

Spectrum of Gall Bladder Lesions in Cholecystectomy Specimens – A Hospital Based Study

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Abstract: Gall stones are known to produce diverse histological changes in the gallbladder such as inflammation, precursor lesions of malignancy and even malignancy. The aim of our study was to analyse the histological lesions and to determine the frequency of gall bladder lesions in children and adults at Siddhartha Medical College, Vijayawada. This study has been conducted in the department of Pathology, Siddhartha Medical College, Vijayawada, Andhrapradesh from July 2017 to June 2019. This study comprises 250 cholecystectomy specimens that were received in the department of Pathology during this period. The age, sex distribution and the incidence of various gall bladder lesions were studied based on histopathological findings. 164 (65.6%) cases had Chronic cholecystitis followed by Acute cholecystitis 10 (4%) and Chronic acalculous cholecystitis in 43 (17.2%) , Cholestelosis 4(1.6%) , Xanthogranulomatous cholecystitis 4(1.6%), Chronic cholecystitis with cereoid granuloma 2 (0.8%) , Mucocoele 2 (0.8%), Adenomyomatous hyperplasia 1 (0.4%) and Carcinoma of gall bladder 3 (1.2%). Routine cholecystectomy performed for a common condition like gallstone disease can result in detection of diverse and wide spectrum of histopathological lesions ranging from chronic cholecystitis to carcinoma.

Keywords: Gall bladder, Cholecystitis, Gall stones

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I. Introduction

Gallstone is the most common disease of the gallbladder.¹

In India, Gall bladder carcinoma is most prevalent in northern and north eastern states.² It is two times higher in women than men and is commonly seen in Northern Indian cities.³ Other risk factors are obesity, multiparity and chronic infections apart from gall stone which is the main cause of gall bladder cancer.⁴

Most common diagnosis in most of the cholecystectomy specimens is chronic cholecystitis. Rarely cholecystectomy specimen may reveal an unexpected gallbladder carcinoma. It is a rare malignancy with overall poor prognosis especially if diagnosed late in the course of the disease. Hence, the histopathological examination of every cholecystectomy specimen is of utmost importance.

Gall stones are found to be the major etiologic factor of gallbladder lesions, the spectrum of which ranges from various types of Cholecystitis, Cholesterolosis, Xanthogranulomatous cholecystitis, Cholecystitis with ceroid granuloma, Mucocoele, Adenomyomatous hyperplasia and Carcinoma of gall bladder. But gall bladder carcinoma is a rare condition and it is commonly diagnosed as an incidental histological finding following cholecystectomy for gallstone disease & thus worsening the prognosis.⁴ Early and accurate histopathological diagnosis of gallbladder lesions may improve the patient management and prognosis⁵. Present study was conducted to analyze the histopathological changes associated with gallbladder disorders in order to ascertain the incidence, distribution as well as the histo-morphological spectrum of gallbladder lesions.

II. Aims & Objectives

To analyze the incidence various gallbladder lesions according to age and sex.

To study the histopathological spectrum of gallbladder lesions.

III. Materials & Methods

This study has been conducted in the department of Pathology, Siddhartha medical, Vijayawada from July 2017 to June 2019. This study comprised of 250 Cholecystectomy specimens of patients all age groups that were received in the department of Pathology during this period. Histopathological findings wre analyzed.

IV. Results

Out of 250 cases, 164 (65.6%) cases had Chronic cholecystitis followed by Acute cholecystitis 10 (4%) and Chronic acalculous cholecystitis in 43 (17.2%) , Cholelithiasis 4(1.6%) , Xanthogranulomatous cholecystitis 4(1.6%), Chronic cholecystitis with cereoid granuloma 2 (0.8%) , Mucocele 2 (0.8%), Adenomyomatous hyperplasia 1 (0.4%) and Carcinoma of gall bladder 3 (1.2%).

The incidence of non neoplastic lesions was peak in the age group of 41-60 years with female predominance . The gender distribution was (28.2%) male and (72.8%) female patients. Chronic cholecystitis is the most common lesion. Most of the of the specimens (92.65%) showed gall stones while rest of them were acalculous (17.4%). Majority were pigment stones (51.03%) followed by cholesterol (30.89%) and mixed stones (18.08%).

