

Tonsillectomy and Adenoidectomy

Usually performed for airway obstruction (81%) or recurrent tonsillitis which may be associated with OSA and subsequent pulmonary hypertension and cor pulmonale.

ANESTHETIC CONSIDERATIONS:

PATIENT CONSIDERATIONS

- Considerations of the pediatric patient
- Associated URTI & perioperative fluid deficiency
- Underlying etiology and potential for OSA
 - pHTN and cor pulmonale
 - Airway obstruction
 - Avoid sedatives
- Management of postoperative pain and PONV

PROCEDURAL CONSIDERATIONS

- Shared airway (risk of kinked oral RAE from Dingman gag)
- Post-tonsillectomy complications
 - Post-tonsillectomy bleed (early vs late)
 - Potential difficult airway, airway obstruction, laryngospasm
 - Full stomach (blood) and aspiration risk
 - Unrecognized blood loss and hypovolemia
 - Infected tonsillectomy (late post tonsillectomy bleed)
 - Hypovolemia
 - Sepsis
 - Negative pressure pulmonary edema (OSA patient)

ANESTHETIC GOALS:

- Preoperative optimization and evaluation
 - OSA, pulmonary HTN, cor pulmonale
- Deep GA to prevent sympathetic stimulation
- Muscle relaxation for placement of Dingman gag (to prevent coughing / bucking)
- Rapid return of airway reflexes, wide awake (safer) vs. deep extubation (decreased postoperative bleeding)
- Appropriate management of postoperative pain
- Postoperative monitoring if OSA

HISTORY

- History of OSA: morning HA, snoring, poor feeding, speech disorders, apneic spells, daytime somnolence, disturbed sleep
- Family or patient history of bleeding disorders (easy bruising, ASA use, check OTC meds)
- Review of systems

PHYSICAL

- **VITALS** – including positional BP if tonsillectomy bleed
- **HEENT** – OSA (adenoid facies, mouth breathing, airway exam, tonsil size)
- **CVS** – evidence of RV failure secondary to OSA / pHTN / cor pulmonale (JVP, hepatomegaly, HJR, edema)
- **RESP** – chest exam
- **HEME** – bleeding disorders (multiple bruises above the knees)

INVESTIGATIONS

- **Labs**
 - OSA: CBC for polycythemia
 - Post-tonsillectomy bleed: CBC
 - Bleeding history: PTT, INR, PLT count, bleeding time
- **Imaging**
 - ECG, ECHO, CXR if history suggestive of pHTN / cor pulmonale
- **Special**
 - OSA: polysomnography, O₂ saturation

OPTIMIZATION

- Acetaminophen 20 mg/kg preoperatively
- Consider antisialagogue / anxiolytic preoperatively

ANESTHETIC OPTIONS

- GETA

ANESTHETIC SETUP

- **Drugs**
 - Standard emergency drugs
- **Equipment**
 - Standard CAS monitors
 - Temperature and warming if necessary

MANAGEMENT OF ANESTHESIA

- **Induction**

- Standard induction: IV vs. inhalational depending on associated pathophysiology
- Consider antisialagogue / anxiolytic
- Avoid preoperative sedatives if history of OSA or large tonsils
- **Maintenance**
 - TIVA technique good choice to avoid irritation seen with volatile anesthetics (laryngospasm / bronchospasm)
 - Routine tonsillectomy
 - Pain management
 - Preoperative acetaminophen
 - Morphine 0.1 mg/kg at end of case
 - NSAIDs are controversial
 - COX-2s certainly OK but no longer available
 - Ketorolac (0.5 mg/kg) is controversial (controversial as may mask unrecognized blood loss)
 - PONV
 - Dexamethasone 0.1-0.2 mg/kg
 - Ondansetron 0.1 mg/kg
 - Suction stomach for blood, avoid meperidine / N₂O
 - IV rehydration
 - Prior to extubation, ensure throat packs removed and airway clear of blood
 - Extubate on side
- **Emergence**
 - Smooth, avoid coughing / bucking (dislodge clot)

DISPOSITION & MONITORING

- Monitor for obstruction, bleeding, respiratory depression (esp. if history of OSA) → may require o/n monitoring if severe
- Be prepared to have to return to OR stat for bleeding (~0.3-0.6% of post-tonsillectomies require surgery)

COMPLICATIONS

- Return to OR for post tonsillectomy bleed
 - Considerations:
 - Emergency
 - Hypovolemia / anemia (EBL usually underestimated, esp. in kids)
 - A/W obstruction
 - Full stomach / aspiration risk
 - Difficult to visualize glottis d/t blood in a/w
 - Anesthetic management:
 - Avoid sedative premeds
 - Volume resuscitate & check Hb, coagulation profile, obtain cross-match
 - Assistant to provide continuous suction (**2 suctions** available)
 - Difficult airway cart available
 - Awake vs. RSI w/ cricoid, head down position (avoid aspiration), once intubation NG to decompress stomach
 - Risk of negative pressure pulmonary edema

PATHOPHYSIOLOGY

- Incidence ~120/100,000 (decreased by 23% from 1970)
- 30 day mortality 1/4000 to 1/27,000, usually from hemorrhage (0.1-8% of tonsillectomies +/- adenoidectomy)
- Indication for procedure: usually airway obstruction (81% of pts < 3 y/o) or recurrent tonsillitis
 - Obstruction of nasal or pharyngeal airway, especially when associated with anatomic or physiologic disturbances
 - Chronic or recurrent infection of adenoids (also ears or sinuses) or tonsils despite adequate antibiotic therapy
 - Acute peritonsillar abscess
- Risk of perioperative fluid deficiency and associated URTI
- Risk of bleeding, airway obstruction or apnea postoperatively
- Risk of OSA with resultant pHTN and cor pulmonale
- Adenoidectomy and tonsillectomy usually performed together, but consideration given to the specific risk-benefit ratio for each procedure
- Bleeding most common about 7 days postoperatively, but may occur in first 8-24 hours
- Age and co-morbidities of patients dictate postoperative care

REFERENCES

- Roizen & Fleisher – Essence p469
- Miller 7th Edition
- Barash