

# Appearance can be deceptive: A case report on raised CA 19-9 in a patient with cholecystitis and without evidence of malignancy

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## ABSTRACT

### Background

Cancer Antigen 19-9 (CA 19-9) is a potent marker in diagnosing carcinoma, but it can be increased in several benign conditions.

### Method

This is a descriptive observational case report on an unusual increase of CA 19-9 in benign condition. In this study, we present a case of cholecystitis whose elevated CA 19-9 level did not reflect any malignancy rather non-malignant condition.

### Results

A 64-year male patient with cholecystitis having significant raised level of CA 19-9 (1396 U/ml). Physician suggested potential cholangiocarcinoma by depending on initial tests, however after several imaging and biopsies it was confirmed that the case was cholecystitis. After antibiotic treatment and open cholecystectomy, CA 19-9 level was dropped to 625U/ml and 4.61 U/ml respectively.

**Conclusion:** Physicians should remain vigilant during assessing the level of CA 19-9 and the physician should not decide the disease not only by using diagnostic report of CA 19-9, but also further tests and treatment response monitoring are essential.

### Keywords

Cholangiocarcinoma; CA 19-9; Malignancy; cholecystitis; cholecystectomy

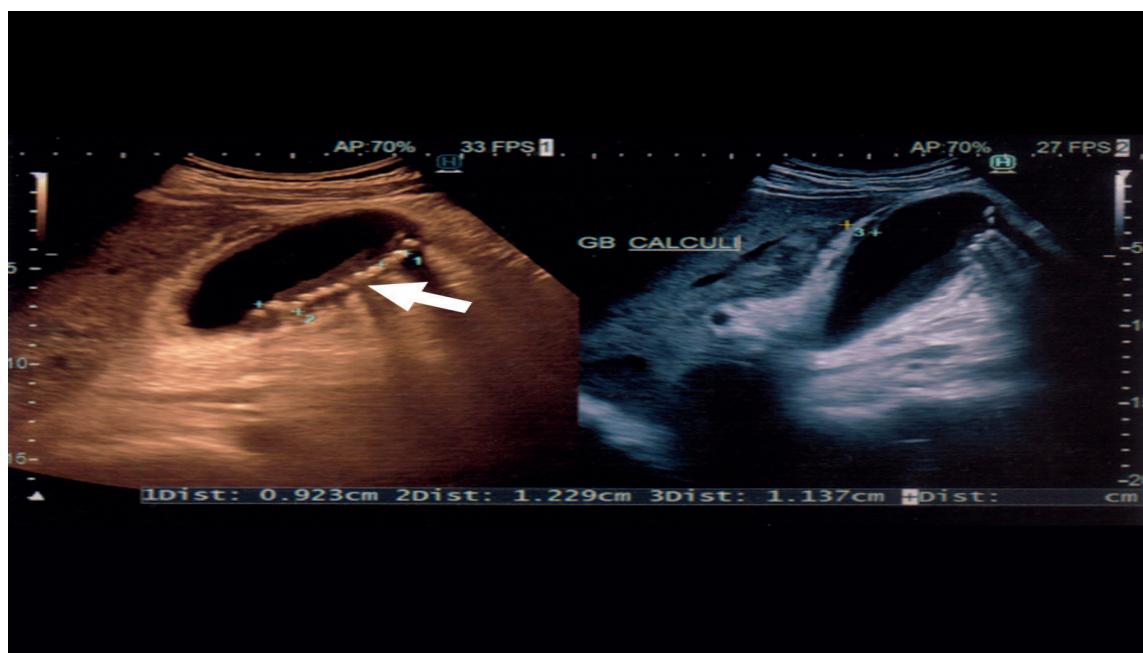
## INTRODUCTION

Bile duct cancer is the formation of malignant cell in the bile duct and commonly known as cholangiocarcinoma (CCA). It is commonly found in southeast Asian region and around 8000 cases are diagnosed with CCA each year in United States<sup>1</sup>. A tumor marker, CA 19-9 cut-off value in serum <37 U/ml is used widely to predict several cancerous and non-cancerous conditions as biomarker like periostin is used in monitoring the efficacy of allergen immunotherapy<sup>2</sup> and elevated CA-125 indicates the presence of ovarian cancer<sup>3</sup>. Bile duct obstruction, pancreatitis, cholecystitis, gall stone, cirrhosis and cystic fibrosis like non-cancerous conditions may cause the elevation of CA 19-9 level in the blood. Elevated CA 19-9 from normal range in blood may also indicate cancer in pancreas, bile duct, colon, rectum, stomach, and several other organs<sup>4,5</sup>. Studies reported that CA 19-9 hardly increased greater than 1000 U/ml in non-malignant conditions and over 1000 U/ml indicates high chance of malignancy<sup>6,7</sup>.

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**Figure 1:** Ultrasonographic Image Showing Acute Cholelithiasis and distended Gall Bladder

Although some recent case reports are showing CA 19-9 value in serum may cross 1000 U/ml in different benign conditions, such as desmoplastic fibroblastoma, acute cholangitis, bile duct strictures and primary biliary cirrhosis<sup>8-10</sup>. Physicians need to be vigilant in the evaluation of cases with elevated CA 19-9, it's elevation may be associated with non-malignant diseases. Here we present a case of elevated CA 19-9, suggested existence of cholangiocarcinoma in the patient; however further diagnosis revealed that it was not such case.