Table 1: Distribution of Gall bladder lesions

| Lesion | No. of cases | Percentage |
|-------------------------------------|--------------|------------|
| Chronic cholecystitis | 164 | 65.6% |
| Acute calculous cholecystitis | 10 | 4% |
| Chronic acalculous cholecystitis | 43 | 17.2% |
| Cholelithiasis | 4 | 1.6% |
| Cholecystitis with ceroid granuloma | 2 | 0.8% |
| Mucocele of gall bladder | 2 | 0.8% |
| Adenomyomatosis of gall bladder | 1 | 0.4% |
| Xanthogranulomatous cholecystitis | 4 | 1.6% |
| Gall bladder carcinoma | 3 | 1.2% |
| Total | 250 | 100% |

Table 2: Percentage based on presence /absence of stones

| Stones | No. of cases | Percentage |
|---------|--------------|------------|
| Present | 207 | 92.6% |
| Absent | 43 | 17.4% |

Fig 1: Distribution of various types of gall stones

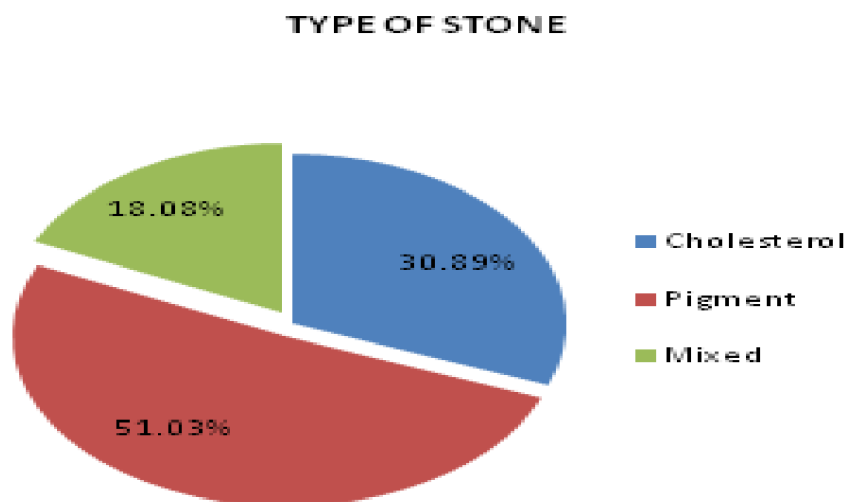


Table 3: Age incidence in various Gall bladder lesions

| LESION | AGE GROUP (YEARS) | PERCENTAGE |
|-------------------------------------|-------------------|------------|
| Chronic cholecystitis | 41-60 | 65.6% |
| Acute calculous cholecystitis | 41-60 | 4% |
| Chronic acalculous cholecystitis | 41-60 | 17.2% |
| Cholelithiasis | 21-40 | 1.6% |
| Cholecystitis with ceroid granuloma | 41-60 | 0.8% |
| Mucocele of gall bladder | 21-40 | 0.8% |
| Adenomyomatosis of gall bladder | 61-80 | 0.4% |
| Xanthogranulomatous cholecystitis | 41-60 | 1.6% |
| Gall bladder carcinoma | 41-60 | 1.2% |

