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Incidence of Incidental Gall Bladder Carcinoma: Is This Less Common with More Careful Pre-Operative Patient Evaluation?

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ABSTRACT

Background: We have observed incidentally detected carcinoma gall bladder cases in the study centers less frequently over the last decade in spite of the fact that the occurrence of clinically apparent carcinoma gall bladder cases are on the rise. We hypothesized that better sonographic evaluation of gall bladder pathology by experienced radiologists and more frequent use of contrast enhanced computed tomography techniques have made it possible to pick up the early gall bladder carcinoma cases efficiently and hence reducing the incidence of the histological surprise of incidental carcinoma gall bladders. **Methods:** We reviewed pathology registries of the study centers from June 2018 to Aug 2020. **Results:** Our study revealed an incidence of incidentally detected carcinoma gall bladder to be approx. 0.17% among all cholecystectomy specimens. **Conclusion:** Although occurring less commonly, the incidence rate of incidental carcinoma gall bladder cannot obviate the need for routine histo-pathological evaluation of gall bladder specimens as they can change the treatment outcome in a subset of patients with curable malignancy.

Keywords: Carcinoma Gall bladder, Incidentally detected carcinoma gall bladder, Incidence, Cholecystectomy.

INTRODUCTION

Incidental carcinoma gall bladder is a rare finding on histo-pathological examination of gall bladders following cholecystectomy. However, the incidence of this entity may be high in geographical regions where carcinoma gall bladder is endemic. The incidence of incidental carcinoma gall bladder has been reported to vary between 0.1 to more than 2 percent in various studies [1]. However, detailed sonographic examination of gall bladders for stone disease has helped us to suspect a relatively higher proportion of early cases of carcinoma gall bladder with subsequent cross sectional imaging studies. In spite of the advances in radiological technologies and more frequent use of abdominal imaging studies in patients with complicated gall stone diseases a small number of early carcinoma gall bladder evade any preoperative suspicion till they are proven on histo-pathological examination [2]. However, the usefulness of the diagnosis of incidental gall bladder carcinoma has been questioned as most of these cases can adequately be cured by cholecystectomy only; which has already been undertaken. So many pathologists believe routine histo-pathological examination of gall bladder specimens to be redundant [3]. In spite of practicing in a region endemic for carcinoma gall bladder and detecting more patients with clinically apparent carcinoma gall bladder, we have observed less number of incidental carcinoma gall bladder cases over the last decade. Therefore, we wished to identify the incidence of incidental carcinoma gall bladder in the eastern regions of India in the present era and the pathological stage of the same to further verify if the routine examination of gall bladder specimens can significantly change the further treatment course for the patients.

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MATERIALS AND METHODS

We selected two tertiary centres IPGME&R- SSKM Hospital and Nilratan Sircar Medical College and Hospital for this study. The pathology archives were examined from June 2018 to Aug 2020 and the histo-pathological findings of specimen of cholecystectomy following open and laparoscopic surgery were noted. Slides of the incidentally diagnosed carcinoma gall bladder were reviewed for reconfirmation of the diagnosis and extraction of more related information if any was lacking.

RESULTS

We retrieved histo-pathological reports of 2982 gall bladder specimens examined following open or laparoscopic cholecystectomy. Median age of patients presenting with cholecystitis was 43 years with the range being 12-90 years. A quartile of the

patients belonged to fifth decade of life. One third of the patients were male.

9.5% cases were done for acute cholecystitis. Cholesterosis were found in 4.3% cases and xanthogranulomatous cholecystitis was identified in 1.5% and adenomatous hyperplasia was identified in 1.3% cases. Other findings included pyloric metaplasia, pseudopyloric metaplasia, and intestinal metaplasia. Incidental gall bladder carcinoma was identified in five cases. The details are mentioned in the chart below.

Sl No	Age/ Gender	Gross findings/ Gall bladder wall thickness	Gall stones	Histo-pathological	pTNM
1	47/F	Focal irregular wall thickening at fundus (7mm). Rest of GB wall unremarkable and 5mm wall thickness with features of cholesterosis	Present	Adenocarcinoma	PT2 N0M_X
2	40/F	Irregularly thickened wall of gall bladder, maximum wall thickness 5 mm	Present	Severe dysplasia without muscle infiltration or LVI or PNI, Mucosa ulcerated, inflammed	CIS
3	52/F	Wall thickening 3 mm. Cut surface small papillomatous lesion around 1mm	Present	Adenocarcinoma	$PT1_a$N0MX
4	58/F	Wall thickening 6mm. Cut surface cholesterosis with an irregular ulcer 3x4mm at fundus	Present	Adenocarcinoma	$PT1_b$N0M0
5	63/F	Details NA	Present	Adenocarcinoma	$PT1_b$N0M0

The incidence of carcinoma gall bladder detected on histopathology examination was 0.17% in our studies. Three out of five patients diagnosed with incidental gall bladder carcinoma required completion extended cholecystectomy. Thus the pathological examination enabled us to change the further treatment measures in 0.10% patients.

