CASE NOTES

OBSERVATIONS ON THE SUGAR CONTENT OF THE CEREBROSPINAL FLUID*

FOSTER KENNEDY'S SYNDROME

BY

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CASE REPORT

A MAN aged 48 was admitted to hospital on April 12, 1951, with cerebral symptoms following influenza. He presented a picture similar to that of his wife who had had an attack two weeks previously and had recovered.

Examination.—Upon admission he was drowsy but could be roused easily and co-operated with those who attended to him. The left frontal sinus was opaque to x rays, and nasal cocaine packs and inhalations of menthol co. were prescribed. There was no discharge from the nose.

Cerebrospinal fluid examination gave the following results:

Slight opalescence: small fibrin clot.
Cell count—220 per cmm.—90 per cent. lymphocytes.
Chlorides—672 mg. per cent.
Sugar—88.8 mg. per cent.
Gram.—no organisms seen.
Smear deposit—T.B. negative.

The laboratory suggested the possibility of a virus or tubercular infection.

An ophthalmic opinion was required and fundus examination showed a papilloedema on the right eye with blurred disk, an elevation less than 1 mm, and some engorgement of the veins at the disk edge. The left eye showed a definite atrophy of the temporal quadrant and a diagnosis of a space-occupying lesion in the region of the left frontal lobe was made.

Blood examination on April 13 showed:

White blood count—17,800 per cmm. (mainly polymorphs).
Blood sedimentation rate—36 mm./hr.

Progress of Disease.—A virus meningitis was suspected and chloromycetin and distaquin were given by injection. At this stage the left patellar reflex was markedly increased, and there was ankle clonus and an extensor plantar reflex. No other signs were elicited.

On April 18 the cerebrospinal fluid examination showed:

Marked xanthochromia. Opalescence.
Total white count—2,700 per cmm.—80 per cent. polymorphs.
Total red count—2,150 per cmm.
Chlorides—672 mg. per cent.
Sugar—42.5 per cent.
No T.B. seen.
Culture.—Blood agar—no growth after 48 hours.

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On April 23 a sample for guinea-pig inoculation for T.B. gave the following results:

Xanthochromia. Opalescence.
Total white count—690 per cmm.—60 per cent polymorphs.
Chlorides—672 mg. per cent.
Sugar—33.3 mg. per cent.
Ziehl-Neelsen—No T.B. seen.
Total protein—60 mg. per cent.
Culture.—72 hours, no pathogens isolated.

A second specimen gave the following results:

Wassermann reaction negative.
Total white count—15,000 per cmm.—95 per cent polymorphs.
Chlorides—614 mg. per cent.
Sugar—33 mg. per cent.
Gram.—No organisms seen.
Ziehl-Neelsen—No T.B. seen.
Total protein—100 mg. per cent.
Culture.—No growth after 24 hours.

The fall in the sugar content of the cerebrospinal fluid was marked and owing to the possibility of a tubercular infection, streptomycin was given intrathecally. The right fundus showed a questionable decrease in the papilloedema but the atrophy remained unchanged. The patient's general condition fluctuated, but it was clear that it was gradually deteriorating.

On April 24 the cerebrospinal fluid examination gave the following results:

Total white count—13,000 per cmm.—95 per cent polymorphs.
Chlorides—614 mg. per cent.
Sugar—55 mg. per cent.
Gram.—no organisms seen.
Ziehl-Neelsen—No T.B. seen.
Culture.—No growth after 24 hours.

The sugar content had risen and still no organism could be cultured.

On April 26 the patient died. Autopsy showed a meningitis with a large column of thick pus tracking up from the sphenoid area forming an abscess in the left frontal region. *Staphylococcus aureus* was cultured. The frontal sinus appeared to be healthy.

OBSERVATIONS

This case is considered to be worth reporting because of the difficulties in diagnosis caused by the behaviour of the sugar content of the cerebrospinal fluid, a factor which I have not yet seen explained in the ophthalmic literature. An explanation of the fall from 88.8 to 33.3 mg. per cent. was suggested when enquiries elicited the fact that streptomycin contains both a glucose radicle and a reducing substance, and chloromycetin a reducing substance. Differential diagnoses, therefore, should not be influenced by the sugar content of the cerebrospinal fluid after use of these drugs. It is conceivable that the original fall was due to the reducing action of the chloromycetin and that the level might have been still lower except for the glucose radicle.

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REFERENCE

WILSON, H. (1951). *Brit. med. J.*, 1, 1206.