

Neurosurgery Technical Procedure: Surgeon's Position during Microscopic Transsphenoidal Surgery

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The surgeon's position in relation to the patient has been modified throughout the years for transsphenoidal surgery (TSS). Nowadays, if a microscopic approach is used, most centers place the surgeon at the side of the patient's head with the patient facing him. In this paper, we propose a more ergonomic and time-proven setup for this type of surgery. Since the early 1980s, our neurosurgical section has been using an approach where the surgeon stands behind the patient's head with the microscope tower on the surgeon's back. This position is rarely mentioned in the literature. We want to refresh this position for those who still use the microscope and those young neurosurgeons and residents who do most of their work endoscopically. We consider that when the surgeon is standing behind the patient's head, it is more comfortable for the surgeon. Also, it allows for the assistant to be close enough to help during the surgery. This technical note may bring new ideas for those using the microscopic TSS. [*P R Health Sci J* 2021;40:87-89]

Key words: Transsphenoidal, Microsurgery, Pituitary, Position, Surgeon, Technical

Transsphenoidal surgery (TSS) is considered the gold standard for the removal of pituitary adenomas. It can be performed microscopically, endoscopically, or with a combination of both techniques. The surgeon's position in relation to the patient has been modified throughout the years. In 1907, Schloffer in Austria was the first to remove a tumor using the TSS approach with a transfacial lateral rhinotomy incision (1-2). In 1910 Harvey Cushing, in the United States, and Oskar Hirsch, in Austria, performed the first submucous TSS, as opposed to Schloffer's extensive rhinotomy (3-5). Hirsch utilized a submucous endonasal approach, and Cushing utilized a sublabial submucous resection of the septum corridor (5-6). Coincidentally, they performed their landmark procedures on the same day, June 4, 1910. Hirsch eventually emigrated to Boston, where he continued his practice. In 1929, Cushing abandoned the procedure in favor of the craniotomy approach. Dott, an assistant to Cushing, moved to Edinburgh and continued using the TSS with a newly designed lighted nasal speculum (7). He positioned the head of the patient between the surgeon's knees (7).

The TSS fell out of fashion until the late 1950s when Guiot started using it again with the assistance of the intraoperative fluoroscopy (8,9). In 1962, Hardy contributed significantly to its popularization when he added the microscope for illumination and magnification (10). Both of them stood facing the patient when operating. With the arrival of the endoscope for panoramic visualization and increased illumination, TSS is commonly performed endonasal. The surgical team is positioned on both sides of the patient facing him. Nowadays, most young attendings and residents only become familiar with this endonasal endoscopic technique.

Method

Technical procedure

Since the early 1980s, our neurosurgical section has been using a position where the surgeon is standing behind the patient's head with the microscope tower at the surgeon's back (Figure 1). This position is rarely mentioned in the literature and rarely used nowadays for the TSS. This position lets the surgeon sit if he desires or be in a neutral, relaxed standing position. It is a very familiar position because of its similarity to performing a frontal or pterional craniotomy. We describe our technique as a refresher for those surgeons who still use the microscope for TSS and those young residents who had never been exposed to the microsurgical TSS.

When the surgeon is positioned behind the patient's head, the patient is supine with the head extended and slightly elevated above the heart level. The head is rested on a gel doughnut headrest, and the headrest of the operating table is slightly angled below the horizontal plane. The fluoroscopy machine arm is placed below the head with its axis oriented perpendicular to the head's sagittal plane. The surgeon stands

