


Microdebrider Complications in Laryngologic and Airway Surgery

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The Microdebrider in Otolaryngology

- First popularized by Setliff for rhinologic surgeries.
- Became a routine treatment for Recurrent Respiratory Papillomatosis (RRP).


The Microdebrider in Otolaryngology

- vacuum-based, hollow-tubed instrument with a guarded, oscillating blade
- self-contained electrical machine; no grounding pad is needed



Microdebrider Advantages

- Removes both blood and tissue
- Able to be used by a single surgeon
- Small footprint in the operating room
- Absence of thermal injury
- Cost-effective






Microdebriders come in a variety of sizes.

Laryngeal skimmer



Tricut blade

Microdebrider Disadvantages

- Unable to provide hemostasis
- Complications may occur very quickly
- The weight and vibration of the powered instrumentation may hinder tactile feedback
- Microdebrider adds unique complications

Microdebrider Rhinology Complications

A survey presented at AAO-HNS in 2004 showed...

- 1/3 of participants were unaware of orbital injury
- 1/2 of significant bony complications

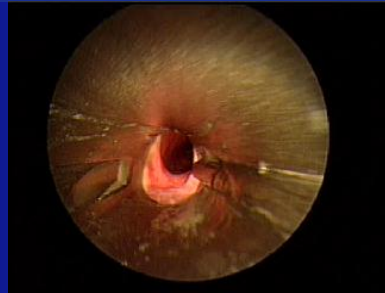
...that may occur with powered instrumentation during sinonasal surgery.

Microdebrider Rhinology Complications

In reviewing 3000 cases of sinonasal surgery in the UK, Hopkins, et al showed...

operations using the microdebrider had double the risk of complications...

Microdebrider Usage in Airway Surgery



Microdebrider Usage in Airway Surgery



Microdebrider Complications

There is a paucity of literature describing microdebrider complications in Laryngologic and Airway surgery....

Electrical Complications

- Intraoperative EKG waveform of 30y/o M resembled that of ventricular tachycardia; pt clinically stable...
- Intraoperative development of ventricular tachycardia in 25y/o F...

Vocal Fold Scar

- Mortensen and Woo describe anterior glottic web following excision of a vocal fold polyp with a microdebrider
- Occasionally seen in several voice centers...%?
- See decreased mucosal wave propagation/adynamic segment on stroboscopy

Airway Complications

- U/L 40% PTX, pneumomediastinum & retroperitoneal air after papillomas removal with microdebrider and jet ventilation.
- Tri-cut microdebrider blade caused small integrity breaches in the trachea worsened with transtracheal jet ventilation.

Microdebrider in Airway Surgery



Confidential Survey

- Nine Laryngology Centers
- >140 years patient care experience
- Discussion of major complications involving microdebrider
- Moderate hemorrhage, scarring of lamina propria and moderate webbing excluded

Confidential Survey - Complications

- 4 Centers had no major complications
- Inadvertent tissue removal
- Airway perforation
- Severe hemorrhage

Tissue Removal

- Entire FVF removed in moments
- Large divots in TVF



Microdebrider in Laryngologic Surgery



Airway Complications

- Subglottic anterior airway tear
- Tracheoesophageal fistula
- Tracheal tear, tx - thoractomy/local muscle flap

Hemorrhagic Complications

- Three cases of severe hemorrhage requiring packing and angiography
 - One led to embolization led to CVA and death
- Intraop innominate artery violation resulted in death

Complication Avoidance

- Pick the correct instrument
- Any concern for malfunction stop!
- Maintain clear and unobstructed view
- Judicious hemostasis
- Avoid high suction
- Be aware of this possibility



**Every major complication involved the Tricut Blade

Thank you

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