#### **Ethical Consideration:**

Informed consent was obtained from the case included in this study

#### **Case Description:**

A 64 year male patient visited to a physician with the sign of jaundice, abdominal pain, fever and also vomiting for the last three days. He also complaints of his urine were reddish in colour and slight weight loss. The patient had diabetes, hypertension, and asthma history. He was prescribed to take ceftriaxone intravenously for 7 days with some diagnostic tests.

In the laboratory report, HbA1c was 6.8%, bilirubin was 6.4mg/dl and serum alkaline phosphatase was 140U/L. A tumor marker CA 19-9 was given to test and that was significantly raised to 1396 U/ml. In the ultrasonogram of hepatobiliary system (HBS), liver was enlarged, gall

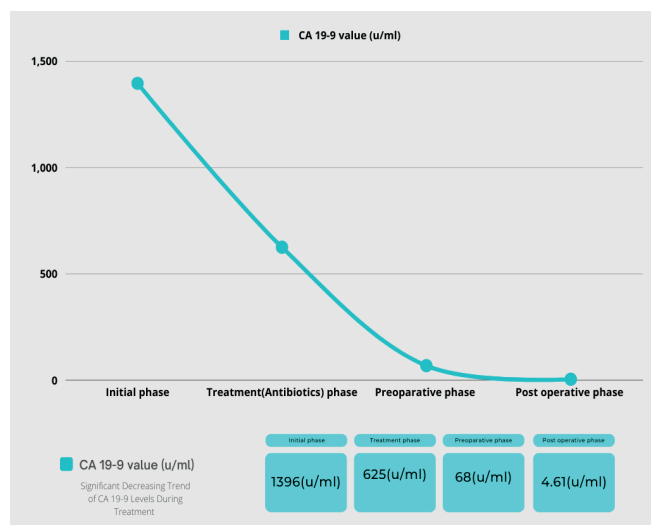
bladder was grossly distended with multiple echogenic structure with prominent common bile duct (Figure 1). After the evaluation of these reports, the physician suggested potential cholangiocarcinoma based on elevated CA 19-9 and probably based on signs present in the patient.

According to the recommendation from another physician, endoscopy, and Magnetic Resonance Cholangiopancreatography (MRCP) were done. In the endoscopic report, esophageal monaliasis was observed and the esophageal biopsy confirmed chronic gastritis.

MRCP report showed no obvious mass was detected in anywhere in Hepatobiliary Scintigraphy (HBS) and acute cholecystitis was diagnosed. CA 19-9 was decided to be tested for second time by the patient's daughter to observe antibiotic treatment response and it was 625U/ml at that time.

The surgeon decided to do cholecystectomy after antibiotic therapy with Cefuroxime for 7 days. After having the antibiotic for seven days, CA 19-9 was tested again for observing the level and it was significantly reduced to 68U/ml.

After the follow-up, physician recommended the patient to take amoxicillin in combination with clavulanic acid for another 7 days before the surgery. Open cholecystectomy was done with the histopathology, and it showed no evidence of malignancy rather it was diagnosed as acute



**Figure 2:** CA 19-9 Value of the Case According to Investigation in Different Phases.

and chronic cholecystitis. After one month of the surgery, CA 19-9 was tested for fourth time, and it was found at its normal range (4.61 U/ml) (Figure 2).

## DISCUSSION

Physicians need to be observant when assessing elevated CA 19-9 and commenting to a patient that you have the disease based on clinical signs they observed. It should be based on other confirmatory tests as CA 19-9 could be raised both in malignancy and benign conditions and confident discrimination cannot be made between benign, and malignancy<sup>4,11,12</sup>.

In this case, physician suggested a potential cholangiocarcinoma just after observing elevated CA 19-9. After several diagnostic tests, no malignancy was confirmed instead it was cholecystitis. Such suggestion is not only lowered the mental strength of patient but also could reduce the trust on health facility available in the region.

In this case, Ceftriaxone was administered for seven days according to physician prescription, and the level of CA 19-9 was reduced by 50%. However, the test to be done for second time that was decided by the patient's daughter to observe treatment response. The physician used the CA 19-9 blood test to predict the disease and did not monitor the treatment response. Although, it is used to help diagnosis of a disease, monitor response of the treatment, and help in the detection of recurrency of a disease after treatment<sup>5</sup>.

Study reported the dropping of CA 19-9 after biliary drainage in benign jaundice cases. On the other hand, in malignancy the response was inconsistent even after biliary drainage. However, this method needs further validation<sup>12</sup>. Similarly in our study, jaundice symptoms were pulled out after treatment with several anti-bacterial therapy. And after open cholecystectomy, CA 19-9 value was dropped down to normal range.

To our knowledge, it is one of the rare cases in which CA 19-9 value (1396 U/ml) was elevated due to acute and chronic cholecystitis. Severe inflammation in the gall bladder has been reported to cause raised CA 19-9.

## CONCLUSION

Physicians need to be concerned enough on different etiologies of increased level of CA 19-9. This marker is not enough to predict malignancy and need several other confirmatory diagnostic tests. Moreover, physicians should comment cautiously when assessing the level of CA 19-9 and it should not only use for diagnosis purpose but also use in the monitoring of the treatment.

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## DECLARATION OF INTEREST

The authors declare that they have no conflict of interest

## AUTHOR CONTRIBUTIONS

MIH conceptualised and designed the study. BB and USR collected the data. MIH, BB and USR interpreted the data. MIH and USR drafted the manuscript. MIH supervised, critically reviewed, and revised the manuscript. Finally, all the authors approved the final version of the manuscript.

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