

## Histopathological Analysis of Cholecystectomy Biopsies

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### Abstract:

The present study includes 304 laparoscopic cholecystectomy biopsies which were processed for pathological examination at the pathology laboratory of Basrah general hospital during 2010. Chronic cholecystitis was the most common pathological diagnosis comprising 80.7 % in males and 93.1 % in females, while gallstones were found in 74 % of the examined bladders, most of which were chronic cholecystitis. Chronic cholecystites were characterized by significantly thin walls. The mean age was around 40 years for both sexes. Carcinoma of the bladder was the least pathological diagnosis (0.3%).

**Keywords:** gall bladder, Chronic cholecystitis, cholelithiasis, laparoscopy.

التحليل النسيجي المرضي لخزعة المرارة المستأصلة جراحيا

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### الخلاصة:

اشتمل البحث على 304 خزعة نسيجية للمرارة استؤصلت جراحيا وأرسلت للمختبر المركزي للأمراض في مستشفى البصرة العام خلال عام 2010. وجد بالفحص النسيجي لخزعة المرارة بان التهاب المرارة المزمن هو أكثر الحالات المشخصة تكرارا. كما وجد بان 74% من الحالات احتوت على حصى المرارة وان اغلبها مصاب بالتهاب المرارة المزمن الذي تميز بجدار ذو سمك قليل. بلغ متوسط العمر للمرضى المشمولين 40 عاما وللجنسين وأكثرهم من الإناث. شكل سرطان المرارة اقل الإصابات المشخصة بالفحص النسيجي (0,3%).

### INTRODUCTION:

Cholecystectomy is the most common surgical procedure and approximately 600,000 cholecystectomy are performed each year in the United States of America (1). The advent of

laparoscopic cholecystectomy has revolutionized the manner in which routine gallbladder surgery is performed; however it has not altered the type of specimen that the pathologist receives for processing. With a few exceptions, the diagnosis of disorders of the gallbladder is quite straight

forward, as most diseases are associated with cholelithiasis (1,2). Gallstone disease is the most common disorder affecting the biliary system. The true prevalence rate is difficult to determine because calculus disease may often be asymptomatic. There is great variability regarding the worldwide prevalence of gallstone disease. High rates of incidence occur in the United States, Chile, Sweden, Germany, and Austria. The prevalence among the Masai peoples of East Africa is 0% whereas it approaches 70% in Pima Indian women. Asian populations appear to have the lowest incidence of gallstone disease (3). In the United States, approximately 10–15% of the adult population has gallstones, with approximately one million cases presenting each year. Gallstones are the most common gastrointestinal disorder requiring hospitalization (4-7).

Cholecystectomy specimens are commonly received in most general histopathology laboratories. They are usually removed for the treatment of chronic cholecystitis and cholelithiasis. Most gall bladders are received fixed in formalin, incised but not fully opened and everted, or (particularly in the early days of laparoscopic Cholecystectomy) in multiple pieces. Macroscopic examination includes inspection of the mucosa cleaned of all calculus debris, and examination of any included calculi to identify them as mixed, pigment, or cholesterol stones. A description usually includes three dimensions and wall thickness; the presence or absence of a cystic lymph node, plastic clips on the neck, and whether the gall bladder was received opened or unopened, with or without stones or stone debris (6-8). The aim of the study is to find the main histopathological changes in cholecystectomy biopsies sent for the laboratory during 2010 in Basrah.

### Materials and Methods:

Histopathological examination of all cholecystectomised gall bladder biopsy specimens received at the pathology laboratory of Basrah General Hospital during 2010 was done. The total

number of biopsies was 304 specimens, which comprises 7.4 % out of a total number of 2250 solid specimens received during 2010. Laparoscopic cholecystectomy was performed for symptomatic and asymptomatic cholecystitis, gall stones, and at other surgical conditions.

After gross examination of the received specimens and estimation of wall thickness, the specimens were processed by the conventional methods applied in pathology laboratories, starting from overnight formalin fixation to dehydration by ascending serial alcohol concentrations followed by xylene and hot paraffin impregnation. Paraffin blocks were then made and microtome-made slices were prepared to hematoxyline and eosin staining followed by mounting and microscopic examination (9,10).

