

Editorial Review

Should ENT surgeons undertake pituitary surgery?

Pituitary surgery was first carried out at the turn of the century. Victor Horsley in his address to the 74th Annual meeting of the British Medical Association, published in 1906, made brief reference to 10 cases he had operated upon by what is assumed to have been a sub-temporal approach.

Schloffer published an article in 1907 describing a per nasal trans-sphenoidal operation and in 1909 Oskar Hirsch described his per nasal technique based on the work of Hajek. This operation, which was performed under local anaesthetic, was carried out in four stages over a period of four days.

In 1912 Harvey Cushing published his work on pituitary surgery in which he further refined the per nasal approach. This differs very little from the technique used by most surgeons to this day. It was Cushing who proposed that tumours with a significant supra sella extension should be treated by a trans-cranial rather than a trans-sphenoidal route, although there is some evidence to suppose that Cushing reverted to the trans-cranial route as his main approach towards the end of his career.

Dott learned the Cushing trans-sphenoidal technique from the master and continued its use for the decompression of pituitary tumours throughout his career in Edinburgh. He, in turn, passed it on to Guillot who practised in Paris. In the late 1960s Jules Hardy learned the technique from Guillot and is rightly credited for popularizing the operation and for introducing the use of the operating microscope.

In the early 1960s, Angel-James described the trans-ethmoidal approach to the pituitary, in response to an increasing demand for pituitary ablation in the context of advanced metastatic carcinoma of the breast. At this time it was known that some metastatic breast disease responded to oestrogen ablation. Until then, it had been the practice to carry out bilateral adrenalectomies and oophorectomies. It was felt to be more humane, however, to carry out oestrogen ablation by removal of the pituitary. Angel-James' technique was adopted by a number of ENT surgeons, notably Salmon, Richards and Williams, and whilst the initial results were disappointing as compared with neurosurgical trans-frontal pituitary ablation of the day, within two years the results were comparable, regardless of the approach. With the discovery of Tamoxifen, the need for this kind of ablative surgery in the management of breast carcinoma disappeared.

Prior to the early 1970s, pituitary surgery had largely consisted of ablation of the gland or decompression of tumours. With the advent of radioimmunoassay and the adoption of the operating microscope, Hardy was able to show that hormone-secreting adenomas of the pituitary could be removed, leaving normal gland behind. This line of succession from Cushing through to Hardy was entirely in the hands of neurosurgeons.

A few ENT surgeons continued to use the trans-ethmoidal approach under microscopic control for the removal of hormone-secreting pituitary adenomas. The majority of the ENT surgeons who still practise in this field today adopt the Angel-James trans-ethmoidal approach, rather than the midline trans-septal route.

On an international basis, nowadays pituitary surgery is carried out predominantly by neurosurgeons, using a trans-nasal approach, either per nasal or through a sub-labial incision. It has been suggested that functional endoscopic sinus surgery may have a role to play, though it is unlikely to displace the present techniques in the foreseeable future. The use of real time magnetic resonance imaging may influence surgery of this kind in the future but for the moment it is beyond the financial reach of most UK departments.

The 1994–95 figures for the incidence of pituitary surgery in the UK indicate that some 317 cases were performed in that year. It is assumed that the bulk of this work was undertaken by neurosurgeons via a trans-sphenoidal route, although some will have used the trans-frontal approach. The remainder will have been carried out by ENT surgeons.

Damage to the carotid arteries represents the major hazard in pituitary surgery. It is essential, therefore, to be able to identify the midline at the time of opening of the pituitary fossa. The major disadvantage with a trans-ethmoidal approach, is the difficulty in accurately identifying the midline. The midline approach allows for clear identification of the posterior end of the nasal septum, which always lies in the midline, and acts as an indicator of the point at which the pituitary fossa should be entered, regardless of the anatomy of the sphenoid which is notoriously variable. This technique, taken in conjunction with the use of the image intensifier, renders the midline approach substantially safer than the trans-ethmoidal route.

Despite the advantages of the midline approach, however, there are instances, particularly for tumours which extend downwards, where the trans-ethmoidal approach is the route of choice. Any surgeon practising trans-sphenoidal surgery should be able on occasion to use this approach, be it either from the left or the right sides. The approach is particularly useful in those rare cases in which it is the optic nerve, rather than the chiasma, which needs to be decompressed.

Whilst the incidence of damage to the carotid artery is thankfully rare in trans-sphenoidal surgery, the morbidity arising from damage to the nasal septum is regrettably high. Experience has shown that this approach to the pituitary is often difficult due to the enormous variability of both septal and sphenoid anatomy. ENT surgeons have an obvious advantage in this respect being, by nature of their speciality, more familiar with the nasal anatomy than their neurosurgical colleagues.

Pituitary tumours are enormously variable in their morphology regardless of their secretory potential. Experience in the fields of neurosurgery or ENT surgery is of little value in dealing with this variability. It follows that neither group of surgeons can claim a particular 'ownership' in terms of actual pituitary surgery.

In contrast to the difficulties which may arise in the approach to the pituitary fossa, there are instances where an adverse intra-cranial complication can be anticipated. Such cases should be dealt with by neurosurgeons.

The salient factor when considering this relatively unusual form of surgery is that the experience of the surgeon is of paramount importance. Some cases are best operated upon by ENT surgeons and some by neurosurgeons. Neither group has an inalienable right to operate on the pituitary and no individual should do so unless he/she can demonstrate the necessary training and ongoing experience.

The Royal College of Physicians, in collaborating with all interested professionals, including pituitary surgeons, are presently formulating a protocol for the management of pituitary tumours. This protocol

will emphasize the need for collaborative practice between pituitary surgeons, endocrinologists and clinical oncologists.

There are approximately 300 pituitary adenomec-tomies carried out in the course of an average year in the UK. There is some evidence to suggest that there is an unmet demand for experienced pituitary surgeons and that more cases would be referred for surgery if the necessary skills and experience existed.

Making the arbitrary assumption that any practising pituitary surgeon should operate on a minimum of 20 cases in the course of an average year in order to maintain competence, there should be a maximum of 10 pituitary surgical units throughout the country. In ideal circumstances there should be at least two surgeons involved in each unit in order to maintain a continuity of service. The ideal team would consist of an ENT surgeon and a neurosurgeon.

Whilst there is no doubt that ENT surgeons should undertake pituitary surgery and that their experience in microscopic and nasal surgery is invaluable, it is to be regretted that very few continue to practise in this field on a regular basis. As with any other surgical practitioner working in this very specialized area there are a number of necessary prerequisites. The first requirement is that the individual should work with a multidisciplinary team setting high standards and subjecting itself to audit both nationally and internationally. The second requirement is the acceptance that he or she should be a joint member of a surgical team, the other member being a neurosurgeon. Both specialities must accept that pituitary surgery should not be carried out by the occasional practitioner. Finally, and with due deference to those of my colleagues who perform pituitary surgery by the trans-ethmoidal route, I contend that the trans-septal approach is, by common usage and for reasons of safety, the preferred option.

Address for correspondence:
Mr David B. Mathias,
Department of Otolaryngology,
Freeman Hospital,
High Heaton,
Newcastle upon Tyne NE7 7DN.