# A FIVE-YEAR STUDY OF HEPATOBILIARY LESIONS IN A TERTIARY CARE HOSPITAL

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**ABSTRACT**

**BACKGROUND**

The hepatobiliary system is composed of liver, biliary tree and gallbladder which occupy the right upper quadrant of the abdomen. The dominant primary diseases of the liver are viral hepatitis, alcoholic liver diseases, cirrhosis, NASH and hepatocellular carcinoma. Primary tumours as well as metastatic carcinomas flourish in hepatic environment. Disorders of the biliary tract affect a significant portion of the world population. Over 95% of biliary tract diseases are attributable to cholelithiasis (gall stones). Gall bladder stones can occur in any age group including infants and newborns. Benign lesions of gall bladder (most common being chronic cholecystitis) are much more common than malignant lesions.

**AIM**

This study was carried out to study the various histopathological lesions of hepatobiliary system in Jammu and adjoining region.

**STUDY DESIGN**

This study is a prospective study conducted for a period of five years.

**MATERIAL & METHOD**

This study was done for a period of five years from 1st Jan 2011 to 31st Jan 2016 in the Department of Pathology, Govt. Medical College, Jammu and deals with lesions of hepatobiliary system including intrahepatic and extrahepatic biliary ducts, liver and gall bladder.

**RESULTS**

A total of 500 cases were studied of which gall bladder lesions constituted 350 cases (70%), 138 (27.6%) cases were from liver (27.6%), whereas extrahepatic biliary system constituted 12 cases (2.4%) only. In the present study, the overall prevalence of lesions of hepatobiliary system was observed to be higher in females i.e. 287 cases (57.4%) as compared to males i.e. 213 cases (42.6%). Benign lesions were more common than malignant lesions.

**CONCLUSION**

The present study provides an insight into the varied lesions of hepatobiliary system in this region.

**KEYWORDS**

Cholecystitis, Cholelithiasis, Hepatobiliary.

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**INTRODUCTION:** The hepatobiliary system is composed of liver, biliary tree and gall bladder which occupy the right upper quadrant of the abdomen. Liver functions as a way station between the splanchnic and systemic circulation. The dominant primary diseases of the liver are viral hepatitis, alcoholic liver diseases, cirrhosis, NASH and hepatocellular carcinoma. More often, hepatic damage is secondary to other diseases such as cardiac decompensation, disseminated and extrahepatic infections, like hydatid cyst and abscess. Primary tumours as well as metastatic carcinomas and sarcomas, leukemic infiltrations and lymphomas flourish in the hepatic environment.

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The advent of the needle biopsy and a bolder surgical attack on neoplasms of the liver, now make the understanding of liver tumours a matter of practical importance for all pathologists. This has made it necessary, utilising present stains and techniques, to differentiate primary malignant tumours from both benign lesions and metastatic cancer. Primary neoplasms of the liver may arise either from the hepatic cord cells, bile duct epithelium, blood vessels and other mesodermal structures or from combinations of these tissues.[1] Metastatic involvement of the liver is far more common than primary neoplasia, common primaries producing hepatic metastases are of breast, lung and colon, although leukaemias and lymphomas can also spread to liver.

Disorders of the biliary tract affect a significant portion of the world population. Over 95% of biliary tract disease is attributable to cholelithiasis (gall stones). An estimated 20% of adults over 40 years of age and 30% of those over age

