

Minimally Invasive Head and Neck Surgery



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Disclosures

- Consultant: Bristol Myers Squibb

Objectives

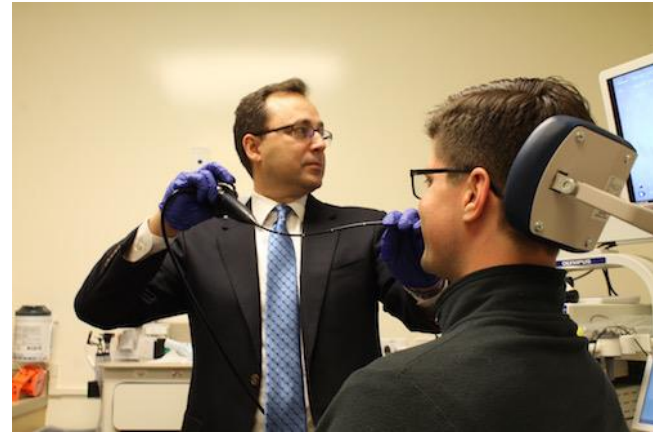
- Assess the scope of head and neck squamous cell cancer and our general treatment paradigms
- Appreciate the opportunity for surgical approaches for this disease
- Understand where minimally invasive techniques can be advantageous in head and neck cancer treatment

Head & Neck Squamous Cell Carcinoma

- 45,000 cases/yr in the US (3%), over 500,000 worldwide
- Associated with tobacco, alcohol, betel, **HPV**, chemical exposure
- Overall poor prognosis: 5-yr survival ~50%
- Presents at later stage due to compliance, lack of symptoms
- Early detection is critical

The Workup

- History
- Exam
- Tissue (biopsy)
- Imaging
- Referrals – dental, radiation oncology, medical oncology, SLP, social work, dietary
- Tumor board
- Treatment!



Head and Neck Cancer Treatment Overview

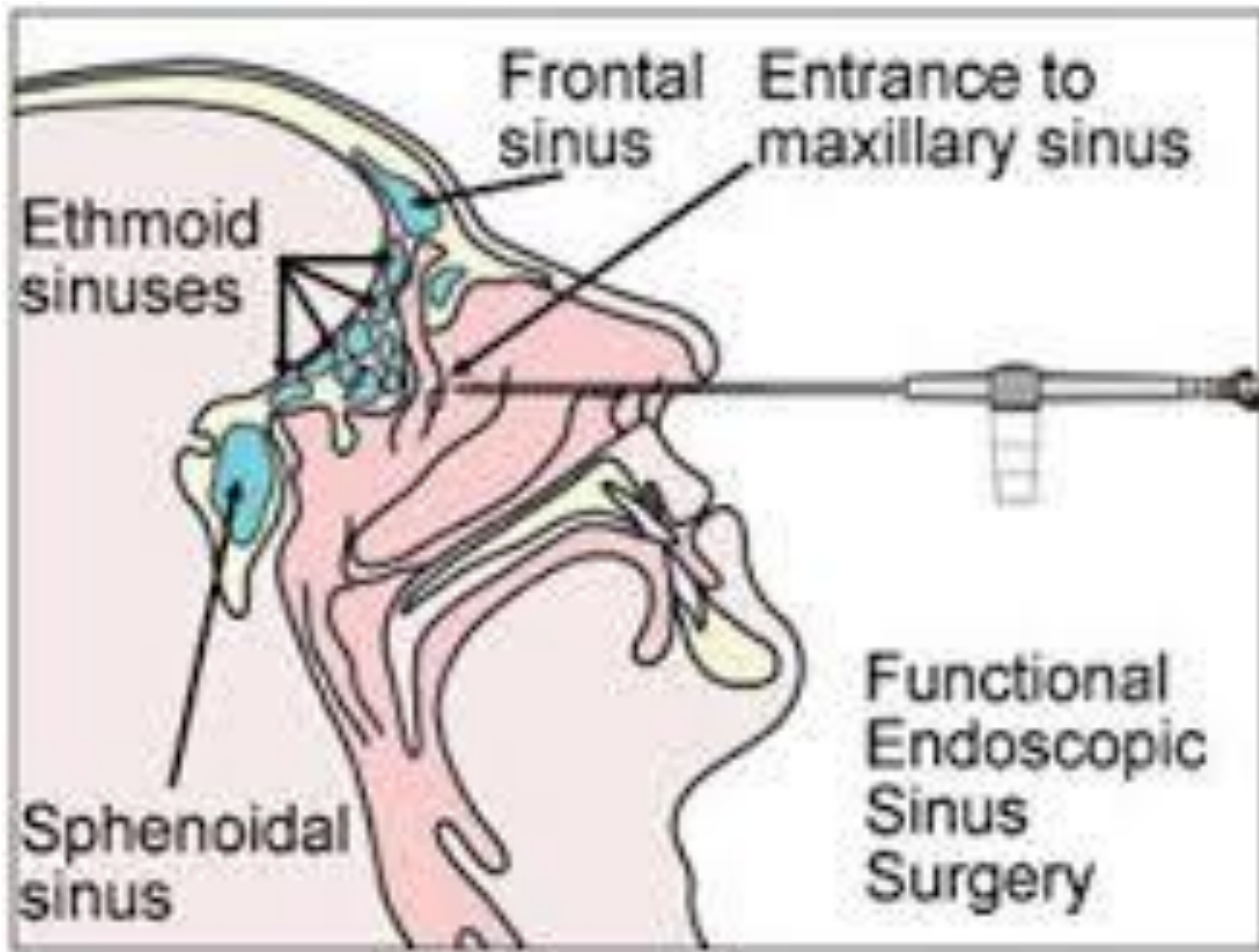
- Treatment = balance of form and function
- Surgery or radiotherapy for early stage disease
- Surgery/Radiotherapy/Chemotherapy for late stage disease
- Subsite and stage greatly affect our decisions

What affects medical decision-making?

- Survival
- Choices offered
- Family input
- Cost
- Confidence in providers
- Internet
- Quality of life / anticipated function after treatment
- Patient factors

Minimally Invasive Surgery

- Goal: quicker return to function, perform procedures otherwise difficult/impossible to accomplish
- Use of advanced instrumentation to reduce or eliminate incision size
- BUT – should not sacrifice on desired outcome of surgery
 - Safety, Cost, Adoptability, Time



Treatment by subsite

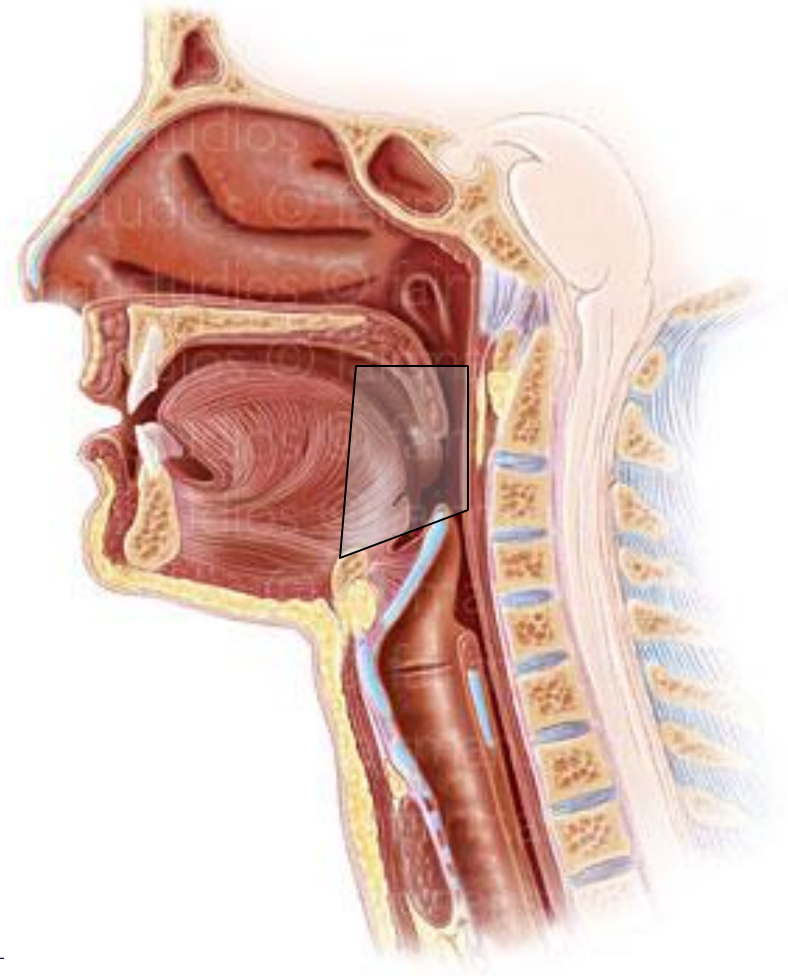
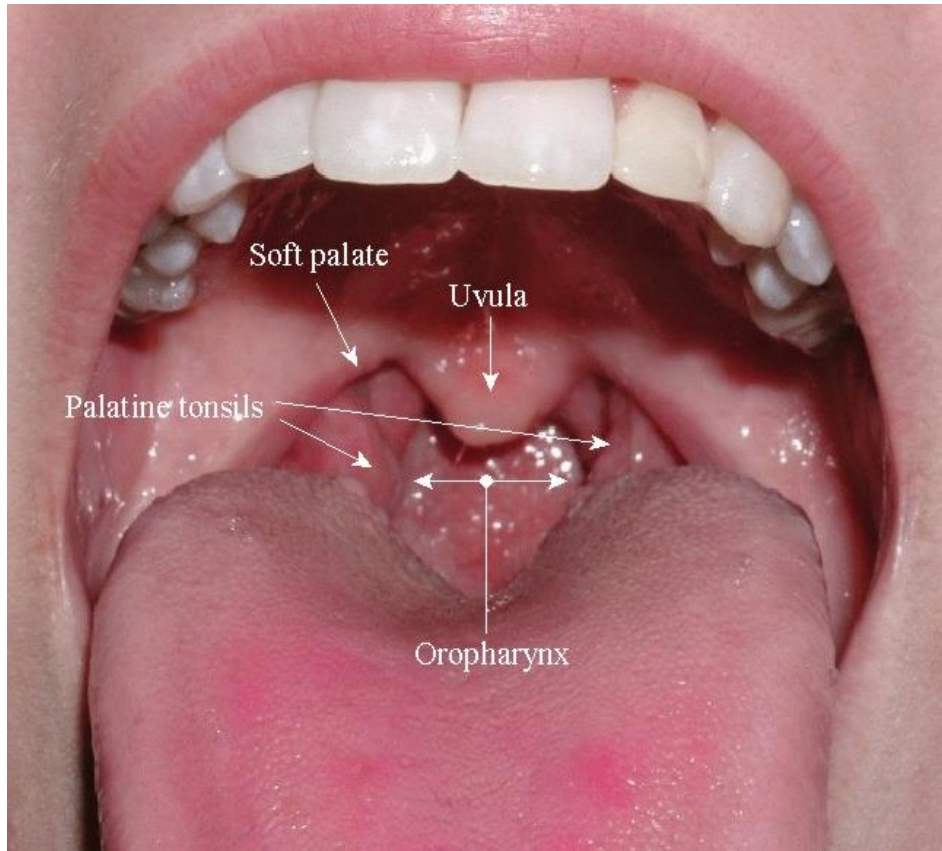
Early Stage (I/II)

