Anesthetic Techniques in Endoscopic Sinus and Skull Base Surgery

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KEYWORDS

• Anesthesia for endoscopic sinus and skull base surgery • Anesthetic techniques
• Anesthesia review • Endoscopic sinus surgery • Endoscopic skull base surgery
• Endoscopic surgery

KEY LEARNING POINTS

At the end of this article, the reader will:

- Understand specific areas of concern involved in preoperative evaluation for these surgeries.
- Become familiar the anesthetic goals for endoscopic sinus and skull base surgery.
- Understand the steps that can be performed preoperatively to prepare the patient for the surgery and to facilitate anesthesia and recovery.
- Recognize important considerations during and immediately after induction of anesthesia.
- Be able to discuss the effects of maintenance anesthesia techniques on blood loss and surgical field.
- Become familiar with some specific challenges during emergence of anesthesia for these surgeries.
- Describe some postoperative problems that can affect recovery after surgery and how to best treat them.

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INTRODUCTION

Role of the Anesthesiologist in Endoscopic Sinus and Skull Base Surgery

Role of anesthetist
• Preoperative assessment
• Perioperative management
• Anesthetic management
• Quality of the surgical field
• Postoperative recovery

Endoscopic approach to the sinuses has become one of the most common surgical techniques not just for sinus surgery but also for skull base surgery (Table 1). The anesthesiologist has a vital role in the overall management of the patient, from the preoperative assessment and management to the quality of the surgical field and the postoperative recovery. Most of the principles of anesthetic care discussed in this review come from studies done in endoscopic sinus surgery. Mild controlled hypotension, with remifentanil and either propofol or an inhaled anesthetic, can improve the visibility of the surgical field. However, if there is concern regarding intracranial pressure and cerebral perfusion, it would be more appropriate to manage the patient following the basic principles of neuroanesthesia. Some patients may be at increased risk for postoperative respiratory depression, given comorbidities such as obstructive sleep apnea (OSA), obesity, acromegaly, and nasal packing. Pain and control of postoperative nausea and vomiting (PONV) are crucial, and their management starts in the preoperative period.

PREOPERATIVE EVALUATION OF PITUITARY AND SKULL BASE SURGICAL PATIENTS

Specific areas of concern include
• Coexisting medical manifestations of operative disease
• Staged surgery
• Risk of excessive intraoperative blood loss and transfusion
• Risk of prolonged intubation
• Risk of perioperative respiratory depression
• Cardiovascular status

Endoscopic pituitary resection
• Evaluate neurologic deficits and endocrine function
• Adenomas secreting adrenocorticotrophic hormone (ACTH): obesity, hypertension, osteopenia, fluid retention, and hyperglycemia
• Growth hormone (GH) secreting adenomas: careful evaluation of the airway