



OBSERVATIONAL STUDY ON INCIDENTAL CARCINOMA IN PATIENTS WHO UNDERWENT CHOLECYSTECTOMY FOR GALLSTONE DISEASE AT RIMS, RANCHI, JHARKHAND.

Surgery

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ABSTRACT

Gall bladder cancer is most common malignant lesion of the biliary tract and is the 5th most common malignancy of the gastrointestinal tract. Gall bladder cancer is an aggressive malignancy and carries an extremely poor prognosis except when incidentally diagnosed at an early stage after cholecystectomy for cholelithiasis. Gall bladder cancer is extremely variable by geographical region. Women appears to have a higher incidence across all geographical area. As the disease clinically resembles benign gallbladder disease, it is detected late in its course.

MATERIALS AND METHODS: All patients with chronic cholecystitis having gall stones diagnosed by ultrasonography, attending Department of Surgery, Rajendra Institute of Medical Sciences, Ranchi, during the period from April 2016 to October 2017 were selected and underwent cholecystectomy and biopsy of resected gall bladder done to find out incidental carcinoma.

RESULTS – Findings were similar to that of chronic cholecystitis.

CONCLUSION – Surgeon should have high index of suspicion for incidental carcinoma of gall bladder as there is no suggestive clinical, biochemical and radiological parameters for incidental gall bladder carcinoma.

KEYWORDS

Gall bladder cancer, gallstones, gall bladder polyp, porcelain gall bladder PSC, typhoid carrier, choledochal cyst, Anomalous pancreatico biliary duct junction.

INTRODUCTION

Gall bladder cancer is an aggressive malignancy^{1,2} and carries an extremely poor prognosis¹ except when incidentally diagnosed at an early stage after cholecystectomy for cholelithiasis.² The first description of the carcinoma of the gallbladder was given by M deStoll in 1777³ in two autopsy specimen. The overall reported five year survival rate is about 5%.²

Gall bladder cancer is most common malignant lesion of the biliary tract⁴ and is the 5th most common malignancy of the gastrointestinal tract.² As the disease clinically resembles benign gallbladder disease, it is detected late in its course.

Gall bladder cancer is extremely variable by geographical region and racial-ethnic group. The highest incidence is among Chileans, American Indians and residents in part of Northern India where it accounts for as much as 9% of all biliary tract disease.⁵ Women appears to have a higher incidence across all geographical area. Gall bladder cancer is 2-3 times more common in female than male^{1,2} and presents in the 6th and 7th decade of life.¹

Primary carcinoma of the gallbladder is an unexpected histopathological finding in 1-3 percent of the resected specimens after elective cholecystectomy for presumably benign gallbladder disease. Prior to the era of ultrasonography and computerized tomographic scanning, the rate of correct preoperative diagnosis was only 8.6 percent, which has improved considerably with the use of these newer imaging techniques to reach 75-88 percent. Still a preoperative diagnosis of early carcinoma of the gallbladder is rarely made, where the 5-year survival is 91-100 percent.

Biochemical investigations are not contributory. Hypobilirubinemia is seen in about 40 percent of patients whereas one-third of the patients are clinically jaundiced. Similarly, anemia and leukocytosis are also detected. Abnormal biochemical investigations are encountered mainly in stage III and IV disease and are non-specific to be of any diagnostic value. Similarly due to uniformly poor survival in these patients no prognostic significance have been detected for these investigations.

Ultrasonography provides preoperative diagnosis of a gallbladder mass in 93.9 percent. Presence of gallstone is detected in over two-third cases.

We have undertaken a study of incidence of carcinoma GB in operated cases of Gall stone disease, which included all cases who have undergone cholecystectomy between April 2016 to October 2017. The study involves the analysis of incidence & various biological characteristics of patients of Gall stone disease who have undergone cholecystectomy and were subsequently histologically diagnosed as Incidental Carcinoma Gall Bladder.

