

## Histopathological Study of Gall Bladder after Cholecystectomy from January 2013 to December 2018(6years) in RIMS, Ranchi (Jharkhand).

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**Abstract:** Diseases of gall bladder are not uncommon disorder. Most of the cases with gall bladder diseases admitted in hospitals require surgical intervention. Although gall bladder disease is most often found in women. Gall bladder diseases usually develop in people who are over 40 years of age and overweight. Abnormalities of the gall bladder depend up on the basic etiological factor such as inflammation, congenital anomalies, metabolic and tumors. Cholelithiasis and cholecystitis are common association. Diagnosis of carcinoma of gall bladder is made histopathologically rather than clinically. Microscopic examination of every excised gall bladder is mandatory on the basis of information and knowledge, early cholecystectomy in all patients with cholelithiasis and cholecystitis offer best hope of minimising the mortality due to carcinoma of gall bladder.

**Key words:** Cholecystectomy, Histopathologically, Cholelithiasis, Carcinoma

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### I. Introduction

The gall bladder is a pyriform sac. The gall bladder wall has layers unlike the intestine of the gall bladder has no submucosal layer. The muscle layer is not distinctly divided into longitudinal and circular layers. The serous layer is derived from peritoneum. The fibromuscular layer is a thin layer of fibrous tissue mixed with non-striated muscular fibres. They are arranged in loose bundles disposed in longitudinal, circular and oblique directions. Connective tissue contains elastic fibres. The mucous membrane or epithelial layer is made up of tall columnar cells. Mucous glands are only found in neck region. The epithelium is thrown into multiple folds and gives the gall bladder characteristic appearance under the microscope.

### Classification of Gall bladder diseases

1. Congenital
2. Inflammatory
3. Tumor of gall bladder i.e benign and malignant.

**Congenital anomalies are** 1) Agenesis of gall bladder. 2) Partial or complete duplication of gall bladder. 3) Bilobed, Septate and double fundus of gall bladder. 4) Septum projecting into lumen giving rise to stocking cap reflection. 5) Completely detached accessory lobe of liver situated on the surface of gall bladder.

➤ Inflammatory condition of gall bladder –

- 1) Acute cholecystitis
  - 2) Chronic cholecystitis
  - 3) Acute cholecystitis superimposed on chronic cholecystitis (Acute on chronic)
  - 4) Miscellaneous :- Tuberculosis, Syphilis, Actinomycotic and parasitic.
- Concretion- 1) Cholelithiasis 2) Cholesterosis
- Neoplasm 1) Benign 2) Malignant

**Acute cholecystitis:** – Acute cholecystitis is clinically defined as an episode of acute biliary pain accompanied by fever with right hypochondrial tenderness is three times more commonly in females than in males.

Acute cholecystitis is divided into two groups-

- 1) Acute calculous cholecystitis
- 2) Acute acalculous cholecystitis

Chronic cholecystitis – Chronic cholecystitis is classified into :-

- 1) Chronic calculouscholecystitis
- 2) Chronic acalculouscholecystitis
- 3) Xanthogranulomatouscholecystitis.

Chronic cholecystitis is almost always associated with gall stones . It is seen in more than 90% of patient with biliary tract disease. Cholelithiasis and cholecystitis occur together.

The gall bladder is either contracted, normal in size or enlarged .The wall is thickened to several times. Fibrosis of the wall is prominent and some wall having calcification. The connective tissue is infiltrated with lymphocytes, plasma cells, large mononuclear cells and eosinophils.

➤ **Xanthogranulomatouscholecystitis-**

Xanthogranulomatouscholecystitis is an uncommon form of chronic cholecystitis characterised by a focal or diffuse inflammatory process and fibrosis. It appears as poorly demarcated firm yellow mass that resemble a carcinoma clinically and macroscopically. Histopathological examination shows round to spindle – shaped lipid laden macrophages,plasma cells and fibrosis, cholesterol cleft,foreign body giant cells and inflammatory cells like lymphocytes, eosinophils and neutrophil are commonly seen.