Fig 2: Age incidence in various gall bladder lesions

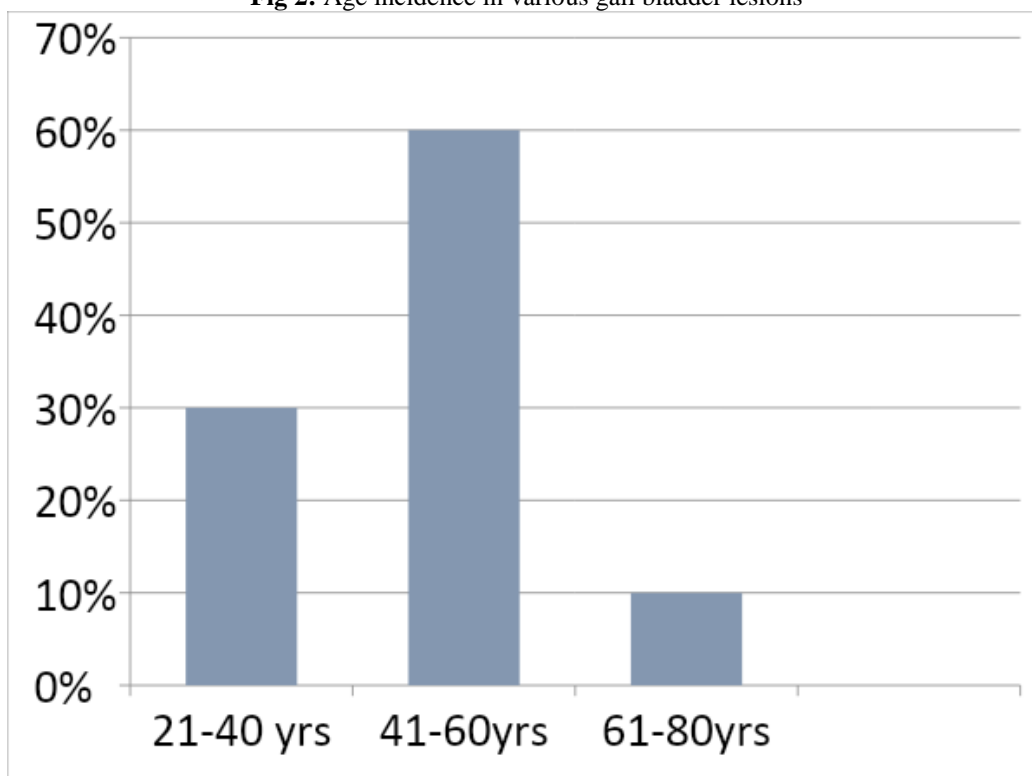


Table 4: Gender distribution of gall bladder

| GENDER | NUMBER | PERCENTAGE |
|--------|--------|------------|
| Male | 71 | 28.2% |
| Female | 179 | 72.8% |
| Total | | 100% |



Figure 3: Multiple cholesterol stones in chronic cholecystitis specimen

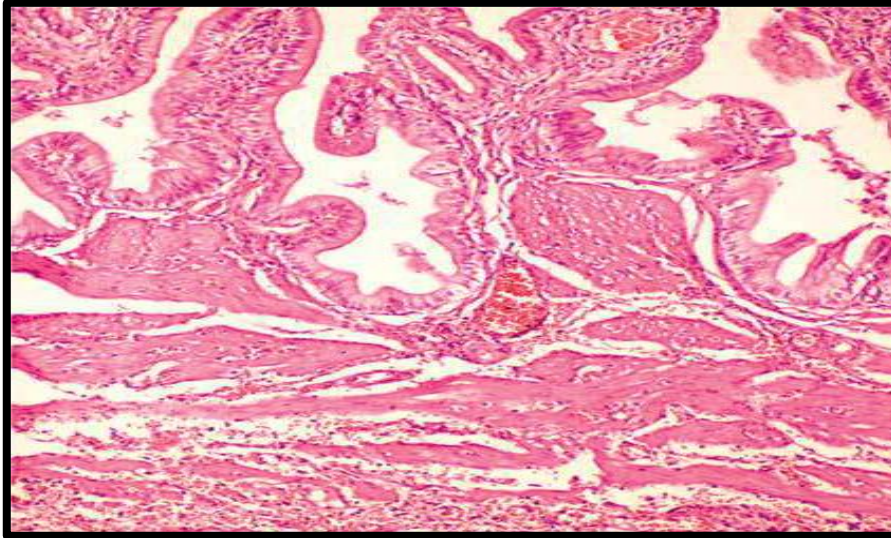


Fig 4: Chronic cholecystitis with mononuclear inflammatory infiltrate & muscular hypertrophy H&E 10X



