

# Original Research

## Assessment of level of CA19-9 and CA 125 in carcinoma gall bladder

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### ABSTRACT:

**Background:** Gallstones are the most common risk factor for gallbladder cancer. Gallstones are pebble-like collections of cholesterol and other substances that form in the gallbladder and can cause chronic inflammation. The present study was conducted to assess level of CA19-9 and CA 125 in carcinoma gall bladder. **Materials & Methods:** 68 cases of carcinoma gall bladder of both genders were assessed for CA19-9 and CA 125 by chemiluminescent microparticle immunoassay (CMIA) method. **Results:** lesions found to be chronic cholecystitis in 36, xanthogranulomatous cholecystitis in 20 and chronic cholecystitis with gastric metaplasia in 12. The mean CA19-9 level was 136 U/ml and CA 125 level was 65.2 U/ml. **Conclusion:** Authors found elevated level of CA19-9 and CA 125 in carcinoma gall bladder.

**Key words:** Carcinoma gall bladder, CA19-9, CA 125

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### INTRODUCTION

Gallbladder is one of the organs having a wide spectrum of diseases ranging from congenital anomalies, calculi, and its complications, non-inflammatory, inflammatory, and neoplastic lesions. Gallstones are one of the major causes of morbidity and mortality all over the world. It affects around 10% of adult population. Its incidence increases progressively with age.<sup>1</sup> Diseases of gallbladder are manifested as biliary pain in epigastrium and right upper quadrant of abdomen, radiating to interscapular area, right scapula and shoulder, associated with nausea, vomiting, jaundice, anorexia, fever, and chills.<sup>2</sup> Benign lesions of the gallbladder are relatively common, but only adenomatous polyps are considered to have malignant potential. Although ultrasonography can be useful in evaluating these lesions, considerable difficulty may be encountered in establishing the diagnosis preoperatively. These lesions include Cholesterol polyps, inflammatory polyp, adenomyomatosis, and adenomatous polyp.<sup>3</sup> Gallstones are the most common risk factor for gallbladder cancer. Gallstones are pebble-like collections of cholesterol and other substances that

form in the gallbladder and can cause chronic inflammation.<sup>4</sup> Up to 4 out of 5 people with gallbladder cancer have gallstones when they're diagnosed. But gallstones are very common, and gallbladder cancer is quite rare, especially in the US. And most people with gallstones never develop gallbladder cancer. CA19-9 and CA 125 have been studied and found to be raised in Carcinoma Gall bladder.<sup>5</sup> The present study was conducted to assess level of CA19-9 and CA 125 in carcinoma gall bladder.

### MATERIALS & METHODS

The present study was conducted among 68 cases of carcinoma gall bladder. After taking proper consent, clinicoradiological examination was done. USG guided FNA was performed in suspected lesions. On cytological examination smears showing loose poorly formed acinar clusters of large pleomorphic cells, having high N:C ratio, prominent nucleoli and scant amount of cytoplasm were classified as positive for malignancy. Smears showing cuboidal to columnar cells present in tight cluster without any dysplastic features were labelled as negative for malignancy.

Patient's sera was collected and processed for CA19-9 and CA 125 by chemiluminescent microparticle immunoassay (CMIA) method. Final diagnosis was confirmed by histopathology wherever possible. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

**RESULTS**

**Table I Distribution of patients**

Total- 68		
Gender	Males	Females
Number	32	36

Table I shows that out of 68 patients, males were 32 and females were 36.

**Table II Type of lesions**

Lesions	Number	P value
Chronic cholecystitis	36	0.01
Xanthogranulomatous cholecystitis	20	
Chronic cholecystitis with gastric metaplasia	12	