Subsite	Surgery	Chemo/ Radiotherapy
Nasopharynx	-	+++
Oral Cavity	+++	-
Oropharynx	++	++
Larynx	+++	++
Hypopharynx	++	++

Late Stage (III/IV)

Subsite	Surgery	Chemo/ Radiotherapy
Nasopharynx	-	+++
Oral Cavity	+++	-
Oropharynx	+	+++
Larynx	++	+++
Hypopharynx	+	+++

Oropharynx



Oropharynx

- Soft palate to vallecula (in front of epiglottis)
- Function: swallowing, air passage
- Cancer: rising in incidence, HPV related
- Often presents with lymphadenopathy (cystic)
- May be treated surgically – transoral, lateral approach, versus mandibular split
- Trend has been towards chemoradiotherapy?

HPV in H&N cancer

Overview

- HPV **16** & 18, and others
- Occurs in younger nonsmoker/nondrinkers
- Cystic neck nodes
- Thought to be a sexually transmitted disease
- Latency period is decades
- Confers a better prognosis
- Patients live longer with treatment effects

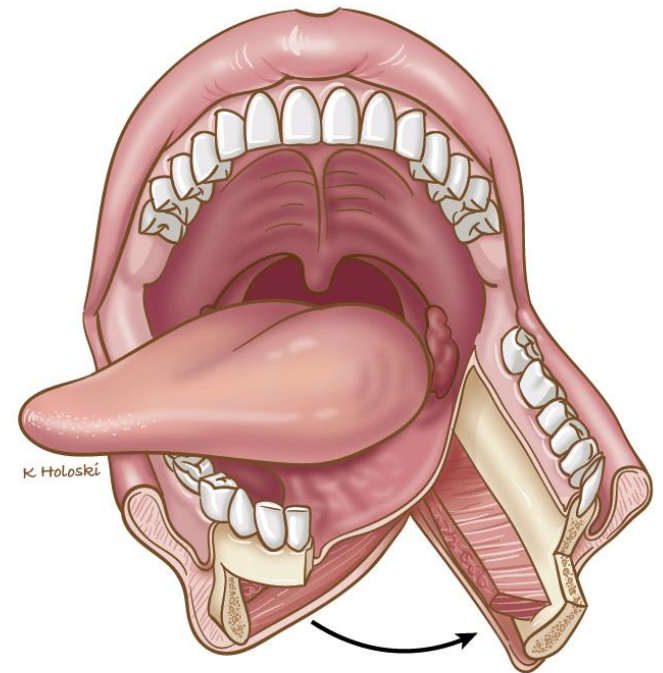
Complications of Chemo/radiotherapy

- Trismus
- Xerostomia
- Dysphagia
- Esophageal stricture
- Fibrosis
- Osteoradionecrosis of jaw
- Secondary malignancies



Surgical Considerations

- Mandible split/swing, resection, free flap is a lot to go through – previously standard
- reconstruction required?
- C/RT needed anyway
- Can you see transorally?
- Patient selection

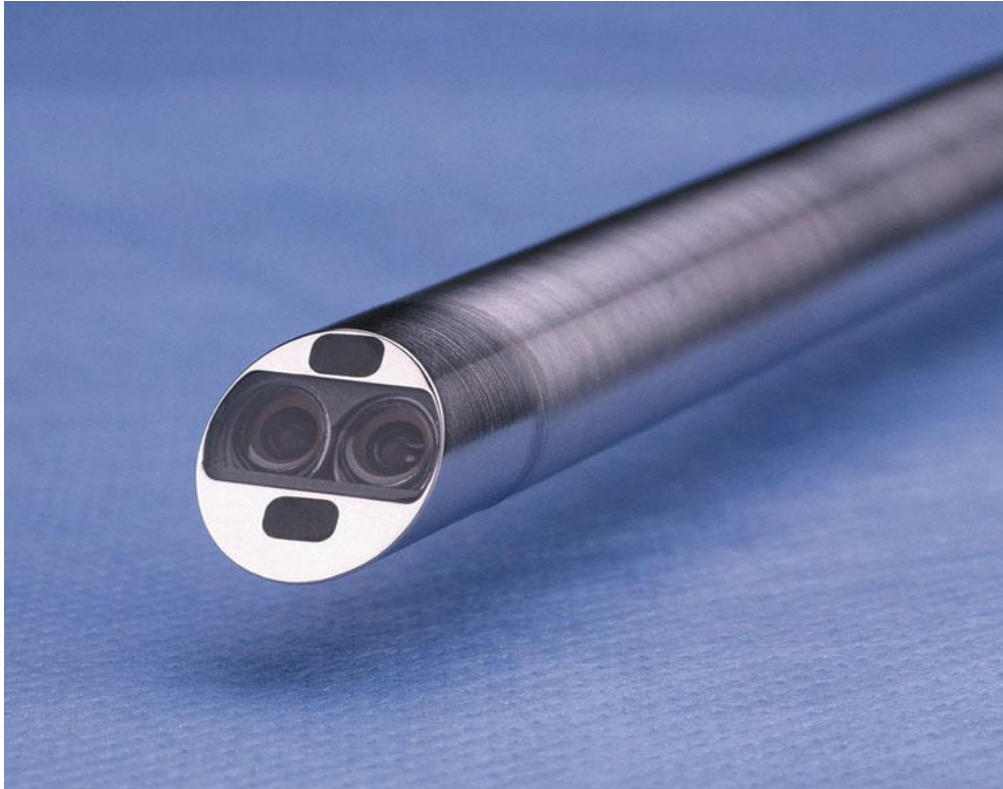


TORS (TransOral Robotic Surgery)

- Minimally invasive approach
- Good resections, good results (functional and oncologic)
- Patient selection?

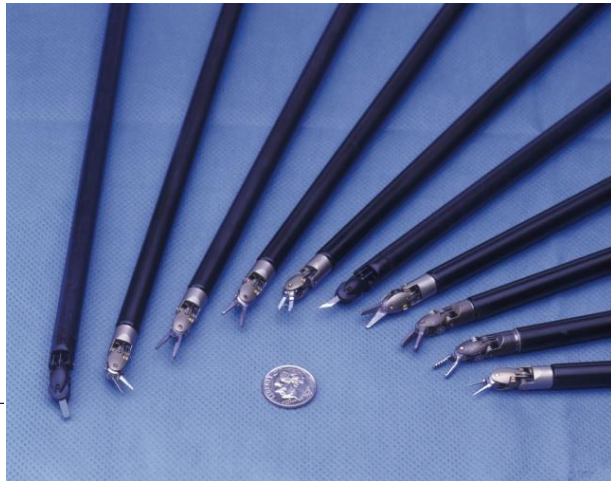
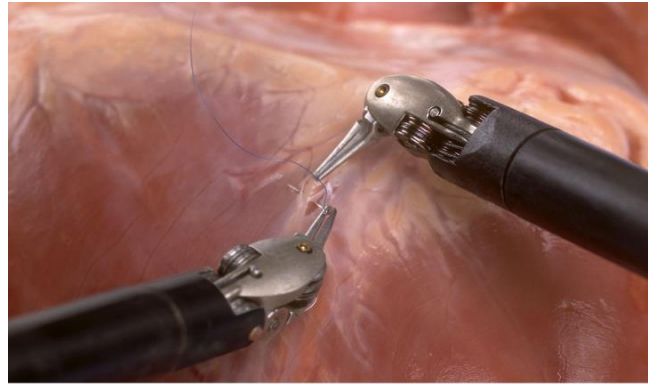
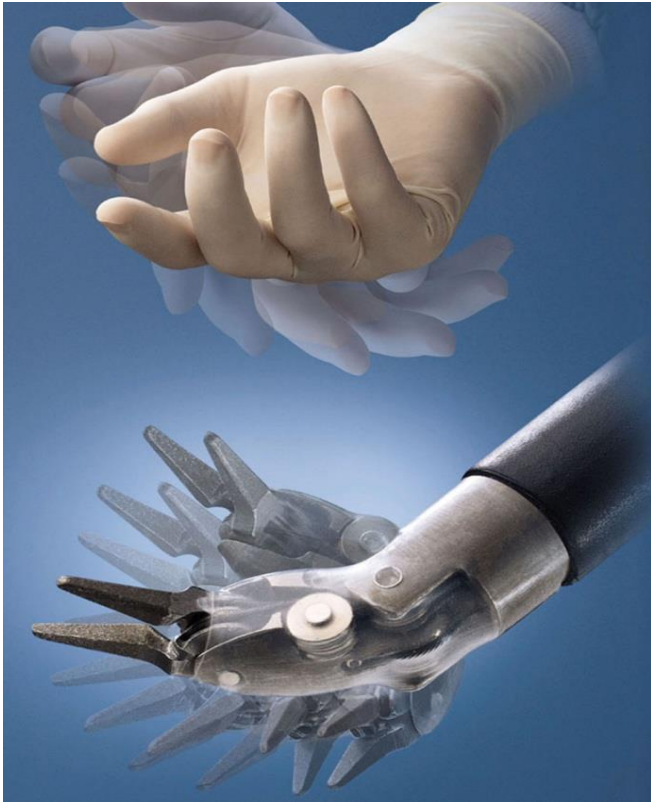


