

Incidental Gall Bladder Malignancy after Elective Cholecystectomy- A hospital-based study

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Abstract

Objectives: This study was to evaluate the clinical incidental of gall bladder malignancy and its risk factors in various age group patients after elective cholecystectomy. **Methods:** Stages of malignancy was diagnosed according to the Eight Edition of AJCC TNM Manual. A total of 954 patients of gall bladder stone were enrolled in this study, among them 18(1.88%) patients were diagnosed with gall bladder malignancy on histopathological examinations. **Results:** Most of the patients 14(77.78%) were in age group of greater than 50 years and duration of symptoms was >40 weeks. Intraoperative findings in majorities of patients had 9(50%) shrunken fibrosed gall bladder with stones (chronic cholecystitis), 5(27.78%) polypoid mass, 3(16.67%) difficult cholecystectomy and 1(5.56%) thickened wall. on histopathological examination of specimens confirms that the majority of the patients 7(38.88%) had (Tis) carcinoma in situ, 4(22.22%) T1a, and 3(16.67%) T2a and T2b. **Conclusions:** Gall bladder malignancy was commonly seen in lower middle socioeconomic class old age female patients. Due to nonspecific clinical and sonographic features, diagnosis of incidental gall bladder malignancies are usually missed. Chronic inflammation, cholelithiasis and adenomyomatosis are the major risk factors. Histopathological examination of the specimen is ensured so as to diagnose and treat life threatening incidental gall bladder malignancy. Performing cholecystectomy should never be the only treatment of gall stones or any other pathology unless and until histopathological examinations of specimens ensures to diagnose gall bladder malignancies.

Key words: Gall bladder stone, incidental gall bladder malignancy, risk factors

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Introduction

Gallbladder cancer incidence is 0.3-1.5%; it also seems to be an increase over last years. In our study incidental gallbladder adenocarcinoma's rate resulted 1.38%. Some authors affirm that major risk factors for the disease are: female gender, obesity, age over 60 years old, and cholelithiasis [1,2]. According to literature, incidence resulted higher in female gender (4/7 patients), in patients with a long story of cholelithiasis (5/7), and the whole sample resulted aged over 60 (7/7). Symptoms are aspecific and the most important prognostic factor is pathological stage; also our patients resulted asymptomatic for the questioned disease [1,2].

Definition of Incidental gallbladder cancer (IGBC) is defined as a malignancy detected only on histopathological examination without prior pre-operative or intra-operative suspicion of malignancy[3]. Incidental diagnosis of gallbladder carcinoma is also becoming more frequent which is due to increasing numbers of laparoscopic cholecystectomies being performed worldwide [4]. The absence of a serosal layer between gall bladder and the liver, permits the relative early invasion of Gall bladder malignancy into the liver. Gall bladder malignancy also tends to spread both to lymph nodes and blood to the peritoneal surfaces[5].

The spread of gall bladder carcinoma (GBC) to the liver parenchyma and the adjacent internal organs is due to lack of serosa in gall bladder wall, proximity, cholecystic veins draining into liver portal vein, lymphatics from GB draining into the liver [6].

According to AJCC (American Joint Committee on Cancer), primary GB carcinoma has been classified as T1, confined to lamina propria or the muscle layer of the GB (T1A and T2B, respectively), T2 extending to perimuscular without serosa, T3 perforating the serosa or directly invading the adjacent structure, T4 invading the main portal vein, hepatic artery or invades two or more extra hepatic organs or structures. Lesion extends through the muscle layer into the fibrous tissue on the side of the peritoneum in T2a stage. In T2b stage, lesion extends through the muscle layer into the fibrous tissue on the side of the liver. The most important prognostic factor for predicting survival is nodal status; effective lymph node dissection is thus valuable [7]. Objectives of this study was to evaluate the clinical incidental of gall bladder malignancy after elective cholecystectomy.

Methods

This present study was conducted in Department of Surgery, Veer Chandra Singh Garhwali Government Institute of Medical Sciences and Research (VCSGGIMS &R), Srinagar, Garhwal, Uttarakhand, India during a period from January 2017 to March 2021. Attendants/entire subjects signed an informed consent approved by institutional ethical committee of VCSGGIMS, was sought. Stages of malignancy was diagnosed according to the Eight Edition of AJCC TNM Manual. A total of 954 patients of gall bladder stone were enrolled in this study, among them 18(1.88%) patients were diagnosed with gall bladder malignancy on histopathological examinations.

