

motility disturbance in the colon and minimal changes on electromyography.

Other acquired lesions of the colon should be considered in older patients. Chagas's disease is differentiated by its geographical distribution and characteristic histology. Pseudo-obstruction, the so-called colonic ileus, presents a much more acute picture and is reversible (Stephens, 1966; Bryk and Soong, 1967). Megacigmoid syndrome may also be diagnosed in older patients who are in mental institutions or who suffer from diabetes mellitus, Parkinson's disease, or traumatic paraplegia (Berenyi and Schwarz, 1967). In these patients disturbance of the autonomic nervous system is suspected, but conventional histological studies are normal. Differentiation from Hirschsprung's disease is helped by the age of onset (though cases presenting in adult life have been recorded), the extent of the lesion, and histological and radiological differences. Patients in whom there is a long segment of agangliosis do not survive the first few years of life without surgical treatment.

Treatment.—Among the many adult patients who complain of chronic constipation there will be a few who have adult megacolon, and in some of these the myenteric plexus may be damaged. The role of surgery in their management is still controversial and often disappointing. Resection may appear drastic but is the treatment of choice, since local procedures on the sphincters may not be of permanent benefit, and bypass operations may not prove adequate owing to a failure of progressive movements in the intestine. The extent of the lesion is difficult to assess and cannot always be determined by biopsy, as in Hirschsprung's disease, and so the initial colostomy may fail to function properly if it is affected by the disease, and a further more proximal stoma may be required.

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Medical Memoranda

Cervical Lymphadenopathy Caused by *Aspergillus terreus*

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The known pathogenicity of *Aspergillus terreus* to man has hitherto been limited to superficial infections of the skin, nails, and external ear (Austwick, 1965). That author noted its ability to cause mycotic abortion in cattle, but systemic infections in man are not known. In the following case *A. terreus* was repeatedly isolated in pure culture from enlarged cervical lymph nodes. Fungal elements were also seen in histological sections of the nodes. Precipitating antibodies to the fungus were found in the patient's serum.

CASE REPORT

A 40-year-old sailor on a Nile steamer was admitted to Khartoum Civil Hospital at the beginning of September 1967 complaining of headache for one year, epileptic fits and left-sided weakness for six months, and swelling of the neck and left hand for two months. He had always been well except for an attack of pyelonephritis, which was treated in 1963. He began to complain of repeated attacks of headache a year before admission to hospital. These were not accompanied by vomiting or visual disturbances. Six months later he suddenly had a grand mal epileptic fit with loss of consciousness, after which he developed left-sided hemiplegia with left facial palsy. A few weeks later he began to have right-sided Jacksonian fits, mainly of the leg.

During the last two months swellings developed, first on the right side of the neck and then on both sides. These swellings gradually

increased in size and were accompanied by swelling of the left arm and hand.

On examination he was found to be mentally dull. Large, discrete, hard, and painless glandular swellings were noticed on both sides of the neck. There were no sinuses. Pitting oedema was present in the left arm. Heart and chest were normal. The liver was palpable about two fingerbreadths below the costal margin, and firm but not tender. The spleen was not enlarged. The central nervous system showed gross papilloedema, left-sided facial palsy, and left-sided hemiplegia, but there were no sensory disturbances.

Investigations.—The urine was normal except for phosphates, but there was no sugar. No parasites were seen in the stools. Sputa were examined seven times; the Ziehl-Neelsen stain showed no acid-alcohol-fast bacilli and culture remained sterile. Blood culture and Widal and Kahn tests were negative. Haemoglobin, packed cell volumes, mean corpuscular haemoglobin concentration, blood urea, serum bilirubin, and thymol turbidity were normal. Erythrocyte sedimentation rate was raised, and in the plasma the albumin-to-globulin ratio was reversed. There was marked eosinophilia. These results are shown in the Table.

Nothing abnormal was found on x-ray examination of the skull, sella turcica, and cervical spine, but chest films showed a large rounded opacity at the upper half of the anterior mediastinum which might have been glands.

Phenobarbitone and later phenytoin helped to control his fits. While in hospital he had fever for three weeks, but investigations for malaria, typhoid, brucellosis, and leishmaniasis were negative.

The patient suddenly discharged himself, but was traced to his home two weeks later. He looked anaemic and had a dry cough. He was started on potassium iodide, but his condition continued to deteriorate, and he died in March 1968. Necropsy was not carried out.

Results of Blood Investigation

E.S.R. (mm./hr.)	White Blood Cells					Plasma Proteins (g.)		
	Total	Poly. (%)	Lymph. (%)	Eosino- phil. (%)	Mono. (%)	Total	Albu- min	Globu- lin
122	8,800	42	31	23	4	7.5	2	5.5

Gland biopsy specimens were taken twice, a month apart, in January and February 1968. Histological sections stained with haematoxylin and eosin showed tuberculoid granulomas in the lymph nodes with plentiful giant cells. Caseation was not seen. Periodic-acid Schiff staining showed fungal elements of various sizes and shapes inside the giant cells. These were mainly irregularly round structures, but sometimes segmented hyphae were seen (Fig. 1).

