embedding it remains feasible that the virus that caused encephalitis lethargica (if virus it was) may yet be identified in material that has been stored since the time of the epidemic.

MM ESIRI
The Radcliffe Infirmary,
Oxford OX26 6HE

M SWASH
London Hospital,
Whitechapel,
London UK

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Neurosarcoidosis presenting as major depression

Sir: Neurological complications of sarcoidosis occur in approximately 5% of all cases.1 Rarely, dementia mimicking Alzheimer's disease may be the presenting or prominent manifestation of the illness.2 Less commonly, prominent psychiatric manifestations in relative isolation can occur at the onset or during an exacerbation of the disease.3 We describe a patient who ultimately proved to have neurosarcoidosis and whose clinical presentation was indistinguishable from a major depressive episode.

A 57-year-old chronically dysphoric woman complained to her psychiatrist of deteriorating memory and concentration which forced her to give up her job as an office manager. Initial examination by her psychiatrist showed her to be oriented and coherent but tearful, with depressed mood and constricted affect. Her thought content included feelings of helplessness, hopelessness, anhedonia, and complaints of insomnia and anorexia causing a 10 pound (4.5 kg) weight loss. She named the past four presidents of the USA, spelled a four letter word forwards and backwards, and recalled two of three objects after five minutes. There were no clear-cut cognitive deficits noted.

Outpatient treatment with imipramine was begun for major depression. This therapy was discontinued because of intolerable lethargy.4 The patient was then admitted to the inpatient psychiatric unit for electroconvulsive therapy. At that time her mental status examination was unchanged and the remainder of her neurological exam was reported as normal.

After eight treatments (one bilateral and seven unilateral) she became severely confused with urinary incontinence and difficulty in walking. Neurological consultation was requested. On examination, she was disoriented to time, place, and could not identify her psychiatrist. There were no motor or sensory abnormalities other than a slightly wide-based, unsteady gait. An erythematous malar rash was noted. Investigation of the cause of her encephalopathy showed cerebrospinal fluid (CSF) to contain protein 160 mg/dl, glucose 40 mg/dl, 22 WBC/mm³ with 83% lymphocytes, 15% monocytes, 2% polymorphonuclear cells, negative VDRL, negative bacterial and fungal cultures, and no malignant cells. An electroencephalogram showed increased diffuse activity in the theta and delta frequencies. The CT scan showed decreased attenuation in the white matter adjacent to the lateral ventricles most prominently in the frontal region, and a cerebral angiogram was normal with no evidence of vasculopathy. Blood chemistry CBC, ANA, ESR, and thyroid function studies were all normal. The CSF findings from a second lumbar puncture were: protein 139 mg/dl, glucose 46 mg/dl, 21 WBC/mm³ with 83% lymphocytes, 14% monocytes, 3% polymorphonuclear cells, and no malignant cells. A skin biopsy taken in the area of the malar rash showed non-caseating granulomata. Kveim-Siltzbach antigen was injected and the biopsy several weeks later was positive for sarcoidosis. There was no definitive evidence of sarcoidosis on several chest radiographs.

The patient was treated with corticosteroids (prednisone 60 mg/day). Within three weeks of starting treatment her thinking was more lucid and her mood brighter. CSF findings at that time were: protein 68 mg/dl, glucose 70 mg/dl, 9 WBC/mm³ with 81% lymphocytes, 9% monocytes, 10% polymorphonuclear cells. A repeat CT scan was unchanged.

There are four reported cases in the literature of sarcoidosis in which a psychiatric syndrome was the presenting manifestation or the major sign of an exacerbation.5 Gilmore et al6 reported a patient with known sarcoidosis thought to be in remission who had a depressive episode without other evidence of active sarcoidosis. The cerebrospinal fluid was suggestive of active disease. In Hook's report of nine cases of neurosarcoidosis, case number 2 was diagnosed as depression. Zeman7 described a mixed psychiatric-neurologic syndrome with features of Wernicke-Korsakoff psychosis as the initial manifestation of sarcoidosis. Suchenwirth and Dold8 described a man with a paranoid psychosis who was later found to have sarcoidosis. His psychiatric symptoms responded to steroid medication.

Our patient initially had no clear evidence of active sarcoidosis. The clinical picture of tearfulness, constricted affect, anhedonia, and disturbance of sleep and appetite supported a diagnosis of a major depressive episode. Following ECT, the profound organic mental syndrome, gait disorder, and urinary incontinence indicated the organic basis of the disease and prompted the neurologic consultation. The diagnosis of neurosarcoidosis was based on the positive skin biopsy, positive Kveim test and cerebrospinal fluid formula of elevated protein, low glucose, and a mildly predominant lymphocytic pleocytosis in a patient with meningitis.9 Suchenwirth and Dold's case and our patient had a favorable clinical response to steroid medication with significant improvement of the CSF abnormalities.

The CT scan showed decreased attenuation of the periventricular white matter, primarily in the frontal region. The relevance of this is not clear. CT findings in intracranial neurosarcoidosis are nonspecific. They include normal scans, hydrocephalus, abnormal enhancement of the meninges (especially in the basal area), diffuse involvement of the entire cerebrum and intraparenchymal mass lesions which often have a somewhat increased density compared to brain tissue and show enhancement on contrast studies.10,11 The association of sarcoidosis and progressive multifocal leukoencephalopathy is known.12 In our patient this possibility cannot be entirely ruled out. However, it is unlikely because of the improvement in clinical status and CSF abnormalities with steroids. In addition, the usual CT findings of low density lesions of the central and convolutional white matter with scalloped lateral borders were not present.13
Letters

These cases illustrate that the principal clinical manifestations of sarcoidosis may on rare occasions be psychiatric and emphasise the importance of the possibility of effective treatment with steroids.

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JOHN STILLER*
ANDREW GOODMAN*
LAURENCE M KAMHI†
MICHAEL SACHER‡
MORRIS B BENDER§

The Departments of Neurology,* Psychiatry,† and Radiology,‡ The Mount Sinai Medical Center, New York, and The Mount Sinai School of Medicine of the City University of New York.

Address for reprint requests: Dr John Stiller, Department of Neurology, 2150 Pennsylvania Avenue, NW Washington, DC 20037, USA

§deceased

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