CLINICAL RECORDS

CEREBROSPINAL RHINORRHŒA

By T. O. GRAHAM (Dublin)

THE escape of cerebrospinal fluid into the nasal cavity may occur in cases of head injury with fracture of the base of the skull, but idiopathic or spontaneous cerebrospinal rhinorrhœa may very rarely take place without an obvious predisposing cause.

The escape of the cerebrospinal fluid is confined to one side of the nose, and continues without intermission both day and night. If collected and examined the fluid is found to be perfectly clear and transparent and to be free from albumen and mucin, but it is capable of reducing the copper in Fehling's solution.

These characteristics suffice to distinguish cerebrospinal rhinorrhœa from other types of rhinorrhœa in which the fluid will be opalescent, and will contain albumen and mucin, and will not contain glucose. Moreover, in hay fever and vasomotor rhinorrhœa the fluid flows from both nostrils and usually during the day only. Occasionally the cerebrospinal rhinorrhœa will cease spontaneously but may recur.

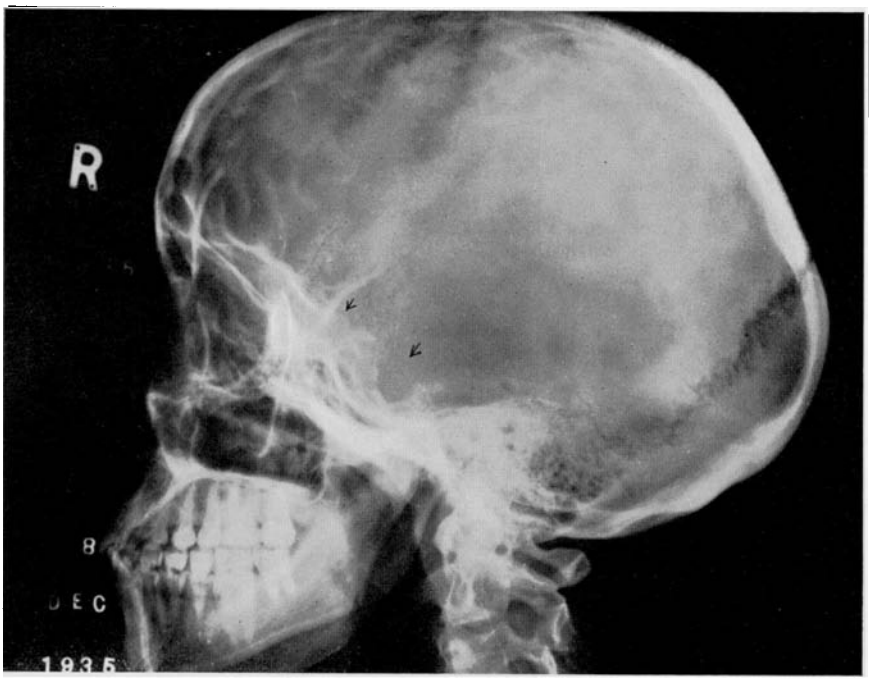
Sir St Clair Thomson, who drew attention to the condition in 1899, said that no treatment was possible or advisable. More heroic and adventurous rhinologists have attempted to close the cleft in the cribriform plate by the application of the galvano-cautery from the nose. This is a very dangerous procedure which may lead to meningitis and death, and is mentioned only to be condemned. Repeated lumbar puncture carried out by Watson Williams succeeded in effecting a cure in one case. Baber, by the application of the galvanic current to the outside of the nose, also reports a cure.

As A. A. McConnell, P.R.C.S.I., has recently brought about the arrest of the cerebrospinal rhinorrhœa in a young woman under my care, I feel the case is worthy of record. . . .

On *October 31st*, 1935, Cecilia M., aged 20, was referred to me by Dr. A. F. Smyth of Ballyhaunis, and was admitted to the Royal Victoria Eye and Ear Hospital.

She complained of a constant watery discharge from the left side of the nose for the previous five months. She had no pain and no headache, but had had tinnitus occasionally in the left ear during the previous year. Her hearing and drums were normal. She stated that she had become very fat during the year preceding

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the onset of the nasal discharge, and at one time weighed 12 st. 11 lb., but that she had lost weight gradually after the nose began to drip, and was then only about 10 stone. Her height was about 5 ft. 6 in. Her menstrual periods had been somewhat irregular two years ago, but had been regular since treatment with medicine.

On examination it was found that the left antrum was dark on transillumination, and full of a thick gelatinous mucoid secretion on irrigation.

