Peritoneal Biopsy Is Not Needed to Diagnose Culture-Negative Spontaneous Bacterial Peritonitis

SIR—I have read with interest the brief report of Cone and Leung [1] about a cirrhotic patient with a left renal mass and a suspected culture-negative neutrocytic ascites (CNNA), who was correctly diagnosed after an open peritoneal biopsy demonstrated tuberculosis, and would like to make a few comments.

CNNA is diagnosed when the following criteria are met: (1) the ascitic fluid culture (preferably into blood culture bottles) grows no bacteria; (2) the ascitic polymorphonuclear leukocytes (PMNL) count is >250 cells/mm³; (3) no antibiotics have been given; and (4) there is no other explanation for the elevated PMNL count (e.g., hemorrhage into ascites, peritoneal carcinomatosis, tuberculosis, or pancreatitis) [2]. Cultures are negative in ~30–50% of cirrhotic patients with an elevated ascites PMNL count [3]. Because CNNA is diagnosed partly by exclusion, appropriate tests should be performed, such as an ascitic fluid amylase test or a determination of adenosine deaminase (ADA) activity—neither of which were mentioned by Cone and Leung in their report. ADA determination has been shown to be a highly sensitive and specific test in countries with a high incidence of tuberculosis and in high-risk patients [4] such as Cone and Leung's. Although poor sensitivity has been reported in the United States [5], especially in cirrhotic patients, it has been shown to have good accuracy and specificity elsewhere; therefore, an abnormal result strongly suggests tuberculous peritonitis.

On the other hand, when CNNA is suspected, empiric antibiotic treatment is mandatory. Paracentesis, repeated at 48 h of therapy, helps to assess how the PMNL count is responding to therapy. A decline in the PMNL count to less than the baseline pretreatment value confirms the diagnosis; a stable count, especially if there is a predominance of lymphocytes, indicates that the neutrocytosis has a nonbacterial or mycobacterial cause [2]. This approach should have suggested to the authors that their case was not CNNA.

In conclusion, Cone and Leung's statement that “this clinical experience confirms the need for either laparoscopic or open peritoneal biopsy for patients with CNNA” seems incorrect.

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References

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Reply

SIR—We thank Dr. Castellote for a letter that points out several interesting considerations in the diagnosis of peritoneal tuberculosis [1]. In contrast to bacterial peritonitis, tuberculous peritonitis manifests as mononuclear pleocytosis (80% ± 15% of monocytes), which we did not discuss in our brief report. Additionally, our patient had a peritoneal fluid protein level of 2.1 g/dL and a serum-ascites albumin gradient (SAAG) of 1.1 g/dL, which spoke against the diagnosis of tuberculous ascites [2], although the slightly elevated lactate dehydrogenase level (130 U/L) favored the diagnosis. We recognized that the adenosine deaminase (ADA) test was appropriate and requested it on 2 separate occasions, but it was not performed. Nevertheless, we would predict, as others have demonstrated [3, 4], that in patients who have concomitant hepatic cirrhosis, as our patient did, ADA testing of ascitic fluid will have reduced specificity (65%) and a sensitivity of only 30%. This reduction in positive predictive value is correlated with a reduced peritoneal protein and SAAG levels in patients with cirrhosis. A recent letter to the editor by Fernandez et al. [5] noted that the ADA assay should be used with caution in cases when cirrhosis is associated with tuberculous peritonitis or in patients with peritoneal carcinomatosis, because it has a false-positive rate of 6%.

ADA activity is an immune response that is produced by monocytes and macrophages. Cirrhotic patients characteristically have defective reticuloendothelial system function and often manifest abnormal immunologic and cell-mediated immunity [6]. This may explain the etiology of this deficiency among patients in the United States, where the prevalence of cirrhosis in patients with tuberculous peritonitis ranges from 5% to 43% [3, 7].

Furthermore, because drug-resistant tuberculosis has become a global problem [8], sensitivity studies are necessary to properly treat patients with tuberculosis. Since routine cultures of ascitic fluid have a 30% yield, and laparoscopic