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GALL BLADDER CANCER AND MIMICS – A SINGLE INSTITUTIONAL STUDY

Oncopathology

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ABSTRACT

Gallbladder (GB) carcinoma is an highly aggresive cancer often presents with non specific symptoms. This was a prospective analytical study of clinically suspected cases of GB cancer over a period of 3 years . Various demographic , clinicoradiological feature, biochemical parameters were collected. Frozen section was performed intraoperatively in all cases. Final histopathological examination was done subsequently and the results were correlated with other findings.The incidence was highest in the age group of 51-60 years, presenting most commonly with pain abdomen (94%), most common radiological finding was diffuse irregular wall thickening of gall bladder in (68%). Chronic cholecystitis followed by Xanthogranulomatous cholecystitis was the most frequent mimickers of carcinoma GB. Various clinicoradilogical features were compared between benign lesions and carcinoma GB. Diagnostic accuracy of frozen section was 96.6% (145/150 cases). Frozen section can be concluded as an effective intraoperative method in management of carcinoma GB in correlating with other findings.

KEYWORDS

GB carcinoma, frozen section, xanthogranulomatous cholecystitis.

INTRODUCTION AND OBJECTIVES

GB is an highly aggressive and fatal cancer. Incidence of GB cancer varies according to various environmental factors . Peculiar geographical distribution can be observed with globally contributing to only 1.2 % of newly diagnosed cases of cancer annually. In India it is one of the leading cause of cancer and cancer related deaths especially in the river basins of Ganga and the Barahmaputra in the northern and northeastern part of the country.[1] 5-year survival of GB cancer cases are less than 5% in patients with higher clinical stage who do not undergo curative surgical resection [2,3]. With stage 1 disease having a 5-year survival of only 50%. Late presentation of GB cancer carries a poor prognosis. Diagnosis of GB in its early stage reduces the morbidity and thereby the patient can be offered curative surgery. Thus early recognization and differentiation from other benign conditions is essential for its management[4,5,6] The aim of this study is to describe cases which occurred over a period of three years from September 2019 to September 2022 and to evaluate most commonly encountered benign pathologies in clinically suspected GB cancer cases. The study also aims to review various parameters associated with GB cancer like the clinicopathological factors ,demographic profile, clinical symptoms, risk factors, radiological findings, frozen section findings and also to correlate it with the final histopathology.

MATERIALS AND METHODS:

This was a prospective analytical study clinically suspected cases of GB cancer .

Inclusion Criteria :

Patients who visited the outdoor department of the institution during the period of study were included in the study.

Exclusion Criteria:

Patients who were treated primarily elsewhere and were referred to the institution to receive only adjuvant therapy were excluded from the study.

Demographic features, clinical symptoms, radiology findings(CT scan/MRI), biochemical parameters also the provisional clinical diagnosis were collected . Frozen section was performed intraoperatively in all cases, based on the report the operative procedure was either simple cholecystectomy or extended to radical cholecystectomy. Histopathological examination was done subsequently and the results were correlated with other findings.

Statistical analysis was done using IBM SPSS v21 software. Results were obtained by chi square calculation and were considered statistically significant with p value < 0.05.

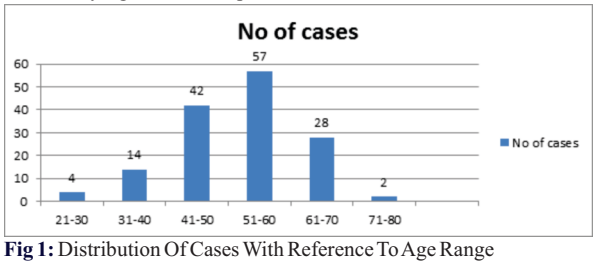

Fig 1: Distribution Of Cases With Reference To Age Range

Table 1: Distribution Of Cases With Reference To Presenting Complaints

Presenting complaint	No of cases (%)
Pain Abdomen	141(94%)
Generalized weakness	49(32%)
Nausea, Vomiting	40(26.7 %)
Decreased appetite	36(24%)
Weight loss	26(17%)
Abdominal distension	17(11%)
Jaundice	6(4%)
Fever,cough,breathing difficulty	3(2%)

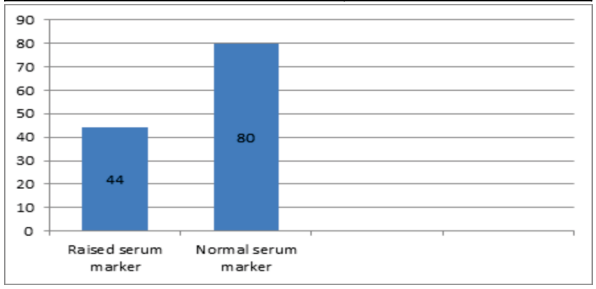

Fig 2: Serum Marker Analysis

Table2: Distribution Of Cases With Reference To Radiological Findings

Radiological findings	No of cases (%)
GB wall thickening	103(68%)
GB mass	25(17%)
Polypoidal lesion of GB	18(12%)
Benign lesion	4(3%)

Table 3: Frozen Section Findings

Malignant lesion	81
Benign lesion	69

Table 4: Distribution Of Cases With Reference To HPE Findings

	HPE findings			No of cases
Malignant lesion				77
	Adenocarcinoma	Well differentiated	37	72
		Moderately differentiated	24	
		Poorly differentiated	11	
	Adenosquamous Carcinoma			1
	Clear cell adenocarcinoma			1
	Mucinous carcinoma			1
	Sarcomatoid carcinoma			2
Benign lesion				70
	Chronic cholecystitis			50
	Xanthogranulomatous cholecystitis			11
	Cholesterolosis			3
	Adenomatous hyperplasia			2
	Intracystic papillary neoplasm			2
	Moderate dysplasia of lining epithelium			2

Table 5: Comparison Of Clinical And Radiological Findings Between The Malignant And Benign Lesions.