On *November 1st*, 1935, a Caldwell-Luc operation was carried out under Evipan anæsthesia. The antrum was again found to be full of a similar gelatinous secretion which was removed in a semi-solid mass. A week later the antrum was quite clean, and the patient was allowed to return to Co. Mayo, though there was still some rhinorrhœa.

As the watery discharge still continued she was re-admitted to the hospital on *December 4th*, 1935. It was suspected that she was a case of cerebrospinal rhinorrhœa, as the left antrum was now quite clean and free from mucus. She now stated that she had always had attacks of vomiting since childhood, varying in frequency from once a month to twice a week, always occurring in the mornings. These vomiting attacks had increased in frequency during the previous year.

The fluid was collected and examined and was found to be cerebrospinal fluid with the characteristic reactions noted above. The eyes were examined and were found normal in every respect, with no fundus changes and no restriction or defects of the visual fields when tested with the perimeter.

Dr. R. H. Micks kindly examined her carefully on *December 19th*, 1935. He was unable to elicit any definite additional abnormal neurological signs, except that the spontaneous nystagmus was more marked on looking to the right than on looking to the left. This phenomenon was not observed subsequently.

The report on the X-ray examination on the skull by Dr. T. Garratt Hardman on *December 19th*, 1935, was most interesting, and was as follows :

" The loculations of the frontal sinuses are rather irregular and atypical. They are not very translucent, but I think that this is due to the atypical form of the sinuses rather than to infection. The right antrum is normally clear, but the translucency of the left antrum is diminished. (This left antrum had been operated on.) The ethmoidal sinuses appear to be normal. Within the cranium very pronounced pathological changes are evident. The pituitary fossa has been almost completely destroyed ; the floor has been pressed downwards and the sphenoidal sinuses almost obliterated. Both anterior and posterior clinoid processes have disappeared. In front of the pituitary fossa there is also evidence of bone erosion.

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There is slight gaping of the coronal, sagittal and parieto-occipital sutures. There is rather marked convolutional atrophy of the frontal bone. The X-ray findings indicate increased intracranial pressure associated with a brain tumour, probably situated in the supra-sellar region. The bone changes do not always indicate the position of a tumour. Is it possible that the nasal discharge is cerebrospinal fluid ? "

Dr. A. A. McConnell kindly saw the patient on *December 20th*, 1935, and offered to admit her to the Richmond Hospital for operation ; but as she developed a cold complicated by an acute otitis media in the left ear, which necessitated paracentesis of the drum and she had subsequent treatment, she was not transferred until *January 19th*, 1936, by which time the left ear had been dry and the drum healed ten days.

Dr. McConnell has kindly furnished me with the following notes of the operation which he performed on *February 6th*, 1936 :

" A frontal flap was turned down and the dura reflected from the anterior cranial fossa on the left side. The cribriform plate was found to be very wide, about the width of a thumb, and had obvious perforations in it which were much larger than usual. When the dura was reflected as far back as the lesser wing of the sphenoid, cerebrospinal fluid began to flow. It was not possible to see where the fluid was coming from as there was no obvious opening in the dura. The openings in the cribriform plate were filled with Horsley's wax and the wound was closed. There was no discharge after the operation. The patient was kept in hospital for two weeks longer, until *February 20th*, 1936, as it was expected that the stoppage of the escape of the cerebrospinal fluid might give rise to increased intracranial pressure, but no sign of pressure appeared."

On *October 16th*, 1936, the patient wrote in reply to a questionnaire that she had been at work in England, but that she had recently returned to Ireland as her health was not good. She had headaches, and her ear became hot and painful at times. There had been no rhinorrhœa except occasionally a drop from the left nostril. She had become very fat again as she had been before the onset of the rhinorrhœa, and she had vomiting attacks. A letter suggesting that she should come up to hospital again has so far been without result.

It is reasonable to suggest that the pressure on her pituitary gland had induced the accumulation of fat in her body, though she showed no other obvious signs of Frolich's syndrome, or infantilism or dwarfism or early old age of Simmond's disease, or of diabetes insipidus.

It is significant that she had become fat during the years preceding the onset of the cerebrospinal rhinorrhœa. She lost over 2 stone in weight during the free flow of the cerebrospinal fluid, and

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put on weight again when the flow was arrested by operation. She now complains of headaches and recurrence of the vomiting attacks.

It is practically certain that some intracranial tumour exists, the exact location of which has not yet been found.

It was a curious coincidence, which was misleading on first examination, that the left antrum was full of gelatinous mucus. This infection of the antrum was consequently considered to be the cause of the nasal discharge prior to operation on the antrum.

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