

# Postoperative Histopathology Findings of Ultrasonographically diagnosed Gallbladder Polyp In 32 Patients.

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## Abstract

**Background/Objective:** 'Polypoid lesions of gallbladder' (PLGs) are common incidental finding on ultrasound examinations of the abdomen. The optimal management of PLGs is ill-defined and controversial. The aim of this retrospective study is to assess the post-surgery histopathology findings of PLGs. **Materials And Methods:** Clinical and histopathological data of patients who had cholecystectomies, open or laparoscopic, from June 2004 to June 2009 at Patan Hospital, PAHS for PLGs detected by USG were analyzed retrospectively. **Results:** Out of total 32 USG diagnosed PLGs, one (3%) did not have polyp in surgical specimen. Remaining 31 cases were analyzed. Of 31 cases, 22 (71%) were female. Average age was 40 years (22 to 69 years) and 23 (74%) were over 50 years. Histopathology revealed 26 patients (84%) had pseudo polyps (cholesterosis, cholesterol or inflammatory polyps) and 5 true polyps of which 2 were malignant. 24 (77%) patients had polyps equal to or smaller than 5 mm, 3 were 6-10 mm and 4 were >10 mm. 26 (84%) had single polyp. In 14 patients (45%) stone was present together with polyps. All 5 neoplastic polyps were over  $\geq 5$  mm and only one was suspicious of malignancy (a 30 mm polypoid adenocarcinoma) on USG, while another 5 mm adenocarcinoma was reported as benign preoperatively. All patients had uneventful postoperative recovery. **Conclusion:** Histopathology analysis of PLGs is the gold standard to identify malignancy. Ultrasound has been used extensively in the pre-operative management of these lesions, but is unable to differentiate between benign and malignant PLGs with certainty. Surgical intervention should be considered in PLGs  $\geq 5$  mm detected by USG and in whom long-term follow-up cannot be completed.

## INTRODUCTION

The 'polypoid lesions of the gallbladder' represents a wide spectrum of findings with elevated lesions of the mucosal surface of the gallbladder. PLGs are classified into pseudo polyp (adenomatous hyperplasia, adenomyoma, inflammatory polyp, cholesterol polyp), and true polyps. True polyps or neoplastic polyps are further divided into benign-adenomas and malignant- adenocarcinoma.<sup>1</sup> PLGs are mostly asymptomatic. Easy availability and wide spread use of ultrasonography (USG) has led to increase in incidental detection and diagnosis of PLGs. Prevalence of PLGs is 3-7% in healthy subjects, and 2-12% in cholecystectomy specimens.<sup>4-5</sup>

Malignant polyps are found in 0% to 27% of PLGs.<sup>6,7</sup> However, conventional USG, or even new improved tools like endoscopic ultrasound (EUS) or contrast-enhanced USG, computed tomography, magnetic resonance imaging, endoscopic retrograde cholangiography do not accurately

differentiate between benign, pre-malignant, or malignant polyps.<sup>8-13</sup>

Gallbladder cancer is thought to arise from adenomas that undergo malignant transformation, the 'adenoma-adenocarcinoma sequence' with increased risk of cancer as size of polyp increases.<sup>14,15</sup>

Some of the reported risk factors for malignant PLGs are older age, size over 10 mm, associated gallstone, and symptomatic polyp.<sup>7,8,16-22</sup> The aim of this study is to evaluate characteristics of benign and malignant polyps in local scenario after post operative histopathology.

## MATERIALS AND METHODS

This is a review of 32 patients who were diagnosed with gall bladder polyp by USG and underwent open or laparoscopic cholecystectomy from June 2004 to June 2009 at Patan Hospital, PAHS. Post operative gall bladder specimen did

not have polyp in one (3%) female patient. Data of remaining 31 patients were analyzed.

## RESULTS

There were 32 patients with PLGs detected on USG who underwent open or laparoscopic cholecystectomy during June 2004 to June 2009 at Patan Hospital, PAHS. One patient (3%) had no polyp detected from gall bladder specimen. Records of remaining 31 patients were analyzed (Table 1). 23 patients (74%) were women, and 8 (26%) were men. Average age was 40 years (range 22 to 69 years). Six patients (19%) had vague abdominal symptoms of epigastric discomfort. Majority of PLGs, in 26 patients (84%) were pseudo polyps (cholesterosis, cholesterol or inflammatory polyps). There were 5 (16%) true polyps. All the 5 neoplastic PLGs were over  $\geq 5$  mm and only one was suspicious of malignancy (a 30 mm polypoid adenocarcinoma) on USG, while another 5 mm adenocarcinoma was reported as benign preoperatively. Twenty four patients (77%) had PLGs equal to or smaller than 5 mm, 3 were 6-10 mm and 4 were  $>10$  mm. 26 (84%) had single polyp. In 14 patients (45%) stone was also present. Similarly, other two patients suspicious of malignancy turned out to be benign after surgery, one had a 5 mm cholesterol polyp and another a 4 mm adenomatous polyp with sludge. All patients had uneventful postoperative recovery.

