Diagnostic Dilemma of Tubercular Ascites, where we are

Mridul Chaturvedi¹, Sarvesh Kumar Prajapati², Rosmy Jose³, Anjana Pandey⁴
¹Professor, ²Junior Resident, ³Assistant Professor, ⁴PG. Department of medicine, S.N. Medical College, Agra, Uttar Pradesh

Sir,

In north India during the routine clinical rounds, we are observing a number of cases with massive ascites whose liver function tests are quite normal and most of the time routine investigations like abdomin ultrasonography and chest x-ray are not rewarding. In government setup where most of the patients are of low socioeconomic status, it is always a challenging task to make the etiological diagnosis specially in the cases of extrapulmonary tuberculosis like tubercular ascites. Because most of the time ascitic fluid cytological and biochemical analysis is non-conclusive and radiological examination is not rewarding.

In this correspondence we tried to solve the diagnostic dilemma of tubercular ascites and discuss the various aspects of diagnosis of tubercular ascites.

Patients of tubercular ascites have generally cell counts between 500 and 1500 cells / mm² in ascitic fluid and predominantly cells are lymphocytes with exception of renal failure with predominant neutrophils. Ascitic lactate dehydrogenase (LDH) has been found to be high; raised LDH above 90 U/L carries a sensitivity of 90% and a specificity of 14% for tubercular ascites. However, it is reduced (42-70%) when tubercular ascites complicates cirrhosis. For this protein level 100% sensitivity is also found for nephrogenerous ascites, cardiac ascites, peritoneal carcinomatosis. So it is highly unspecific for detection of tubercular ascites. Similar results were obtained with SAAG < 11 g/L in Meta analysis of various studies. The only extra advantage of SAAG ratio is its 97% specificity for portal hypertension when SAAG values are >11 g/L. So with higher SAAG ratio we can easily exclude tuberculosis as a cause of ascites.

Ziehl-Neelsen (ZN) staining of the ascitic fluid is positive in about 3% cases of tubercular ascites. 5000 bacilli/mL required for positive ZN staining, whereas for positive culture as few as 10 organisms required. Culture of the fluid by the regular method (with 10-50 mL fluid) is positive in 35% cases, although the yield has been shown to significantly improve (66-83%) when 1 L of fluid is centrifuged and cultured. For growth of organism 4-8 weeks required by conventional culture media and 14 days with BACTEC media. Both microscopy and culture are economic and easily available as per Indian setup is considered but yield of these tests is low and take a lot of time for diagnosis. So they are also not much beneficial in our scenario.

ADA is increased in tubercular ascites because of T cell stimulation by mycobacterial antigens and has a sensitivity of 94% and specificity above 90%. Value of ADA above 30 U/L did not affect either the sensitivity or diagnostic efficiency of this test in presence of chronic liver disease. Test for ADA levels in ascitic fluid is suitable in our country because of higher efficiency of this test in detecting tubercular ascites in isolation as well as in association with chronic liver disease, as both of these conditions are much prevalent in India. The major drawback is its cost and availability of this test.

Interferon-c test is a quantitative in vitro assay that evaluates the cell mediated immune response to M. Tuberculosis. A major scientific advance in detecting latent infection has been the development of an IFN-c-based test which yielded a sensitivity of 89%. The diagnostic accuracy of this test is yet to be established but combining both ADA and INF-c estimation in ascitic fluid increase the sensitivity and specificity of the diagnosis of tubercular ascites.

USG abdomen is better than CT abdomen in revealing fine, mobile septations characteristic of tubercular ascites, while CT highlight the peritoneal, omental or mesenteric involvement. Advantage of imaging studies is in finding of other variants of abdominal tuberculosis simultaneously.

Laparoscopy is the diagnostic tool of choice in case of suspected tubercular ascites. It is invaluable for inspection as well as for obtaining biopsy specimens. Laparoscopic appearance of tubercular ascites is thickened, hyperaemic peritoneum with ascites and whitish milky nodules (<5 mm) scattered over the parietal peritoneum, omentum and bowel loops. Histological findings are epithelioid granuloma with caseation or mycobacterial identification. The diagnostic yield of laparoscopic examination is very high with a 93% sensitivity of visual appearance as well as of histology.

Laparotomy is unnecessary and is only considered for patients with the fibro-adhesive type of EPTB (abdomen) when there is an indication for a peritoneal biopsy.

So in current scenario highly sensitive and specific test such as ADA and laparoscopy have been developed but because of high cost and poor availability of these tests, most of patients with tubercular ascites remain in diagnostic dilemma. So we need to either cut cost of these tests or make these tests available at government setup. Otherwise we have to develop new cost effective tests to make diagnosis of tubercular ascites easily.

References