AIMS AND OBJECTIVES

To determine factor and find any epidemiological, biochemical, and clinical findings that might be suggestive of gall bladder cancer in patients with chronic cholecystitis.

INCIDENCE:

Burdette (1957)⁶ calculated the incidence of the GBC to be 2.5/100,000 population of United States. Shukla et al (1985)⁴ reported an incidence of 4.4 percent of all malignancies and 0.03 percent of total hospital admissions from Varanasi, India. Chao and Greager (1991)⁷ reported an incidence of 2.5/100,000 population and found carcinoma of the gallbladder in 1-3 percent of cholecystectomy specimens. International Agency for Research on Cancer (IARC) obtained from the cancer registries showed the incidence of gallbladder cancer among women in Chile to be the higher at 27/100,000 followed by Poland 23/100,000, Japan 5/100,000 and Israel 13/100,000. United States had a low incidence of 1/10000.⁸

According to Indian cancer registry (1989)⁹ the highest incidence is in New Delhi 10/100,000 followed by Bhopal and Bombay.

Geographical Distribution

Highest incidence being reported from Chile (27/100,000). Poland has a very high incidence (23/100,000) in Eastern Europe. In south East Asia, India again shows a high incidence of 10/100,000 among females.¹⁰

In United States of America increased incidence are found in southwest, north central and Appalachia¹¹. In India a high incidence has been observed in new Delhi (14/100,000 females) and Bhopal (10/100,000), and Kashmir and Gangetic plains of eastern Uttar Pradesh and western Bihar while the disease is a rare in South India with Madras (Chennai) and Bangalore cancer registries showing zero incidence during 1988 and 1989.⁹

Etiology

Etiology is still obscure. Several risk factors have been proposed.

The prevailing theory focuses on chronic inflammation with subsequent cellular proliferation.

Gall stones- Presence of gall stones is considered to be the primary risk factor, and larger gall stones¹ (>3cm) carry an increased risk for cancer development. More than 80% of patient with gall bladder cancer have cholelithiasis.

Anomalous pancreatico biliary duct junction, choledochal cyst, and PSC.¹

Porcelain gall bladder¹ probably due to chronic inflammation.⁵

Gall bladder polyp - True adenomatous polyp larger than 10mm.^{1,5}

Chronic infection may also promote development of gall bladder cancer and the risk in typhoid carriers is significantly increased over the general population.

Exposure to Carcinogens- like azotoluene, nitrosamines are also associated with cancer of the gall bladder.²

CLINICAL PRESENTATION:

90% of gallbladder cancers originate in the fundus or body of the gall bladder, most do not produce symptoms until the disease is advanced.¹

Patients may be asymptomatic at the time of diagnosis. Symptoms, if present, are usually indistinguishable from those of benign gallbladder disease such as biliary colic or cholecystitis, particularly in elderly patients. Jaundice and anorexia are late features.⁵

STAGING OF GALLBLADDER CANCER

TNM classification is the most acceptable staging system.

TNM Classification for gallbladder cancer¹**Primary Tumor (T)**

Tx: Primary tumor cannot be assessed

To: No evidence of primary tumor

Tis: Carcinoma in situ

T1: Tumor invades lamina propria or muscle

T1a: Tumor invades lamina propria

T1b: Tumor invades muscle layer

T2: Tumor invades perimuscular connective tissue, no extension beyond serosa or into liver.

T3: Tumor perforates the serosa (visceral peritoneum) and/or directly invades the liver and/or one other adjacent organ or structure, such as the stomach, duodenum, colon, pancreas, omentum or extrahepatic bile ducts.

T4: Tumor invades to main portal vein or hepatic artery or invades two or more extrahepatic organ or structure.

Regional lymph nodes (N)

Nx: Regional lymph nodes cannot be assessed.

N0: No regional lymph node metastasis

N1: Metastasis to nodes along the cystic duct, common bile duct, hepatic artery and/or portal vein

N2: Metastasis in periaortic, pericaval, superior mesenteric artery and/or celiac artery lymph nodes.