Wide View and High Magnification Three Dimensional Optics

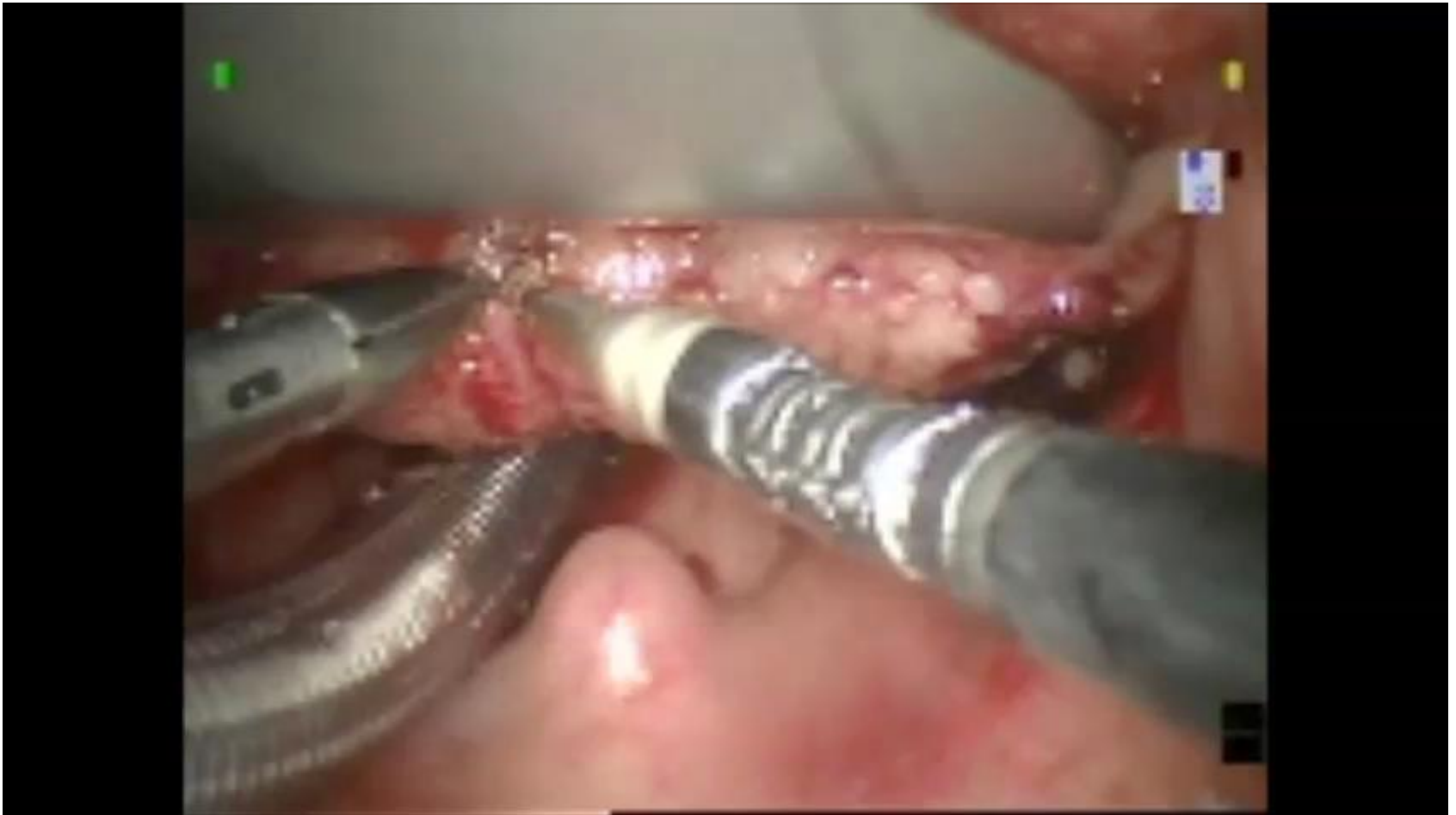


0 and 30 degree standard and high
magnification 3-D telescopes





Tongue Base Resection



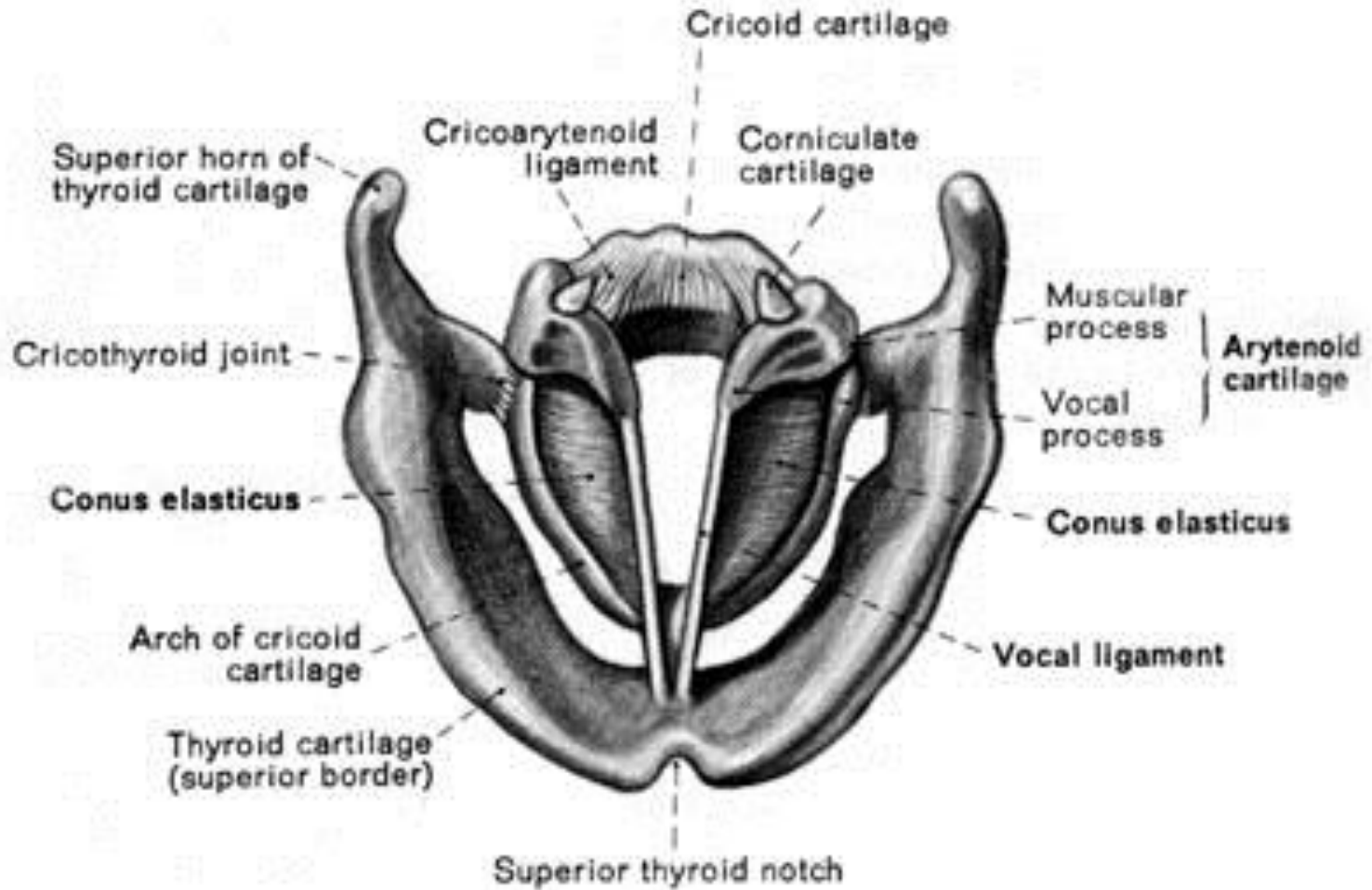
Benefits of TORS/ELS

1. Quicker return to normal activities
2. Shorter hospitalization
3. Reduced risk of swallowing problems
4. Fewer complications compared to traditional surgery
5. Less scarring than traditional surgery
6. Less risk of infection
7. Less risk of blood transfusion when compared to open surgery
8. No routine use of tracheostomy compared to open surgery

Which patients benefit from TORS?