### Results and Discussion:

The total number of cholecystectomy biopsies was 304, of which 57(18.7%) were taken from male patients and 247 (81.3%) from females. Table (1) shows the mean ages of patients in this study. Both males and females were almost of the same age of 40 years with most of the patients falling in the age groups between 25 and 45 years. Other studies presented comparatively similar findings for instance 18% males and 82% females in a study from Saudi Arabia but with a mean age of 37 years (11).

From table (2) we notice that chronic cholecystitis represents the commonest histopathological diagnosis encountered in the series, both in males (80.7%) and in females (93.1%), whereas the other diagnoses were of less importance, a finding which is consistent with other studies (7,8,11).

Cancer of the gallbladder was found incidentally in one case (a 65 years female) representing only 0.3% of the total patients. It was grossly an intraluminal polypoid tumour occluding the cavity of the gallbladder, the dimensions of which were 4.5x3x2.5 cm. The microscopic examination revealed well differentiated

adenocarcinoma limited to the gallbladder without further extensions outside. Many studies showed similar findings ,as gallbladder carcinoma is rarely found in cholecystectomised gall bladders ( 1,5,6,7,11)

Cholelithiasis (gallstone disease) was found in 225 (74 %) gallbladders, of which 209(75%) had chronic cholecystitis and almost all acute cases had gallstones, see table (3). These findings were statistically significant (P<0.039). Other studies showed comparatively similar findings ( 2,6,7, 10,11,12) .

Table (4) shows the wall thickness of gallbladder biopsies according to type of diagnosis, ranging from 0.2 to 1.5cm. The predominant thickness was 0.3cm accounting for 103 (33.8 %) cases which were mainly diagnosed as chronic cholecystitis. This finding contrasts with other authors who state that the wall thickness is increased in the chronic state due to fibrosis and congestion (3,13 ). However acute cholecystitis is almost always associated with increased wall thickness as seen in the present study.

From table (5) it is shown that gallstones are associated with a wide range of wall thickness, with most cases falling in the group of 0.2 to 0.3 cm. These findings were of low statistical importance, indicating that the presence or absence of gallstones has very little effect on wall thickness (12,13).

Its concluded from the present study that the histopathological diagnosis of most cholecystectomy biopsies are chronic cholecystitis associated with gallstones and of significantly decreased wall thickness .Whereas gallbladder cancer is very rarely found in cholecstectomy specimens processed for our histopathology laboratories.

Here a question is raised about the necessity of sending every gallbladder biopsy for the pathology laboratory. Some authors agree about this proposal (14,15)

Table (1) Age Sex distribution of patients

Sex	number	Mean age	Standard deviation
Male	57	40.67	11.46
Female	247	40.59	12.67
Total	304	40.61	12.46

Table (2) Type of Histopathological Diagnosis by Gender

Diagnosis	Male	Female
Chronic cholecystitis	46 (80.7%)	230 (93.1%)
Acute cholecystitis	3 (5.3%)	2 (0.8%)
Acute on chronic cholecystitis	8 (14%)	12 (4.9%)
Gangrenous cholecystitis	0	2 (0.8%)
Carcinoma	0	1 0.3%)

Table(3)Diagnosis vs. presence /absence of gallstones

Total	Diagnosis					Stone Present
	5	4	3	2	1	
225 (74%)	0	2	10	4	209 (75.7%)	Stone Present
79 (26%)	1	0	10	1	67 (24.3%)	No stone
304	1	2	20	5	276	

Table (4) Wall Thickness of Gall Bladders According to Diagnosis

Wall thickness cm.	Chronic cholecystitis	acute cholecystitis	acute/chronic cholecystitis	Gangrenous cholecystitis	carcinoma	Total
0.2	85	1	0	0	0	86
0.3	96	0	6	0	0	103
0.4	26	0	2	1	0	29
0.5	55	3	8	1	0	67
0.6	2	0	0	0	0	2
0.7	5	0	1	0	1	7
0.8	0	1	2	0	0	3
1.0	6	0	0	0	0	6
1.5	0	0	1	0	0	1
	276	5	20	2	1	304

Table (5) Gall bladder wall thickness vs. presence/absence of stone

Total	stone		Wall-thickness cm.
	absent	present	
86	21	65	0.2
103	23	80	0.3
29	8	21	0.4
67	20	47	0.5
2	1	1	0.6
7	2	5	0.7
3	2	1	0.8
6	2	4	1.0
1	0	1	1.5
304	79	225	Total

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