



## Case report

## Incidental finding of a large polypoidal gallbladder mass diagnosed as papillary adenocarcinoma – A case report

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## ABSTRACT

**Introduction and importance:** Lesions which project from the gallbladder wall into its lumen are known as gallbladder polyps. Nearly 5% of all adults have gallbladder polyps, the majority are pseudo-polyps with no neoplastic potential. Although gallbladder polyps are commonly found in cholecystectomy specimen, only a very few gallbladder polyps present as carcinoma in a polypoid lesion.

**Case presentation:** A 48 years old male patient came for a routine health checkup and ultrasonography (USG) of abdomen showed incidental finding of a polypoid lesion measuring 43 × 28 mm in the gallbladder. Computed tomography scan revealed a soft tissue mass of similar size almost filling the lumen of the gallbladder and showed notable enhancement in post-contrast images. The mass was concluded to be suggestive of gallbladder carcinoma. Extended radical cholecystectomy was performed and histopathological examination of the polypoid lesion showed papillary adenocarcinoma with tumor staging of T2b.

**Clinical discussion:** The prevalence of polypoid lesions of the gallbladder are reported to be 2–12% of all cholecystectomy specimens. Gallbladder polyps are one of the common USG findings in general population. It is difficult to differentiate between the benign and malignant polypoid lesions of the gallbladder solely depending on imaging studies. A size larger than 10 mm is the best indicator of malignancy. The most common malignant gallbladder polyp is adenocarcinoma.

**Conclusion:** In majority of the cases, gallbladder polyp is an incidental finding. Even though most of the gallbladder polyps are benign in nature, cholecystectomy is the treatment of choice if the suspicion for malignancy is high.

## 1. Introduction

The term “polypoid lesion” refers to any elevated lesion from the mucosal surface of the gallbladder (GB) such as cholesterol polyps, ectopic gastric glands, adenomas and adenocarcinomas [1,2]. The prevalence of polypoid lesions of GB are reported to be 2–12% of all cholecystectomy specimens [2]. Even though most of the GB polyps are benign in nature, malignant polyps are present in some cases [3]. Here, we report a case of papillary adenocarcinoma in an incidental finding of polypoid lesion of gallbladder. This case report has been reported in line with SCARE criteria [4].

## 2. Case presentation

## 2.1. Demographic details

A 48-year-old male from Kaski, Pokhara, Nepal, visited the surgery outpatient department. He was a married man of Magar ethnicity, an ex-driver and currently unemployed.

## 2.2. Presentation

The patient was referred to our hospital following the incidental ultrasonography (USG) finding of gallbladder mass of 43 × 28 mm in

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size while undergoing a routine body checkup due to family history of malignancy. Being newly diagnosed with diabetes mellitus and hypertension, he did not have any other significant complaints. Abdominal examination was soft and non-tender with no palpable gallbladder mass or elicited Murphy's Sign.

### 2.3. Drug history

The patient was on regular medications for hypertension and diabetes.

### 2.4. Family and social history

His uncle and aunt (father's brother and sister) died due to malignancy of larynx and abdomen. Further details were not available. There was no other significant history in the family. He consumes 4 to 5 glasses of alcohol per day since the age of 25 years. He is a non-smoker but used to chew tobacco.

### 2.5. Laboratory and radiological findings

USG abdomen and pelvis incidentally found a large polypoid echogenic mass in the fundus of GB measuring  $43 \times 28$  mm (Fig. 1). USG impression was given as large gallbladder mass at the fundus and contrast enhanced computed tomography (CECT) was advised to rule out gallbladder carcinoma. Non-enhanced (Fig. 2) and contrast enhanced (Fig. 3) computed tomography (CT) of the abdomen revealed the mass of similar size almost filling the lumen of the GB, which showed notable enhancement in post-contrast images. Being limited to the cavity of the GB lumen, the mass showed no infiltration of the liver and fat plane between GB and liver was maintained. There was no abdominal lymph node enlargement and hepatic infiltration. The mass was concluded to be suggestive of GB carcinoma (T1N0M0-Stage I).