- Strongest benefit in:
 - smoker/drinker, non HPV patients
 - patients in whom CRT is not an option medically
 - Early stage
 - patient preference
 - **option to reduce therapy**
- True survival benefit at least equivalent to primary CRT
- Studies underway to determine role of TORS and de-escalation therapy

Larynx

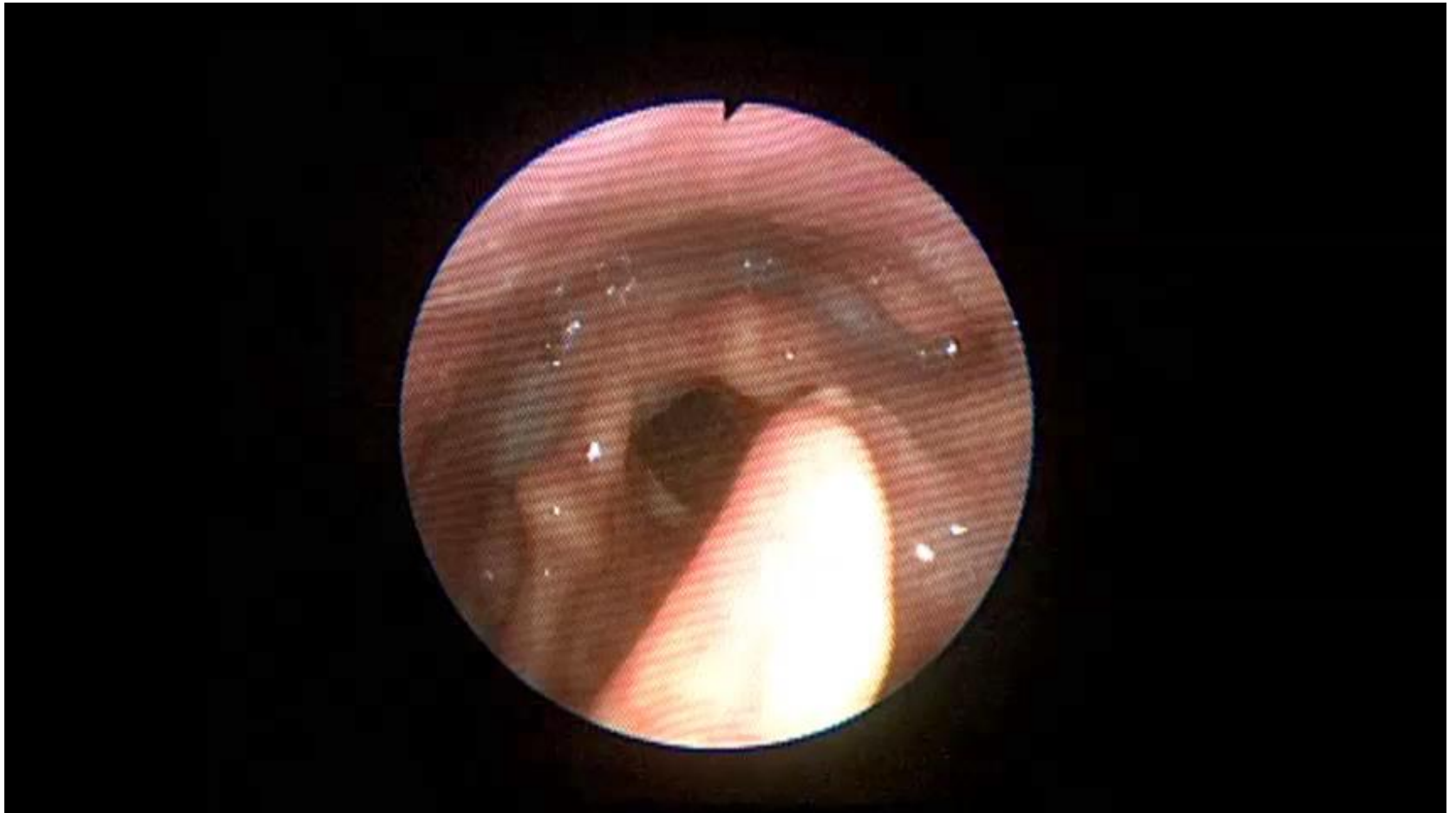


Larynx anatomy and function

- Arytenoid is the mobile joint
- Vocal cord mucosa = vibratory layer
- Thyroid cartilage provides framework

- Voice, communication
- Breathing – window to the trachea
- Last protective element to prevent aspiration

Larynx Cancer

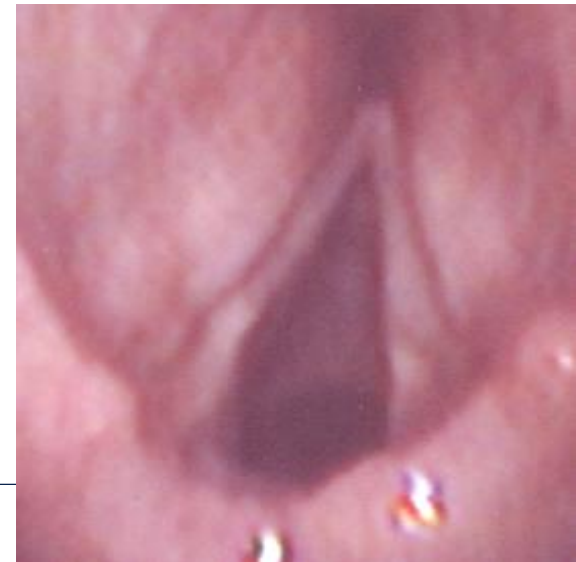


Larynx Cancer

- Early stage (T1-2) – radiotherapy vs endoscopic laser surgery
- Later stage (T3-4) – chemoradiotherapy vs ELS vs open partial surgery
- Late stage (T4) – total laryngectomy
- Less propensity for nodal spread

Endoscopic Laser Surgery

- Custom resections
- Incisions avoided
- Rarely requires tracheostomy
- Good oncologic/functional outcomes
- Requires patience and expertise



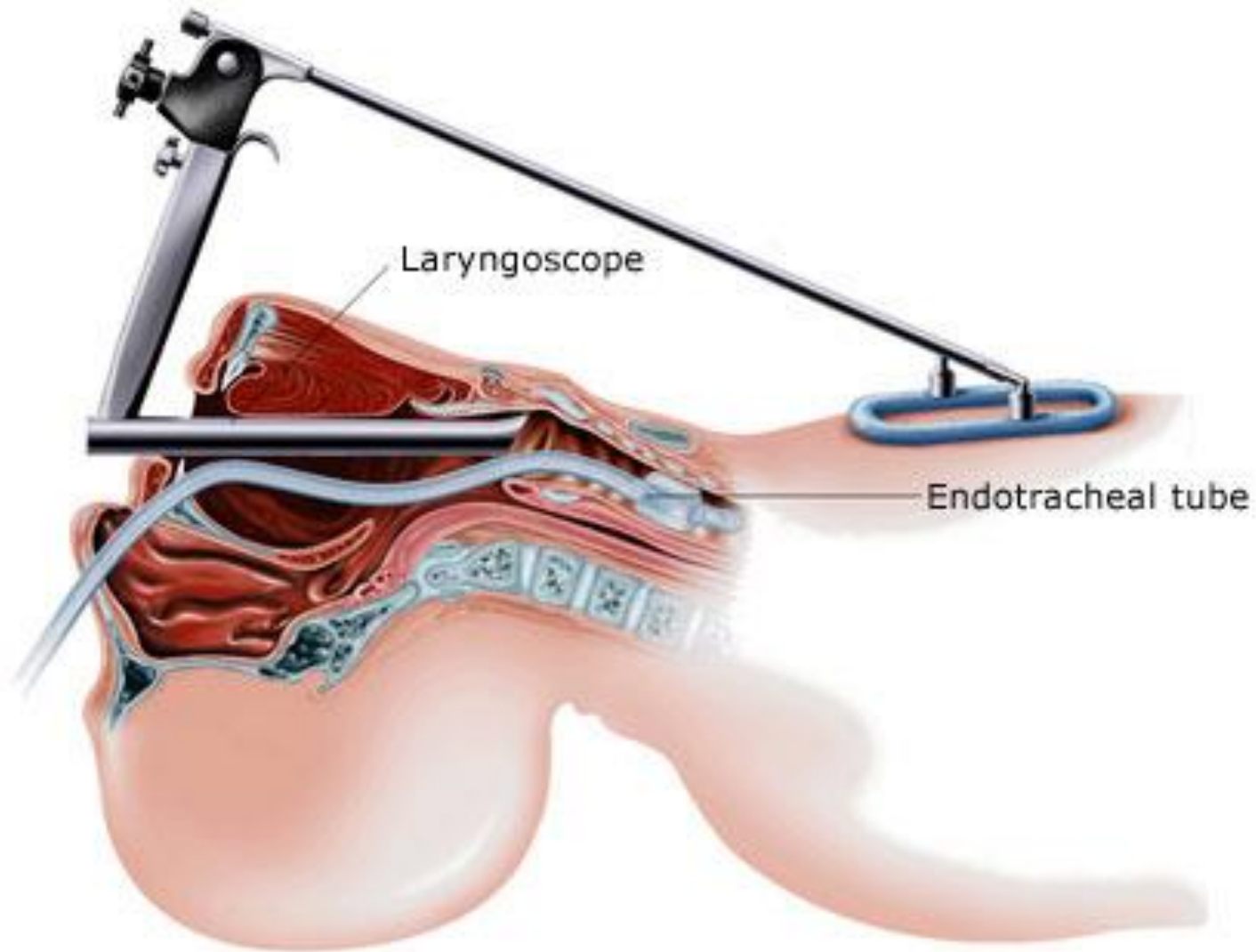
Oncologic Results

- T1 local control rates ~85-93%, survival >95%
- T2 local control rate ~70%, survival ~90%
- Laryngeal preservation rate T1=97%, T2=85%
- Studies indicate similar results for radiation failure groups
- Extreme lateral extension and anterior commissure extension may increase recurrence rate