Fig 5: Mucocoele of gallbladder

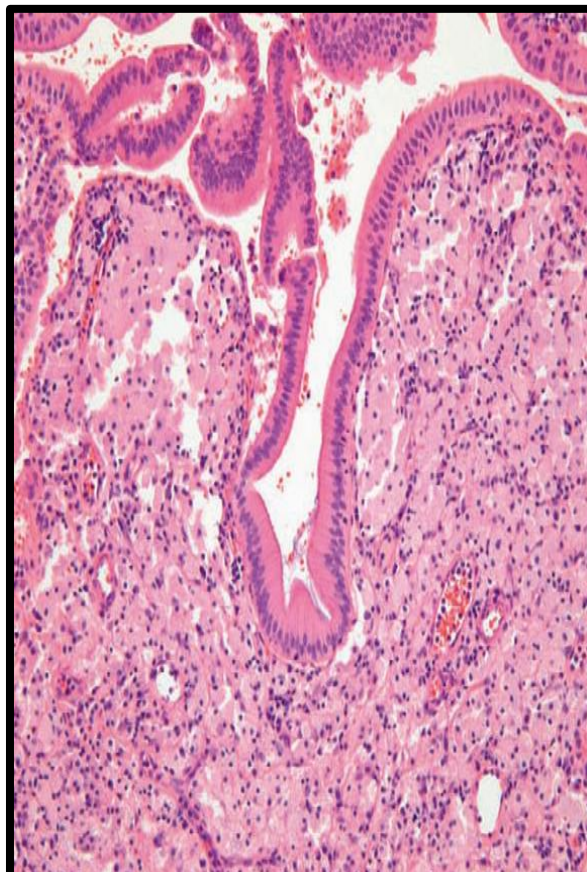


Fig 6: Flattened mucosa with mild chronic inflammatory infiltrate H&E 40X



Fig 7: Cholesterosis with linear yellow streaks

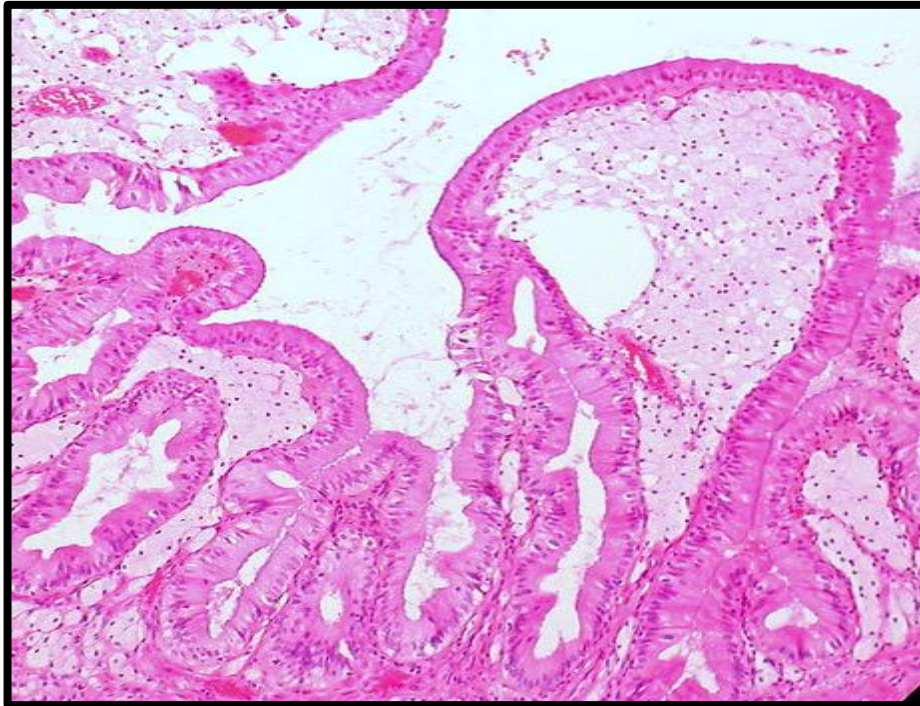


Fig 8: Cholesterolosis with foamy, lipid filled macrophages within lamina propria H&E 40X