His laboratory investigations revealed complete blood count, renal and liver function tests within normal limit. The CA-19.9 level was 3.61 U/ml. His HIV, HbsAg and anti HCV tests were nonreactive. On the pre-operative day, his HbA1c was slightly elevated with 7.7% and fasting and postprandial blood glucose along with sodium and potassium level was within normal range.

### 2.6. Pre-operative assessment

Extended radical cholecystectomy with the removal of segments IVb and V of the liver was planned. A pre-anesthetic check-up assigned the patient an ASA (American Society of Anesthesiologists) class of 3. Following this, upon obtaining consent for the high-risk procedure, the patient was accepted for surgery.



Fig. 1. USG abdomen showing a polypoid mass in the fundus of gallbladder.

### 2.7. Surgical intervention

Extended radical cholecystectomy with regional lymphadenectomy was done under general anesthesia by an experienced surgical team. A surgical incision of length 8 cm was given on the skin in the right sub-costal region, 2 cm below the right costal margin (Fig. 4). Hepatic parenchymotomy-segment 4b and 5 was marked on the surface of liver by using the tip of monopolar cautery device and resection was performed using the bipolar energy source. Intraoperative hemostasis was achieved by use of bipolar energy source, suturing, ligation and pringles manoeuvre. All the fibrofatty tissues along the pericholedochal, hepatoduodenal, retroduodenal areas were dissected. Intraoperative bleeding was approximately 500 ml, measured from suction jar and soaked mops. There was requirement of peri-operative transfusion of one pint of packed red cell. Operating time was approximately 3 and half hours. A drain was placed in the right hepatorenal pouch and the wound was closed in respective layers. Following the surgery, the resected GB with the cystic duct, the segments of the liver and fibrofatty tissues to see the nodal status was sent for histopathological examination.

Consequently, blood tests following the surgical procedure showed a low hemoglobin level of 8.8 g/dl and one pint of packed red blood cell was transfused on the same day. Liver function test showed elevated SGOT and SGPT with 96.0 U/l and 206 U/l. Upon post-operative care and observation for a week, the patient was discharged home with medications and wound-care advice.

Gross examination of the specimen revealed a GB with attached portion of liver (Fig. 5). GB measured  $9.5 \times 5$  cm and cut section showed solitary friable polypoid mass measuring  $4 \times 2.5$  cm (Fig. 6). Microscopic examination showed the tumor arising from the mucosal surface as a polypoid mass with papillary projections (Fig. 7). The tumor was arranged in complex papillary pattern with thin delicate fibrovascular core (Fig. 8). Tumor was seen infiltrating into the muscularis propria (Fig. 9A) and attached adipose tissue (Fig. 9B). Section from the liver showed normal hepatic parenchyma with no tumor deposits. Surgical resected margins were negative for tumor deposit. No lymph nodes were identified in microscopy examination. Histopathological diagnosis was given as papillary adenocarcinoma of gallbladder with TNM staging T2bNxMx.

### 2.8. Follow-up and outcomes

The patient recovered from the surgical procedure successfully and started chemotherapy sessions three weeks after discharge from the hospital. He has completed 6 cycles of chemotherapy and on follow up of 1 year, he is fine without any complaints.

## 3. Discussion

Nearly 5% of all adults have GB polyps, the majority are pseudopolyps with no neoplastic potential which includes cholesterosis (60% GB polyps), adenomyosis (25%), or inflammatory (10%) [5]. Polypoid lesions of the GB show a wide variety of pathology [6]. Although most of these lesions are benign, some carcinomas of the GB do present as polypoid lesions [2,6]. The presenting symptoms of polypoid lesion of GB are nonspecific and vague, and in many cases asymptomatic [2].

Adenoma of the GB is a rare benign neoplasm presenting as a sessile or pedunculated lesion. Its reported incidence is 0.4%–1.1% of cholecystectomy specimens. Benign adenomas, constituting 4% of all GB polyps, are 12 mm or less in diameter, while the adenomas with foci of carcinoma are 12 mm or more [5,7,8]. Whether adenomas show the usual pathway in the development of invasive carcinomas as it occurs in colon still remains unclear [5].