70 have biliary calculi. During the reproductive years, the female-to-male ratio is about 4:1, with the sex discrepancy narrowing in the older population to near equality. The risk factors predisposing to gallstone formation include obesity, diabetes mellitus, oestrogen and pregnancy, haemolytic diseases, and cirrhosis.[2] The incidence is four times higher in women than in men. A roughly linear relation has been found between body weight and the risk of gallstones. There is also definite increase with age until at 60 years, about one of every four women has gallstones. However, stones can occur in any age group including infants and newborns. Gallstones vary considerably in chemical composition, the basic constituents being cholesterol, calcium bilirubinate and calcium carbonate, either alone or in combination. Impaction of the stone in the cystic duct may lead to cystic dilation of gall bladder (hydrops). Cholesterolosis of gallbladder also called as strawberry gallbladder occurs for the most part in multiparous women. Several morphologic variants of chronic cholecystitis have been described like follicular chronic cholecystitis, lymphoplasmacytic cholecystitis, eosinophilic cholecystitis, xanthogranulomatous cholecystitis, cholecystic granuloma and ceroid granuloma. Benign tumours like adenomas, inflammatory polyps, cholesterol polyps may occur. Sometimes heterotopic tissues like gastric, intestinal mucosa, pancreatic, liver tissue can also be seen. Carcinoma of gallbladder is seen more frequently in females than males (3 to 4:1 ratio). Over 90% of the patients are 50 years of age or older at the time of diagnosis. Gallstones are present in 60 to 90% of the cases. In Asia, where pyogenic and parasitic diseases of biliary tree are common, the coexistence of gallstones is much lower. Presumably, gallbladder containing stones or infectious agents develop cancer as a result of irritative trauma and chronic inflammation. Other conditions associated with increased risk of gallbladder carcinoma are porcelain gallbladder, ulcerative colitis, adenomyomatous cholecystitis, Gardener syndrome. It is believed that the most cases of gallbladder adenocarcinoma are preceded by a sequence of intestinal metaplasia, dysplasia (atypical hyperplasia) and carcinoma in situ. Intestinal metaplasia is a very common finding in gallbladder mucosa adjacent to an invasive adenocarcinoma. Metastatic tumours to the gallbladder are exceptional rare.[3] Components of the extrahepatic biliary system are cystic, hepatic (right, left and common) and common bile ducts. Conditions like choledocholithiasis, cholangitis are seen in extrahepatic bile ducts. Choledochal cyst is the most common cause of obstructive jaundice in children beyond infancy, but it may also first present in children. It is not a cyst but focal fusiform dilation of CBD, sometimes occurs in conjunction with cystic dilatation of intrahepatic biliary tree. Choledochal cyst predisposes to stone formation, stenosis, strictures, pancreatitis and obstructive biliary complications within liver. Carcinomas of extrahepatic biliary tree are uncommon. Bile duct carcinoma (cholangiocarcinoma) occurs with equal frequency in males and females, the average age of presentation is 60 years. An increased incidence has been reported in patients with ulcerative colitis, sclerosing cholangitis, Clonorchis sinensis infestations and congenital abnormalities of biliary ducts like choledochal cyst, Caroli's disease.

**AIMS & OBJECTIVES:** This study was carried out to study the various histopathological lesions of hepatobiliary system in Jammu and adjoining region.

**MATERIAL & METHODS:** This study done in the department of Pathology, Govt. Medical College, Jammu deals with lesions of Hepatobiliary system including intrahepatic and extrahepatic biliary ducts, Liver and Gall bladder. The study was conducted for a period of five years from 1st Jan 2011 to 31th Jan 2016 in the Post Graduate Dept. Of Pathology, GMC, Jammu (J&K) The relevant data was collected from both the clinical case sheets and histopathological records.

The clinical information of the patients of lesions of hepatobiliary system received by the dept. was obtained from histopathological requisition forms & deficient relevant information was procured from the clinical case sheets & the concerned clinician. The sections from the representative area were stained with H&E.

**RESULTS:**

| Lesion | Male | Female | Total |
|---|---|---|---|
| GB Lesions | 127 | 223 | 350 |
| Liver Lesions and extrahepatic biliary system | 86 | 64 | 150 |
| **Total** | **213** | **287** | **500** |

***Table 1: Sex wise Distribution of Hepatobiliary Lesions***

A total of 500 cases were studied. Out of a total of 500 cases detected during the said period, majority were of Gall bladder i.e. 350 cases (70%), 138 were from Liver (27.6%), whereas extrahepatic biliary system constituted 12 cases (2.4%) only. In the present study, the overall prevalence of lesions of hepatobiliary system was observed to be higher in females i.e. 287 cases (57.4%) as compared to males i.e 213 cases (42.6%).

| Lesions | Benign | Malignant | Total |
|---|---|---|---|
| Gall bladder lesions | 340 | 10 | 350 |
| Liver | 110 | 28 | 138 |
| Extrahepatic biliary sys. | 10 | 02 | 12 |
| **Total** | **460** | **40** | **500** |

***Table 2: Benign and Malignant Cases Distribution***

Of the total 500 cases, 460 cases were of benign lesions and 40 cases were of malignant lesions. In gall bladder, 340 benign cases were seen and 10 were of malignancy, while in liver 110 cases were benign and malignant cases constituted 28 out of 138.