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Their preoperative clinical details, radiological findings and operative notes were recorded.

Observations

In this present study, most of the patients 14(77.78%) were in age group of greater than 50 years.

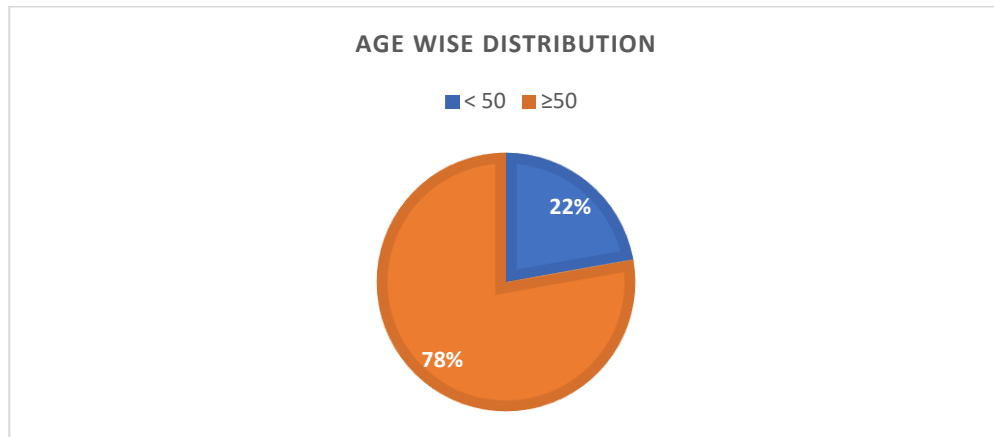


Fig 1: Age wise distributions of cholecystectomy patients

Duration of symptoms in most of the patients 7(38.89%) had greater than 40 weeks. 4(22.22%) patients had duration 31-40 years.

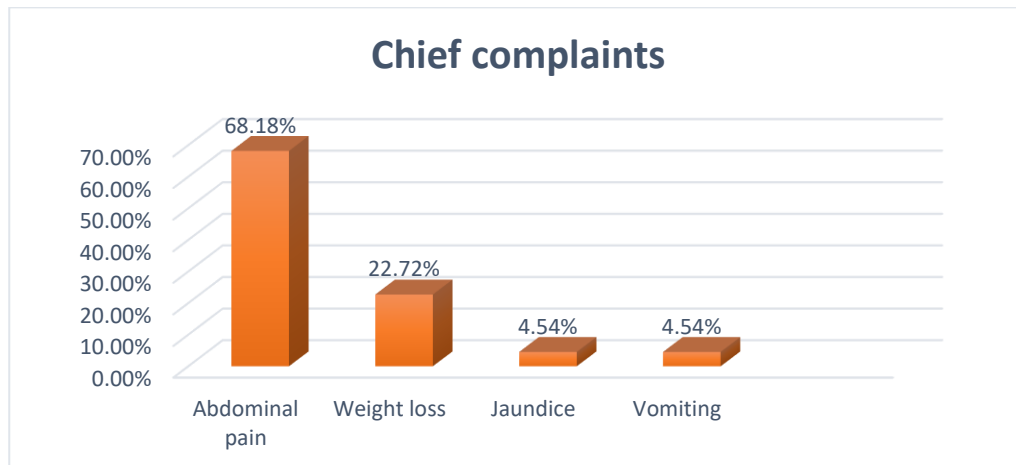


Fig 2: Chief complaints

Most of the patients had chief complain of 15(68.18%) abdominal pain followed by 5(22.72%) weight loss and 1(4.54%) jaundice and vomiting.

