the result of pressure by extruded contents of the cystic mass on the 1st and 2nd sacral nerves within the spinal canal. The symptoms were promptly relieved by operation.

REFERENCES


TORULOSIS OF THE BRAIN

A CASE REPORT

Frank Padberg, M.D., and John Martin, M.D.
Department of Surgery, Northwestern University Medical School,
Chicago, Illinois

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Recent literature has produced numerous reports of patients with torulosis of the central nervous system. Carton and Mount1 reviewed the literature and recorded 42 patients upon whom neurosurgical procedure had been performed. We have treated 1 patient who had torulosis. The diagnosis was established only after diagnostic trephination. The patient received penicillin and sulfadiazine medications as well as other general supportive measures, but such did not alter his rapidly progressive neurological deterioration which ended in death.

CASE REPORT

Summary. Mr. J. J., a white farmer, 28 years old, came under our observation on Nov. 23, 1946. He had a history of a head injury with slowly progressive neurological signs thereafter. Diagnostic trephination for a subdural hematoma was done, but no such lesion was found. The small scalp incisions both soon became indurated and in a few days broke down and suppurated. Yeast organisms were identified in the discharge from the operative wounds as well as in the spinal fluid. At autopsy he was found to have a generalized torulosis.

History. This patient gave a history of a minor head injury in October 1946 as his only clue to diagnosis on admission to the hospital. He had been in excellent health prior to this accident and was actively engaged in hard labor. The injury was not followed by immediate complaints. Two weeks after the injury he had an attack consisting of a sudden onset of faintness, numbness in the right hand and arm, inability to use the right hand and twitching movements about the face. Following this attack he complained of frontal headache and pain in the cervical spine. He had four or five such attacks, each lasting approximately 30 minutes, and none was associated with unconsciousness. His headaches and neck pain, at first intermittent, became constant and increasingly severe. In the early part of November 1946, he complained of diplopia, dimness of vision, weakness of the right hand and arm, and some difficulty in speech.

The patient had served with the U. S. Army Air Corps for 3 years and had been stationed in Guatemala, France, Italy and Trinidad. His only significant illnesses had been measles and mumps in his childhood and pneumonia several times during his youth.

Examination. B.P. 120/80, temperature 99.6°, respirations 18 per min., and pulse 72 per
rain. The patient was quiet and alert. His neck was moderately stiff and painful on passive manipulation. There was a slight right facial weakness and a mild weakness of the extremities on the right. He was right-handed and showed a slight motor aphasia. He had a bilateral papilledema with many fresh and old hemorrhages. The left pupil was dilated and slowed in its reaction to light. The extraocular muscle movements were well performed and there was no nystagmus. The right abdominal reflexes were absent. The right cremasteric reflex was diminished. There were no pathological reflexes.

A spinal puncture was done with the patient in the lateral recumbent position and the spinal subarachnoid pressure was above 600 mm. of water. WBC was 15,200; differential blood smear showed 2 eosinophils, 78 polymorphonuclear cells, and 20 lymphocytes. The CSF was clear, but total protein content was 58.8 mg. per cent, and there were 2 polymorphonuclear cells and 30 lymphocytes per c.mm. Roentgenograms of skull and cervical spine showed no fractures.

Operation. On Nov. 24, 1946, diagnostic trephine openings were made bilaterally. The brain on the left side was purple in color and promptly herniated when the dura mater was opened. The brain felt soft to the cannula and attempts to cannulate the left ventricle were not successful. Ventricular pressure on the right did not appear to be greatly increased.

Course. The patient continued to have severe unremitting headache and he gradually became somnolent. Three days after surgery a 4 cm. fluctuant swelling developed over the left anterior scalp incision. This was aspirated and a small amount of pinkish-yellow, thick, lumpy material was obtained, which, on direct smear, revealed numerous yeast cells. Spinal puncture was repeated, and the xanthochromic fluid yielded yeast cells on direct examination of the sediment. The CSF sugar was reduced to 8 mg. per cent without change in the normal value for chlorides. Yeast cells were cultured from both CSF and the wound exudate, and on examination the organism was identified as Cryptococcus neoformans, or Torula histolytica.

![Coronal section of brain through the occipital lobes. This transects the local softened abcessed areas under each trephine opening. The ventricles appear to be partially collapsed.](image-url)
He had several episodes of fever to 103°, associated with signs of increasing intracranial pressure. He continued a progressively downward course. Kernig and Brudzinski signs were markedly positive. Generalized muscular weakness and atrophy developed with paralysis of the right arm and leg initially which was followed by paralysis of the left arm. No pathological reflexes were ever elicited. He became progressively disoriented, blind, unresponsive, then comatose, and he expired on Dec. 30, 1946.

This patient received 20,000 units of penicillin every 3 hours and 1 gm. of sulfadiazine every 4 hours throughout his hospitalization. The remainder of his treatment was symptomatic. Smears and cultures of urine, blood, nasopharynx, and sputum were all negative for Cryptococcus neoformans.

*Autopsy.* The cerebral cortex was dotted with many 2 mm.-sized pale green translucent tubercle-like lesions. In the region of the trephine openings the friable brain had herniated and there were locally shaggy accumulations of exudate and necrotic brain tissue. Sections of the brain through the trephine sites showed areas of softening, greenish-red in color, which extended into the white matter (Fig. 1).

*Microscopic Examination.* The meninges were infiltrated by round cells, and showed fibrous-tissue hyperplasia in fields where there were many large giant cells surrounded by mononuclear cells, lymphocytes and a few polymorphonuclear leukocytes. Sections of the brain from a softened area in the left occipital lobe demonstrated collections of yeast cells in clumps and chains (Fig. 2). In this area the normal histologic architecture of the brain was lost, but in close proximity to this area the appearance was normal. Surrounding the localized collections of torular organisms, there were a few clumps of lymphocytes and mononuclear cells. There was no evidence of active gliosis in the areas of softening where the torular organisms were seen in the greatest concentration.

Microscopic sections of the kidneys, lungs and spleen had occasional giant cells. Some of the giant cells contained round and oval refractile bodies which were suggestive of yeast cells.

**REFERENCE**