

Experience with Sublabial Transseptal Transsphenoidal Hypophysectomy at the Universiti Kebangsaan Malaysia

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Summary

The transseptal transsphenoidal hypophysectomy has become a relatively frequent procedure in recent years. We performed 20 such procedures between January 1984 and December 1987 for various pituitary disorders. Significant complications such as CSF rhinorrhoea, meningitis, diabetes insipidus, haemorrhage and septal perforation are discussed. The mortality rate for the series was 5%. In analysing the data, we feel that this technique of hypophysectomy is a safe procedure.

Key words: Transseptal transsphenoidal hypophysectomy, pituitary disorders.

Introduction

The earliest surgical exposures to the pituitary gland were performed chiefly by employing the transcranial route either by subtemporal craniotomy or by a transfrontal approach. The close proximity of the sphenoid sinus to the pituitary fossa makes the extracranial transsphenoidal route a feasible and logical approach to the hypophyses. Although many other approaches have been advocated and are still in use, the sublabial transseptal transsphenoidal approach to hypophysectomy has gained increasing popularity in recent years¹. This procedure offers excellent exposure, limited blood loss and a direct midline approach to the sphenoid sinus and to the hypophyses, thus preserving those midline structures that may serve as a guide to the appropriate point of entry into the sella tursica. We have undertaken this technique of hypophysectomy for the last 4 years and found that its mortality and morbidity rates are significantly low and comparable with other published series.

Materials and Methods

The study period was between January 1984 and December 1987. Twenty cases were seen during this period for various pituitary tumours. All hypophysectomy on these patients were performed utilising the sublabial transseptal transsphenoidal route using the operating microscope. The technique used was similar to that previously reported by the Mayo group, with several modifications². The various complications, morbidity and mortality rates were studied and analysed.

Results

There were 12 females and 8 males ranging from 16 to 60 years.

Cerebrospinal fluid leakage was the commonest complication recorded, which was found in 3 (15%) patients (Table I). This occurred in a patient with meningioma eroding the basal dura, the other in a patient who removed his nasal packings himself within 24 hours of surgery and the third in a patient with prolactinoma which had eroded the posterior wall of the sphenoid sinus. In the first 2 patients, the leakage closed spontaneously, requiring no operative procedure. In the third case, the CSF leakage was persistent despite conservative measures. The patient subsequently developed meningitis before operative closure was attempted. Although prompt treatment was instituted, the general condition worsened. The patient went into a coma and at this stage the relatives insisted on taking the patient home. She died soon after being discharged.

Table I
List of recorded complications

Complications	Number	(%)
1. CSF leakage	3	(15%)
2. Meningitis	1	(5%)
3. Perioperative death	1	(5%)
4. Transient diabetes insipidus	1	(5%)
5. Haemorrhage	1	(5%)
6. Septal perforation	1	(5%)

Transient diabetes insipidus was a complication in 1(5%) patient, requiring pitressin injection for a week. Haemorrhage was profuse in 1(5%) patient while elevating the septal mucoperichondrial flaps. It was easily controlled by firm nasal packing. It was discovered that the nasal mucosa was not adequately decongested in this case.

One late complication in this series was septal perforation; this was seen in one patient. No repair was performed as it was asymptomatic.

Discussion

The mortality and morbidity of this group of patients compared favourably with that reported elsewhere^{2,3}. CSF leakage remains a significant complication of this technique. We recorded a 15% incidence of leakage, while Kennedy *et al*³ experienced CSF leakage in 10% of their cases. Others² however, reported a much lower incidence of leakage. Our figure seems to be higher, perhaps due to the small number of patients included in the study. Leakage will be more frequently encountered in cases where the basal dura and the posterior sphenoidal wall are eroded by tumour or if the nasal mucosae are not well-approximated by firm nasal packings. These were seen in the 3 patients who developed leakage post-operatively. In our experience, conservative therapy, which includes bed rest, fluid restriction and antibiotics, is the method of choice in its management. Some authors³ recommend early operative closure if there is a continuous and relentless pour of CSF or if it does not respond to conservative therapy within 2 weeks.

Meningitis usually complicates CSF leakage. We recorded a 5% incidence, although others^{2,3} reported a much lower incidence of 2%. The introduction of antibiotics has significantly decreased its incidence.

Most series reported a 1% to 2% mortality rate. Cushing⁴, in a large series of 338 patients, experienced about 5.1% mortality. This compared well with our series of 5% mortality rate. Most deaths were due to meningitis. The reduction in the mortality rate in the recent series is almost exclusively due to the relative absence of meningitis. This implies the role of antibiotics in the evolution of the procedure.

Diabetes insipidus, fortunately, is usually transient. Permanent diabetes insipidus is treated with either nasal drop of D-arginine-vasopressin or with a daily dose of 400 to 600 mg of Carbamazepine by mouth.

Haemorrhage may be profuse while elevating the mucoperichondrial or mucoperiosteal flap. This could be avoided if the nasal mucosa is completely decongested prior to surgery.

Long-term nasal complications such as septal perforation, nasal dorsum saddling and atrophic rhinitis are rare. They could be avoided by following strictly the principles of septal surgery:

1. stability of the external contour of the nose must be ensured by preserving the septal cartilage which supports the back of the nose and the columella;
2. septal perforations can be avoided by elevating the mucosa together with the underlying perichondrium or periosteum; and
3. any increase of the nasal volume may cause excessive dryness of the nasal mucosa with its dangerous rhinologic complications. This may be avoided by:
 - a. minimal resection of septal cartilage;
 - b. avoidance of septal perforation; and
 - c. repositioning and loose gauze fixation of the middle turbinates which may have been fractured and luxated by nasal speculum.

In conclusion, the availability of antibiotics and the introduction of the surgical microscope are the 2 main factors which have been associated with the safety of tumour removal in this technique of hypophysectomy.

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