**Cholelithiasis(concretion)**

Gallstones are formed from constituents of the bile(cholesterol, bile pigments and calcium salts ) along with other organic components.It is more common in women than men .It is said that gallstones (cholesterol stone)are common in 4F<sup>2</sup>'s-Fat, Female, Fertile (multipara) andForty.The incidence increases with age and at the age 60 years about 25% women have stones .

➤ **Neoplasm of Gall bladder**

The tumour of gall bladder may be divided into benign and malignant .Benign tumour of gall bladder is very rare. It is further divided into a) Adenoma b) Papilloma c) Adenomyoma and d) Fibroadenoma.

**Carcinoma of Gall bladder**

Carcinoma of gall bladder was first describe by Stoll in 1777 and it has been recognised as a highly malignant neoplasm of older females.Nevin and associates (1976) classified carcinoma of the gall bladder on the basis of staging and histologic grading .They have classified the carcinoma into five stages:-

Stage –I –Tumor invades mucosa .

Stage –II-Tumor invades muscularis and mucosa.

Stage –III-Tumor invades subserosa, muscularis and mucosa.

Stage –IV-Tumor invades all layers of the gall bladder wall and cystic lymph nodes.

Stage –V-Tumor extension into the liver or distant spread.

➤ **Histological grading are classified as-**

Grade I- Well differentiated

Grade-II-Moderately differentiated

Grade –III-Poorly differentiated

Grade-IV-Anaplastic varieties

## **II. Method and Materials**

The present study comprises of detailed, gross and histopathological examination of gall bladder removed surgically from 2000 patient of gall bladder disorders admitted in RIMS, Ranchi (Jharkhand). Age, sex, presenting symptoms and signs were collected.

Each specimen has been studied under the following heading;-1) Age and sex of the patient. 2) Presence or absence of gallstones.

3) Macroscopic examination of gall bladder specimen including size, shape, thickening of wall, any visible growth or suspicious area, colour of mucus membrane and evidence of cholesterosis. Representative tissue were obtained from specimens from suspected areas then 1) Fixation of tissue 2) Dehydration 3)Embedding 4) Section cutting 5) Staining procedure –Routine haematoxylin and eosin staining.

## **III. Result And Observation**

Specimen of gall bladder received in Department of Pathology, fromSurgery department of the patients admitted in RIMS,Ranchi (Jharkhand) for histopathological study.Specimens from both sexes of different ages and all socioeconomic group were include in this study. Total 2000 cases of gall bladder were studies. Maximum number of cases were from 31 to 40 years of age group (35%) followed by 41-50 years of age group (30%).

**Table –I** Showing the age –wise incidence of cases:-

Age group (in years)	Total no. of cases	Percentage
11-20	20	1
21-30	340	17
31-40	700	35
41-50	600	30
51-60	240	12
61-70	100	05
Total	2000	100

**Showing the sex-wise incidence of cases in General**(Table –II)

Female	Male	Male and Female ratio	Total number of cases
1680(84%)	320(16%)	1:5.25	2000

Majority of the cases (84%) were female with a male and female ratio 1:5.25.

**Showing the age and sex wise distribution of cases:-**(Table –III)

Age group (in years)	Male		Female	
	No.	%	No.	%
11-20	-	-	20	1
21-30	20	1	320	16
31-40	40	2	660	33
41-50	160	8	440	22
51-60	80	4	160	8
61-70	20	1	80	4
Total	320	16	1680	84

In females most frequent age group was 31-40 years (33%) followed by 41-50 years (22%). For male, most frequent age group was 41-50 years (8%) followed by 51-60 years(4%).