### Figure 1

Table 1: Characteristics of Benign vs Malignant PLGs Diagnosed Histopathologically.

	Total n=31 (%)	Pseudo polyp n=26 (84%)	True polyps n=5 (16%)	
			Benign adenoma N=3 (10%)	Adeno- carcinoma n=2 (6%)
<b>Sex</b>				
Male (32%)	10	9	1	
Female	22	17	2	2
<b>Age</b>				
<50 (74%)	23	20	2	1
$\geq 50$	9	7	1	1
<b>Polyp size mm</b>				
1-4 (61%)	19	22		
5-10 (26%)	8	3	1	1
$>10$ (13%)	4	1	2	1
<b>Number of polyps</b>				
Single (84%)	26	21	3	2
Multiple	5	5		
<b>Gallstone</b>				
Yes (45%)	14	9	3	2
No	17	17		

## DISCUSSION

PLGs are mostly asymptomatic or the symptoms are non-specific and vague. Therefore they are detected incidentally and with increasing frequency because of easy availability and wide spread use of ultrasonography (USG). The clinical significance of PLGs lies in its potential malignant transformation, the 'adenoma-adenocarcinoma sequence' like in colon cancer.<sup>14,15</sup> Because poor prognosis of gallbladder cancer, early detection and understanding of risk factors for malignant polyps is necessary for timely treatment.

Prevalence of PLGs in normal healthy population varies from 3-7%, with higher incidence in Chinese<sup>3</sup> and Japanese<sup>23</sup>, while 2-12% of patients undergoing cholecystectomy reveal PLGs.<sup>2-5</sup>

Several preoperative noninvasive diagnostic modalities, like USG and EUS have been studied to differentiate non-neoplastic from neoplastic PLGs. Less than 3.2% of PLGs are true neoplastic polyp and most of the studies agree 10 mm diameter of polyp as the cut-off point for surgery.<sup>14,24</sup>

Malignant transformation is very low, less than 1% in 5 years in 6-10 mm size PLGs as demonstrated by several prospective trials.<sup>25-27</sup>

However several authors have reported up to 14% of PLGs less than 10 mm are neoplastic.<sup>10,17,21,24,29,30</sup>

Due to these reasons, we recommend strong consideration for cholecystectomy for any polyp greater than 6 mm. Additionally, any polyp that demonstrates vascularity or invasion is symptomatic or is present in a patient with a history of PSC, or growth during serial ultrasound follow-up period requires removal.

The difficulty lays in that the rate of transformation from benign to dysplastic adenomas and eventually to malignancy is unknown and likely takes years.

USG is the first line imaging modality for PLGs with sensitivity up to ranging and superior than conventional modalities of oral cholecystography, computed tomography, endoscopic retrograde cholangiopancreatography.<sup>6,17</sup>

Contrast-enhanced USG allows for increased reflectivity of blood and enhanced visualization of the vascular supply of PLGs with increased sensitivity in diagnosing gallbladder lesions after intravenous injection of contrast. However, this

still has limited ability to differentiate benign from malignant polyps.<sup>13,31</sup> EUS can increase the imaging detail to help differentiate benign and malignant polyps but still has low sensitivity of 77.8%.<sup>10</sup>

Seventy percent of our patients with PLGs were female, similar to other studies<sup>14,16</sup> but in contrast to some authors who claim male predominance.<sup>3,23,28</sup> In the current study, both patients with malignant polyp were over 50 yr of age, higher than the average age of 40 years, similar to other reported series.<sup>14,17,27,32</sup>

## CONCLUSION

Availability and wide use of USG has increased the incidental detection of 'polypoid lesions of the gallbladder', PLGs. However, current imaging technology do not definitively differentiate nonneoplastic from neoplastic PLGs. Considering the inherent discrepancies of USG and to include majority of neoplastic PLGs, surgery may be advised for PLGs of 5 mm or greater, patient over 50 years, symptomatic or in whom follow-up cannot be completed should be considered for cholecystectomy.

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