics gall bladder carcinoma grossly with a thickened wall of gall bladder.

Other contributing factors include dehydration and multiple blood transfusions, leading to a pigment load, stasis of gallbladder, accumulation of microcrystals of cholesterol, viscous bile and gallbladder mucus, causing cystic duct obstruction in the absence of frank stone formation, inflammation and edema of the wall, compromising blood flow, bacterial contamination and generation of lysolecithins.

Chronic cholecystitis may be a sequel to repeated bouts of mild to severe acute cholecystitis, but in many instances, it develops in the apparent absence of antecedent attacks. Cholesterol polyps are multilobular yellow formations composed of aggregates of foamy histiocytes in the lamina propria covered by an intact epithelium; they represent a morphologic variation in the theme of cholesterosis. Villous papilloma of the gallbladder has been seen in infants and adults with metachromatic leukodystrophy and may result in massive hemobilia. Adenomas resemble their homologs in the gastrointestinal tract; they may be sessile or pedunculated and can exhibit tubular, tubulovillous, or villous patterns of growth.

Chronic cholecystitis is rarely seen in the absence of lithiasis, although pure stones of the cholesterol and calcium bicarbonate types may be present without inflammation. Thickening of the wall is always present, sometimes to a striking degree. Occasionally this is associated with diffuse calcification, a condition known as 'porcelain gallbladder. In most instances, stones are of the mixed or combined type. Ulceration of the mucosa may result from pressure by the stones. Microscopically, the mucosa of a chronically inflamed gallbladder shows varying degrees of mononuclear infiltration and fibrosis. The epithelium may be relatively normal or atrophic or show hyperplastic and metaplastic changes. The metaplasia can be of goblet cell or pyloric type, the former being accompanied by the appearance of Paneth cells and endocrine cells. In contrast to the normal glands in the gallbladder neck, the cells of metaplastic glands contain nonsulfated acid mucin and neutral mucin but little sulphated acid mucin. Intestinal type metaplasia is accompanied by CDX2 expression. The endocrine cells can exhibit immunohistochemically reactivity for serotonin, somatostatin, cholecystokinin, gastrin and pancreatic polypeptide. The incidence of these metaplastic changes increases steadily with age.

Carcinoma of the gallbladder is more frequent in females than males, over 90% of the patients are 50

years of age or older at the time of diagnosis. The incidence is high in American Indians, relatively low in whites of European extraction, and very rare in blacks. A definite epidemiologic parallel exists between gallbladder carcinoma and cholelithiasis, but the pathogenetic relationship between them remains controversial. Other conditions said to be associated with an increased risk of gallbladder carcinoma are cholecystoentric fistula, porcelain gallbladder, ulcerative colitis, adenomyomatosis, polyposis coli, Gardner syndrome and anomalous connection between the common bile duct and the pancreatic duct. The most common clinical manifestation of gallbladder carcinoma are right upper quadrant abdominal pain and anorexia and the most common abnormal laboratory findings are elevated alkaline phosphatase level.

Gallbladder carcinoma has a great propensity to invade the liver directly and to a lesser extent the stomach and duodenum, it also metastasizes frequently to liver, cystic and pericholedochal lymph nodes in the lesser omentum, and lymph nodes behind the first portion of the duodenum. The frequency of lymph node involvement is highly dependent on the depth of invasion of the primary tumour. Almost half of the patients already have metastatic disease at the time of surgery. Ovarian metastases from carcinoma of the gallbladder may simulate primary tumours of the ovary. The treatment of gallbladder carcinoma is primarily surgical, its extent depending on the stage of the disease. The importance of a systemic dissection of the various lymph nodes has been emphasized. It has been claimed that the addition of adjuvant chemotherapy or radiation therapy in patients treated surgically lengthens the survival time.

CONCLUSION

Chronic cholecystitis with cholelithiasis is the common day to day problem in our country. In our study we have observed that females are more prone for chronic cholecystitis with cholelithiasis and long term complications may lead to calcification and other changes. Every case of pain abdomen should be thoroughly examined for the presence of any gall stones and care should be taken to prevent further complications.

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