The reported prevalence of malignant polyps among polypoid lesion of gallbladder varies from 0% to 27% [2,6]. The frequency of malignant polyps according to the number of risk factor criteria includes age  $\geq 60$  year, sessile morphology and size  $\geq 10$  mm. Kwon W et al. in their study



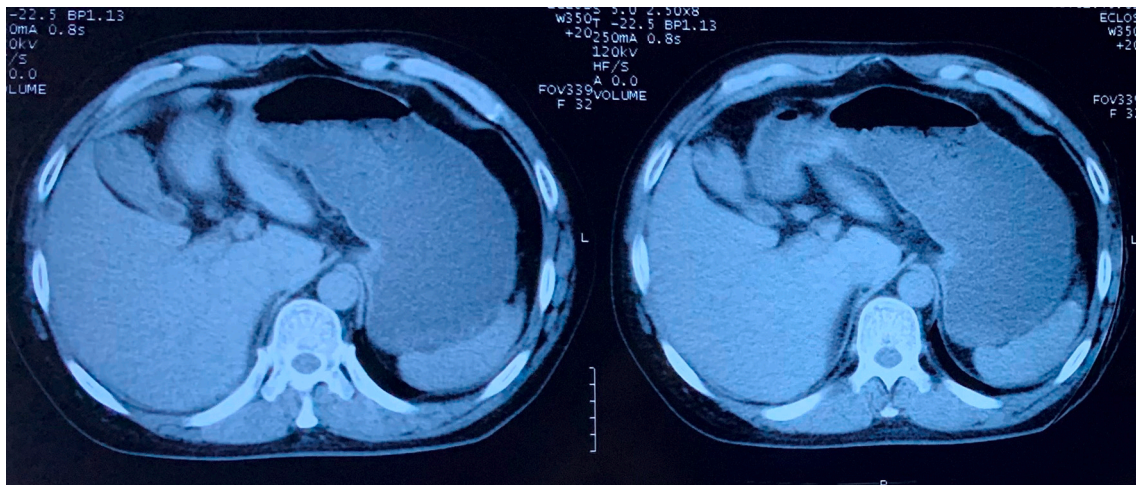


Fig. 2. Axial non-enhanced CT abdomen showing gallbladder mass almost filling the gallbladder lumen.

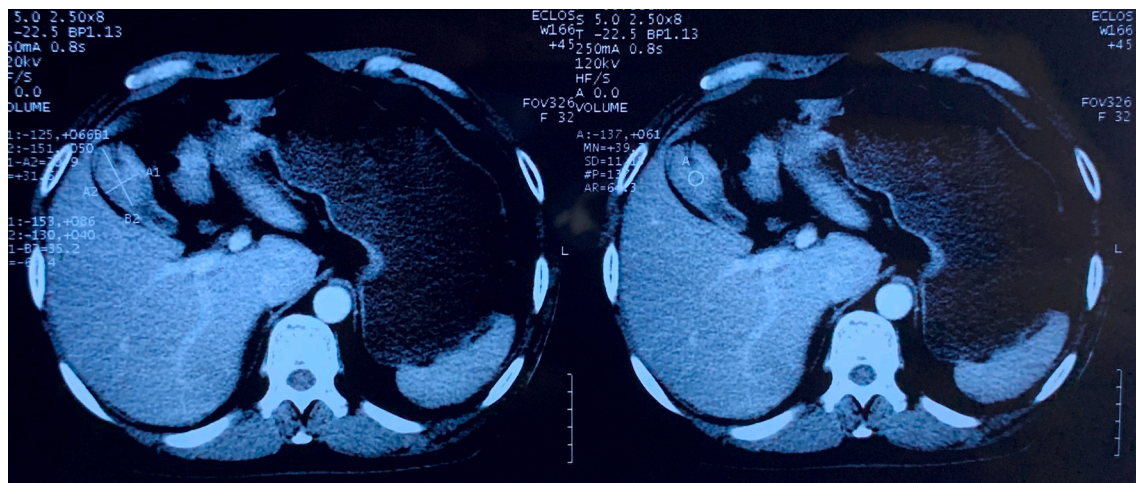


Fig. 3. Axial post contrast image of abdomen displaying heterogeneously enhancing gallbladder mass.

