

## High Level of Ca-125 in Liver Cirrhosis

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### ABSTRACT

Cancer antigen-125 (CA-125), also known as mucin-16 (MUC-16), is the most commonly used tumour marker to detect ovarian cancer. Its level in serum is used to monitor the response to chemotherapy, relapse, and disease progression in ovarian cancer patients.

We present a case of an elderly female patient with liver cirrhosis and ascites showing high CA 125 with suspicion of malignancy and in the end was negative (post exploration). We strongly emphasis the awareness of the presence of high level of CA-125 in non-malignant conditions and in some cases, it may be possible to avoid invasive procedures

**Keywords:** CA 125, Liver cirrhosis, Malignancy, Ascites

### INTRODUCTION

Serum cancer antigen-125 (CA-125) has long been used as a tumor marker for the preoperative diagnosis and monitoring of ovarian malignancy and may be a prognostic indicator for this disease. CA-125 is a peptide epitope of the mucin glycoprotein called MUC16.<sup>[1]</sup> This has also been found elevated in other benign and malignant disease as well as non gynecological benign disorders.<sup>[2,3,4]</sup> CA-125 has also been found elevated in chronic liver disease specially that associated with ascites.<sup>[5,6]</sup> Cases have occurred in which the ascites has been present and no liver disease has been documented, or suspected, with elevated CA-125 level and patients have been subjected to exploratory laparotomy and later found to have no malignant disease but the elevated CA-125 level was due to cirrhosis of the liver.<sup>[7]</sup> We

present a case of ascites in a patient with elevated CA-125 who had no definite pre-operative evidence of liver pathology and was subjected to exploratory laparotomy to evaluate for malignant disease of the ovaries or other abdominal organs but none was found. Instead, during surgery, patient was found to have cirrhosis of the liver and afterward, serological markers of hepatitis B were found to be positive.

### CASE REPORT

This patient was 55 years old female who presented with abdominal swelling of 4 weeks duration. She had history of hypertension and was taking Losartan. Her physical examination showed distended abdomen with fluid thrill present. Her vital signs were normal. Peripheral pitting edema was present and she was moderately obese. Laboratory findings showed hemoglobin 12.5 g/dl, hematocrit 42.9% WBC count was 5500/ul, platelet 222000/ ul, Fasting Blood Sugar 117 mg/ dl, total bilirubin 0.7 mg/dl, direct bilirubin 0.5 mg/dl, AST 48 U/l, ALT 25 U/l, alkaline phosphatase 201 (Normal 39-117 U/l) Serum albumin was 3.23 g/dl (Normal 3.5 - 5.0 g/dl), creatinine 0.5mg/dl. Hepatitis B surface Antigen was negative and so was anti HCV. Thyroid profile was normal. CA-125 level was 488 and after one week, repeat level was more than 510 U/ml (Normal 1.7 -32 U/ ml). Chest X-Ray was normal and abdominal sonography showed gross ascites. CT scan of the abdomen and pelvis showed gross ascites and no abnormal mass was noted also pancreas and ovaries were found to be normal. Diagnostic ascitic fluid was sent for examination and total leucocyte count was

200 cells/ul with 50% of lymphocytes and total protein of 2.4 g/dl. Ascitic fluid cytology was negative for any malignant cells. She then underwent exploratory laparotomy at which time no malignancy of the ovary or any other organs of the abdomen was evident. Liver was noted to be small and shrunken and a biopsy was taken which gave impression of cirrhosis of the liver. There were no changes of steatosis. On re-evaluation, her total core antibody (HB core total IgG) was positive. She was treated with loop diuretics and continued on other symptomatic medical treatment.

### **Conditions associated with elevated CA-125**

#### **Malignant**

Carcinoma of Ovary, Endometrium, Endocervix, Liver, Stomach, Lung, Breast, Pancreas, Colorectum

#### **Benign**

Cirrhosis of the liver, Tuberculous peritonitis, Spontaneous bacterial peritonitis, Endometriosis, Pelvic Inflammatory disease, Ovarian hyperstimulation syndrome, Benign ovarian cyst, Ectopic pregnancy

### **DISCUSSION**

Our patient showed high level of CA-125. No malignant disease was detected on extensive imaging studies and abdominal exploration. Liver cirrhosis was demonstrated and serological Marker of hepatitis B was found to be positive which was responsible for cirrhosis of the liver and massive ascites. Pre-operatively, it was difficult to determine as if the clinical picture was due to cirrhosis of liver, especially in elderly female, in whom higher incident of ovarian cancer is very common. CA 125 has been used for monitoring of the course of epithelial ovarian tumors and has been elevated in over 80% of the histologically confirmed ovarian carcinoma.<sup>[8]</sup> However, it is also noted to be

present in several other malignant and non-malignant conditions, which include endometriosis, pelvic inflammatory disease, carcinoma of endometrium and colorectum and chronic liver disease. Among the chronic liver disease, most common is cirrhosis of liver and hepatocellular carcinoma.<sup>[8]</sup> Studies have shown that CA-125 is highly sensitive marker to detect the ascites in the patient with cirrhosis of liver.<sup>[8]</sup> Different common malignant and non-malignant conditions, which have resulted in elevated CA-125 are shown above.

There are two very important sources of CA-125, which are epithelium of ovary and peritoneum.<sup>[9]</sup> It has been suggested that CA-125 is probably synthesized by peritoneal epithelium in response to internal mechanical stress caused by the presence of ascites and then it carries from the peritoneal cavity to the serum through the peritoneum.<sup>[6]</sup> However, external stress in the form of physical examination may have an influence on the serum CA-125 but this has not been scientifically substantiated.<sup>[9]</sup> Several studies have shown that the CA-125 is only a marker present in peritoneum fluid, independent of underlying primary cause, and this be considered as a non specific marker.<sup>[2,3,4,5,6,7,8,9]</sup> The hypothesis that CA-125 may be synthesized by peritoneal epithelial cells has been supported by the observation that, after high volume paracentesis,<sup>[8]</sup> there is a rapid decline of serum level of this marker as early as 48 hours after paracentesis.<sup>[8]</sup> There is no particular level of CA-125 which can indicate that the elevated level may be from benign or malignant disease.<sup>[10]</sup>

### **CONCLUSION**

This case illustrated the additional specific nature of cancer antigen CA-125 found in this case with cirrhosis of the liver but malignant disease was strongly suspected. This would necessitate the awareness of the presence of high level of CA-125 in non-malignant conditions and in

some cases; it may be possible to avoid invasive procedures like exploratory /laparotomy.

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