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LETTER TO THE EDITOR

Unusual central nervous system tuberculosis debut in children: stroke

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Dear Editor:

We have read the interesting report by du Plessis et al. on unusual forms of spinal tuberculosis [1]. The prognosis of central nervous system (CNS) tuberculosis depends on both early diagnosis and treatment. An early diagnosis continues to be a challenge because of the usual insidious debut, coming on gradually or almost imperceptibly [2–4].

We report a 5-year-old girl, pertaining to a low socioeconomic level, who was admitted because of sudden left-sided weakness making walking impossible. No other clinical symptom or sign was present. Examination was unremarkable apart from left hemiparesis; funduscopic examination was normal. An early CT scan showed right large-vessel arterial ischemic stroke together with a combination of basilar meningeal enhancement and a mild degree of hydrocephalus [ventricular size index (VSI) >30%] without parenchymal signs different from infarct. Ventricular enlargement on CT scan was calculated by VSI as the relation between bifrontal diameter over the frontal horn diameter. Pressure and biochemical and microbiological features, as well as a smear of CSF, were all irrelevant. CSF antigen tests were negative for neisseria meningococcus type B, streptococcus pneumonia, and hemophilus influenzae. Chest X-ray was normal. A later brain magnetic resonance image with diffusion weighted image and apparent diffusion coefficient disclosed any tuberculous parenchymal lesion but showed a T2-weighted image of the right middle cerebral artery infarct maximally involving the cortex.

Quadruple antituberculosis therapy with isoniazid, rifampicin, ethambutol, and pyrazinamide were started. Steroids were used as adjunctive therapy for 3 weeks and then gradually tapered over a period of 7 days. The patient had not received BCG. A Mantoux test (dilution 10 units of purified protein derivative) was negative after 48 and 72 h, but the diagnosis was bacteriologically confirmed by detection of *Mycobacterium tuberculosis* in the CSF using the polymerase chain reaction (PCR). PCR for herpes virus, varicella-zoster virus, cytomegalovirus, adenovirus, enterovirus, parvovirus, coxsackievirus, and influenza virus were all negative. At our institution, a Mantoux response of >10 mm is considered positive for children without BCG. The case was notified and contact tracing was performed, with a possible source for her illness being discovered. CSF culture also confirmed the diagnosis, and the organism was fully sensitive to the above treatment.

Other additional investigations were all normal: mycoplasmal, cryptococcus, clamydia, routine hematologic and biochemical studies, lactate in both blood and CSF, immunoglobin G index, antinuclear and anti-DNA antibodies to native DNA, electroencephalography, electrocardiography, echocardiography, Doppler imaging of the carotid arteries and transcranial Doppler imaging, cocaine in urine, homocystinuria, hypercoaguable state, coagulopathy and hemoglobinopathy, sickle cell anemia, and drug-induced thrombosis. She continued ethambutol treatment for 2 months and will continue on rifampicin, pyrazinamide, and isoniazid for 12 months. After a follow-up of 4 months, mild left hemicorporal weakness persisted. No other clinical findings were present.

This case illustrates several practical points relevant to facilitate both early diagnosis and treatment of atypical

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neurological tuberculosis. CNS tuberculosis must be considered in the differential diagnosis of childhood stroke [5, 6]. Neuroimage, showing basal meningitis, may be crucial to get to early etiological diagnosis of stroke when no hints or tips pointing to tuberculosis are present. In our case, no antecedent of adult source, no other previous clinical sign or symptom, and no characteristic abnormal CSF were present. Strikingly, previous apathy, lack of interest in play, irritability, loss of appetite, and weight loss were all denied. The basal meningitis neuroimage proved to be very characteristic and similar to that seen in patients with immunodeficiency and cryptococcosis. On the other hand, hydrocephalus requiring surgical intervention can be seen at presentation, a practical guideline being always welcome [2]. A correct management of communicating hydrocephalus in CNS tuberculosis is related to the outcome of treatment of these patients. Early ventriculoperitoneal shunting in children with significant hydrocephalus has been shown to reduce morbidity and mortality, and it is a potentially favorable predictor of good outcome. Useful practical criteria for shunting have been previously reported [2].

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