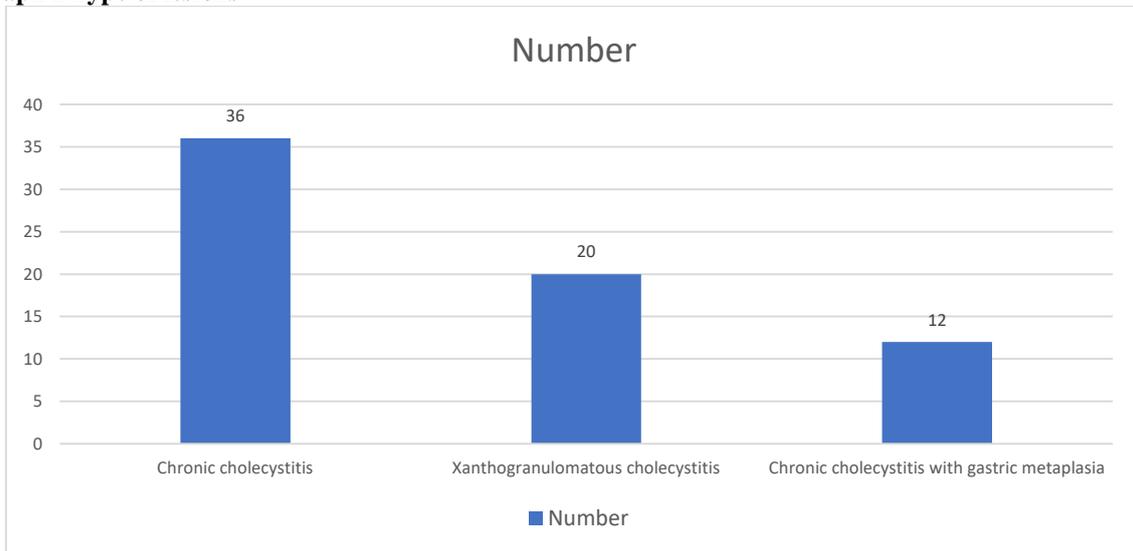
Table I shows that lesions found to be chronic cholecystitis in 36, xanthogranulomatous cholecystitis in 20 and chronic cholecystitis with gastric metaplasia in 12. The difference was significant (P<0.05).

**Table III Assessment of CA19-9 and CA 125 level**

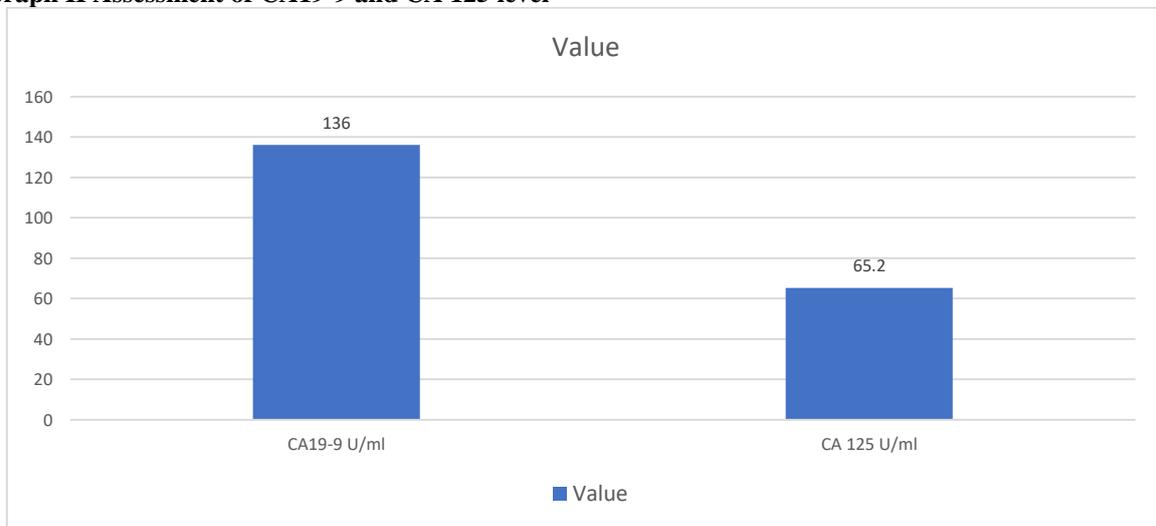
Parameters	Value
CA19-9 U/ml	136
CA 125 U/ml	65.2

Table IV, graph II shows that mean CA19-9 level was 136 U/ml and CA 125 level was 65,2 U/ml.

