**Introduction**

In general the prevalence of gallbladder polyp (GP) is increasing, with almost 6.1–8.7%, but over long time follow up it proved that half of them will disappear [1,2].

GP was significantly associated with old age, male gender, visceral obesity, but vegetarian on other hand has no association with GP [3,4]. GP has been reported to have association with colorectal adenoma [5]. Metabolic syndrome [6].

It is not clear that other diseases that have an association with GP will have a higher risk than others in population despite the association, but it seems they are independent from the primary disease, similar to primary sclerosing cholangitis, they benefit from cholecystectomy [7]. But patients with high Child–Pugh have a higher chance of early postoperative complications [8].

Association with stroke have been reported, but need more studies to explore this finding [9].

Some reports of GP being a metastasis from other organs, like renal cell carcinoma [10], or with lymphoma of gallbladder [11], carcinoid tumor [12,13].

Adenomatous polyps first described in literature by da costa et al. 1961 [14].

Yang et al., suggested a predictive pathway for GP which have higher chance for malignancy potentials, which will support the decision for malignancy [15]. Although Terzioglu et al., suggested patients with age above 60, solitary polyps larger than 1 cm, and sessile polyps to be associated with higher risk of cancer, and will require surgical removal [16–21]. Polyps less than 1 cm in size are not considered as a high risk of malignancy, but they may change over time [22,23]. With a necessity regular checkup [24]. It seems that polyps small than 6 mm are not required to have a regular check up [25]. Small lesions below 5 mm most of the time will not be identified in surgical specimen [26]. Unfortunately such clinical pathway was not considered in our facility due to limited expertise and small facility caliber.

**Methods**

We did cross-sectional study to evaluate how it is prevalent...
the gallbladder polyps, pathology reports of cholecystectomy between the years Mar 2009–Sept 2017, which were retrieved from 1205 patients from community hospital in the Saudi Arabia. Gross examination and microscopic examination have been assessed, pathology reports have been evaluated and included in the study. Further, cases without or missing report have been excluded from this study, such gallbladder cancer, xanthogranulomatous cholecystitis, cholesterosis, and age below 12 years old, non-adenomatous gallbladder polyps.

**Result**

Distribution of gallbladder disease was calculated based on age, the youngest age was 13 and oldest was 88 years old. Patients were 106, 157 and 942 acute cholecystitis, acute on chronic cholecystitis, and chronic cholecystitis. With 925 female and 280 male, the median age was 35 years.

Prevalence of gallbladder adenomatous polyp with cholecystitis was 0.33% (4/1205). 107 (8.9%) patient were with acute cholecystitis, 119 (9.9%) with acute on chronic cholecystitis, 11 (0.9%) with complicated cholecystitis (gangrenous, perforated, or empyema), and 968 (80.3%) patients with chronic cholecystitis.

**Discussion**

Prediction of carcinogenesis of GP is important, yang et al., suggested that expression of MK-1, RegIV, others suggested ephrin-A7, metadherin, annexin A1 and A2, Msi-1, ALDH1, enhancer of zeste homolog 2, and phosphatase and tension homolog, are closely related to carcinogenesis [27-31], unfortunately such advance studies are out of the scope of our facility capabilities.

Most of GP are non-neoplastic 85% (metaplastic 32%, cholestrol 29%, hyperplastic 22%, inflammatory 2%), and only 15% were adenoma [32]. Most of non-neoplastic polyps are in the proximal half of gallbladder, and most of the adenoma are in the distal half of gallbladder [32]. MacCain et al., suggested that only 5% of GP are malignant or potentially malignant, then suggested more research to explore the decision making process of patients, who should go for cholecystectomy or for sequential radiological studies [33].

Cases which have been detected incidentally with cholecystectomy as dysplasia of gallbladder, without gross anomalies have not shown a major risk of hidden invasive adenocarcinoma [34]. Large lymphatic channels in in connective tissue of gallbladder at perimuscular zone explains why metastasis is high in T2 tumors of gallbladder cancer [35].

Multiple reports showed association between h pylori and cholecystitis, which raise the concern about its role to other gallbladder pathologies [36,37].

Endoscopic ultrasound should more accuracy than transabdominal ultrasound to differentiate neoplastic from non-neoplastic GP larger than 10 mm, but it is not for lesions less than 10 mm [38]. Put in consideration that transabdominal ultrasound has a high false positive results approaching 86% [39].

Sometimes differentiating gallbladder cancer from GP is not easy preoperatively, but utilizing contrast enhanced ultrasound can make this goal approachable with acceptable sensitivity and specificity [40]. It was considered that size of GP of 1 cm is not strongly diagnostically accurate, and there is a need for surgical removal of gallbladder [41,42]. Put in consideration that most of GP are cholesterol GP [43]. Diffusion-weighted imaging is very helpful to differentiate gallbladder adenocarcinoma from adenoma, and predicting histologic grades of gallbladder adenocarcinoma [44].

Computed tomography can help if differentiating different types metastatic adenocarcinoma to gallbladder, but it is not that significant compared to GP [45].

It is considered symptomatic GP is beyond cure, which make too much concern to diagnose and predict early the sequelae of GP [46].

Laparoscopic cholecystectomy is the standard procedure which is a safe procedure, even single port procedure is acceptable for experienced surgeons [47,48], for polyps larger than 10mm, polyps between 5-10 mm requires US study every 6 months twice, then it needs tailor according to the risk factors scan will need adjustment, and for 5mm surveillance may be not required [49].

Wang et al., suggested doing polyectomy only, without cholecystectomy by using endolap (endoscopic laparoscopic technique) through experimental laboratory, which was successful and safe [50].

**Table 1: Distribution of the gallbladder disease finding after cholecystectomy.**

<table>
<thead>
<tr>
<th>Type of Disease</th>
<th>No of Patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute cholecystitis</td>
<td>107</td>
<td>8.9%</td>
</tr>
<tr>
<td>Acute on chronic</td>
<td>119</td>
<td>9.9%</td>
</tr>
<tr>
<td>Chronic cholecystitis</td>
<td>964</td>
<td>79.9%</td>
</tr>
<tr>
<td>Complicated cholecystitis (gangrenous, perforated, empyema)</td>
<td>11</td>
<td>0.9%</td>
</tr>
<tr>
<td>Gallbladder adenomatous polyps</td>
<td>4</td>
<td>0.4%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1205</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

**References**


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