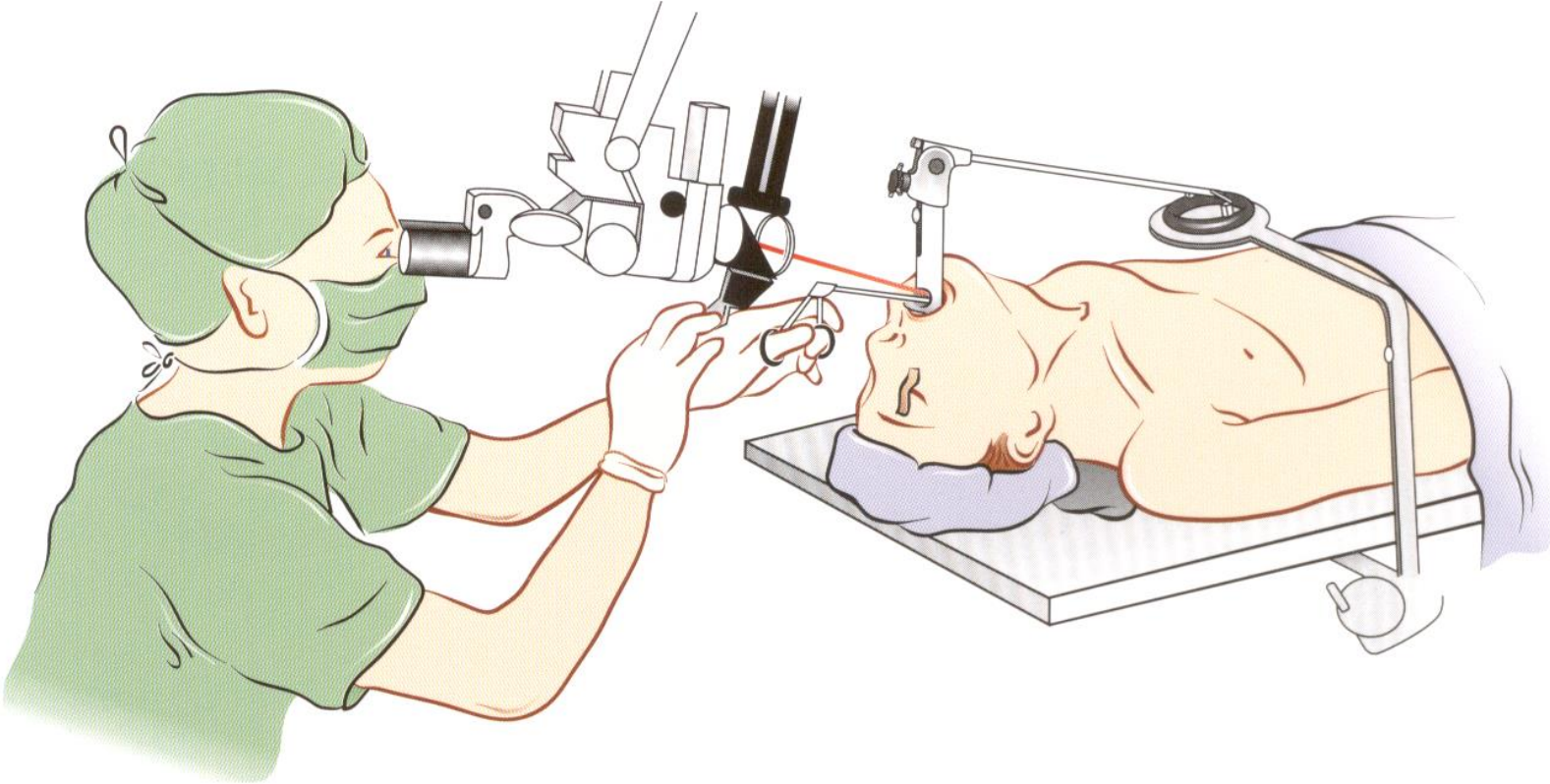
Benefits

- Duration of treatment
- Cost effectiveness
- Minimal morbidity
- Preservation of normal tissue
- Saves radiation for future/appropriate use