	Malignant lesion (n=80)	Benign lesion (n=70)	P value
Mean age (years%)	53.7+3.5	51.69+4.2	0.0017
Gender			
Male	14	24	0.0184
Female	66	46	
Clinical symptoms			
Pain Abdomen	80(98.8%)	61(91%)	0.0266
Generalized weakness	22(27.2%)	27(40.3%)	0.093
Nausea, Vomiting	25(30.9%)	15(22.4%)	0.2482
Decreased appetite	20(24.7%)	16(23.9%)	0.9104
Weight loss	13(16%)	13(19.4%)	0.5895
Jaundice	2(2.5%)	4(6%)	0.2859
Abdominal distension	10(12.3%)	7(10.4%)	0.7187
Radiological finding			
GB wall thickening	49	54	0.0014
GB mass	15	10	
Polypoidal lesion	16	2	
Benign lesion	0	4	
Serum markers			
High	25	19	0.1635
Normal	35	45	

RESULTS :

Total 150 suspected GB cases were evaluated during the study period. Patients presenting most commonly with pain abdomen (94%), followed by generalized weakness in 32 %. Radiological findings were noted for all 150 cases. CT scan and MRI findings of GB cancer have been described similar by various studies.[7,10] Therefore CT scan and MRI findings are considered together as radiological finding. The most common radiological finding was diffuse irregular wall thickening of GB in 68 % cases followed by GB mass was in 17% cases .Serum markers(CEA,CA 19.9) were available for 124 cases, 44 cases presented with raised serum markers .Clinically 4 cases were provisionally diagnosed as benign lesion. Intraoperative frozen section was performed in all cases. 3 cases were found metastatic on operation table and hence further operative procedure was abundant. In final histopathology among 147 cases 77 were malignant .The most common histopathological finding was Well differentiated Adenocarcinoma (72 cases).True mimickers of carcinoma GB on radiological and clinical findings were Chronic cholecystitis and Xanthogranulomatous cholecystitis. Diagnostic accuracy of frozen section was 96.6% (145/150 cases) in the study, therefore emerged as a reliable mode of investigation for diagnosis and management of carcinoma GB.

DISCUSSION

GB carcinoma is a highly aggressive malignancy with characteristic distribution pattern. High prevelence can be seen in South American, North & East Indian, Korean, Japanese, East Europeon. Within India the disease shows more prevalence in the Northern and Eastern states especially in the river basins of the Ganga and Brahmaputra.[1]

The most common risk factors for development of GB carcinoma is gallstones and chronic cholecystitis. Gallstones larger than 2–3 cm are at the greatest risk especially cholesterol stones.[2,4,11] GB polyps can be one of the risk factors (larger than 10 mm),symptomatic polyps, female gender, age more than 60 years should be surgically treated.[2,5] Other risk factors are exposure to various carcinogens like heavy metals, insecticides, fertilizers,estrogen,aflatoxin etc. Porcelain GB, anomalous pancreaticobiliary junction,diabetes,high parity,elevated body mass index and infection with Helicobacter pylori or Salmonella are some established risk factors of GB cancer.[1,2,4]

The highest Age Specified incidence rate (ASR) of 17.1 per 100,000 females was reported by the population registry in Kamrup, Assam (NCRP reports of 2013- 14). Amongst the hospital based registries, Silchar, Assam shows the highest incidence of 15.8 amongst females. The incidence of GB cancer was found higher in female in our study which was statistically significant, finding was similar to other studies .[1,3,8] Older age is a considerable risk factor for GB cancer , most cases presenting in the fifth and sixth decades of life.[1,3] In our study GB cancer was found in mean age of 53.7+3.5 years which was statistically significant. Most common clinical symptom was pain abdomen (94%) in the study. Pain abdomen was mostly associated with malignant cases compared to benign which was statistically significant. Others found non-specific symptoms like pain abdomen higher in carcinoma GB cases, followed by weight loss, anorexia, nausea and/or vomiting etc.[3,4,7]

In our study the most common radiological finding was diffuse irregular wall thickening of GB in 68% cases followed by GB mass in 17% cases. GB mass and polypoidal lesions were mostly associated with malignant cases, finding was statistically significant. Lopes Vendrami et al had described the observations based on symmetric or asymmetric wall thickening of GB. Focal or diffuse asymmetric wall thickening was observed in 20%–30% of cases, mostly of such cases were malignant. Whereas symmetric wall thickening was observed mostly in benign cases. Similar observations were described by Prasad et at in their review article . Sometime benign conditions may mimic as GB cancer when they present as asymmetric wall thickening, for example focal adenomyomatosis.[2,5]

In the present study chronic cholecystitis and xanthogranulomatous cholecystitis were common mimicker of carcinoma .Acute or chronic cholecystitis or xanthogranulomatous cholecystitis may become close mimickers of GB cancer as reported by many authors as they may present as diffuse mural thickening and associated infammation to surrounding organs. Close association between cholecystitis and cancer is again a matter of concern.[2,12]

CONCLUSION

It is challenging to diagnose cases of GB cancer because patients are often asymptomatic or present with non specific symptoms. As early diagnosis and treatment is the rule to get the survival benefit. Clinical features, serum markers or radiological methods may not be always conclusive. It was observed in the study that some clinically and radiologically suspected cases of carcinoma GB were diagnosed as benign lesion on frozen section and final HPE. Therefore it can be concluded that frozen section can be concluded as an effective method diagnosis in carcinoma GB along with correlation with other findings.

Conflict Of Interest: No conflict of interest.

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