Operative approaches to the anterior face of the sella turcica have been thoroughly described in the literature. The most commonly used techniques are the sublabial and endonasal transsphenoidal approaches. Recently, the endonasal approach, whether using the endoscope or the microscope, has been emphasized, primarily because it does not require a sublabial incision. However, the endonasal approach has the disadvantages of an oblique orientation to the sella, limited width which the nasal retractor can be opened, and less stability of the speculum because the inferior margin does not engage the osseous rim of the inferior pyriform aperture. We describe a simple technique, a sublabial-transnasal-transsphenoidal approach, which has the advantages of a wide opening of the nasal retractor, providing wide exposure of the sella including the medial aspect of the anterior face of the cavernous sinuses bilaterally, tuberculum sellae, and sellar floor, all seen in the same field of view under the operating microscope with little difficulty. It also allows a directorientation to the sella, yet does not require dissection of the nasal mucosa from the midline structures. In addition, we present certain nuances that have been adopted throughout the experience of one of us (E.H.O.) and have proven useful when exposing the sella turcica.

Surgical Technique

After satisfactory general anesthesia is induced, the patient is placed supine and the head is placed in 3-point fixation. The field is prepared and draped similar to a standard sublabial–transsphenoidal approach. To retract and maintain eversion of the upper lip, a 0 Neurolon suture is placed in the upper lip mucosa above each canine and 3 mm above the mucogingival junction. To retain superior reflection and retraction of the upper lip, a 16-oz lead fishing weight is then draped rostrally from each suture, the sutures from each side crossing just above the bridge of the nose (Fig. 1). The normal gingival incision is made from canine fossa to canine fossa down to the subperiosteal plane, leaving a 2–3-mm mucosal cuff on the gingival side for closure (Fig. 2A). Subperiosteal dissection is carried rostrally on the maxilla to the inferior edge of the pyriform aperture. The anterior margin of the cartilaginous nasal septum is palpated, and a 15-mm vertical incision is made 5–10 mm to the patient’s left (surgeon’s right) of the midline starting in the exposed surface of the everted upper lip and extending down to the base of the pyriform aperture (Fig. 2B). Care is taken to ensure that the rostral position of this incision will allow entrance into the nasal passage when taken completely through the tissue, rather than on the external surface of the upper lip. Initially a long handheld nasal speculum is inserted into the incision along the patient’s left nasal passage and oriented toward the sella. Tactile location of an inferior remnant of vomer or the previous sphenoid defect assists in approximating the midline on reexploration. Floroscopy is used to confirm the rostral/caudal trajectory. The handheld speculum is replaced with the self-retaining bivalve Hardy speculum, and the position is checked with the aid of fluoroscopy (Fig. 2C). The mucosa over the face of the sphenoid bone is coagulated and incised vertically just to the left of the sphenoid rostrum. The tip of the Hardy retractor is placed flush with the anterior face of the sphenoid bone. The osseous nasal septum is fractured at its junction with the sphenoid rostrum posteriorly, and the septal cartilage and vomer are fractured at their base and swept to the contralateral side as the retractor is opened and repositioned, mobilizing the cartilaginous and osseous septum toward the right, to provide a direct midline, or near mid-
line, trajectory by moving the proximal shaft of the retractor medially (Fig. 2D). The mucosa overlying the sphenoid is retracted laterally with the tips of the Hardy speculum to reveal the edge of bone, as in a standard sublabial–submucosal approach. As the retractor is opened the incision made in the everted lip may extend into the mucosa overlying the roof of the hard palate for several millimeters. Since this occurs unilaterally and is along the floor of the nasal cavity, it requires no reconstruction, as it heals spontaneously over several days. The midline structures are repositioned after the retractor is removed. When the nasal retractor is in optimal and final position, to further aid visualization by retraction of the protruding upper lip out of the superior midline of the proximal field, a small malleable retractor (as large as will fit between the blades of the Hardy speculum) is placed as in Fig. 3. The remainder of the procedure is carried out as in a standard sublabial–submucosal approach. Although we have used nasal packs for 36–48 hours after surgery in most patients, they may not be necessary.

**Discussion**

Much of the emphasis on the technique of pituitary surgery in the past several years has been on new approaches to reach the anterior face of the sella turcica, including endonasal approaches. The advantages of the endonasal approaches are that limited dissection of the anterior portion of the nasal mucosa is required and the patient is more comfortable in the early postoperative interval. However, the endonasal approaches have a slightly oblique orientation to the sella turcica, and the degree to which the nasal retractor can be opened is limited by the size of the nose, which restricts the volume of the sellar exposure to < 40% of the exposure achieved with a sublabial midline approach. The endoscopic endonasal approach to the sella has recently increased in popularity. Some surgeons advocate excision of the middle turbinate to gain adequate exposure. This seems counterproductive for a procedure, one of the commonly stated advantages of which is mini-
Sublabial–endonasal approach to the sella

Fig. 3. Illustration showing that when the position and opening of the speculum are satisfactory, a malleable retractor is fashioned to elevate the protruding portion of the superior lip so that the inferior margin of the lip does not obstruct the superior margin of the visual field. The free end of the malleable retractor is secured on the nasal speculum as shown.

mal tissue invasion. The sublabial-transnasal-transsphenoidal approach described here provides direct orientation to the sella turcica and permits wide opening of the self-retaining nasal speculum. This is necessary to expose the entire pituitary and the bone and dura from one cavernous sinus to the other and from the tuberculum sellae to the sellar floor from a single view through the operating microscope, the ideal exposure for successful pituitary surgery. Patients who undergo sublabial transsphenoidal surgery may have numbness and parasthesias of the upper lip and incisor teeth, which generally persist for 6–8 weeks, but these symptoms can last for longer than 6 months. The technique described here is a modification of the sublabial approach that involves traversing the nasal cavity after the initial sublabial dissection. There is usually no disruption of the medial nasal mucosa while maintaining a midline orientation and stable fixation of the speculum on the maxilla, as well as wide exposure. In patients who have had prior surgery it also has the advantage of avoiding midline mucosal dissection.

Because of the enhanced exposure provided compared with that in other approaches, we routinely use the sublabial-transnasal-transsphenoidal approach to the pituitary gland. We have used the approach presented here primarily in patients who have had previous pituitary surgery via a sublabial approach. The route of exposure described here features the endonasal approach through the nasal cavity, but retains the wide opening of the sublabial approach. This is particularly beneficial in children and women, in whom the strict endonasal approach is associated with limited opening of the nasal speculum.

Acknowledgment

We thank Alan Hoofring, Medical Arts Design Section, National Center of Research Resources, National Institutes of Health, for his skillful illustrations of the techniques described in this paper.

References


Address correspondence to: Edward H. Oldfield, M.D., Department of Neurological Surgery, University of Virginia Health System, P.O. Box 800212, Charlottesville VA 22908-0212. email: eho4u@virginia.edu.