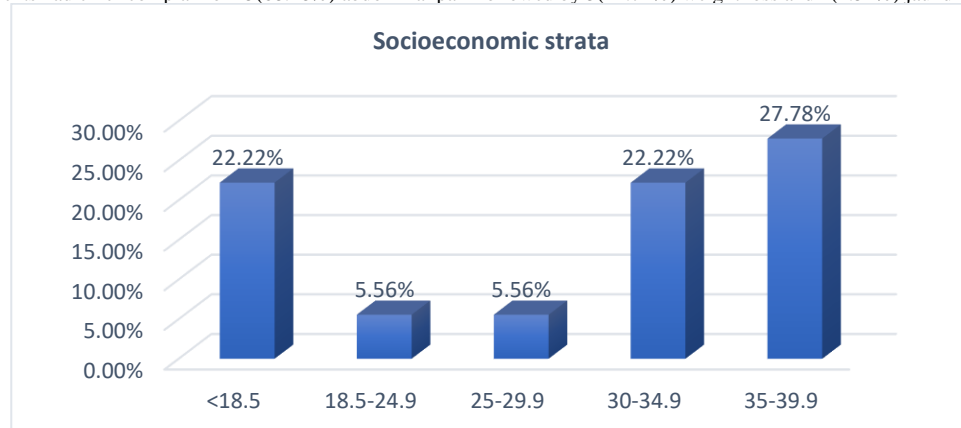


Fig 3: Showing socioeconomic strata of patients

Most of the patients were belonged in 8(44.44%) lower and 7(38.89%) upper middle class.

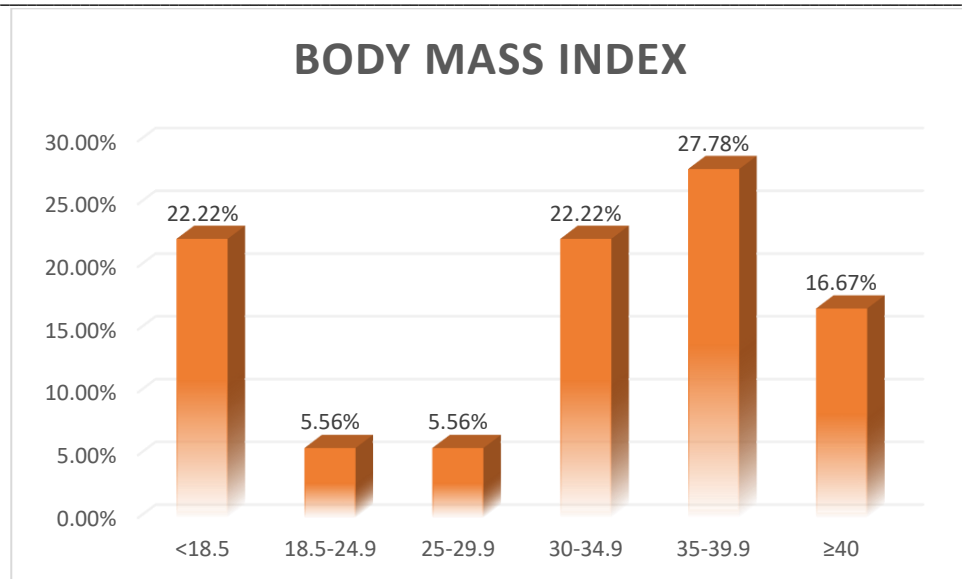


Fig 4: Showing body mass index (BMI)

Body mass index (BMI) in 5(27.78%) and 4(22.22%) of the patients had 35-39.9 and 30-34.9 respectively.

Table 6:History of smoking

History of smoking	Present	Absent
Males	5(83.33%)	1(16.67%)
Females	1(8.33%)	11(91.67%)

In this present study, history of smoking was greatly seen in 5(83.33%) males and 1(8.33%) female.

Table 7:Showing preoperative USG features of gall bladder malignancy.

USG features	No. of patients
Single stone	8(44.44%)
Adenomyomatosis	5(27.78%)
Wall Thickening, Stones	3(16.67%)
Multiple Stones	1(5.56%)
Wall Thickening, Single Stone	1(5.56%)
Total	18(100%)

In this present study, preoperative features of patients had 8(44.44%) single stone, 5(27.78%) adenomyomatosis, 3(16.67%) wall thickening single stone, 1(5.56%) multiple stones and wall thickening single stone.