The regional lymph nodes of the gallbladder include the following

Distant metastasis (M)

Mx: Presence of distant metastasis cannot be assessed

M0: No distant metastasis

M1: Distant metastasis

Stage grouping (TNM classification)

Sage 0	Tis	N0	M0
Stage I	T1	N0	M0
Stage II	T2	N0	M0
Stage IIIA	T3	N0	M0
Stage IIIB	T1-3	N1	M0
Stage IVA	T4	N0-1	M0
Stage IVB	AnyT	N2	M0
	AnyT	AnyN	M1

Histological Grade(G)

GX- Grade cannot be assessed

G1- Well differentiated Adeno Carcinoma

G2- Moderately differentiated Adeno Carcinoma

G3- Poorly differentiated Adeno Carcinoma

G4- Undifferentiated Carcinoma

Early Gallbladder Cancer (EGBC)

It is cancer at a stage at which standard surgical treatment directed towards curative intent. The depth of invasion is one of the most important and reliable prognostic factors and forms the basis for classification of gallbladder cancer into early lesions.

Definition

The definition of EGBC is controversial. While most workers define it as carcinoma limited to the mucosa (pT1a) or muscularis propria (pT1b) with no lymph node metastasis i.e. stage I disease,¹²⁻¹⁴ some Japanese investigators have limited their use of this terms to mucosal lesions (pT1a) only because of reports of treatment failures and loco-regional recurrence following cholecystectomy in pT1b cancer.¹⁵

Classification

Tsuchiya classified EGBCs macroscopically into four types¹⁶ based on a study of surgical specimens and ultrasonography (USG) of 71 patients with stage I cancers,

1. Pedunculated type – non-papillary, protruding lesion with a stalk.
2. Sessile type-non-papillary, protruding lesions without a stalk with a constricted or broad base.
3. Superficially raised type – smoothly elevated lesion rising 1.5-3.0 mm from the surrounding mucosa and
4. Flat type – almost at the same level as normal mucosa.

Diagnosis**Ultrasonography**

Initial investigation of hepatobiliary pathology¹⁶ is USG. It allows correct preoperative diagnosis in around 10-80 percent cases of advanced cancer.¹⁷⁻¹⁸ Early lesions of gallbladder cancer are poorly defined and diagnosed on USG, at best in roughly one third of the cases.^{16,19,20} The diagnostic accuracy of USG is influenced by the tumor morphology but the presence of stones is the most important limiting factor.^{16,20} The maximal sensitivity of USG in diagnosis of early cancers is for polypoidal lesions and is almost 100 percent in the absence of stones. The sensitivity falls to half in the presence of cholelithiasis and is least for flat type lesions (zero for flat tumors irrespective of the presence of stones.) The other limiting factors on USG evaluation are acute inflammation, presence of debris and tumors in the fundic area.¹⁶

Computed Tomography

CT is required for staging and to assess loco-regional and distant spread. CT, however, should be done if USG raises a suspicion of GBC by showing GB wall thickening (especially if focal). Generalized thickening of GB wall can be seen in patients with chronic cholecystitis and xanthogranulomatous cholecystitis.

Thus to distinguish gallstones from GBC of the protruding type, a combination of USG and CT may be helpful. Echoic image of a pigment stone is similar to that of a tumor, cancers are easily misdiagnosed as pigment stones by USG. Pigment stones are seen on CT as a high density lesion.²¹

Management

T1a lesion – Cholecystectomy¹

T1b lesion - Cholecystectomy is sufficient as long as margins are negative.¹

T1b lesion and perineural, lymphatic or vascular lesion, the likelihood of nodal disease increases significantly and therefore an extended cholecystectomy is indicated.¹

T2 lesion – radical cholecystectomy is indicated.¹

Patient with advanced disease – Palliative therapy.¹

INAPPARENT GALLBLADDER CANCER:

Inapparent (also called occult or incidental) GBC is defined as GBC unrecognized before or at operation and detected for the first time on histopathological examination of the gallbladder (GB, which has been removed for presumed gallstone disease.²² Possible scenarios for the

inapparent GBC include:

1. GBC noted after removal of specimen and by opening the gallbladder at the time of primary surgery.
2. GBC diagnosed on pathologic examination, after laparoscopic or open Cholecystectomy.
3. Difficult dissection of gallbladder and suspicion of GBC during surgery with perioperative frozen section.
4. Previously unsuspected GBC and extensive disease noted at surgery.