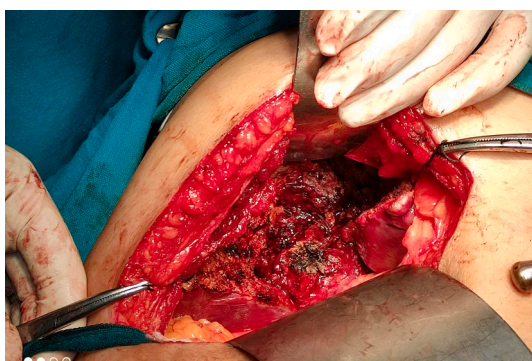


Fig. 4. Intraoperative image during extended radical cholecystectomy.



Fig. 5. Gross specimen of gallbladder (arrow head) and attached portion of liver (arrow) with suture marks in surgical resected margins.

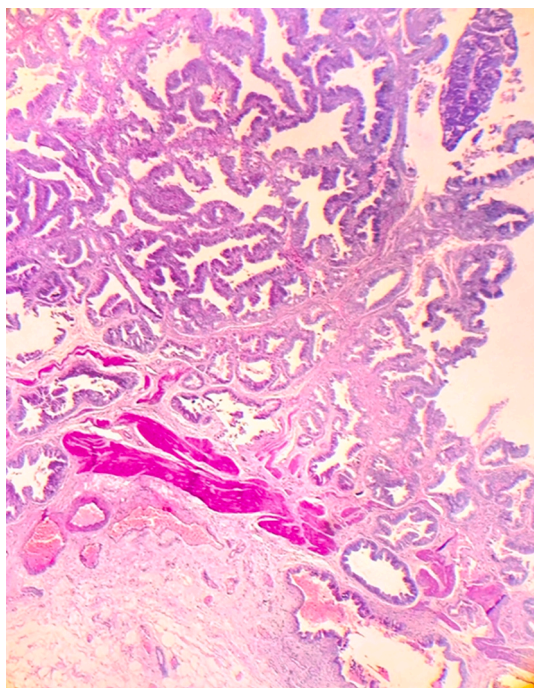
mentioned the frequency of malignant polyp in patients who met all 3 criteria was 77.8%, 2 criteria was 28.6%, and only 1 criteria was 7.8% [2]. The patients with sessile polyps have a higher prevalence of malignancy than the patients with pedunculated polyps, and the sessile carcinomas are rare at a more advanced stage than the pedunculated carcinomas. The neoplastic polyps are found to be solitary, whereas cholesterol polyps are multiple [3]. In the present study, the patient was 48 years old with a solitary polypoid lesion of GB measuring 4 cm in size.

Owing to the development of imaging modality and increased accessibility to medical system, the detection rate of polypoid lesion of GB is increasing [2]. GB polyps are one of the common USG findings in general population [1]. Polyps larger than 1 cm in size are





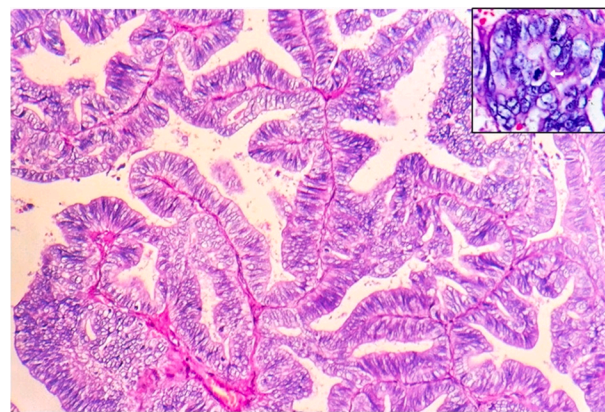
**Fig. 6.** Cut section of the gallbladder showed a friable polypoid mass (arrow) with papillary projections.