| Age (yrs.) | Gallbladder lesions | Liver | Extra biliary system | Total |
|---|---|---|---|---|
| 10-20 | 3 | 1 | - | 4 |
| 21-30 | 25 | 9 | - | 34 |
| 31-40 | 70 | 25 | 4 | 99 |
| 41-50 | 130 | 33 | 4 | 167 |
| 51-60 | 90 | 27 | 2 | 119 |
| 61-70 | 25 | 40 | 2 | 67 |
| Above 70 | 7 | 3 | - | 10 |
| **Total** | **350** | **138** | **12** | **500** |

***Table 3: Age wise Distribution of Hepatobiliary Lesions***

The ages of the patients ranged from 13-75 yrs. Maximum number of cases i.e. 167 cases (33.4%) were seen in the age group 41-50 yrs., followed by 51-60 yrs. age group i.e. 119 cases(23.8%).Third in frequency was age group 31-40 yrs. constituting 99 cases(19.8%). Least number of cases i.e. 4 cases (0.8%) were observed in 10-20 yrs. of age.

| GB lesions | Male | Female | Total |
|---|---|---|---|
| Chronic cholecystitis | 75 | 150 | 225 |
| Xanthogranulomatous cholecystitis | 15 | 25 | 40 |
| Mucocoele | 7 | 3 | 10 |
| Adenomyomatous Hyperplasia | 7 | 8 | 15 |
| Lymphocytic cholecystitis | 6 | 4 | 10 |
| Cholecystitis glandularis | 3 | 9 | 12 |
| Adenoma | 1 | 2 | 3 |
| Eosinophilic cholecystitis | 1 | 1 | 2 |
| Fibrosing cholecystitis | - | 3 | 3 |
| Hydatid disease | 1 | 2 | 3 |
| Pyloric/antral metaplasia | 6 | 9 | 15 |
| Heterotopic pancreatic tissue | 2 | - | 2 |
| Carcinoma | 3 | 7 | 10 |
| Adenocarcinoma | 1 | 4 | 5 |
| Adenosquamous | 1 | 1 | 2 |
| Papillary adenocarcinoma | - | 2 | 2 |
| Neuroendocrine | 1 | - | 1 |
| **Total** | **127** | **223** | **350** |

***Table 4: Gall Bladder Lesions***

Maximum number of cases i.e. 350 cases were of Gall bladder with Chronic cholecystitis constituting 225 cases (45%) seen mostly in females constituting 150 cases in comparison to males which constituted 75 cases. Other variants of chronic cholecystitis were also seen like xanthogranulomatous cholecystitis (40 cases), Adenomyomatous hyperplasia (15 cases), lymphocytic cholecystitis (10 cases), eosinophilic cholecystitis (2 cases). Pyloric/antral metaplasia was seen in 15 cases and heterotopic pancreatic tissue was seen in 2 cases. Hydatid disease was also seen in 3 cases. On the other hand, gall bladder carcinoma was reported in 10 cases with females constituting 7 cases and males constituting 3 cases. All cases were seen after 50 years of age. The most common carcinoma was Adenocarcinoma comprising 5 cases, Adenosquamous (2 cases), Papillary adenocarcinoma (2 cases) and 1 case of neuroendocrine carcinoma was also seen.

| Liver lesions | Male | Female | Total |
|---|---|---|---|
| Hydatid disease | 18 | 12 | 30 |
| Cirrhosis | 20 | 10 | 30 |
| NASH | 20 | 20 | 40 |
| Nodular Hyperplasia | 6 | 4 | 10 |
| Hepatocellular carcinoma | 6 | 2 | 8 |
| Metastatic deposits | 12 | 8 | 20 |
| Adenocarcinoma | 11 | 8 | 19 |
| Neuroendocrine | 1 | - | 1 |
| Choledochal cyst | 4 | 6 | 10 |
| Cholangiocarcinoma | - | 2 | 2 |
| **Total** | **86** | **64** | **150** |

***Table 5: Liver & Extrahepatic Biliary System Lesions***

In the Extrahepatic biliary system, 10 cases of choledochal cyst were seen and 2 cases of cholangiocarcinoma were seen .Both these cases showed female preponderance and in above 60 yrs. age group.

Liver lesions constituted 138 cases (27.6%) with males comprising 86 cases and females 64 cases. NASH was the most common lesion comprising 40 cases with equal distribution in males and females. While Cirrhosis was seen in 30 cases of which 20 cases were observed in males and only 10 cases in females. Hydatid disease of liver was also common seen in 30 cases. 10 cases of Nodular hyperplasia were seen, 6 cases in males and 4 cases in females. Hepatocellular carcinoma relatively uncommon, seen in only 8 cases of which 6 were males and 2 were females, all occurring above 50 yrs. of age. While metastatic deposits were seen in 20 cases, males comprised 12 cases and females 8 cases. The most common deposits were of Adenocarcinoma constituting 19 cases and 1 case of neuroendocrine carcinomatous deposits.