Inapparent Gallbladder Cancer --Incidence

Previously unsuspected gallbladder cancer is found in approximately 0.37 to 3 percent of all cholecystectomy specimens^{22,23,24}. In endemic areas, such as India and Chile, incidental GBC is seen in 5-7 percent of all operated cases.^{22,25}

MATERIALS AND METHODS

The patients for the present study "observation on incidental carcinoma of gall bladder in gall stone disease patients undergoing cholecystectomy" were selected from the surgical outpatient and indoor patients, Department of Surgery, Rajendra Institute of Medical Sciences, Ranchi, Jharkhand during the period from April 2016 to October 2017.

INCLUSION CRITERIA –

All patients with Gall stone diseases diagnosed by USG.

EXCLUSION CRITERIA –

- (a) Diagnosed or Suspected case of carcinoma gall bladder
- (b) USG evidence of any focal thickening of the gall bladder.

DETAILED HISTORY OF THE PATIENTS -

- a) Particulars of the patient
 - Name, Age, Sex, Religion, Occupation, Address
- b) Chief complaints
- c) History of present illness
- d) Past History
 - History of similar illness in the past.
 - History of hypertension and Diabetes.
- e) Personal history
 - Marital status — Married / Unmarried
 - Food habit
 - Any addiction - Cigarette, betel, tobacco, alcohol.
 - Bowel and bladder habit
 - Socioeconomic status - Low / Medium / high income group
- f) Menstrual history in females
- g) Drug history
- h) Family history of gall stone disease.
- i) Physical examination
 - General Examination
 - Local examination.
 - Other System examination like CNS, CVS and respiratory system etc.

Investigations

- i) Baseline investigation
 - CBC, BT, CT, Blood grouping.
 - Random blood sugar, Renal function test, serological test.

- ii) Special investigations:
 - LFT, PT.
 - USG Whole abdomen
 - CT Scan abdomen, MRCP, & ERCP where indicated

- iii) Histopathological examination of gall bladder specimens.

1.AGE DISTRIBUTION:

AGE	CHRONIC CHOLECYSTITIS
0-10	0
10-20	2
20-30	18
30-40	20
40-50	36
50-60	18
60-70	4
70-80	2

2. SEX RATIO

MALE	20%
FEMALE	80%

3. RELIGION

HINDU	82%
MUSLIM	18%

4.OCCUPATION

HOUSE WIFE	88
WORKING WOMEN	12

5. RURAL/URBAN

RURAL	78
URBAN	22

PATIENT HISTORY

6.PAIN

PRESENT	77%
ABSENT	23%

7.FEVER

PRESENT	8%
ABSENT	92%

8.NAUSEA

PRESENT	36%
ABSENT	64%

9.VOMITING

PRESENT	20%
ABSENT	80%

10.ANOREXIA

PRESENT	19%
ABSENT	81%

11.WEIGHT LOSS

PRESENT	00%
ABSENT	100%

12. JAUNDICE

PRESENT	04%
ABSENT	96%

13.MARITAL STATUS

MARRIED	95%
UNMARRIED	05%

14.HYPERTENSION

PRESENT	09%
ABSENT	91%

15. DIABETES

PRESENT	08%
ABSENT	92%

16.FOOD HABBIT

MIXED DIET	93%
PURE VEG	07%

17.PALPABLE GB

YES	04%
NO	96%

18.FAMILY HISTORY

PRESENT	04%
ABSENT	96%

19.ADDICTION

ADDICTED	25%
NOT ADDICTED	75%

20.HEPATOMEGALY

PRESENT	05%
ABSENT	95%

21.LIVER FUNCTION TEST

BILIRUBIN	NORMAL	74
	RAISED	26
ALT	NORMAL	88
	RAISED	12

AST	NORMAL	85
	RAISED	15
ALP	NORMAL	96
	RAISED	04

22. INTRAOPERATIVE FINDINGS

Gb Distended, Adhesion Minimal, Stone Present	80%
Gb Contracted, Adhesion Present, Stone Present	11%
Gb Contracted, Adhesion Negative	06%
Gb Contracted, Adhesion Present	03%

23. BIOPSY REPORT

Poorly Differentiated Adenocarcinoma (PT ₃ N _x M _x)	00
Poorly Differentiated Adenocarcinoma (PT ₂ N _x M _x)	01
Chronic Cholecystitis	95
Well Differentiated Adenocarcinoma ((PT ₃ N _x M _x)	02
Moderately Differentiated Adenocarcinoma (PT ₃ N _x M _x)	00
Dysplasia Bordering To Adenocarcinoma In Situ	02

B) COMPARITIVE RESULTS BETWEEN CHRONIC CHOLECYSTITIS AND INCIDENTAL CAGB

Age	CAGB (n=5)	Chronic Cholecystitis (n=95)
Minimum age	48	16
Maximum age	72	71

I) DEMOGRAPHIC PROFILE

INCIDENTAL CAGB	05 pt.
CHRONIC CHOLECYSTITIS	95 pt.

Among the INCIDENTAL CaGB patients, Minimum age =48 yrs. Maximum age=72 yrs.

Among chronic cholecystitis, Minimum age 16yrs, maximum age=71 yrs.

2) OTHER DEMOGRAPHIC PROFILES DEMOGRAPHIC PROFILE (n=100)

Case Profile	Incidental CAGB (n=5)		Chronic cholecystitis (n=95)		Total (n=100)
	No.	%	No.	%	
Sex-Male	2	40	18	18.94	20
Sex-Female	3	60	77	81.05	80
Religion-Hindu	4	80	78	82.11	82
Religion-Muslim	1	20	17	17.89	18
Occupation-Housewife	4	80	84	88.42	88
Occupation-working woman	1	20	11	11.58	12
Address-Rural	2	40	76	80	78
Address-Urban	3	60	19	20	22

Among incidental CaGB patients 40% were male and 60% were female. 18.94% of chronic cholecystitis patients were male & 81.05% were female.

80% of incidental CaGB patients were Hindu and 20% were muslims & 82.10 % of chronic cholecystitis patients were Hindu & 17.89 % were Muslim.

Regarding incidental CaGB patients 20% were working women and 80% were housewife.

Among chronic cholecystitis patients 9.47% were working women, and 90.52% were housewife.

40% of incidental CaGB patients lived in rural area and 60% in urban area & 82.10% of chronic cholecystitis patients lived in rural area , 17.89% in urban area.

II) PATIENT'S HISTORY:

The following results were obtained in this study. HISTORY (n=100)

Chief complaints	Incidental CaGB (n=5)		Chronic cholecystitis (n=95)		Total (n=100)
	No.	%	No.	%	
Upper abdominal pain	3	60	74	77.89	77
Nausea	2	40	34	35.78	36

Vomiting	1	20	19	21.05	20
Fever	1	20	07	7.36	08
Upper abdominal mass	0	00	00	00	00
Weight loss	0	00	00	00	00
Anorexia	1	20	18	18.95	19
Jaundice (visible)	1	20	02	2.1%	03

Among 5 CaGB patients 3 (60%) had upper abdominal pain & 2 (40%) had no pain. Among 95 chronic cholecystitis patients 74 (77.89%) patients had upper abdominal pain.

40% of incidental CaGB patients had nausea & 60% had no nausea. 34 patients (35.78%) of chronic cholecystitis patients had nausea.