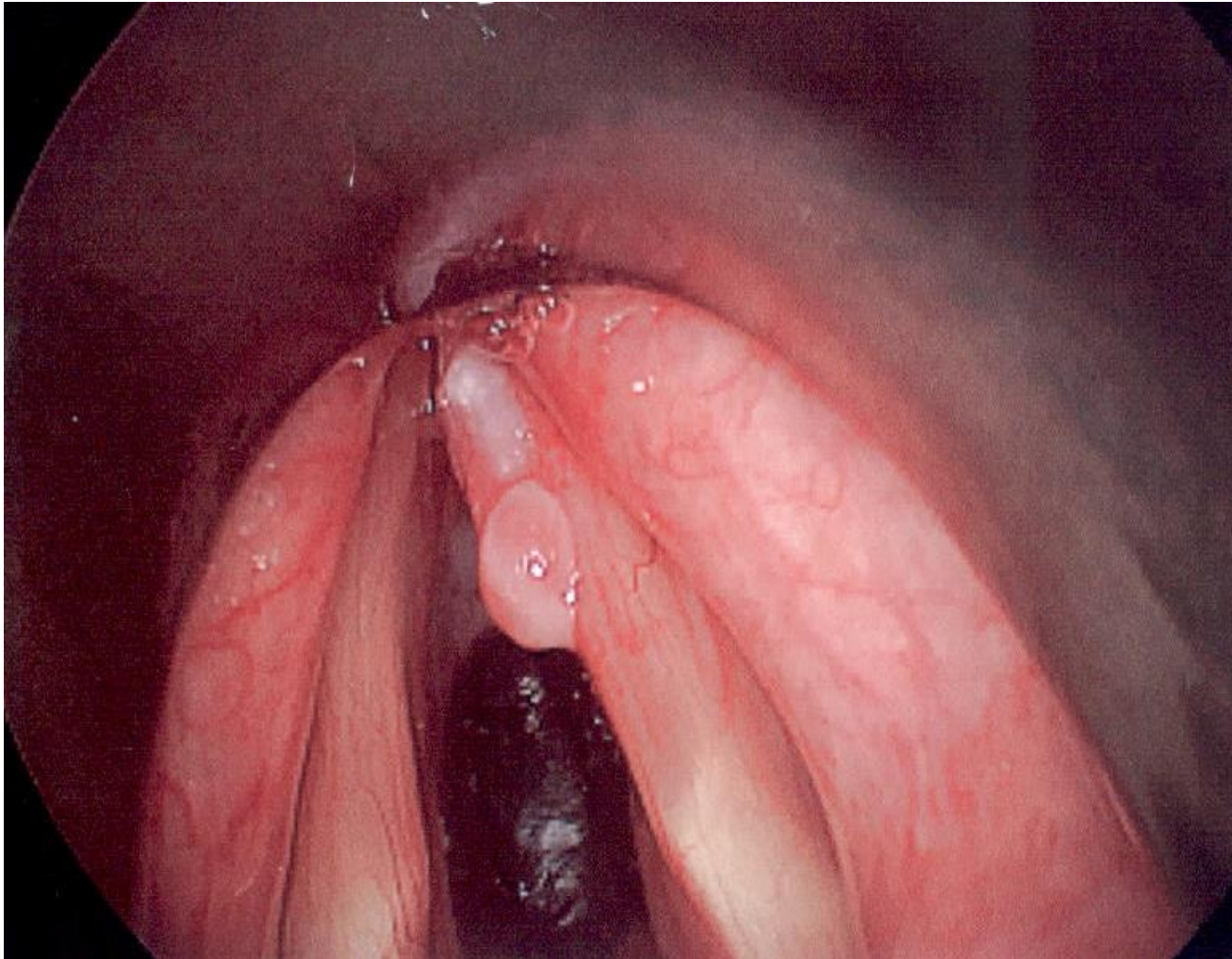
Suspension microlaryngoscopy



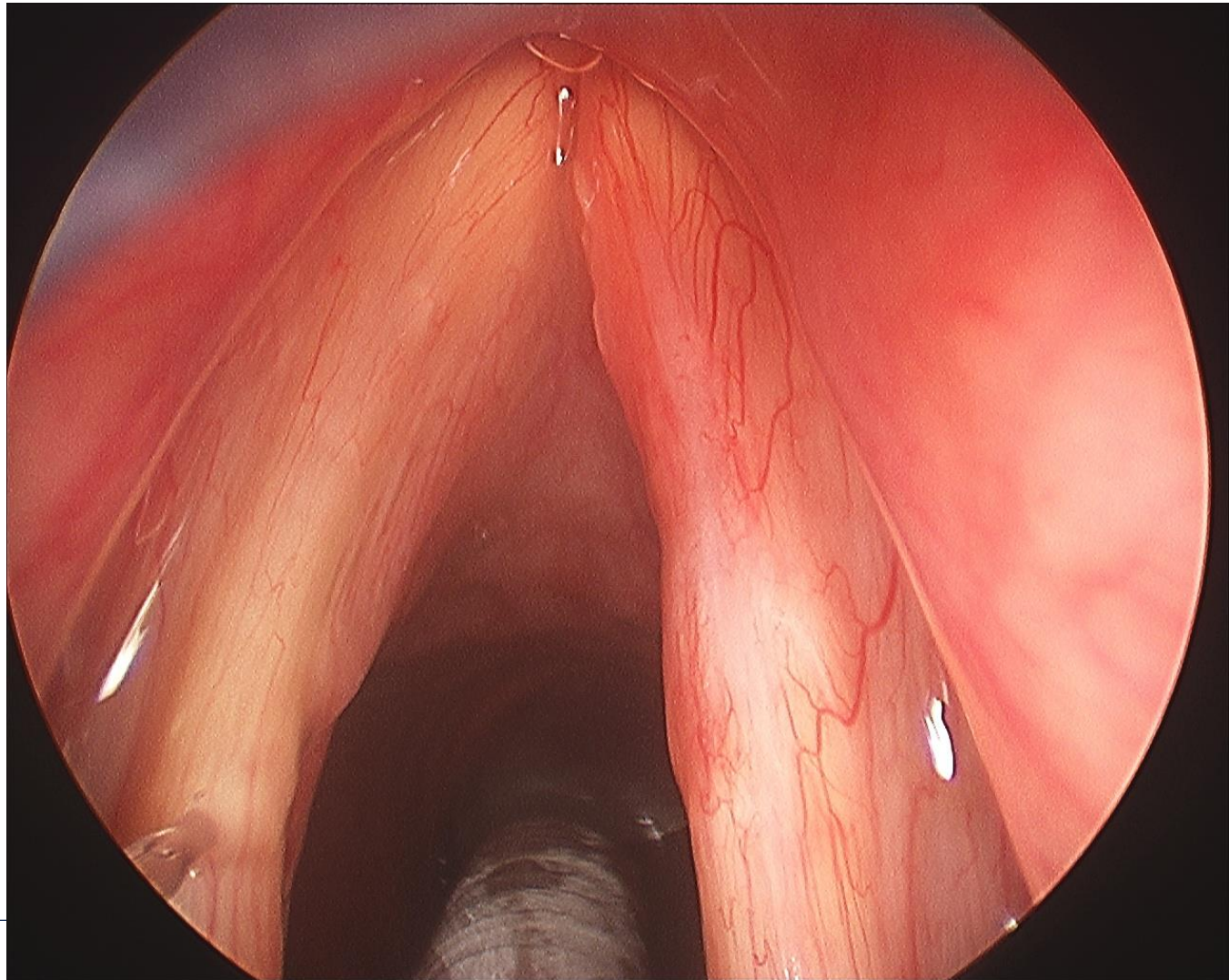
CO2 laser setup



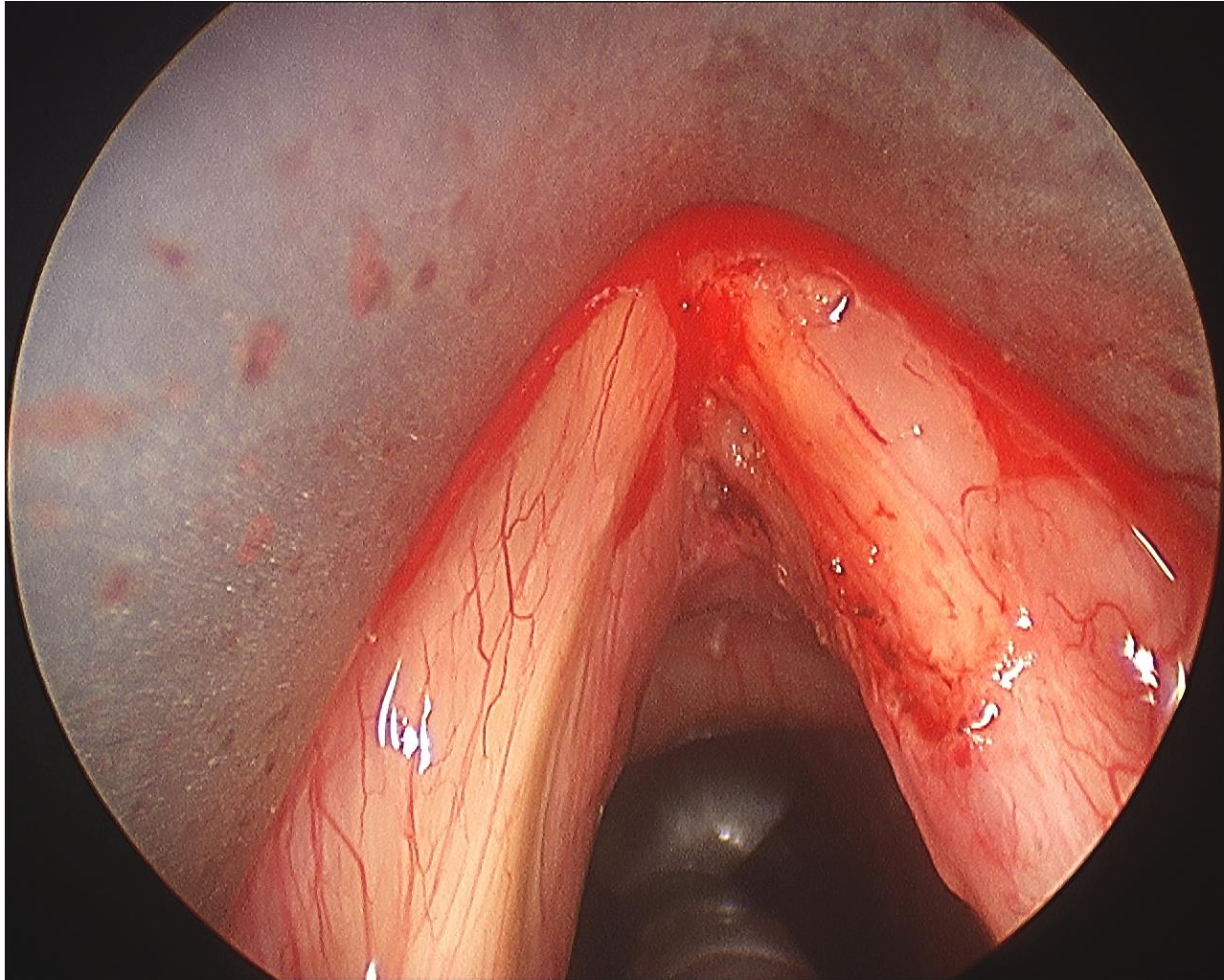
68 yo man with hoarseness