DISCUSSION

Various studies have demonstrated the incidence of carcinoma gall bladder detected on histopathpological examination without any macroscopic abnormalities suggestive of malignancy, the 'true' 'incidental carcinoma gall bladder' to vary from 0.2% in western countries to 2.0% in some Asian countries and Chile [4,5]. Incidence of incidental carcinoma gall bladder in our series was 0.17%.

The concept of missed carcinoma gall bladder is very important in this setting as inclusion of macroscopically detected gall bladder lesions identified per-operatively or asymmetrically thickened gall bladder wall identified on ultrasound studies who did not undergo appropriate pre-operative imaging studies will include a subset of unsuspected or missed gall bladder carcinomas which should not be considered as incidental carcinoma gall bladder [6] .

The identification of incidental carcinoma on histo-pathological examination after cholecystectomy done for stone disease may require re-exploration and extended cholecystectomy and they account for the majority of operable carcinoma gall bladder cases [7]. Patients with carcinoma gall bladder identified incidentally have better prognoses compared to clinically suspected and resectable cases as the incidentally detected carcinoma gall bladder cases are usually identified at an early stage. The prognoses of patients with incidentally detected carcinoma gall bladder depend on the stage of disease presentation, and dissemination at the time of index cholecystectomy [8]. During laparoscopic cholecystectomy there is some risk of dissemination of malignant cells in the peritoneal cavity and the port sites in presence of bile leakage and stone spillage. This dissemination is further facilitated by the turbulence created by carbon-dioxide used for insufflation and smoke resulting from the use of energy devices and contact of gall bladder wall with the port sites at the time of gall bladder extraction in presence of transmural disease if retrieval bags are not used [9].

The results of extended cholecystectomy done for incidentally diagnosed carcinoma gall bladder are heterogeneous in the published literature because of lack of inclusion of all the cases that qualify for completion radical surgery in the defined time schedule between 4 weeks to 8 weeks following the index procedure [10]. Radical re-resection in the form of portal lymphadenectomy with excision of gall bladder fossa by either a wedge hepatic resection or anatomical resection of segment IV B and V of the liver with or without excision of the bile duct is indicated for incidentally diagnosed T1b or more advanced tumors [11]. Radical re-resection before 4 weeks' time is usually not encouraged as it takes some time to settle the post-operative inflammatory changes and manifestation of the residual tumors with unfavourable tumor biology. Similarly re-exploration after 8 weeks' time is usually fruitless as the tumor spread usually make the residual disease non-resectable or enable the tumor to metastasize. It is also reported in various large studies on management of incidentally diagnosed carcinoma gall bladder that in only 50% cases the completion radical surgery becomes feasible on re-exploration. Re-imaging with CECT abdomen or PET/CT and estimation of tumor markers are particularly helpful for re-staging and facilitates to take the decision for re-exploration [12].

The 5 year survival of patients diagnosed with T1b tumors was 70-100%, whereas the same for T2 and more advanced tumors varied from 30-50% in

various series [13, 14]. Moreover, the results of radical surgery are not without the risks of morbidities in terms of significant operative blood loss, post - operative bile leak and sepsis. So, the identification of carcinoma gall bladder as a histo-pathological surprise mandates re-imaging, re-staging and careful selection of patients who would likely be benefitted by a re-exploration and radical excision.

CONCLUSION

The incidence of incidental carcinoma gall bladder varies in published studies from 0.1 % to 2%. We observed an incidence of 0.17% in our studies. In view of the gloomy prognosis of the incidentally diagnosed T2 or advanced carcinoma gallbladder cases we recommend routine histo-pathological evaluation of all the gall bladder specimens following cholecystectomy at least in the regions where carcinoma gall bladder is endemic. Histo-pathological reports need to be provided within 2-3 weeks' time to facilitate re-exploration if required. Moreover, we wish to emphasize that adoption of good surgical practices during laparoscopic cholecystectomy universally reduce the chances of intra-operative dissemination of incidentally diagnosed carcinoma gall bladder cases. These include careful dissection of the gall bladder from its fossa to avoid perforation which may result in bile or stone spillage in the peritoneal cavity and extraction of the gall bladder through a retrieval bag to avoid direct contact of gall bladder wall and bile with the extraction port site.

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