Among incidental CaGB patients 20% had vomiting, 80% had no vomiting. Among chronic cholecystitis patients 21.05 % had vomiting. Among incidental CaGB patients 20% had fever. Among chronic cholecystitis patients 7.36 % had fever.

Among incidental CaGB patients 0% had mass, 100% had no mass. Among chronic cholecystitis patients 0% had mass & 100% had no mass.

No weight loss was seen in patients of incidental CaGB and chronic cholecystitis.

20% of incidental CaGB patients had anorexia, 18.95% of chronic cholecystitis patients had anorexia.

Among incidental CaGB patients 20% had jaundice. Among chronic cholecystitis patients 2.1% had jaundice.

Rest of the clinical features, investigations and intra operative findings also resemble with chronic cholecystitis.

DEMOGRAPHIC PROFILE:

100 chronic cholecystitis patients were included in study population. Minimum age was 14 years, maximum age was 71 years. Most patient were between 40 & 50 years.

Among 100 chronic cholecystitis patients 20% are male and 80% are female. The seemingly greater number of female could be explained by the fact that women are three times more likely to develop gallstones than men.²

Carcinoma of the gallbladder is two to three times more common in females than males.²

Piehler JM and Crichlow RW showed that "Carcinoma of the gallbladder is predominantly a disease of elderly females, a female to male ratio of 3.2:1"²⁶. In the study by IARC under SEARCH program gallbladder cancer was found to be commonest among women (56%) with cancer of the ampulla of the Vater coming second with 30 percent".

Among 100 patients 82% patients were Hindu & 18% were Muslim. The greater percentage of Hindu patients is due to the fact that Hindu population is more than muslim population in India.

Among 100 patients 88% patients were housewife, 12% were working women.. This could be explained by the literacy rate of women in India.

Among 100 patients 78% are from rural area & 22% are from urban area. This only indicates geographical distribution of population.

Chao and Greager (1991)²⁶ found carcinoma of the gallbladder in 1-3 percent of cholecystectomy specimens.

Shigeki²⁷ et al reported an incidence rate of 4.7% out of total cholecystectomy patient.

In our study the incidence of incidental CaGB is 5%.

Clinical features of patients in this study were as follows.

Among 100 patients 77% patients have upper abdominal pain. In this population 36% had nausea, 20% patient had vomiting, Fever was

present in only 8% of patients, None patient had abdominal mass or history of weight loss, 19% had anorexia, 3% patients had clinical jaundice.

In comparison, data regarding presentation of Ca Gall bladder reported by various author is as follows.

Clinical symptoms of gallbladder cancer

Piehler and Crichlow²⁶ reported pain in 76% of pt. with gallbladder cancer. Shukla et al²³ reported pain in 85%, Klamer and Max²⁹ in 70%, Silk et al³⁰ in 83% of patients.

Chao and Greager³¹ found anorexia in 18.9% of pt. with gallbladder cancer. Piehler and Crichlow²⁶ reported anorexia in 34% patients.

Weight loss, jaundice, or an abdominal mass are associated with later stages of gallbladder carcinoma.¹

Jaundice, weight loss, ascites and abdominal mass are less common presenting symptoms.²

This shows that there are no clinical features that would be suggestive of Ca Gall bladder in a patient who presents with symptoms of chronic cholecystitis. No suggestive parameter for incidental CaGB could be obtained from this comparison.

Only intraoperative findings are suggestive of CaGB in a few cases. These findings includes adhesions, thickening, irregularity of gall bladder wall and disappearance of shiny appearance of gall bladder.