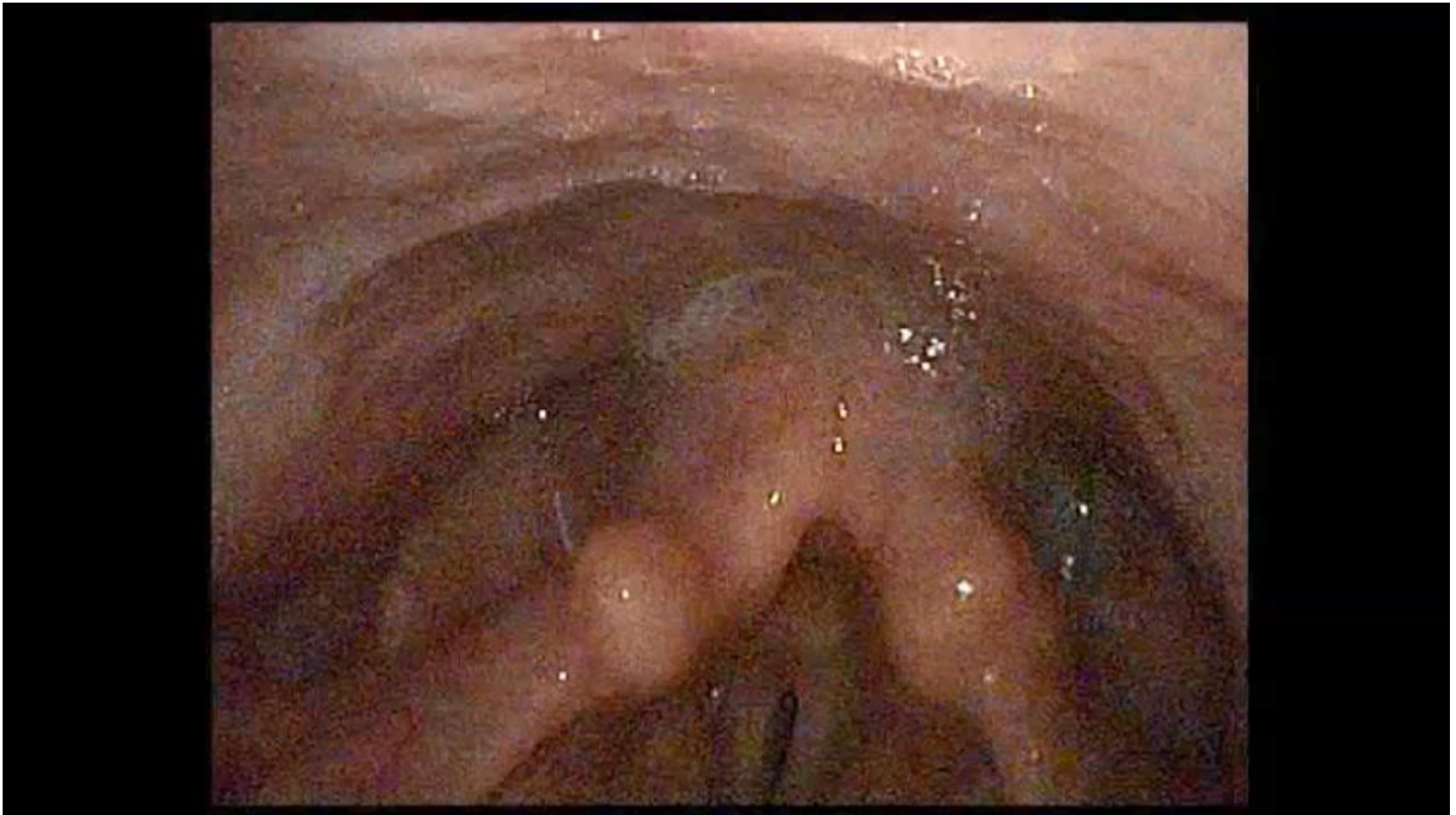
3 weeks later, after initial biopsy



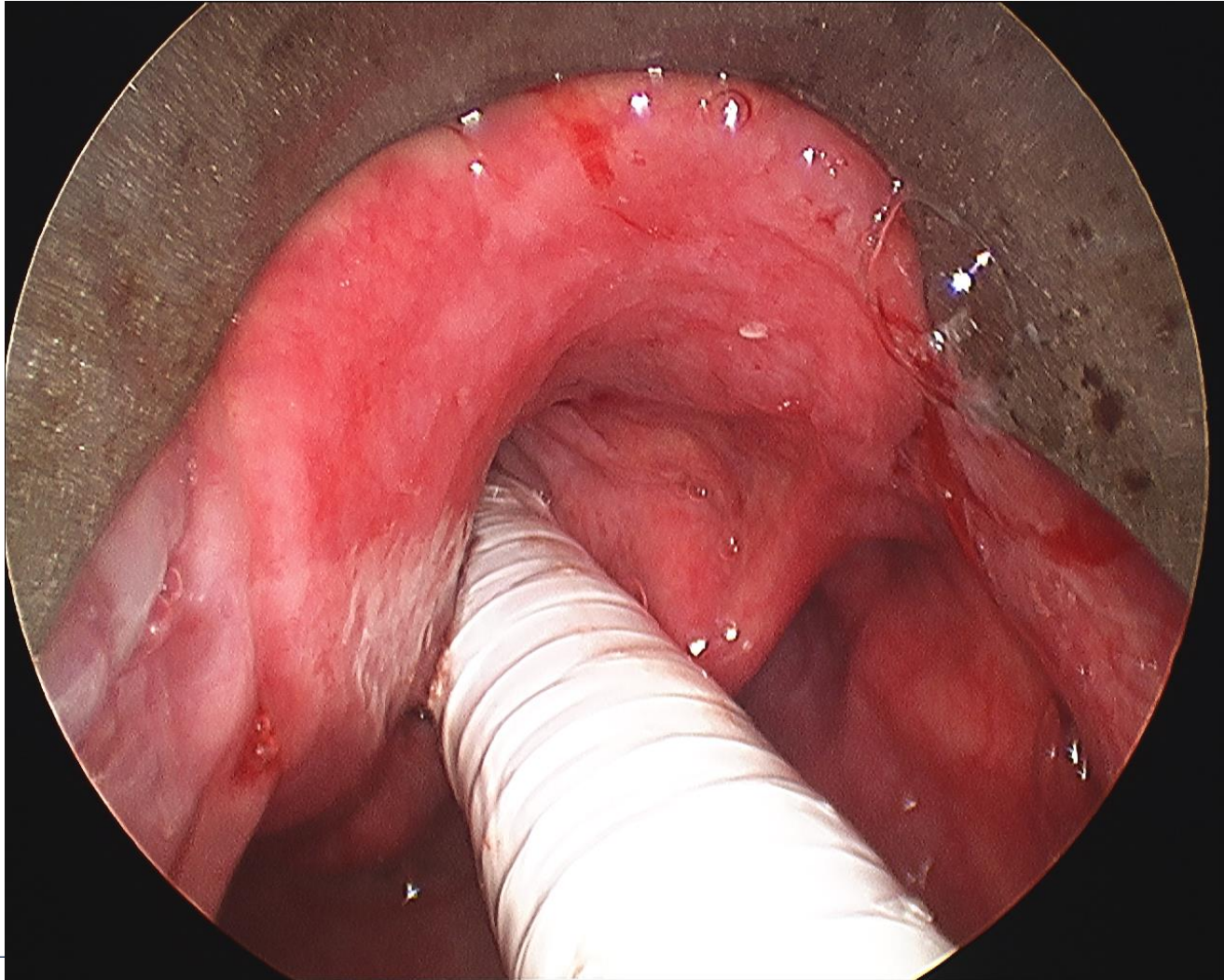
After completion of laser surgery

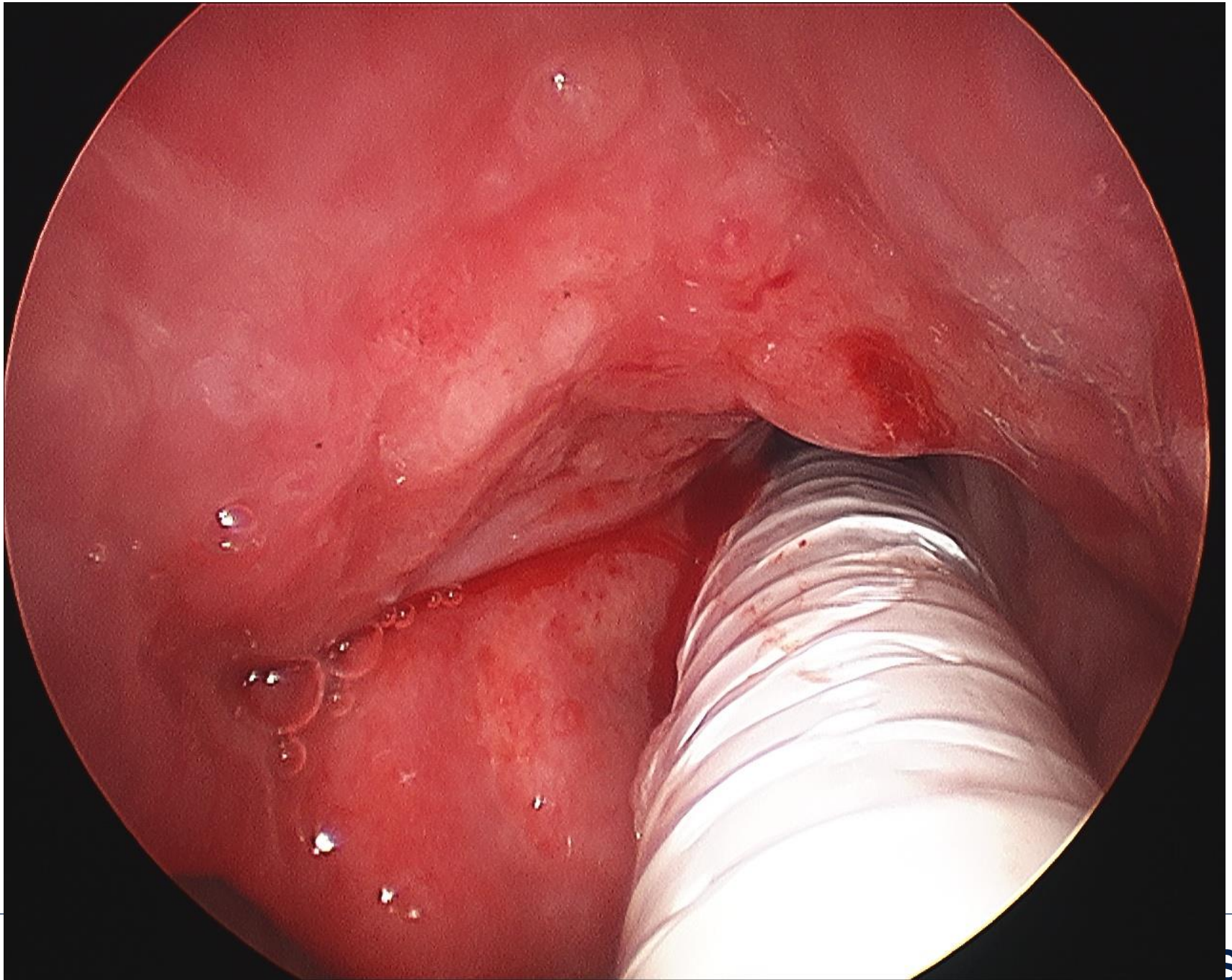