Fig 9 : Xanthogranulomatous cholecystitis

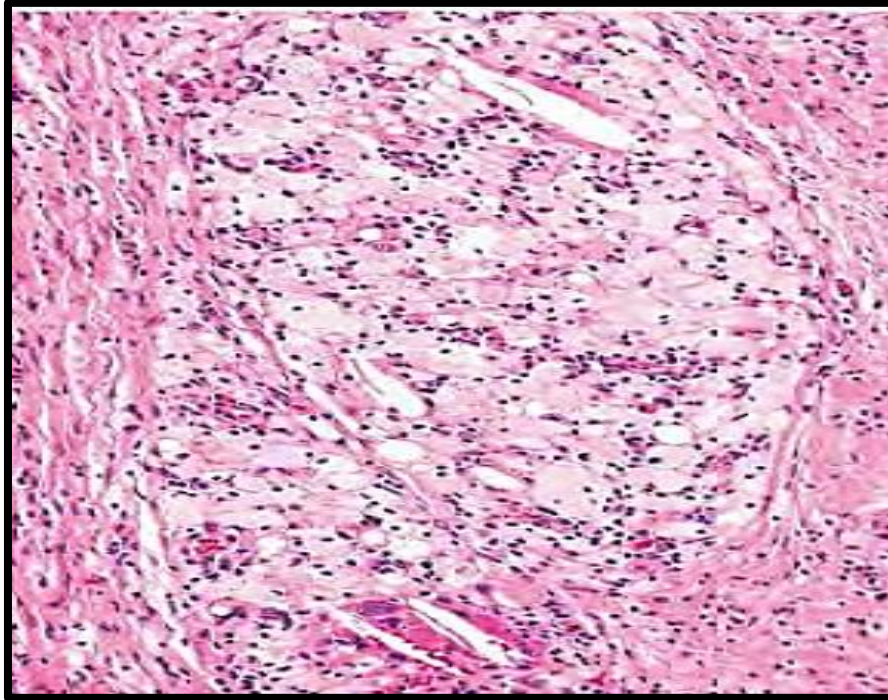


Fig 10: Xanthogranulomatous cholecystitis with predominantly foamy macrophages H&E 10X

