THE TREATMENT OF TORULA MENINGO-ENCEPHALITIS WITH AMPHOTERICIN B*

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The eventual course of meningo-encephalitis caused by Cryptococcus neoformans is well known. Any agent that improves or arrests the course of this illness should be brought early to the attention of those physicians who see and diagnose this infection. Cryptococcosis, torulosis, and European blastomycosis refer to the same mycotic disease caused by the Cryptococcus neoformans. This fungus is widespread in nature and reports of the disease it produces have come from nearly all areas of the world. The greatest number of cases have been reported from the United States and Australia. This infection, which fails to cause a very great tissue response, is considered to be air-borne, with the reservoir being in the soil. Although the infection is air-borne, it is disseminated from the lungs through the blood stream. The central nervous system is particularly susceptible and this involvement is usually manifest as a meningo-encephalitis. Once there is involvement of the central nervous system, a fatal outcome is almost certain.²

Historically the first record of the identification of this organism, which has now come to be classed as Cryptococcus neoformans but is also known as Cryptococcus hominis and Torula histolytica was first isolated and described in 1894 by Busse. Sanfelice at the same time isolated a yeast from peaches, to which he gave the species term of neoformans. The first human case of torulosis of the nervous system properly diagnosed was reported by Versé in 1914. Two years later, Stoddard and Cutler reported 2 cases naming the organism Torula histolytica because of what they thought to be a histolytic action of the organism in producing cysts in the tissue. Apparently, there are many strains of pathogenic cryptococci, possibly twenty-two in all, of varying pathogenicity but biologically similar.

Although considered a rare disease, torulosis is the most frequent cause of mycotic meningitis in man. There is an increasing importance of mycotic disease in the United States; the total deaths attributed to this group was greater in each year from 1949 through 1952 than the combined fatalities caused by Rickettsia, protozoal and helminthic diseases. Notwithstanding this increase in incidence, it is believed that many cases go unrecognized. Many cryptococcal infections are diagnosed only post mortem and based on the small percentage of cases in which autopsy is performed, the actual incidence of cryptococcosis must be much higher than that conveyed by the medical literature.²

Clinically, cryptococcosis of the central nervous system may manifest itself in a variety of ways. Some of the diagnoses that have been made, and patients treated for, were: spinal cord tumor, brain abscess, general paresis, brain tumor, encephalitis and more particularly tuberculous meningo-encephalitis. In the case reported here...

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the patient had previously, on two hospital admissions, been worked-up and treated as having a brain tumor. In a review of the literature by Carton and Mount in 1951, it was revealed that there were 42 cases in which neurosurgical procedures were performed, with a total of 62 operations. There were 24 exploratory operations: 12 supratentorial, 9 infratentorial, and 3 laminectomies. In addition to this there were 11 decompressive procedures. Localized cryptococcal granulomata may occur and become of sufficient size that they require attention as a mass lesion. The diffuse cryptococcal leptomeningitis may also produce a picture of an expanding, intracranial lesion. In the report cited there was no mention of a case in which there had been an obstruction of the aquaeductus Sylvius and a Torkildsen's procedure performed.

CASE REPORT

B.G.-408. A 46-year-old white male was admitted to the Eugene Talmadge Memorial Hospital on Nov. 1, 1956, at which time he was stuporous and had a left hemiplegia. In April 1954 he had been admitted to another hospital because of nausea and vomiting, visual and auditory hallucinations, unsteadiness on his feet, and nuchal rigidity. Diagnostic studies performed at that time included a pneumoencephalogram and it was thought he had a tumor of the right parietal lobe. Biopsies were taken which were reported to have shown evidence of a malignant brain tumor. The patient had a subtemporal decompression performed on the right and the family was advised he had a malignant tumor and that nothing more could be done. He apparently showed an improvement in his mental state for a matter of several months but began to have severe headaches, progressive weakness of the left lower extremity, nausea and vomiting, and a cloudy sensorium. It was noted by the family that the subtemporal decompression bulged. He was admitted to another hospital where the site of decompression was pulseless, tense and firm. He was responsive only to deep and painful stimuli. An exploratory trephine was placed in search of tumor. The following day he was transferred to our hospital.

Examination. Blood pressure was 160/100, respiratory rate 18, pulse rate 78, and temperature 36.8°C.

Scars of the previous trephinations in the frontal region were on each side of the sagittal suture and there was another old scar, 8 cm. long, perpendicular to the right zygomatic process. This was over the site of the bulging temporal decompression. There was a fresh wound and trephine opening over the right parietal area. The brain was tense, prominent and nonpulsile. Pupils were dilated but did react. There was nuchal rigidity with stiffness and pain on motion.

Roentgenograms of the skull revealed stippled calcification in the region of the dorsum sellae and erosion of the posterior clinoid processes. Right carotid arteriography revealed evidence of internal hydrocephalus. Ventriculography performed through the previously placed trephine revealed a complete block between the 3rd and 4th ventricles; 10 cc. of phenolsulfonphthalein instilled in the right lateral ventricle failed to be recovered in the lumbar subarachnoid space. With a ventricular needle in place, air was placed in the lumbar subarachnoid space and this ascended to fill the 4th ventricle and the great cistern, which did not seem to be displaced or of unusual configuration. It was felt that the patient had an internal hydrocephalus caused by aqueductal block.

Operation. A Torkildsen procedure was performed, with immediate improvement in the patient’s sensorium.

The spinal fluid, examined by Dr. Shepherd of the Clinical Laboratory, Department of Pathology, Medical College of Georgia, revealed Cryptococcus neoformans, both encapsulated and non-encapsulated. The count of organisms was extremely heavy. Culture showed an extensive growth. Spinal fluid glucose was 73 mg. per cent; chlorides were 180 mEq.; colloidal gold curve read 555442100; Pandy was reported as 4 plus, and there were 11 white blood cells, with 6 polymorphonuclear leucocytes and lymphocytes.