**Graph I Type of lesions**



**Graph II Assessment of CA19-9 and CA 125 level**



## DISCUSSION

Gallbladder cancer is a disease of the elderly; it affects patients in their sixth or seventh decades of life, with a female to male ratio of 5:1. Gallbladder carcinoma is known as an aggressive malignancy, with most large series reporting 5-year survival rates of 5-15%. In 25% of the patients the cancer is localized to gallbladder wall, in 35% it may spread beyond the wall to adjuvant soft tissue, and in 45% distant metastases may occur. Early-stage gallbladder carcinoma lacks typical clinical manifestations, leading to a poor 5-year survival. At the time of diagnosis, most patients are at advanced stage, and thus lose the chances of radical cure. It is therefore important to diagnose gallbladder carcinoma earlier.<sup>6</sup> Currently, the diagnosis of gallbladder carcinoma mainly depends on non-invasive auxiliary imaging and invasive examination such as laparoscopy, cytology, and biopsy. There is no ideal single tumor marker for the diagnosis and prognosis of gallbladder carcinoma. The present study was conducted to assess level of CA19-9 and CA 125 in carcinoma gall bladder.

In present study, out of 68 patients, males were 32 and females were 36. We found that lesions found to be chronic cholecystitis in 36, xanthogranulomatous cholecystitis in 20 and chronic cholecystitis with gastric metaplasia in 12. Mancuso TF et al<sup>7</sup> included 118 cases, with female: male ratio of 4:1. Out of it, 91 (77 %) cases were benign and 27 (23 %) were malignant. Patients' sera was collected and analyzed for CA19-9 and CA 125 by CMIA method. The Mean (SD) value of CA19-9 for benign and malignant cases was found to be 12.86 (17.54) and 625.35(186.52) U/ml. For CA 125 it was found to be 17.98(13.69) and 239.63(73.72) U/ml respectively. The difference was statistically significant ( $P < 0.001$ ). When Mean - 2SD value of malignant lesions were taken as cut off a value of CA 19-9 and CA 125 were found to be 252.31 U/ml & 92.19U/ml respectively, found to be significant to suggest /diagnose a case of carcinoma gall bladder along with clinicoradiological findings. Taking these value as cut off Sensitivity & Specificity for CA 19-9 and CA 125 in detecting malignant cases were found to be 100% & 98.90% and 100% & 94.50% respectively.

We found that mean CA19-9 level was 136 U/ml and CA 125 level was 65,2 U/ml. Kankonkar et al<sup>8</sup> also found the similar value (847.6 U/mL) in their study. Shukla et al<sup>9</sup> also found the raised value of serum CA19-9 in malignant lesions as compared to the benign lesions of gallbladder (211.27 U/mL vs 86.06 U/mL). Other studies also identified serum CA 19-9 as a sensitive marker for carcinoma gallbladder. Epidemiologic studies have shown that female sex, age, postmenopausal status, and cigarette smoking are risk factors. Ethnic origin, increased body mass, and physician-diagnosed typhoid are risk factors in the high-incidence populations/ It is postulated that chronic Salmonella typhi infection is associated with

bile carcinogens and contributes to an increased risk of hepatobiliary carcinoma and gallbladder carcinoma.<sup>10</sup> Exposure to chemicals used in the rubber, automobile, wood finishing, and metal fabricating industries has been associated with an increased risk of gallbladder carcinoma. Cholelithiasis is a well-established risk factor for the development of gallbladder carcinoma, and gallstones are present in 74%–92% of affected patients. Gallstones cause chronic irritation and inflammation of the gallbladder, which leads to mucosal dysplasia and subsequent carcinoma. Porcelain gallbladder is an uncommon condition in which there is diffuse calcification of the gallbladder wall, and 10%–25% of patients with this condition have gallbladder carcinoma.<sup>11</sup> Several pathologic and congenital anatomic anomalies are associated with a higher prevalence of gallbladder carcinoma, compared with that in the general population. These conditions include congenital cystic dilatation of the biliary tree, choledochal cyst, anomalous junction of the pancreaticobiliary ducts (with or without a coexistent choledochal cyst) and low insertion of the cystic duct.<sup>12</sup> Mucosal metaplasia and consequent carcinoma are postulated to occur in response to chronic biliary reflux of pancreatic secretions.

The limitation of the study is small sample size.

## CONCLUSION

Authors found elevated level of CA19-9 and CA 125 in carcinoma gall bladder.

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