The technique of trans-sphenoidal hypophysectomy

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TECHNIQUE OF THE OPERATION

GENERAL anaesthesia is administered by intubation. The tube emerges from the mouth at the level of the left commissure so that the intervention is not hampered in any way. Packing of the pharynx is indispensable so as to avoid flooding the lower respiratory paths with blood.

The general anaesthesia is completed by infiltrating the buccal vestibule and the septal mucus with adrenalised xylocaine in the same way as in an ordinary submucous resection: clearly this is done with a view to promoting haemostasis.

The position of the patient's head is of the greatest importance — we prefer to place him in a sitting position, with his head up, to minimize bleeding.

The head is turned toward the surgeon at an angle of 45 degrees from the sagittal planed and it is placed at 45 degrees in extension of the frontal plane so that the line of approach between the nasal spine and the floor of the sella turcica is a strictly median horizontal one from which no deviation is permitted — these details are of considerable importance, a point which we must emphasize.

The incision is made on the mucus of the buccal vestibule and continues until it reaches the superior maxillary bone. It must be large, stretching from one premolar to the opposite premolar: the nasal spine and the circumference of the piriform opening are laid open by scraping in a lateral direction as far as the two canine fossae.

We must stress the importance of enlarging the approach path:

— In most cases it is sufficient, after resection of the nasal spine, to largely scrape the osseous circumference of the piriform opening until it is possible to easily lift the mucus from the floor of the nasal fossae, in continuation of the septal mucus;

— sometimes the opening is insufficient even after having been enlarged: in that case we have recourse to an artifice, namely the mobilisation to the exterior of the two nasal septa dividing the sinuses once the trepanation of the two maxillary sinuses has been completed.

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Rhinal phase

The phases of the rhinal operation are identical to those of Segura's operation:
— detaching the septal mucosa.
— submucous resection of the septum, of the quadrangular cartilage and of the perpendicular plate of the ethmoid,
— giving access to the rostrum, constituted by the extension of the posterior border of the vomer over the antero-inferior wall of the sinus sphenoidalis — this all-important reference point marks the median line of the anterior surface of the sinus sphenoidalis; trepanation of the sinus sphenoidalis will be carried out round the circumference of the rostrum.

Sphenoidal phase

The sphenoidal phase consists in:
— ablation of the rostrum, preferably in one piece, by first following the lateral outline (where the wall is thinnest), subsequently by two pushes of the curette, above and below;
— this lays the sphenoidal sinus wide open;
— ablation of the mucus, resection of the median septum separating the two sinuses; the septum is rarely thickened but often warped; the two sinuses are asymmetrical;
— enlargement and smoothing by means of the electric ratchet cutter (which we also use in the De Lima operation) which attacks laterally only in order to scrape the trepanation threshold both below as far as the sinus fossae and to the side as far as the lateral walls;
— this phase has been rendered much easier owing to the use of Dott's auto-static illuminating retractor;
— the complete resection of the anterior wall of the sinus sphenoidalis results in an opening of approx. 2 cm which will be sufficient for an approach to the floor of the sella.
At this juncture, stock can be taken of the extension of the pituitary tumor whereby several possibilities have to be noted:
— sometimes the tumor has invaded the sinus after erosion of the floor of the sella and it is sufficient to widen the opening made by the penetration of the adenoma with a fine curette and with a hook to see it drop in its entirety into the sinus;
— sometimes, on the other hand, the floor of the sella is intact but bulges into the sinus in the shape of a whitish osseous process — its trepanation proves to be easy, for the osseous wall shows little resistance and with some knocks of the forceps and the hook it is possible to lay open the bluish dural sheath enveloping the tumor;
— sometimes the reference points are less pronounced, the walls thickened, as in acromegalics, or again the sphenoidal sinus may be very small. In that case, in order to avoid any wrong approach, the neuroradiologist will be called in who,

thanks to radioscopy with a brightness amplifier, will determine the exact location of the sellar floor and will guide the instruments by remote control.
Once the floor of the sella has been opened and the tumor or the pituitary fossa laid bare, the rhinologist hands over to the neurosurgeon who will complete the operation rapidly.

Neurosurgical phase

The neurosurgical phases consists in the following steps:
— after the dura mater has been punctured for the evacuation of a possible haematic cyst;
— the dural sheath will be opened by a cross-wise incision with a diathermic scalpel
— the tumor drops in part into the sphenoidal sinus and is picked up for histological examination;
— the intervention is completed by curettage of the fossa with pliable curettes under a brightness amplifier;
— dusting with antibiotics — sulfonamides — insertion of a drainage tube to evacuate any haematoma that might have formed.
The nasal mucus is replaced and held in place in each nasal fossa by a Da Costa septum forceps.
Removal of forceps and drainage tube on the second day.
This phase has been considerably improved by the dissection of the tumor under a surgical microscope, particularly in cases of selective hypophysectomy.

POSTOPERATIVE TREATMENT

Postoperative treatment is very simple and consists in the administration of antibiotics.
— The ophthalmic disorders caused by the adenoma, particularly in their acute forms, disappear within 24 hours;
— the patient gets up on the third day and can leave hospital after a week.
It is this regular pattern which led us to give preference to the technique outlined above other methods of approach from below and, in most instances, from above (125 cases out of 142), a point which we shall revert to in the chapter dealing with indications.

ADVANTAGES OF OUR TECHNIQUE

— Intervention causes little loss of blood even under general anaesthesia;
— larger access area since it is bilateral and is enlarged even further by the resection of the piriform opening and, if need be, by mobilisation of the nasal septa dividing the sinuses;

— above all, strictly median approach in which the septum leads to the rostrum and to the sinus without any danger and without the risk occurring that the surgeon deviates in the direction of the sinus cavernosus area — aspect in the median axis of the sella floor and therefore permitting the maximum freedom of action;

— lastly, the trans-sphenoidal method may be qualified as an extra-nasal method since the sella is reached by going below the mucus — the mucous sheath of the septum isolates, both per- and postoperationally, the cavity in which the operation is performed from the nasal fossa.

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