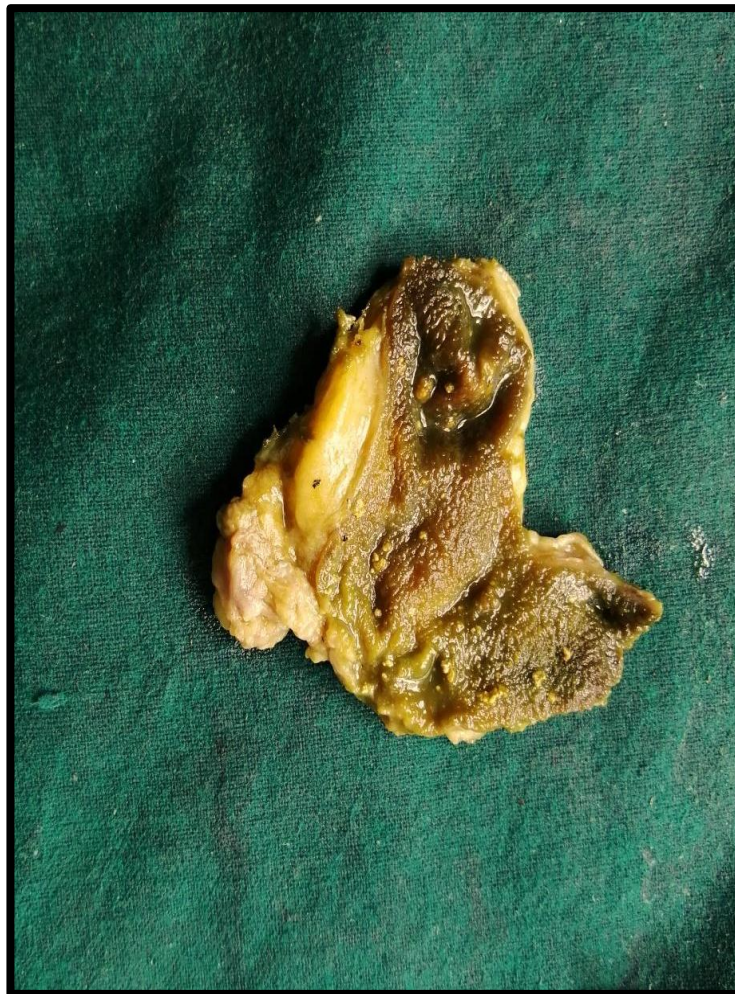


Fig 11: Ceroid granuloma with cholecystitis with yellow brown nodules

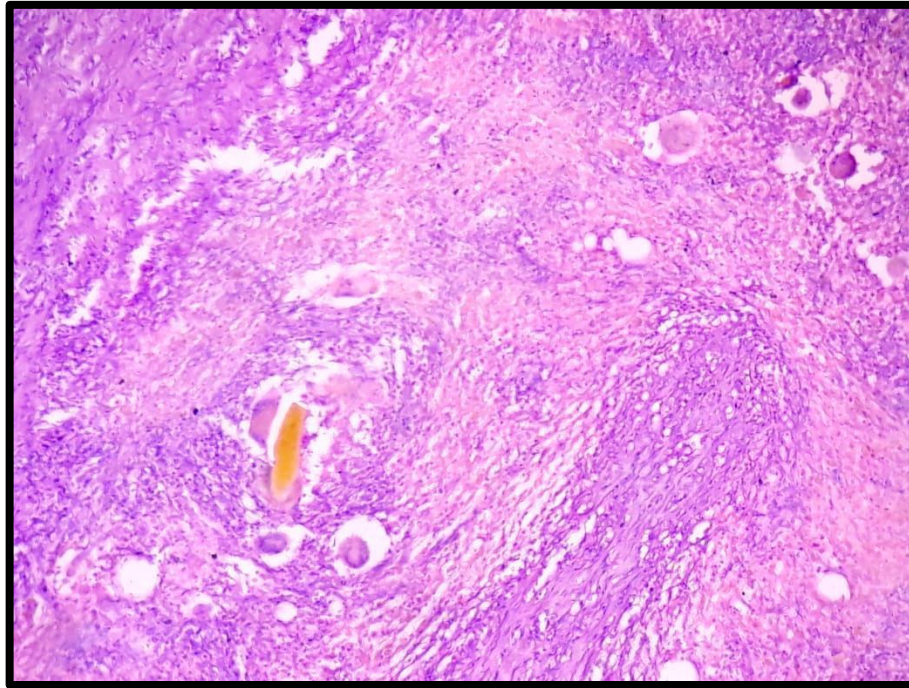


Fig 12: Ceroid granuloma with multinucleate giant cells surrounding the bile pigment, H&E 40X



Fig 13 :Adenomyomatous hyperplasia, segmental type with focal thickening of gallbladder wall

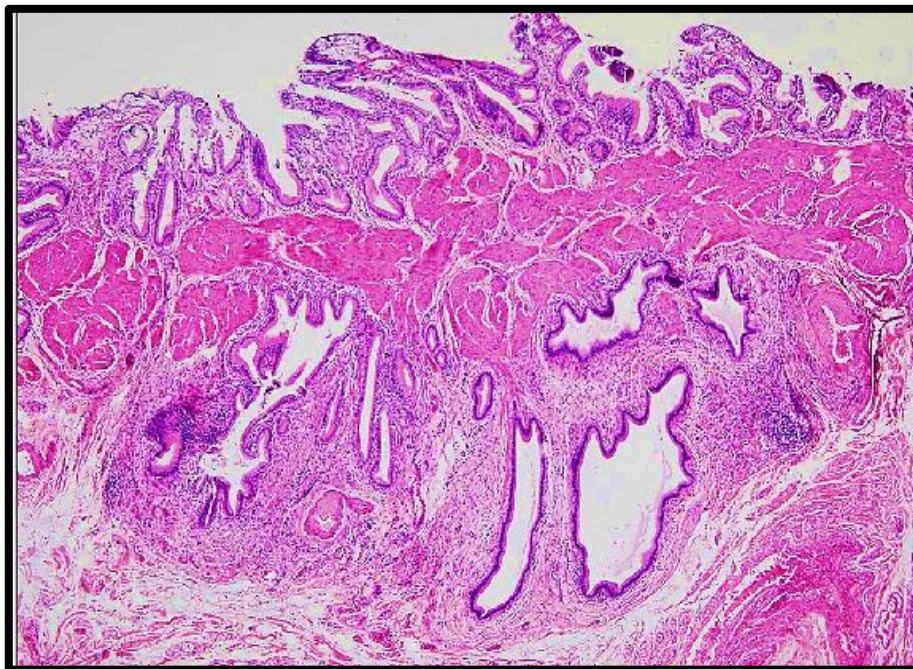


Fig 14: Adenomyomatous hyperplasia - Cystically dilated glands with epithelium showing metaplastic changes
H&E 10X