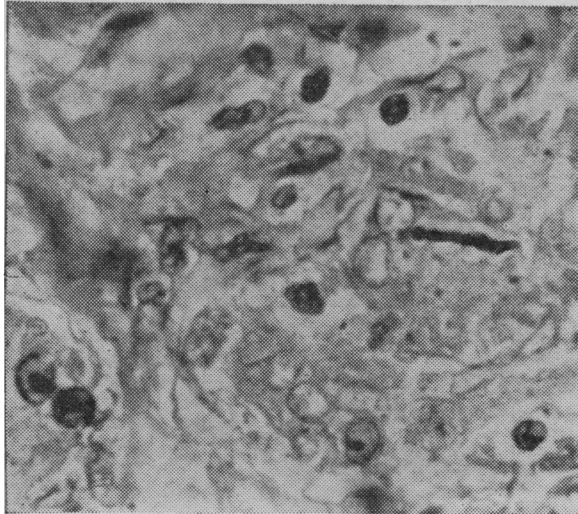


FIG. 1.—P.A.S. segmented mycelium and round structures inside giant cell. ($\times 675$.)

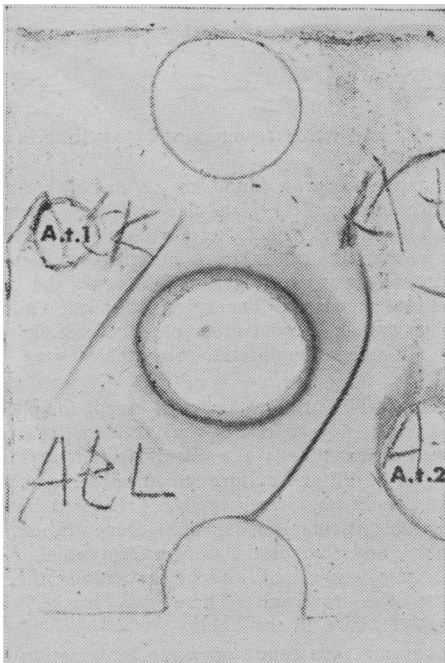


FIG. 2.—Precipitation test in agar gel. Central well contains patient's serum. A.t.1 = *A. terreus* from patient and A.t.2 = saprophytic *A. terreus* antigen.

Professor Symmers, of Charing Cross Medical School, London, confirmed this and noted that the reaction was mycotic, there being no evidence of underlying tuberculous or malignant reactions.

At each biopsy half the glandular material was subjected to mycological examination by culture. The tissue was ground up in sterile normal saline in Ten Broeck tubes, and the suspension thus produced was used to inoculate seven tubes each of malt extract agar, nutrient

agar, and brain-heart infusion agar, with and without chloramphenicol. Half the tubes were incubated at 26° C. and the other half at 37° C. The suspension was also examined direct by reduced light and the remainder was used to inoculate three white mice intracerebrally (this latter procedure was justified by the suspicion of cryptococcal infection).

Microscopical examination of ground-up material from lymph nodes showed broad segmented hyphae and spores. There was no sign of infection in the mice when they were killed three weeks after injection.

All culture tubes at both temperatures showed a pure white growth after 48 hours, which gradually became brown in colour. The fungus was identified as *A. terreus* according to the criteria of Raper and Fennell (1965). These are: compact columnar heads, smooth conidiophores, hemispherical vesicles, double sterigmata, and globose conidia. The submerged growth at the periphery of the colony showed ovate thick-walled hyaline aleuriospores borne laterally on the hyphae. The identification was confirmed by Professor Raper at the University of Wisconsin, U.S.A.

Serum was collected from the patient and tested against antigens made from the strain of *A. terreus* isolated from him, the method described by Murray and Mahgoub (1968) being used. A positive precipitation band developed after three days. This test was repeated later using antigens from *A. terreus*, *A. fumigatus*, *A. nidulans*, *A. niger*, and *A. flavus* provided by Dr. I. G. Murray, of the Mycological Reference Laboratory, London. The serum reacted with *A. terreus* only. Precipitation lines with antigens from two different strains of *A. terreus*—namely, the patient's and saprophytic strain—are shown in Fig. 2.

DISCUSSION

In this case of apparent cerebral and intrathoracic lesions and cervical lymphadenopathy the important positive finding was the isolation of *A. terreus* and the demonstration of precipitating antibodies to this fungus in the patient's serum. None of the usual predisposing conditions to superinfection with opportunistic fungi, such as diabetes, malignancy, tuberculosis, and treatment with broad-spectrum antibiotics or steroids, was present. The question is whether this evidence in this case is sufficient to consider *A. terreus* as the genuine primary pathogen.

The pathogenicity of *A. terreus*, possessing lateral aleuriospores, to experimental animals was demonstrated by Pore and Larsh (1968). Mice inoculated intravenously through the tail vein developed lateral and truncal ataxia which was frequently correlated with multiple foci of aspergillosis of the cerebellum and cerebrum. One of the plates shown by these authors showed a hypha with lateral spores in the brain of a mouse. This experimental demonstration that infection of the central nervous system occurred in mice after intravenous inoculation of *A. terreus* may be relevant to the case of our patient. But it must be reiterated that there was no necropsy and that the nature of the disease in the brain and other viscera, apart from the cervical lymph nodes, examined is not known.

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