

Letter to the Editor

Tuberculosis of the central nervous system

Sir,

The only comment I wish to add to the exceptionally good review by Garg¹ is that one of the enduring mysteries of central nervous system tuberculosis is how the bacillus can be present in the cerebrospinal fluid (CSF), in amounts readily detectable by direct smear, and also in association with neurological symptoms, without causing either pleocytosis or a biochemical reaction (case 11, reference 2; case 18, reference 3). Paradoxically, some of these cases are the very ones who, after initiation of antituberculous chemotherapy, subsequently manifest the expected cellular and biochemical response in the CSF (case 6, reference 4). It is also worth pointing out that, whilst it is true that in developing countries tuberculous meningitis is commoner in the young than in the old,¹ elderly patients comprise a high-risk group for misdiagnosis, due to poor specificity of presenting features such as mental confusion, which can dominate the clinical picture to the exclusion of headache,⁵ and neck stiffness, which can be difficult to distinguish from age-related cervical spondylosis, and can itself be associated with mental confusion, even in the absence of meningitis.⁶

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- 1 Garg RK. Tuberculosis of the central nervous system. *Postgrad Med J* 1999;75:133-40.
- 2 Virmani V, Rangan G, Shriniwas G. A study of the cerebrospinal fluid in atypical presentations of tuberculous meningitis. *J Neurol Sci* 1975;26:587-92.
- 3 Klein NC, Damsker B, Hirschman SZ. Mycobacterial meningitis. Retrospective analysis from 1970-1983. *Am J Med* 1985;79:29-34.
- 4 Kocen RS, Parsons M. Neurological complications of tuberculosis: some unusual manifestations. *Q J Med* 1970;39:17-30.
- 5 Dixon PE, Hoey C, Cayley ACD. Tuberculous meningitis in the elderly. *Postgrad Med J* 1984;60:586-8.

6 Puxty JAH, Fox RA, Horan MA. The frequency of physical signs usually attributed to meningeal irritation in elderly patients. *J Am Geriatr Soc* 1983;31:590-2.

This letter was shown to the author of reference 1 who responded as follows:

Sir,

I thank Dr Jolobe for his keen interest in my article. Dr Jolobe rightly pointed to several reports of atypical patients in whom mycobacteria were detectable even without inflammatory changes in the cerebrospinal fluid (CSF). Usually, mycobacteria are not readily identified in the CSF of patients with tuberculous meningitis. Kennedy and Fallon¹ found initial CSF specimens positive for mycobacteria in only 37% of patients on direct smear examination. At an early stage of the disease, there may be very few cells in the CSF, or polymorphonuclear leukocytes may predominate. There may not be significant alterations in CSF protein and glucose concentrations. In such cases, repeat examinations of CSF will most probably demonstrate a progressive increase in the protein concentration, a progressive decline in glucose levels, and a shift to a mononuclear pleocytosis.^{2,3} These CSF changes can be seen even after starting antituberculous therapy, possibly secondary to an immunological reaction to tuberculin protein present in the CSF.² Even acid-fast bacilli may be demonstrated on smears of CSF obtained 3 days after antituberculous treatment has been started.³ Immunocompromised patients with tuberculous meningitis are more likely to have a normal CSF picture.⁴ In one large series⁵ of patients with acquired immunodeficiency syndrome and tuberculous meningitis, the CSF protein levels were reported to be normal in 43% of the patients. These patients are also likely to have acellular CSF. One CSF specimen from one of the patients cited by Dr Jolobe, grew *Cryptococcus neoformans*.⁶ In patients with cryptococcal meningitis, CSF may also be unremarkable and include normal glucose, normal or mildly

raised protein, and a cell count that is either normal or shows mild pleocytosis. Several other forms of meningitis may mimic tuberculous meningitis, so there remains a major need for additional methods of rapidly diagnosing it. Alternative diagnoses should also be considered when atypical patients are encountered.

Some authors report that fever is absent in up to 20% of patients with tuberculous meningitis.⁷ As pointed out by Dr Jolobe, elderly patients are more likely to present simply with headache, confusion, or other neurological disturbances in the absence of fever. Similarly, in young children and infants, apathy, hyperirritability and seizures are usual symptoms; stiff neck may not be prominent or may be absent altogether.^{2,3,7} Tuberculous meningitis may also present as a slowly progressive dementing illness with memory deficits and personality changes typical of frontal lobe disease, and urinary and faecal incontinence.³ So, on the slightest suspicion, CSF examination should be performed for rapid diagnosis of this potentially treatable disease.

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- 3 Leonard JM, Des Prez RM. Tuberculous meningitis. *Infect Dis Clin North Am* 1990;4:769-87.
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- 7 Berger JR. Tuberculous meningitis. *Curr Opin Neurol* 1994;7:191-200.