

# Role of Routine Histopathology in the Diagnosis of Suspected Carcinoma in Gallbladder Specimens from Gallstone Disease

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## ABSTRACT

**Introduction:** A malignancy with a particularly high fatality rate is gallbladder cancer. Unfortunately, it is standard practice to throw away gallbladder samples after cholecystectomy if cancer is not detected. In order to determine the prevalence of gallbladder cancer in patients who had undergone cholecystectomy, routine histopathology specimens were examined, along with their clinico-pathological characteristics.

**Methods:** This was a two-year cross-sectional study that included 442 individuals who had cholecystitis that was either acute or chronic and was brought on by cholelithiasis and treated with cholecystectomy. During surgery, gallbladders that displayed glaring anomalies suggestive of localized or infiltrative cancer were also disregarded. Each and every gallbladder specimen was sent for histopathological analysis.

**Results:** During a two-year period, 442 individuals with symptomatic gallstones underwent cholecystectomy surgery. 1:4 was the male to female ratio. 29.4 percent of the patients were discovered in their fourth decade of life. The majority of patients (95.2%) complained of upper abdominal pain that had varied in intensity. For histopathology, all the samples were sent. In 380 instances (85.9%), chronic cholecystitis was present (including intestinal metaplasia and dysplasia). In 50 of the patients (11.3%), acute cholecystitis was present (including empyema and mucocele). Twelve gallbladders (2.7%) had cholelithiasis and signs of adenocarcinoma with varied degrees of differentiation.

**Conclusion:** Gallbladder carcinoma is frequently discovered by accident. As the only method for early detection of subclinical cancers, we strongly advise routinely sending all cholecystectomy tissues to the histopathology lab.

## 1. INTRODUCTION

One of the worst cancers in terms of morbidity and mortality is gallbladder carcinoma. Patients having surgical intervention for chronic cholecystitis with cholelithiasis frequently have it as an underlying condition. [1] Gallstones are thought to play a significant etiological role in the development of cancer through long-term chronic inflammation. From 0.3 to 12 percent of those with gallstones also have gallbladder cancer. Therefore, histopathological evaluation is required for the diagnosis of early carcinomas.

Patients with gallbladder cancer found incidentally in early stage disease are expected to have a good prognosis and have longer survival times. [2] Since a large portion of Bangladesh's population has lower socioeconomic position and fewer access to appropriate health facilities, early stage cancer may go undetected, resulting in a low chance of survival.

Gallbladder specimens that are discarded before undergoing histological investigation may be missing discrete diseases such premalignant lesions like dysplasia, carcinoma-in-situ, and early carcinomas. Our standard procedure is to only do histopathology on gallbladder specimens that exhibit glaring abnormalities. This method is predicated on the idea that macroscopic anomalies are invariably linked to gallbladder cancer. The selective approach is simultaneously defended on the grounds that it lessens the workload of the pathologist and the financial obligations of the patient. This runs counter to the widespread practice of routinely sending gallbladder specimens for histological investigation with the express intent of identifying distinct cancer in early stage. Gallbladder cancer may physically appear as a polypoid mass (30%) or a mass that is growing diffusely (70%). It may be challenging to distinguish diffuse cholecystitis from chronic cholecystitis. Because not all gallbladder carcinomas are visible on a gross inspection, every removed gallbladder must be examined under a microscope. After the surgery of a gallbladder that the surgeon initially thought had simply lithiasis and inflammation and had been discarded, an unanticipated metastatic tumor may occasionally be discovered in the liver. [3]

Given this context, we conducted this study to determine the prevalence of gall bladder cancer that hasn't been diagnosed through normal histopathology on cholecystectomy material and whether histology can be carried out on each gallbladder specimen. This would ensure that any suspected gallbladder cancer is removed, which will help to lower mortality rates.

## 2. METHODS

This two-year cross-sectional study was carried out in Department of Surgery at Santosh Medical College and Hospital in Ghaziabad. Patients, with acute or chronic cholecystitis owing to cholelithiasis, admitted to and operated throughout the specified study period were recruited. They are 442 in total. All patients were required to sign written informed consent forms.

Patients with gallbladder cancer were excluded based on clinical grounds and verified by CT or ultrasonography. During surgery, gallbladders that displayed glaring anomalies suggestive of localized or infiltrative cancer were disregarded. In order to assess any palpable masses before surgery, a complete clinical examination and detailed history of the patient were performed. Co-morbidity was examined systemically to look for it. All patients underwent baseline and targeted examinations, including liver function tests and abdominal ultrasounds. A data sheet was used to document clinical presentations, investigations, preoperative diagnoses, and intraoperative findings. For histology, all gallbladder specimens were sent.

From the histopathology report, gross observations and histological diagnoses were highlighted. The information gathered was recorded on a proforma that had been previously created.