The following parameters of incidental CaGB were compared with chronic cholecystitis patients:

Among incidental CaGB 40% patients were between 6th and 7th decade. Among incidental CaGB cases (n=5), male patients were 40% & female patients were 60%. Among incidental CaGB patients 80% were hindu and 20% were Muslim.. Among incidental CaGB patients 20% were working women, & 80% were housewife. Among incidental CaGB patients 60% were living in urban area 40% were living in rural area. Among incidental CaGB patients 60% had pain abdomen and 40% had no pain. Among incidental CaGB patients 40% had nausea. Among incidental CaGB patients 20% had vomiting. Among incidental CaGB patients 0% had weight loss. Among incidental CaGB patients 20% had visible jaundice. USG was normal (i.e only suggestive of chronic cholecystitis) in 100% of incidental CaGB cases. No clinical, biochemical or radiological parameters were found as preoperative predictor of CaGB in patients who underwent cholecystectomy for chronic cholecystitis.

There are no characteristic clinical features of EGBC (Early Gall Bladder Carcinoma). Unfortunately it becomes clinically apparent only when it is locally advanced, the symptoms being due to invasion of neighboring organs. In two series, both from areas with a high incidence of gall bladder cancer, none of the EGBC was diagnosed clinically and almost half of these were first diagnosed on histopathological examination of resected specimen, thereby indicating the elusive nature of EGBC.^{32,33}

All patients diagnosed with Incidental Ca GB were subsequently underwent staging work up with CECT Abdomen, tumor markers and accordingly treated.

SUMMARY

In this study the incidence of incidental CaGB was 5% of chronic cholecystitis patients who underwent surgical intervention at RIMS, Ranchi.

Incidental CaGB was predominantly a disease of elderly female patients. 40% were between 6th and 7th decade.

No clinical, biochemical or radiological parameters was suggestive or predictive of incidental CaGB. It was detected for the first time on post cholecystectomy settings on histological examination of gall bladder, termed as Incidental Carcinoma, or Inapparent carcinoma, or occult carcinoma Gall Bladder.

CONCLUSION

In this study 100 patients of chronic cholecystitis were analyzed. In the process 5 patients were diagnosed with incidental CAGB after

cholecystectomy for chronic cholecystitis. In study the incidence of incidental CaGB was 5%.

Unfortunately no clinical, biochemical or radiological parameter was suggestive or predictive of CaGB in patients who underwent cholecystectomy for chronic cholecystitis.

In view of the findings from this study it may be concluded that chronic cholecystitis remains a significant surgical entity in our population. However the surgeon should be suspicious of incidental CaGB. This is extremely important as laparoscopic cholecystectomy is being increasingly used for treatment of chronic cholecystitis and if there is perioperative spillage of biliary contents there is possibilities for the very early disease becoming a disseminated disease. However as the incidence of incidental CaGB is 5% in the study and no significant parameters could be found that can detect the condition. The operating surgeon should have high index of suspicion regarding this fatal malignancy.

