

Transseptal Approach for Sphenoid Sinus Access: A Cadaveric Feasibility Study

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PURPOSE

To describe the use of Spiway stents for improved access, visualization, and outcomes in sphenoid surgery using a transseptal approach.

METHOD

This feasibility study was performed using cadaver heads. A Storz® 0° endoscope was used for visualization. The technique begins with a mucosal incision along the caudal border of the nasal septum that is lengthened to the nasal floor. As is performed in a routine septoplasty, the mucosa is elevated in the submucoperichondrial and submucoperiosteal plane until the posterior septum and the sphenoid rostrum are reached, and a portion of the septal cartilage is removed, leaving an anterior “L” strut to support the nose. Then, part of the vomer and perpendicular plate of the ethmoid are removed to allow adequate inset of the Spiway stent and proper expansion through a transseptal approach. This approach was sequentially performed without a posterior ethmoidectomy, then with a unilateral posterior ethmoidectomy, and finally with a bilateral posterior ethmoidectomy. An additional incision was made in the contralateral caudal septal border to allow insertion of a second stent.

RESULTS

The transseptal technique provided straightforward and efficient access to the sphenoid sinus. A posterior ethmoidectomy incrementally increased visualization of the surgical field; while a unilateral posterior ethmoidectomy provided moderately improved access, a bilateral posterior ethmoidectomy greatly enhanced both the view of and access to the sphenoid cavity. The addition of Spiway stents also subjectively improved the surgical view obtained and provided ease of instrumentation with greatly decreased abrasion of the mucosa. The Spiway stent was in full expansion only after this portion of the procedure was performed. The resultant dissection provided a view of the entire sphenoid sinus cavity. Despite the posterior ethmoidectomy, the maneuverability of the instruments in the sphenoid was still slightly restricted when equipment was passed through a unilateral corridor; the contralateral incision with insertion of a second stent provided two passages to the sphenoid and alleviated this issue.

CONCLUSION

The transseptal approach is an effective technique for providing surgical access of the sphenoid sinus. In addition to providing ample visualization of the surgical site, this approach preserves almost all nasal mucosa and has been associated with better early postoperative olfaction as well as generally improved patient-reported quality of life. The employment of Spiway stents adds the benefit of minimizing mucosal trauma, facilitating passage of instruments into the nasal cavity, and improving surgical field visualization.

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FIGURE 1

View of sphenoid sinus, without Spiway



FIGURE 2

View of sphenoid sinus, Spiway in place