**Showing the relative frequency of gall bladder disease after cholecystectomy**

Name of disease	No of cases
<b>Inflammatory</b>	
1.Acute cholecystitis	100
2.Chronic cholecystitis	1560
3.Acute on chronic cholecystitis	80
<b>Concretion</b>	40
1.Cholesterosis	
<b>Neoplasm</b>	
1.Benign	Nil
2.Carcinoma	220
<b>Congenital abnormalities</b>	Nil

**Showing the relative frequency of Gall bladder disease after cholecystectomy.**

Most of the gall bladder histopathologically found mainly chronic cholecystitis (78%) followed by carcinoma of gall bladder (11%).

**Table –VI** Showing average age incidence inrelation to gall bladder disease, their frequency in different age group.

Age group (in years)	Chronic cholecystitis	Acute cholecystitis	Acute on chronic cholecystitis	cholesterosis	Benign	Malignant	Total
11-20	-	20	-	-	-	-	20
21-30	280	60	-	-	-	-	340
31-40	620	20	40	-	-	20	700
41-50	500	-	40	20	-	40	600
51-60	100	-	-	20	-	120	240
61-70	60	-	-	-	-	40	100
Total	1560	100	80	40	0	220	2000
Average age	39.35 yrs	25.5 yrs	40.5 yrs.	50.5 yrs.	-	53.68 yrs	

**Table-V**Showing the relative frequency of different types of carcinoma

Type of carcinoma	Frequency
Adenocarcinoma well differentiated	140 (63.63%)
Undifferentiated adenocarcinoma	60 (27.27%)
Squamous cell carcinoma	20 (9.09%)
Adenoacanthoma	--

Majority of the cases (63.63%) were well differentiated adenocarcinoma followed by undifferentiated adenocarcinoma (27.2%).

#### **IV. Discussion**

In this study average age incidence for female patients suffering from gall bladder disease was 39.30 years and for male is 46.79 years. Average age incidence for both male and female was 40.50 years.

On analysing the gall bladder disease in present series, it was observed that female outnumbered male in frequency. Ratio between female and male is 5.25:1. Out of 2000 cases 84% patients were female and 16% were males. Acute cholecystitis superimposed on chronic cholecystitis.(4%).

Maximum number of female patients suffered from chronic cholecystitis belongs to 31-40 years of age group with an average age incidence of 40 years.

Maximum number of male patients suffered from chronic cholecystitis belong to 41-50 years age group with an average age incidence of 47 years.

In carcinoma of gall bladder age incidence was higher than benign diseases. In carcinoma group of patients range from 40 years to 62 years. Maximum number of patient was between 51 to 60 years of age. Average age incidence for female was 54.6 years and for male was 58 years. Male female ratio was 1:10.

Out of 220 cases of carcinoma of gall bladder, only 20 patient was male. In acute cholecystitis, maximum number of patient belong to 20-30 years of age group with an average age incidence of 29.6 years.

Male to female ratio was 0:5 for cholesterosis. Average age incidence was 50.5 years with male to female ratio of 1:1. In acute cholecystitis superimposed on chronic cholecystitis, the average age incidence was 40.5 years.

Cholelithiasis was found in 82% of cases in present series of which 71% were females and 11% were males. Stone present in majority of cases were multiple and mixed type. In chronic cholecystitis 67% of cases were associated with cholelithiasis out of which 57% were females and 10% were males.

In carcinoma of gall bladder only 4.54% of cases were associated with cholelithiasis and all those patients were females. In acute cholecystitis 60% were associated with cholelithiasis.

In cholesterosis and acute cholecystitis superimposed on chronic cholecystitis. 100 % cases were associated with cholelithiasis.

Out of 220 cases of carcinoma 140(63.6%) were detected as well differentiated adenocarcinoma type, 60 (27.2%) were undifferentiated types and 20 (9.1%) squamous cell carcinoma.

In our study shows regarding age incidence, gall bladder diseases may affect the people even in lower age. Early diagnosis of cholecystitis and cholelithiasis followed by early cholecystectomy and further management on the basis of histological finding has greatly reduced the mortality from gall bladder disease.

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