Can tuberculosis mimic cancer?

Riad O El Fakih, Bassem M Chehab,
Rami A Mortada and Maha Assi

To the Editor: A 60-year-old Hispanic woman, who had lived in the United States for 10 years, presented with a 1-day history of altered mental status. Physical examination revealed ascites and enlarged right axillary lymph nodes. Magnetic resonance imaging (MRI) of the brain showed multiple intracranial lesions (Box, A). Computed tomography of the chest and abdomen showed massive adenopathy in the right axilla, multiple nodules in upper lung fields, ascites and retroperitoneal adenopathy. Her cancer antigen (CA) 125 level was 1469 U/mL (reference range, 0–35 U/mL); CA27.29 and CA19-9 levels were within the upper limit of the normal ranges.

She was initially thought to have metastatic cancer of unknown primary site. However, a right axillary node biopsy revealed necrotising granulomas and no malignancy; an acid-fast bacteria (AFB) stain was negative. Ultrasound-guided retroperitoneal lymph node biopsy showed necrotising granulomas and no malignancy; an AFB stain was positive.

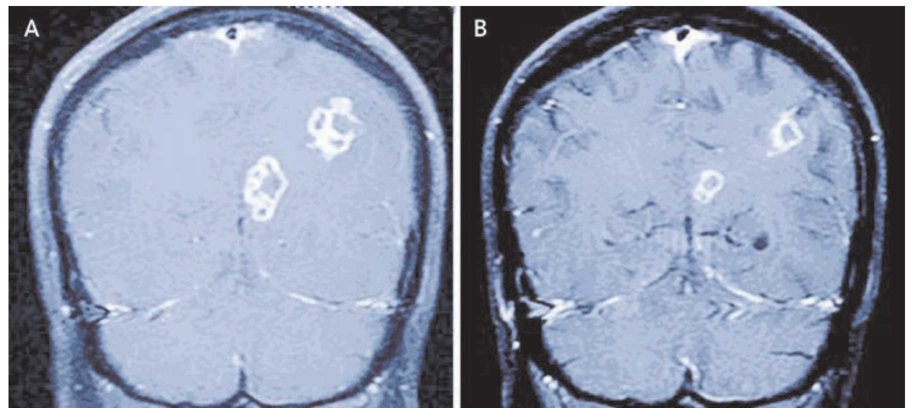
We began investigations for disseminated tuberculosis (TB). A QuantiFERON-TB Gold test (Cellestis, Valencia, Calif, USA) and sputum and right axillary node cultures were positive for *Mycobacterium tuberculosis*; peritoneal and cerebrospinal fluid cultures were negative. Polymerase chain reaction (PCR) of samples of peritoneal fluid and from bronchoalveolar lavage was negative for *M. tuberculosis* DNA, but a sample from the retroperitoneal lymph node tested positive.

The patient was started on four-drug therapy for TB and her condition progressively improved. Follow-up MRI of the brain 5 months later showed a decreased size of all intracranial lesions (Box, B), and her CA125 level was 84 U/mL.

Peritoneal TB can mimic advanced ovarian cancer because of similarities in clinical signs and symptoms, such as ascites, abdominal pain and elevated CA125 levels.[1] The association of peritoneal TB with high CA125 levels was first described in 1987.[2] The positive predictive value of CA125 levels to detect malignancy is estimated at 60%, rising to 98% in postmenopausal women.[3-4] In most reported cases of peritoneal TB, CA125 levels were below 500 U/mL; rarely, levels up to 1200 U/mL have been seen.[1-4]

Culture is of limited clinical usefulness, as results take up to 6 weeks. Although microscopy is rapid, cheap and highly specific, its sensitivity has been shown to be as low as 31% for extrapulmonary TB.[5]

Magnetic resonance (MR) imaging of the brain before and after treatment



A: Brain MR image showing multiple intracranial lesions involving the left cerebellum, left occipital lobe, left parietal lobe and corpus callosum. B: MR image of the brain 5 months post-treatment, showing a decrease in the size of all intracranial lesions. ◆

PCR is of limited value in diagnosing peritoneal TB. Detecting *M. tuberculosis* DNA by PCR in ascitic fluid poses many challenges — differences in technique, contamination with other bacteria, and the variable number of acid-fast bacilli in samples have been shown to influence its reliability.[4-5]

Negative results from microscopy, culture and PCR should not distract from a diagnosis of TB. In the face of a growing international incidence of TB, it is important to consider this transmissible and treatable disease in the context of abdominal symptomatology, ascites and raised serum CA125 levels — especially in ethnic groups in which TB prevalence is high. Misdiagnosis or delayed diagnosis can lead to infertility, premature menopause and death.

Riad O El Fakih, Resident Physician
Bassem M Chehab, Resident Physician
Rami A Mortada, Resident Physician
Maha Assi, Assistant Professor, Infectious Disease Department
Kansas University School of Medicine, Wichita, Kan, USA.
bchehab@kumc.edu

1 Bilgin T, Karabay A, Dolar E, Develioglu OH. Peritoneal tuberculosis with pelvic abdominal mass, ascites and elevated CA 125 mimicking advanced ovarian carcinoma: a series of 10 cases. *Int J Gynecol Cancer* 2001; 11: 290-294.
2 Yoshimura T, Okamura H. Peritoneal tuberculosis with elevated serum CA 125 levels: a case report. *Gynecol Oncol* 1987; 28: 342-344.
3 Panoskaltsis TA, Moore DA, Haidopoulos DA, McIndoe AG. Tuberculous peritonitis: part of the differential diagnosis in ovarian cancer. *Am J Obstet Gynecol* 2000; 182: 740-742.
4 Straughn JM, Robertson MW, Partridge EE. A patient presenting with a pelvic mass, elevated CA-125, and fever. *Gynecol Oncol* 2000; 77: 471-472.
5 Kolk AHJ, Kox LFF, Van Leeuwen J, et al. Clinical utility of the polymerase chain reaction in the diagnosis of extrapulmonary tuberculosis. *Eur Respir J* 1998; 11: 1222-1226. ❏