Microscopic Endonasal Surgery of the Paranasal Sinuses and the Parasellar Region*

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Introduction

Microscopic endonasal surgery (MES) of the paranasal sinuses has been performed in adults since the late 1950s and was first reported for sinus surgery in children in 1976 [1, 3]. It was initially used to create an antrostomy and has recently been used for more difficult intranasal ethmoidectomy and transethmoido-sphenoidectomy [2, 4]. The development of special self-retaining nasal speculum systems has greatly aided this form of surgery both in adults and children with a variety of regional pathologies, including chronic sinus infection, benign polyps, orbital abscess, and tumors of the orbit, parasellar, and hypophyseal regions. The speculum holder is attached to the operating table enabling the surgeon to work bimanually. The surgeon may stand or be seated at the patient’s side with the operating hands resting on the patient, thus affording excellent control of the instruments. Binocular, stereoscopic vision with excellent illumination creates additional precision and control in delicate ethmoid and sphenoid sinus surgery. The Zeiss operating microscope with a 330-mm objective lens and halogen illumination is recommended, while mounting an observer arm or videocamera has provided an outstanding opportunity for resident teaching (Figs. 1–3).

Preoperative shrinkage of the nasal mucous membranes is achieved with topical vasoconstrictors; however, injections with local anesthetics plus adrenaline have proven unnecessary. MES should be performed using hypotensive anesthesia (systolic blood pressure of 70–90 mmHg) to decrease intraoperative bleeding, and the patient should be placed in a semi-Fowler’s position enabling blood and mucous to drain from the skull base and away from the operative field. The eyelids are left uncovered and should always remain in the peripheral field of vision. Bilateral surgery attempted at the same sitting is not contraindicated and is usually completed within 60–90 min.

The complex anatomy of the paranasal sinuses, the parasellar region, and the surrounding vital structures has become more familiar to our specialty with the advent of endoscopic endonasal sinus surgery [5–7, 9]. Currently, fewer Caldwell-Luc and external approaches are deemed necessary, except in cases where malignancies are suspected [4]. High-resolution axial and coronal

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Fig. 1. Set of useful microscopic endonasal instruments

Fig. 2. Self-retaining speculum system inserted into the nose and fixed to the operating table

Fig. 3. Bimanual microscopic endonasal surgery with opportunity for resident teaching