### 3. RESULTS

A total of 442 individuals with symptomatic gallstones were admitted for cholecystectomy over the course of two years. With a male to female ratio of 1:4, there were 362 females and 80 males. The median age was 35 years, with a range of 20 to 75 years. The majority (130/442 instances, 29.4%) of the patients were discovered in their fourth decade of life. The majority of patients (93.54%) complained of upper abdominal pain that had varied in intensity.

**Table 1: Age and Symptom distribution among patients.**

Variable	No. of patients	%	
Age-group	≤ 20	7	1.5
	21-30	100	22.6
	31-40	130	29.4
	41-50	90	20.3
	51-60	87	19.6
	61-70	32	7.2
	71-80	03	0.68
	Total	542	100
Symptoms	Upper abdominal pain	421	95.2
	Flatulence and/ or dyspepsia	263	59.6
	Intolerance to fatty food	57	12.9
	Nausea and/ or vomiting	54	12.2

All 442 gallbladders were palpated and opened intraoperatively to check for any polypoid development, infiltrating mass, elevated mucosal plaque, or focal or widespread thickening of the gallbladder wall. After that, the samples were sent for histology. In seventy of the patients (15.8%), acute cholecystitis was present (including empyema and mucocele). In 436 instances (98.6%), chronic cholecystitis was present (including intestinal metaplasia & dysplasia). Twelve gallbladders (2.7%) had cholelithiasis and signs of cancer with varied differentiation.

**Table 2: Histopathological findings of the cases**

Histopathology	Male	Female	Total	%
Acute cholecystitis (including empyema, mucocele)	22	28	50	11.3
Chronic cholecystitis (including intestinal metaplasia & dysplasia)	76	304	380	85.9
Adenocarcinoma	2	10	12	2.7

Total	130	412	442	100
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#### 4. DISCUSSION

The late presentation, high tendency for metastasis, and lack of effective treatment for gall bladder carcinoma result in a high fatality rate. It is still a rare cancer in the United States and is typically associated with the elderly. [4] But in this case, the scenario is distinct. The majority of the study's participants were discovered in their fourth decade of life. The study's male to female ratio is one to three. A comparable survey also revealed a majority of women (Channa et al., 2007). [5] This is a little sooner than what other Indian research have reported (Pandey et al., 2001; Kapoor et al., 2003). [6,7] Growing awareness, easy access to medical facilities, and geographic spread could all contribute to an increase in early detection rates.

Compared to Laghari et al's findings, which stated that all patients had upper abdominal discomfort, more than 93% of patients in this study had upper abdominal pain. [8] That might be as a result of our practice's frequent usage of proton pump inhibitors. We rule out any signs of cancer in the patients, both clinically and through the ultrasound examination.

In this investigation, every patient had a history of either acute or chronic cholecystitis. Patients with any clinical characteristics or research findings that support gallbladder cancer are excluded. Typically, gallbladder cancer lacks any distinctive clinical characteristics. More than 90% of patients report with acute or chronic cholecystitis symptoms. [13] For both early and late gallbladder cancer, ultrasound has a high degree of diagnostic accuracy. On preoperative ultrasonography, none of the twelve carcinomas in this series were identified. Additionally, when these twelve gallbladder specimens were opened during surgery, there was no macroscopic indication of cancer in any of them. This is in contrast to the study by De Zoyasa et al., which suggests a more selective approach to gallbladder histology which may have saved both time and cost without having any negative effects on patients' wellbeing. In that study, all four cancers were suspected either on preoperative ultrasound or grossly during surgery. [14] Other research have made recommendations and similar observations. [15,16] However, we support routine histopathology of every gallbladder removed during surgery because the resulting report would provide firm proof of incidental cancer.

All of them were found to have pathological T1 or T2 stages, according to this investigation, and none had distant metastases. Radical resection is strongly advised in stages T1 and beyond, despite the fact that simple cholecystectomy is thought to be sufficient in stages T1 carcinomas. According to Yi et al. (2013), the reoperation should be carried out as soon as possible, ideally within 10 days of the initial procedure. [24] This highlights how crucial it is to examine each cholecystectomy specimen histopathologically, regardless of the clinical outcome. No case of squamous cell carcinoma or another type of malignant histology was observed; all cases were adenocarcinomas.

#### 5. CONCLUSION

The diagnosis of gallbladder cancer incidentally is not uncommon. On further histological evaluation of gallbladder specimens, which exhibited no overt signs of cancer, we found evidence of malignancy in twelve (2.21%) patients. These instances lacked any symptoms that may have pointed to an underlying malignancy, and no preoperative investigations revealed any evidence of cancer. Because gall bladder cancer can be found early and may be

treated, and because unexpected carcinoma can only be found by histological inspection, we advise that every single cholecystectomy material be routinely submitted to the histopathology laboratory.

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