Table 8:Showing intraoperative findings

Intraoperative findings	No. of patients
Shrunken Fibrosed Gall Bladder with Stones (Chronic Cholecystitis)	9(50%)
Polypoid Mass	5(27.78%)
Difficult Cholecystectomy	3(16.67%)
Thickened Wall	1(5.56%)
Total	18(100%)

Intraoperative findings of most of the patients had 9(50%) shrunken fibrosed gall bladder with stones (chronic cholecystitis), 5(27.78%) polypoid mass, 3(16.67%) difficult cholecystectomy and 1(5.56%) thickened wall.

Table 9:T-stage of tumour of incidental gall bladder malignancy

T- stage of tumour	No. of patients
(Tis) carcinoma in situ	7(38.89%)
T1a	4(22.22%)
T1b	1(5.56%)
T2a	3(16.67%)
T2b	3(16.67%)
Total	18(100%)

In this present study, on histopathological examination of specimens confirms that the majority of the patients 7(38.88%) had (Tis) carcinoma in situ, 4(22.22%) T1a, 3(16.67%) T2a and T2b and 1(5.56%) T1b.

Discussion

Gall bladder carcinoma is the fifth most common gastro-intestinal neoplasm and the most common biliary tract malignancy in the world [8].

It is three times more common in females than in males and more common above 65 years of age [8]. Regions with high prevalence include India (New Delhi, Bihar, U.P, and Bhopal), La Paz, Bolivia, Pakistan, and Ecuador with high rates reported in Chile, Poland,

Japan, and Israel [7]. According to the Indian Council of Medical Research (ICMR) (1990–1996), there is a 10 times lower incidence of GBC per 100,000 in South India compared with the North, the age-adjusted incidence rate for females being 0.8 in Chennai in the South and 8.9 in Delhi in the North. GBC ranks among the first 10 cancers in the ICMR registries (2006–2008) of Delhi, Dibrugarh, Kolkata, Bhopal, and Mumbai [9]. In this present study, gall bladder carcinoma was greatly seen in 14(77.78%) old age (>50 years) patients. Females 12(66.67%) were more preponderance than 6(33.33%) males. Majorities of patients were belonged in upper 8(44.44%) and lower middle class 7(38.89%) socioeconomic strata. BMI of most of the patients had 35 to 39.9 (27.78%) and 30-34.9 (22.22%). History of smoking was greatly seen male patients 5(83.33%) as compared to females 1(87.33%).

The early-stage carcinoma is typically diagnosed incidentally because of the inflammatory symptoms which are related to the coexistent cholelithiasis or cholecystitis. Incidental Gallbladder Carcinoma (IGBC) is the carcinoma of the gallbladder which is suspected for the first time during cholecystectomy or which is found on the histological examination of the gallbladder. With the increasingly widespread acceptance of LC and the difficulties in diagnosing GBC preoperatively, the number of cases of IGBC during and after LCs has increased. The female gender and advanced age are the demographic risk factors for GBC. In the study of Sujata J et al. [10] all the six cases of the incidentally detected gallbladder carcinoma in this series were females and their average age was 53 years. A review of the literature showed that 0.19% to 3.3% of the patients who underwent cholecystectomies for presumed benign diseases were found to have carcinomas of the gallbladder [11] Tania et al., in a study of LC cases from the Indian metropolis of Kolkata, reported an incidence of 0.59% of IGBC [12].

Gallbladder carcinomas are epithelial in origin and they account for 98% of all the gallbladder malignancies. Among these, adenocarcinomas account for 90% of all the carcinomas of the gallbladder. A majority (68%) are diffusely infiltrating, while the remainder exhibit intraluminal polypoid growth [13]. The submucosal spread of the infiltrating carcinomas appears grossly as focal or diffuse areas of wall thickening, nodularity or induration in the gallbladder wall. Yokomuro et al recommended taking frozen sections in that subset of patients who were of advanced ages (older than 70 years), who had a long history of stones, or those who had a thickened gallbladder wall [14]. However, Zhang et al., in their study, showed that frozen section was not a definitive diagnostic procedure and that it does not reliably measure the depth of invasion of the GBCs. In the study of Sujata J et al. on Histologically, all the 6 cases in this series were adenocarcinomas, with 3 cases in pT1a/IMC, and 1 case each in pT1b, pT2 and pT3. The pathologic staging was recognized as an important prognostic factor and a clinicopathological study of 13 cases of IMC suggested that a simple cholecystectomy was curative at this early stage, though a larger series with a long term follow up is necessary to validate this [15].

