Cerebrospinal Rhinorrhea with Pituitary Adenoma

(Case Report)

By

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With 2 Figures

The occurrence of preoperative cerebrospinal fluid rhinorrhea in pituitary adenomas is very unusual. This is true even when the tumours are very large and erode the roof of the epipharynx together with the floor of the sella.

Not a single case of CSF rhinorrhea was described in Cushing's series of 338 pituitary adenomas, reported by Henderson in 1938, eight of which had developed in the rhinopharynx.

Bailey and Cutler (1940) and Kay et al. (1950) reported only six patients with pituitary tumours growing in the nasal cavities, none of whom had preoperative rhinorrhea. Single patients were described by Gutshe (1895), Boyd (1910), Matzdorff (1925), Som and Kramer (1940) and Norsa (1953). These were surgical or autopsy cases of pituitary adenoma with rhinorrhea complicated by repeated meningitis.

Baxter (1881) described a patient with cerebrospinal fluid rhinorrhea and a clinical diagnosis of pituitary adenoma. In this case, however, there was neither surgical nor autopsy verification. The same was true for the cases reported by McDonald (1945) and Ommaya (1965).

In the records of the Neurosurgical Department of the University of Milan Medical School there is only one instance of preoperative rhinorrhea out of 358 cases of pituitary adenomas.

Case Report

Female, aged 40 (record Nos. 25979 and 28422) admitted to our Centre on 21. 1. 65. Eight months before admission, clear fluid had begun to escape from the right nostril whenever she bent down. This phenomenon, which was regarded as rhinitis, ceased after 15 days, but recurred more severely six months later. Two months after the recurrence of the nasal discharge the patient was admitted to our Centre. One month previously she had had a severe attack of meningitis. No history of visual or diencephalic disturbances. No headache.
Negative physical examination. Visual acuity: 20/20 bilaterally. Normal visual fields. Regular menstruation (a few months prior to admission she had been pregnant). No other complaints.

EEG within normal limits.

With the patient seated, slight flexion of the neck caused several drops of clear fluid to flow from the right nostril. Cytochemical examination showed this to be cerebro-spinal fluid.

Standard skull radiographs showed an extensive enlargement of the sella turcica with thinning of the dorsum. Sagittal and coronal tomograms confirmed the sellar expansion with almost complete loss of the floor which was most evident anteriorly towards the posterior ethmoid (Fig. 1). There was also a thickening of the posterior wall of the epipharynx.

Tomograms of the skull base showed erosion of the lateral outline of the sphenoid sinus on the right; the right side of the sinus was opaque. This opacification extended forwards into the posterior ethmoid region without demarcation from the sphenoid sinus.

Right carotid angiogram with left carotid compression showed bilateral filling with a normal vascular pattern. There was no elevation of the suprapontine segments of the anterior cerebral arteries. In the lateral view the carotid siphon was distended as by a mass protruding from the sellar cavity.

The air study showed neither distortion of the suprasellar cisterns nor indentation of the anterior portion of the third ventricle.

Biopsy of the postero-lateral wall of the rhinopharynx, where the mucosa was thickened, showed chronic non-specific changes.

During hospitalization the patient developed meningitic signs with cessation of rhinorrhea. She refused all treatment and was discharged.

In November 1965 she was admitted to another hospital with a third attack of meningitis.

In March 1966 the patient was readmitted to our Institute. Cerebro-spinal fluid leakage was unchanged from her first admission and no other signs were present. Neurological examination was normal. Fundus oculi, acuity and visual fields were also normal.

No useful data were given from $^{131}$I scanning of the suprasellar cisterns. This test was performed in order to achieve a better localization of the site of the cerebrospinal outflow.

On 5. 5. 1966 the patient underwent surgery. Coronal skin incision, right frontal bone flap. The dura mater was very distended. The right frontal lobe was easily retracted and the olfactory tract was divided. There were no lesions of dura or bone on the floor of the anterior fossa. No evidence of a suprasellar mass. Once the rather thickened wall of the chiasmatic cistern had been opened, a small opening in the diaphragma sellae could be seen, connecting the chiasmatic cistern with a fluid filled cavity within the sella. After this opening had been enlarged and the fluid had been sucked away, the surface of a fleshy tumour could be seen (Fig. 2). A biopsy of the tumour was taken and the residual cavity was packed with cotton and the opening into the tentorium sellae was closed with a piece of muscle.

Histological diagnosis: chromophobe adenoma.

After an uneventful course the patient was discharged on the tenth post-operative day.

No cerebro-spinal fluid leakage was evident on discharge, nor on re-examination 6 months later.