**Fig. 7.** Histopathological picture showing the tumor arising from the mucosal surface as a polypoid mass with papillary projections (H&E 100 $\times$ ).

recommended for surgical removal in view of the higher chance of malignancy while the patients with smaller polyps usually require repeated USG and follow-up [6]. Polyp size, shape, and other ancillary imaging findings, such as a wide base, wall thickening, and coexistent gallstones are relevant items to report when GB polypoid lesions are discovered radiologically. These findings, as well as patient age and risk factors for GB cancer, guide clinicians for decision making [9].

Differentiating non-neoplastic from malignant and premalignant polyps is an important major preoperative diagnostic challenge [10]. Gallbladder polyps may have a large degree of overlap in the appearance of benign and potentially malignant GB lesions and management of GB polyps primarily relies on the size of the lesion [9,11]. A polypoid lesion larger than 10 mm is the best indicator for suspicion of malignancy and warrants cholecystectomy [9]. Histologically, polypoid lesion of GB encompasses a number of benign and malignant lesions [6]. The most



**Fig. 8.** Histopathological picture showing the tumor arranged in complex papillary pattern with delicate central fibrovascular core (H&E 400 $\times$ ). Inset showing atypical mitosis (arrow, H&E 1000 $\times$ ).

common malignant GB polyp is adenocarcinoma and the most frequent subtype is papillary form although signet ring and mucinous adenocarcinomas also occur. Papillary adenocarcinomas appear as densely cellular papillary fronds with dysplasia, increased mitoses and invasion [9].

#### 4. Conclusion

Incidental discovery of polypoid lesion of gallbladder carcinoma is very rare. Management of gallbladder polyps primarily relies on the size of the lesion and its histopathological findings. Early detection and appropriate measures are very important for curative treatment and long-term survival of the patients.

#### Provenance and peer review

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None.

#### Ethical approval

Ethical approval for the case report is nonobligatory in our institution.

#### Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

#### Author contribution

D.G – Study concept, data analysis and paper writing.  
M.K.S – Study design, radiological images interpretation and paper editing.  
R.E.R – Data collection and patient history taking.  
D.P – Data collection and paper editing.  
S.M – Data collection.

#### Research registration

Not applicable.

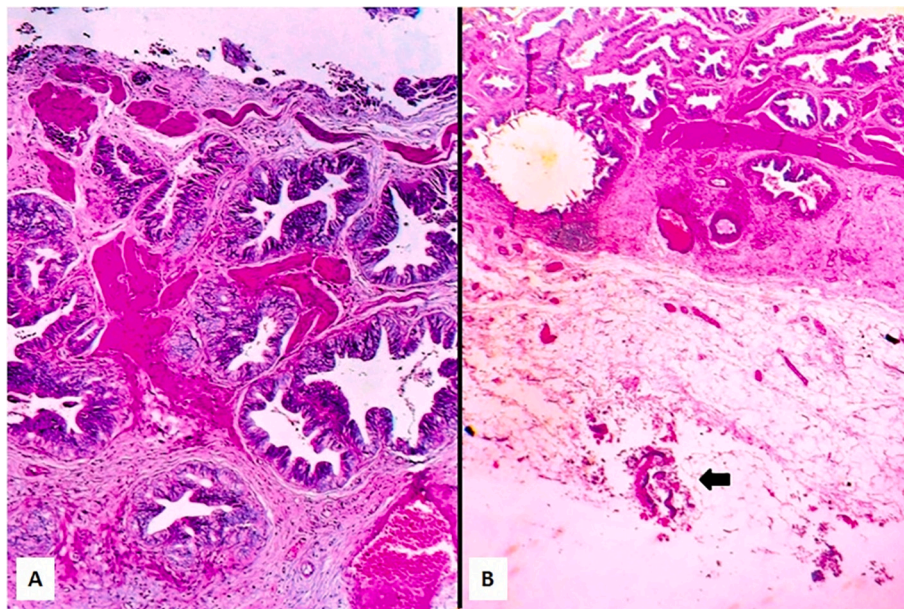


Fig. 9. Histopathological picture showing tumor infiltration into the muscularis propria (A, H&E 200 $\times$ ) and surrounding adipose tissue (arrow), (B, H&E 100 $\times$ ).

#### Guarantor

Dr. Dilasma Ghartimagar.

#### Declaration of competing interest

None declared.

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