**DISCUSSION:** In the present study, out of a total of 500 cases, 350 cases were of gall bladder, 12 cases were of extrahepatic biliary tract while lesions of liver comprised 138 cases.

The age group of patients with gall bladder lesions ranged from 13 to 75 years with maximum number of cases seen in the age group 41-50 years. Maximum number of gall bladder cases 223(63%) were seen in females and 127 cases (36%) were seen in males with female to male ratio of 1.7:1

This is comparable to study by Gudeli et al[4] in which out of 110 cases of gall bladder, 70% were seen in females and in the age group of 41-50 years. Study by Rahul et al[5] also showed similar finding, out of 140 gallbladder cases, 116(82%) were of females and 24 cases(17%) of males (Female to male ratio 4.8:1) with mean age of patients being 42.5 years. In our study, microscopically, most cases of gallbladder were diagnosed as chronic cholecystitis 225 cases (64%), other variants included 40 cases of xanthogranulomatous cholecystitis, 10 cases of follicular cholecystitis and 2 cases of eosinophilic cholecystitis. This is in concordance with study of Gudeli et al[4] in which out of 110 cases studied 80 cases (72.7%) were of chronic cholecystitis, 2 cases were of xanthogranulomatous cholecystitis, 2 cases were of follicular cholecystitis and 1 case of eosinophilic cholecystitis.

Cholelithiasis produces a series of epithelial pathological changes which could be a precursor lesion of gallbladder cancer. In our study, at microscopy, adenomyomatous hyperplasia was seen in (15 cases) and pyloric/antral metaplasia was also seen in 15 cases. Similar study by Rahul et al[5] showed epithelial hyperplasia to be the most frequent change, seen in 60% cases while metaplasia (Antral/intestinal) in 20% cases, associated with hyperplasia. Elfvinget al[6] in their study also proposed the hypothesis that primary cholelithiasis causes secondary hyperplasia because of mechanical irritation caused by the calculi.

In our study, we found 10 cases of gall bladder carcinoma, of which 7 cases were seen in females and 3 cases were seen in males. Microscopically, adenocarcinoma was seen in 5 patients followed by 2 cases of papillary adenocarcinoma, 2 cases of adenosquamous carcinoma and 1 case of neuroendocrine carcinoma. Our findings are in concordance with study by Khoo and Nurul[7] who studied 1122 cholecystectomies cases and found 9 cases of gallbladder carcinoma of which 7 cases were of adenocarcinoma, 1 case of squamous carcinoma and 1 case of adenosquamous carcinoma. Six cases were seen in females and 3 cases were seen in males.

In our study, lesions of liver constituted 138 cases (27.6%) out of 500 cases. Most common benign lesions were of NASH 40 cases (29%) followed by cirrhosis 30 cases (21%) and nodular hyperplasia (10 cases). Pudale et al[8] in their study found circulatory disorder (29.05%) to be the most common benign lesion followed by steatosis (16.18%) than cirrhosis (4.43%) while hepatic neoplasm constituted 13 cases out of 451 cases (2.88%).

In our study, hepatocellular carcinoma was relatively uncommon, seen in only 8 cases while 20 cases of metastatic deposits to liver were seen. A study on 3160 cases of liver tumours by Cong et al[9] showed benign tumours constituting 499 cases (15.8%) while malignant tumours constituted 2549 cases (80.7%). Of the malignant tumours, hepatocellular carcinoma constituted 96.8% cases. Finding of both the studies were discordant.

**CONCLUSION:** This study provides a fair insight into the varied lesions of hepatobiliary tract in this region. Lesions of hepatobiliary system are quite prevalent with gallbladder lesions constituting the bulk of the cases. Benign lesions of hepatobiliary system are far more common than malignant lesions. Females are most commonly affected by gall bladder lesions including carcinoma with middle-aged females being most affected. While in case of liver lesions, males are mostly affected and age of presentation is more than 60 yrs. especially in malignant cases. Since this hospital caters in addition to Jammu province, adjacent parts of Kashmir, Punjab as well, the result of the study can be safely considered as a reflection of the disease pattern in this region of the country.

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