Fig 15: Gallbladder carcinoma

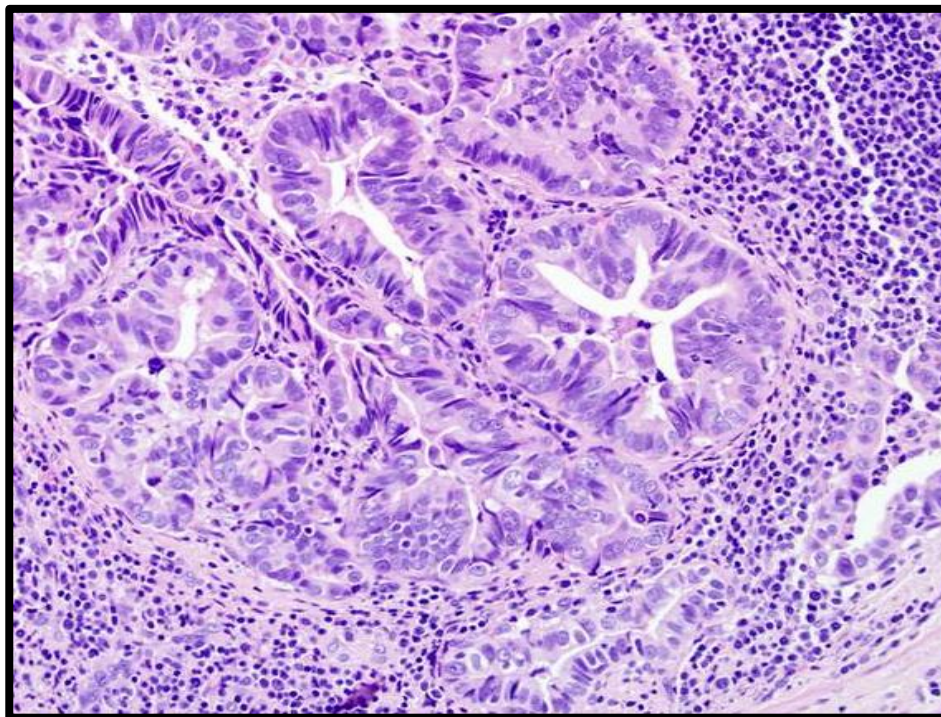


Fig 16: Well differentiated adenocarcinoma of gallbladder H&E 40X

V. Discussion

Gall bladder lesions are among the most common lesions encountered in clinical practice and gallbladder is one of the most common surgically resected specimen. In our study total 250 cases of cholecystectomy were studied in five years and a variety of both non neoplastic and neoplastic lesions were found. Due to change in life style, there is global increase in the incidence of various gallbladder lesions, so that the study was carried out to analyse various lesions of gallbladder.

In our study, the incidence of non -neoplastic lesions was peak in the age group of 41-60 years with female predominance which has similar outcome in a study done by Rakesh B.H et al.⁽⁸⁾ The neoplastic lesions were least common and comprised of 1.2%. In studies done by Ezhil Arasi et al⁽⁶⁾ and Wang et al⁽⁴⁾ there was varied proportion of neoplastic lesions and comprised of 5% and 4.5% respectively.

Chronic calculous cholecystitis was the most common lesion comprising 65.6 % of cases which is also a common observation reported by Dowerah et al⁽⁵⁾ and Wang et al.⁽⁴⁾ It is found that various gallbladder lesions are associated with gallstones. In our study, total 78.2% cases were associated with gallstones, which is concordant with the study of Wang et al.⁽⁴⁾ In our study pigment stones were more commonly found comprising 51.03% cases. In the study of Rakesh B.H et al⁽⁸⁾ and Bansal et al⁽⁷⁾ the pigment stones were found in proportion of 60% and 38%. Among neoplastic lesions the incidence was peak in the age group of 41 – 60 years while in study done by Sharma JD et al⁽²⁾ the peak incidence was found in the age group 50-60 years respectively. This indicates that there is an increase in the frequency of gallbladder carcinoma in older age groups and females were commonly affected. Like non neoplastic lesions, neoplastic lesions were also found to be associated with gallstones. It suggests that gallstone is an important etiological factor for development of carcinoma which is also supported by the study of Wang RT et al⁽⁹⁾. Many times the malignant lesions are encountered incidentally in specimens resected for cholelithiasis, inflammation, perforation or in suspected cases of xanthogranulomatous cholecystitis. In our study, 2 out of 3 cases of gallbladder cancer were found incidentally. Among carcinoma cases the proportion of incidentally diagnosed cases is significantly high which reflects the importance of histopathological examination of every specimen.

VI. Conclusion

Many cases of gallbladder carcinoma were found incidentally so, regardless of age group thorough sampling of thickened portion as well as any suspicious area of gallbladder specimen should be done followed by careful histopathological examination to avoid escape of any neoplastic change. It is possible to cure gallbladder cancer when tumours are treated surgically at an early stage.

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