Surgeon’s Position for Transsphenoidal Surgery
—Technical Note—

Youichi SAITOH, Kazumi YAMAMOTO, and Toshiki YOSHIMINE*

Department of Neurosurgery, Osaka Rosai Hospital, Sakai, Osaka; *Department of Neurosurgery, Course of Interventional Medicine, Osaka University Graduate School of Medicine, Suita, Osaka

Abstract

Transsphenoidal resection of pituitary tumors is usually performed with the surgeon standing on the patient’s right side. However, this configuration is awkward when the tumor extends to the right and access may be hindered if the patient has poor nuchal flexibility or a large chest due to gigantism or acromegaly. The surgeon stood on the left side of the patient during transsphenoidal surgery in five selected cases. The position on the left provided good access to the tumors with minimal changes in technique.

Key words: transsphenoidal surgery, pituitary adenoma, endoscope

Introduction

The surgeon usually stands on the right side of the patient during the transsphenoidal surgery. The head of the patient is flexed toward the left shoulder, providing a comfortable midline approach to the sphenoid sinus.1–4) The operating table may be tilted towards the surgeon if the pituitary adenoma extends to the right cavernous sinus. However, surgery on a patient with gigantism for a tumor filling the right cavernous sinus was hindered from the right because the access was restricted by the size of the patient’s chest (Fig. 1). We discuss the advantages of standing on the left side of the patient when performing transsphenoidal resection of a tumor extending toward the right cavernous sinus.

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The surgeon stood on the left side of the patient in five of 20 consecutive procedures for transsphenoidal tumor removal. The five tumors included one microprolactinoma and two somatotropinomas that extended to the right cavernous sinus, and two somatotropinomas located at the right corner of the sella turcica. The arrangement for the procedure is the mirror image of the conventional transsphenoidal surgery in which the surgeon stands on the patient’s right side (Fig. 2).

Fig. 1 Magnetic resonance image of a patient with gigantism and a pituitary tumor extending to the right and filling the right cavernous sinus. The patient’s chest was very large, so the surgeon stood on the patient’s left during transsphenoidal resection of the tumor in the right cavernous sinus.
The patient is placed in a semirecumbent position, and the head is fixed with the Mayfield general headrest. The patient’s head is flexed toward the right shoulder. Either the sublabial or the endonasal approach is used. The left side of the nasal septum is exposed to the perpendicular plate of the ethmoid (the bony portion of the nasal septum), and the cartilaginous portion of the nasal septum is dislocated and reflected to the left. A right posterior mucosal tunnel is developed along the right side of the bony septum, and the transsphenoidal retractor is inserted. Once the retractor is set in place, the tumor is removed using the conventional technique. An endoscope was used in three of the five cases to enhance visualization. Pituitary tumors are more easily removed when the surgeon stands on the left side of the patient than the right. Pituitary hormone secretion normalized postoperatively in three of our five cases.

Most surgeons are unfamiliar with incision and dissection of the nasal mucosa from the left side of the patient, but the technique is basically the same as performed from the right. The endonasal approach can be used, and the endoscope can be used easily in this configuration. The left-sided approach can be accomplished using the standard set of transsphenoidal instruments, although the procedure is somewhat more convenient when the instrument set is complemented with additional curettes, in particular, a 90-degree right-angle curette.

**Discussion**

Most pituitary neurosurgeons routinely approach the sella turcica from the right side of the patient. However, we found no technical difference between the right-sided and left-sided approaches. The surgeon’s handedness does not appear to be important, since one of the authors is left-handed.

Some neurosurgeons working in Europe stand at the top of the operating table, facing the patient’s head with everything in line (personal communications). These surgeons can comfortably approach to tumors with extension to either side, but suprasellar extension is more difficult. Other neurosurgeons recommend opening the sella floor widely for tumors with suprasellar extension, but the medial wall of cavernous sinus is the lateral limit to open the sella floor. Therefore, the left-sided transsphenoidal approach may be more helpful to remove suprasellar tumor located mainly on the right.

We conclude that resection is performed more easily when the surgeon stands on the left side of some patients, such as acromegalic patients with a very broad chest and patients with limited neck flexibility, with tumor extending to the right.

**References**


**Commentary**

The authors certainly report an innovation in our rou-
tine transsphenoidal approaches. It represents a new idea and a surprise for me at the same time, since in over 3000 cases of this procedure, I never felt the need to change sides, even with broad chest and obese patients. I presume that not being left handed or ambidextrous, I would feel a little awkward using this approach after circa 30 years of reflexes accustomed to a right sided position. When we have to explore the right or left cavernous sinus, we simply use a speculum with a shorter blade on that side, as suggested by Dr. Jules Hardy who fathered this important procedure.

In patients with limited neck flexibility, I feel that tilting the head to either side will offer the same difficulty, and sometimes we have to lean ourselves medially, which represents quite a strain on the surgeons’ back muscles and some pain postoperatively as we have to stand as part of our trade.

I also found that the endonasal route due to the narrowness of the nasal speculi, decreases the excursions of the instruments, like opening the forceps or reaching more lateral targets, and I warn their users that a few times I had to switch the incision to a sublabial one in order to obtain a better exposition of infiltrating lateral lesions or to control abnoxious bleeding. Since the authors present only 5 cases, I will await a larger set of reported procedures before I decide to change my own conservative routine approach.

Raul Marino, Jr., M.D.
Department of Neurosurgery
University of São Paulo Medical School
Instituto Neurologico de São Paulo
São Paulo, Brazil

The authors reported a modification of the method of transsphenoidal surgery (TSS) in that the surgeon should stand on the left side of the patient when the tumor extends to the right cavernous sinus.

I can freely change the position of the patient’s head during TSS surgery, because I do not fix the head. The patient’s head is somewhat rotated to the right just along the body axis and is not flexed to the surgeon’s side. Thus, I usually observe the operative field from a slightly oblique angle. Although some experience is necessary, this simple position is very comfortable for the surgeon.

However, if the head is fixed, it may be difficult for the surgeon standing on the patient’s right side to manipulate the right-sided lesion. As the authors stated, their idea is especially useful in patients with poor nuchal flexibility or a barrel chest.

Akira Teramoto, M.D., D.M.Sc.
Department of Neurosurgery
Nippon Medical School
Tokyo, Japan

According to the Hardy operation, the surgeon is in front of the patient’s face, working in a strictly median sagittal plane, for most neurosurgeons prefer to stand on the right side of the patient. Some neurosurgeons stand at the top of the patient’s head. But if the tumor extends to the right side, the surgeon on the right side of the patient cannot see the tumor on the right side, which extend to the cavernous sinus. If the pituitary adenoma has right side large extension, the surgeon stands on the left side of the patient to do the operation. He can see the right side tumor directly, which may avail total removal of the tumor, and microneurosurgery associated with neuroendoscopy will resolve this problem very well. Even if the surgeon stand on the right side of the patient, the tumor with large right side extension can be removed completely.

Shuyuan Yang, M.D.
Department of Neurosurgery
Tianjin Medical University
General Hospital
Tianjin, People’s Republic of China