Massive pleural effusion and marked increase of CA-125
S F Hussain, J Grayez, A Grigorian, J T Green

The tumour associated CA-125 antigen is widely used in monitoring ovarian carcinoma. In women with a massive pleural effusion and ascites, markedly increased CA-125 levels may lead to an erroneous diagnosis of ovarian cancer. Very high levels of tumour markers may be present in patients with benign pleural effusion, ascites, and chronic liver disease. Raised levels of tumour markers in serum or pleural fluid, in the absence of positive cytology, should be interpreted with caution.

CASE REPORT

A 44 year old woman was admitted with two month history of progressive dyspnoea, which had failed to improve with antibiotics. She was a smoker of 25 pack-years and had consumed alcohol in excess of 30 units a week for several years. Her sister had breast cancer. Examination revealed jaundice with stigmata of chronic liver disease, moderate right sided pleural effusion, and gross ascites. There were no breast masses or lymphadenopathy. Pleural fluid analysis showed increased mean corpuscular volume (102 fl) and aspartate aminotransferase 89 IU/l, γ-glutamyltransferase 592 IU/l, alkaline phosphatase 433 IU/l, albumin 25 g/l, and total bilirubin 97 μmol/l. Markedly raised serum and fluid CA-125 titres were detected in 52% of patients with hepatic diseases, in 100% of patients with non-gynaecological peritoneal carcinomatosis, and in 87% of patients with pleural effusion.1 Our patient had a combination of liver disease, ascites, and pleural effusion and this could have resulted in markedly increased CA-125 levels. Because of the high frequency of false positive results associated with many benign conditions, CA-125 is of little value as a screening test for ovarian carcinoma.

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Pleural effusion with increased CA-125 levels may occur in pelvic conditions other than ovarian carcinoma. These include Meigs’ syndrome (secondary to ovarian fibroma) and pseudo-Meigs’ syndromes (secondary to other benign pelvic tumours).3 Removal of tumour is associated with a rapid decline in tumour markers. Increased CA-125 levels may occur with non-gynaecological malignancy such as lung cancer (69% with metastatic disease), mediastinal teratoma, and non-Hodgkin’s lymphoma.5 Tuberculosis is another cause of massive pleural effusion associated with increased levels of CA-125.7 Increased CA-125 levels may occur in connective tissue diseases, chronic constrictive pericarditis, and in patients on haemodialysis with pleural effusion.8

Pleural effusions are found in about 6% of patients with cirrhosis; two thirds of these are right sided. A large effusion in a cirrhotic, where there is no other explanation for its accumulation, is called a hepatic hydrothorax. It appears to form because of the movement of fluid from the abdomen through right sided diaphragmatic defects. Treatment is...
difficult as in many patients it is resistant to diuretics and dietary sodium restriction. Thoracocentesis usually leads to rapid reaccumulation of the effusion and a chest drain may be difficult to remove. Further options for treatment of a hepatic hydrothorax include surgical repair of the diaphragmatic defects, a transjugular intrahepatic portosystemic shunt (TIPS), or liver transplantation if indicated.

The major limitation of our case report was the absence of postmortem proof that there was no ovarian cancer. However, the presence of an underlying ovarian cancer was judged to be extremely unlikely in view of the negative ultrasound and negative computed tomography findings, negative cytology of repeated ascitic and pleural and fluid samples, and the improvement of serum CA-125 levels without any form of cancer treatment.

The recommendation that routine testing of tumour markers in pleural fluid greatly increases diagnostic effectiveness and avoids the need for invasive diagnostic tests is not supported by our case report. Increased levels of tumour markers in pleural fluid, in the absence of positive cytology, should be interpreted with caution.

Authors’ affiliations
S F Hussain, J Grayez, A Grigorian, J T Green, Llandough Hospital, Penarth, Vale of Glamorgan, UK

Correspondence to: Dr Syed Fayyaz Hussain, Section of Pulmonary Medicine, Aga Khan University Hospital, Stadium Road, PO Box 3500, Karachi 74800, Pakistan; sf_pulmonary@yahoo.co.uk; fhussain@akunet.org

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