REFERENCES

1. Sabiston textbook of Surgery, 19th edition;55:1485-1511.
2. Schwartz's Principles of Surgery, 9th edition;32:1135-65.
3. deStoll M. Rationis medendi in nosocomino practico undinobonensi, part I, Vienna, Bernardi, 1777.
4. Shukla VK, Khandelwal C, Roy SK, et al: Primary carcinoma of the gallbladder. A review of 16 years period at University Hospital. J Surg Oncol 28: 32-32, 1985
5. Bailey & Love's Short Practice Of Surgery, 27th edition, Vol-2; 67:1198-1221.
6. Brudette WJ. Carcinoma of the gallbladder. Ann Surg 145: 832-47, 1957.
7. Chao TC, Greager JA. Primary carcinoma of the gallbladder. J Surg Oncol 46: 215-21, 1991.
8. Perkin DM, Whelan SL, Ferlay J, Raymond L, Young J (eds). Cancer Incidence in Five Continents vol VII, IARC Sci Pub no 143, Lyon, France, 1997.
9. National Cancer Registry Program. Annual report 1988-89. ICMR, New Delhi, 1992.
10. Waterhouse J, Muir C, Correa C, et al. Cancer Incidence in Five Continents. Vol 3, IARC Science publication no 5, Lyon, IARC, 1976.
11. Strom BL, Bibber PL, Soper KA, et al; International variation in epidemiology of cancers of the extrahepatic biliary tract. Cancer Res 45:5165-68, 1985.
12. Ouchi K, Sugawara T, One H, et al Diagnostic capability and rational resectional surgery for early gallbladder cancer. Hepatogastroenterology 46: 1557-60, 1999.
13. Shirai Y, Yoshida K, Tsukada K, Muto T, Watanabe H. Early carcinoma of the gallbladder. Eur J Surg 158:545-48, 1992.
14. Onoyama H Yamamoto M, Takada M, et al: Diagnostic imaging of early gallbladder cancer. Retrospective study of 53 cases. World J Surg 23: 708-12, 1999.
15. Kimura W, Shimada H: A case of gallbladder carcinoma with infiltration into the muscular layer that resulted in relapse and death from metastasis to the liver and lymph nodes. Hepatogastroenterology 37: 86-89, 1990.
16. Tsuchiya Y, Early carcinoma of the gallbladder: macroscopic features and US findings. Radiology 179: 171-75, 1991.
17. Yeh HC: Ultrasonography and computed tomography of carcinoma fo the gallbladder, Radiology 133: 167-73, 1979.
18. Weiner SN, Koenigsberg M, Morehouse H, et al: Sonography and computed tomography in the diagnosis of carcinoma of the gallbladder. Am J Roentgenol 142: 735-39, 1984.
19. Shirai Y, Yoshida K, Tsukada K, Muto T, Watanabe H. Early carcinoma of the gallbladder. Eur J Surg 158: 545-48, 1992.
20. Onoyama H Yamamoto M, Takada M, et al: Diagnostic imaging of early gallbladder cancer. Retrospective study of 53 cases. World J Surg 23: 708-12, 1999.
21. Tanimura H, Sasaki S, Aoki Y: Cholelithiasis – CT diagnosis. J Biliary Tract Pancreas 10: 371, 1989.
22. Kapoor VK: Incidental gallbladder cancer. Am J Gastroenterol 96: 627-29-2001.
23. Frauenschuh D, Greim R, Kraas E: How to proceed in patients with carcinoma detected after laparoscopic cholecystectomy. Langenbeck's Arch Surg 385: 495-500, 2000.
24. Romano F, Franciosi C, Caprotti R, et al: Laparoscopic cholecystectomy and unsuspected gallbladder cancer. Eur J Surg Oncol 27: 225-28, 2001.
25. De Aretxabala Z, Roa IS, Burgos L, et al: Gallbladder cancer in Chile. A report on 54 potentially resectable tumors. Cancer 69: 60-65, 1992.
26. Piehler JM, Crichlow RW. Primary carcinoma of the gallbladder. Surg Gynecol Obstet 147:929-42, 1978.
27. Shigeki Y, Yasuo A. Occult Gall bladder carcinoma after laparoscopic cholecystectomy; a report of four cases. J Nippon Med Sch 2007;74:300-5
28. Shukla VK, Khandelwal C, roy SK, Vaidya MP: Primary carcinoma of the gallbladder: A review of 16-year period at the University Hospital J Surg Oncol 28: 32-35, 1985.
29. Klamer TW, Max MH: Carcinoma of the gallbladder. Surg Gynecol Obstet 156: 641-45, 1983.
30. Silk YN, Douglass HO, Nava HR, et al: Carcinoma of the gallbladder. The Rosewell park experience. Ann Surg 210: 751-57, 1989.
31. Chao TC, Greager JA: Primary carcinoma of the gallbladder. J Surg Oncol 46: 215-21, 1991.
32. de Aretxabala X, Roa I, Araya JC, et al: Operative findings in patients with early forms of gallbladder cancer. Br J Surg 77: 86-89, 1990.
33. Kapoor VK, Pradeep R, Haribhakti SP, Sikora Ss, Kaushik SP. Early carcinoma of the gallbladder.: An elusive disease. J Surg Oncol 62: 284-87, 1996.