In this present study, > 40 weeks duration of symptoms was found in most of the patients 7(38.89%). Most of the patients had chief complain of 15(68.18%) abdominal pain followed by 5(22.72%) weight loss and 1(4.54%) jaundice and vomiting. Ultrasonography (USG) findings of all preoperative patients had 8(44.44%) single stone, 5(27.78%) adenomyomatosis, 3(16.67%) wall thickening single stone. Intraoperative findings of most of the patients had 9(50%) shrunken fibrosed gall bladder with stones (chronic cholecystitis), 5(27.78%) polypoid mass, 3(16.67%) difficult cholecystectomy. On histopathological examination of gall bladder malignancies the majority of the patients 7(38.88%) had (Tis) carcinoma in situ, 4(22.22%) T1a, 3(16.67%) T2a and T2b and 1(5.56%) T1b. Socio-economic status of an individual in our study, most of the patients were belongs to lower socio-economic status similar observations were encountered by Lazcano-Ponce EC [16] and explained that socioeconomic issues can delay access to cholecystectomy thus increasing gallbladder cancer rates. In our study the patients with incidental gallbladder malignancy the mean body

mass index was 30.14 which suggest a strong correlation between increased BMI and gall bladder malignancy similar observations were made by Hariharan D [16] and proposed that For every 5-point increase in body mass index, the relative risk of developing gallbladder cancer increases by 1.09 for men and 1.59 for women. In our study the history of cigarette smoking was significant especially in males and various studies have proved smoking to be a risk factor for gall bladder malignancy Jain k. [17] In our study those patients with incidental gall bladder malignancy the preoperative USG was not showing any evidence or suspicious of malignancy. In this study most of patients' ultrasonography revealed either stones or Adenomyomatosis similar observations were encountered by Ferrarese et al. In this study the intraoperative findings of patients with incidental gall bladder malignancy suggests that about half of the patients were having shrunken fibrosed gall bladder with stones and rest gross findings were polypoid mass, difficulty in dissection due to adhesions and thickened gall bladder wall [18]. Similar results were reported by Ghimire P [19] Eight patients had associated stone whereas 2 cases had GB polyp but no stones.

The reported incidence of postoperatively diagnosed GBC after cholecystectomy is 0.19–3.3% [10]. Widespread adoption of laparoscopic cholecystectomy has resulted in an apparent increase in this rate. Radical reoperation after cholecystectomy is decided based on the postoperative pathology and is usually performed via open surgery. This procedure is considered technically challenging mainly because of inflammatory adhesions or fibrosis around the hepatoduodenal ligament and GB bed. There are a few recent reports on the technical feasibility of laparoscopic revisional surgery [20]. Unlike initial laparoscopic surgery for GBC, laparoscopic reoperation is not associated with the risk of tumor seeding related to bile spillage, because cholecystectomy has already been performed. Despite very limited experience by experts, a laparoscopic approach for postoperatively diagnosed GBC seems to be feasible, with satisfactory clinical outcomes in terms of perioperative and midterm oncologic results. In patients with postoperatively diagnosed GBC, port site metastasis has been a concern during the early stage of laparoscopy. Although its incidence is rare, port site metastasis is associated with poor survival once it develops. However, routine port site resection is not recommended during definitive surgical treatment, because it has not been associated with improved survival or reduced recurrence [21].

Conclusion

This present study concluded that the gall bladder malignancy was commonly seen in lower middle socioeconomic class of old age female patients. Due to nonspecific clinical and sonographic features, diagnosis of incidental gall bladder malignancies are usually missed. Chronic inflammation, cholelithiasis and adenomyomatosis are the major risk factors. Histopathological examination of the specimen is ensured so as to diagnose and treat life threatening incidental gall bladder malignancy. Performing cholecystectomy should never be the only treatment of gall stones or any other pathology unless and until histopathological examinations of specimens ensures to diagnose gall bladder malignancies.

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