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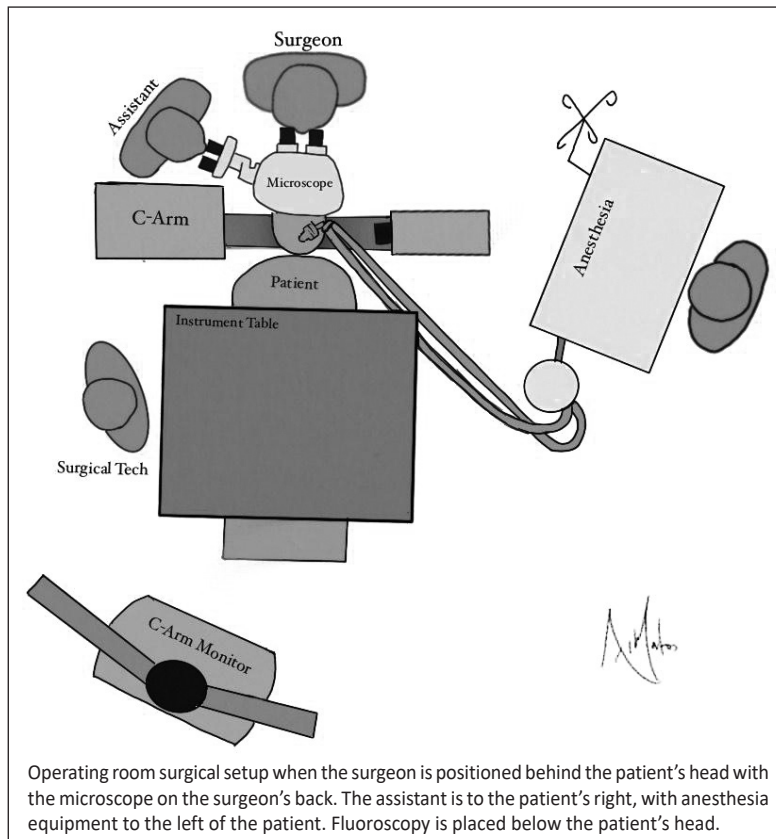


Figure 1. Diagram of the operating room surgical setup during microscopic transsphenoidal surgery.

or sits behind the patient's head with the microscope base behind the surgeon. If navigation is used, the system is placed at the patient's foot. We prefer this position as it offers the surgeon a relaxed standing posture for the body and the arms. It also sets the assistant near the patient to provide help during the surgery.

Discussion

In the first TSS cases by Cushing, the surgeon was behind the patient's head. This position was modified to a position where the surgeon is on the patient's side facing him. Hirsch perpetuated this position after Cushing stopped performing the TSS (4,5,11). Hirsch, an otolaryngologist, kept using the position since surgeons in his specialty usually face the patient during nasal, oral, and frontal procedures. Most neurosurgeons also use this position where they face the patient for a TSS.

When the surgeon faces the patient, one needs to stand and angle the body to the position of the patient's head. Additionally, the surgeon needs to have the arms extended to reach the nasal area. When the microscope is used combined with the endoscope, the surgeon stands on the right side of the patient, facing him, elevates the head of the operating table by 15 degrees, and tilts the face left about 30 degrees (12). Endoscopic

endonasal TSS requires that the surgeon be at the patient's side due to the endoscope trajectory and positioning (13). For cases where a bi-nostril endoscopic technique is used, the neurosurgeon is on one side while the otolaryngologist is on the other side of the patient, both facing the patient.

There are only two reports during the microsurgical era focusing on the surgeon positioned behind the patient's head to the best of our knowledge. In 1988, Fahlbusch and Buchfelder described their new technique (14). In 1994, Fraioli et al. presented a similar technique (15). Many centers continue to use the microscopic approach for TSS but still set the surgeon facing the patient. When our neurosurgery residency commenced in the early 1970s, we performed craniotomies to access the pituitary gland. Later, with the help of the otolaryngologists, most lesions were operated on with a microscopic TSS. The otolaryngologist performed the initial sublabial approach standing on the side of the patient, and the neurosurgeon then opened the sella and removed the lesion. In the early 1980s, our neurosurgical section performed the entire operation and used the current approach where the surgeon is standing behind the patient's head with the microscope base behind the surgeon.

Conclusion

We consider that this surgeon's position behind the patient is more comfortable for the surgeon. Also, the assistant is close enough to help during the surgery. This technical note may bring new ideas for those using the microscopic TSS.

Resumen

La posición del cirujano en relación con el paciente se ha modificado a lo largo de los años para la cirugía transesfenoidal. Hoy en día, si se utiliza un microscopio, la mayoría de los centros colocan al cirujano al lado del paciente mirándolo de frente. En este artículo proponemos un arreglo que resulta más ergonómico y lleva siendo utilizado por muchos años en nuestro servicio. Desde principios de la década de 1980, nuestra sección de neurocirugía ha estado utilizando un abordaje en el que el cirujano está parado detrás de la cabeza del paciente con la base del microscopio detrás del cirujano. Esta posición rara vez se menciona en la literatura. Queremos refrescar esta posición para aquellos que aún usan el microscopio, y para aquellos neurocirujanos jóvenes y residentes que hacen la mayor parte de su trabajo endoscópicamente. Consideramos que la posición del cirujano detrás del paciente es más cómoda. Además, permite que el asistente esté lo suficientemente cerca

como para ayudar durante la cirugía. Esta nota técnica puede aportar nuevas ideas para quienes utilizan el microscopio para la cirugía transesfenoidal.

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