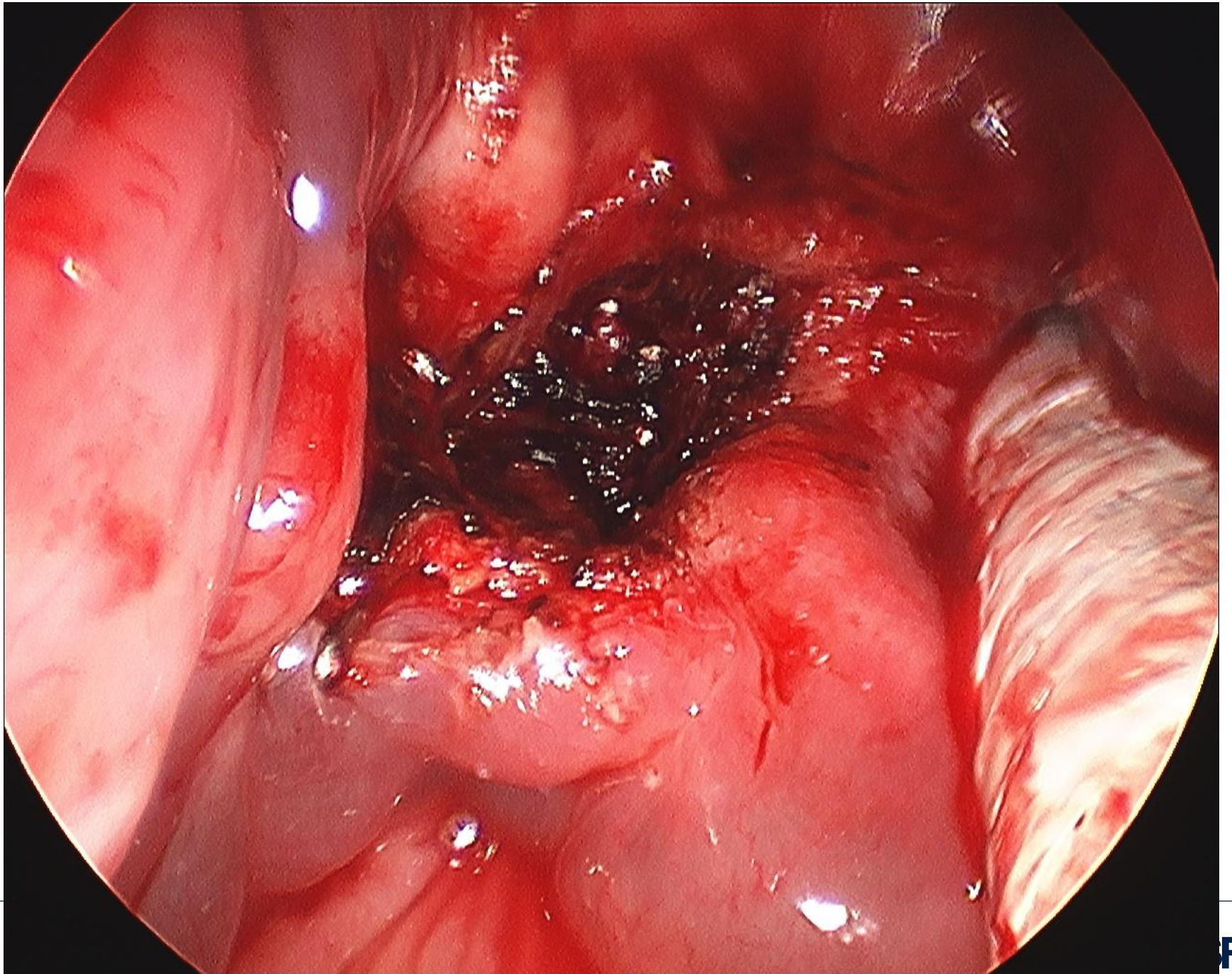
9 months postop

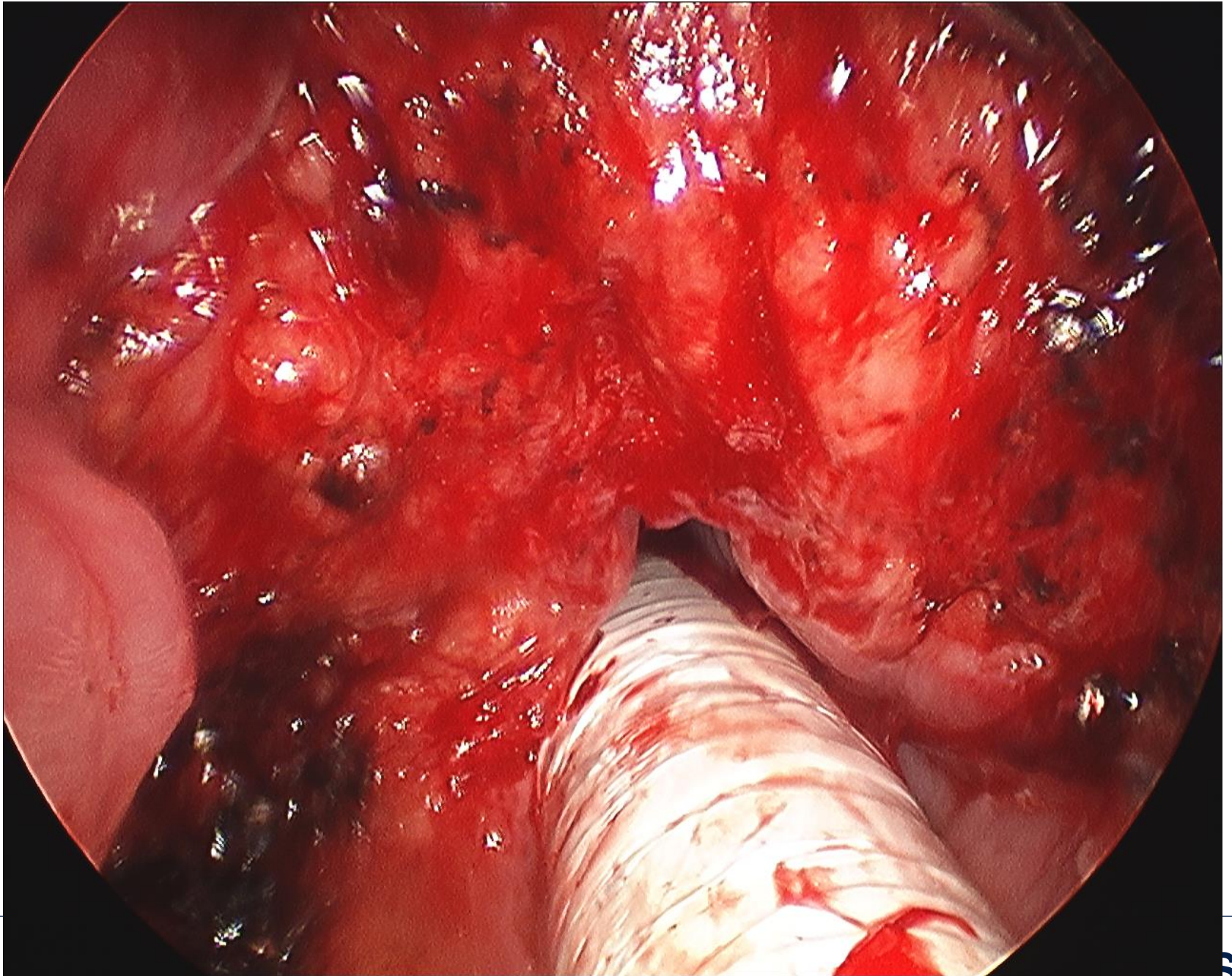


Supraglottic Carcinoma, T2N0



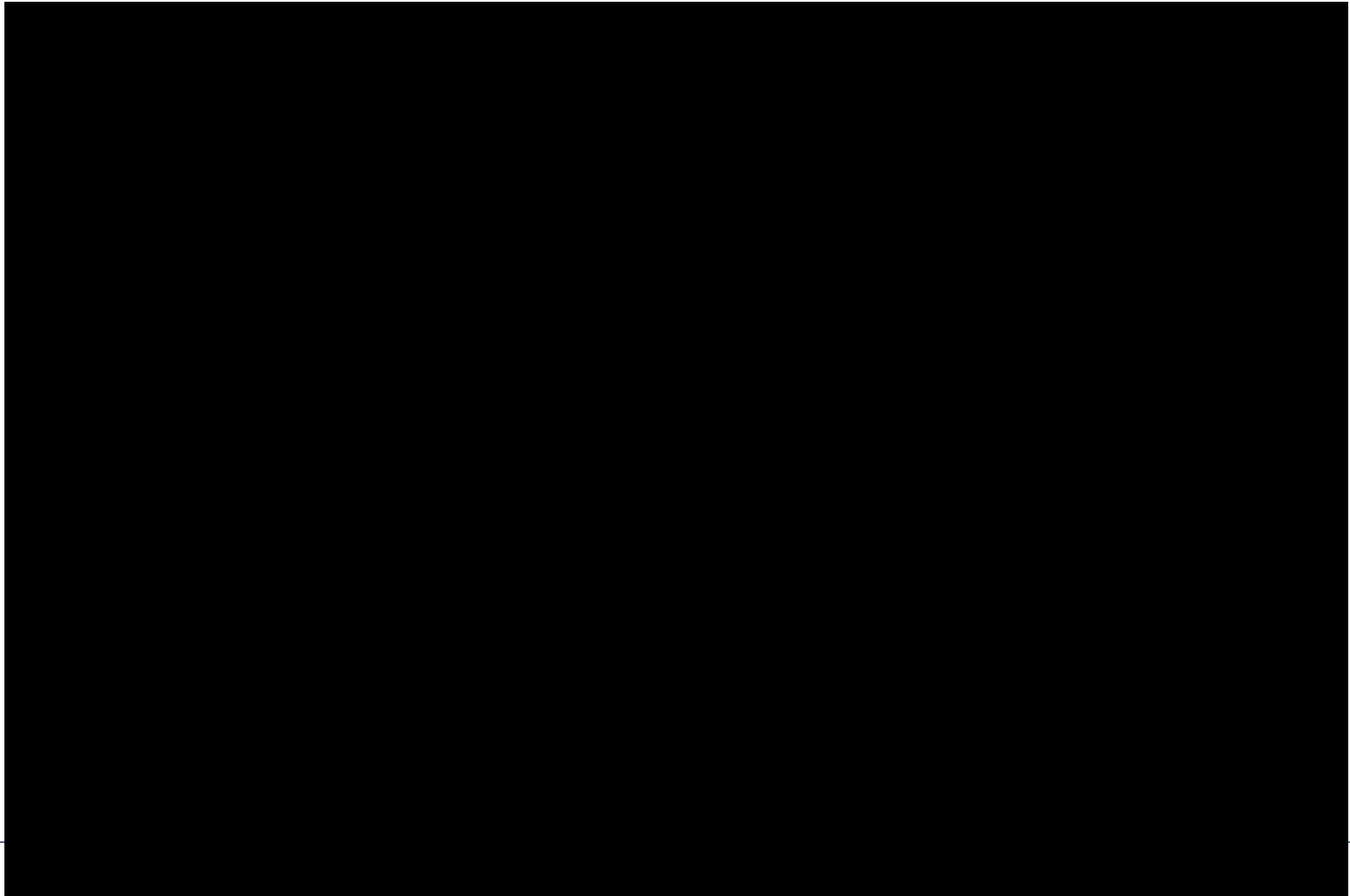




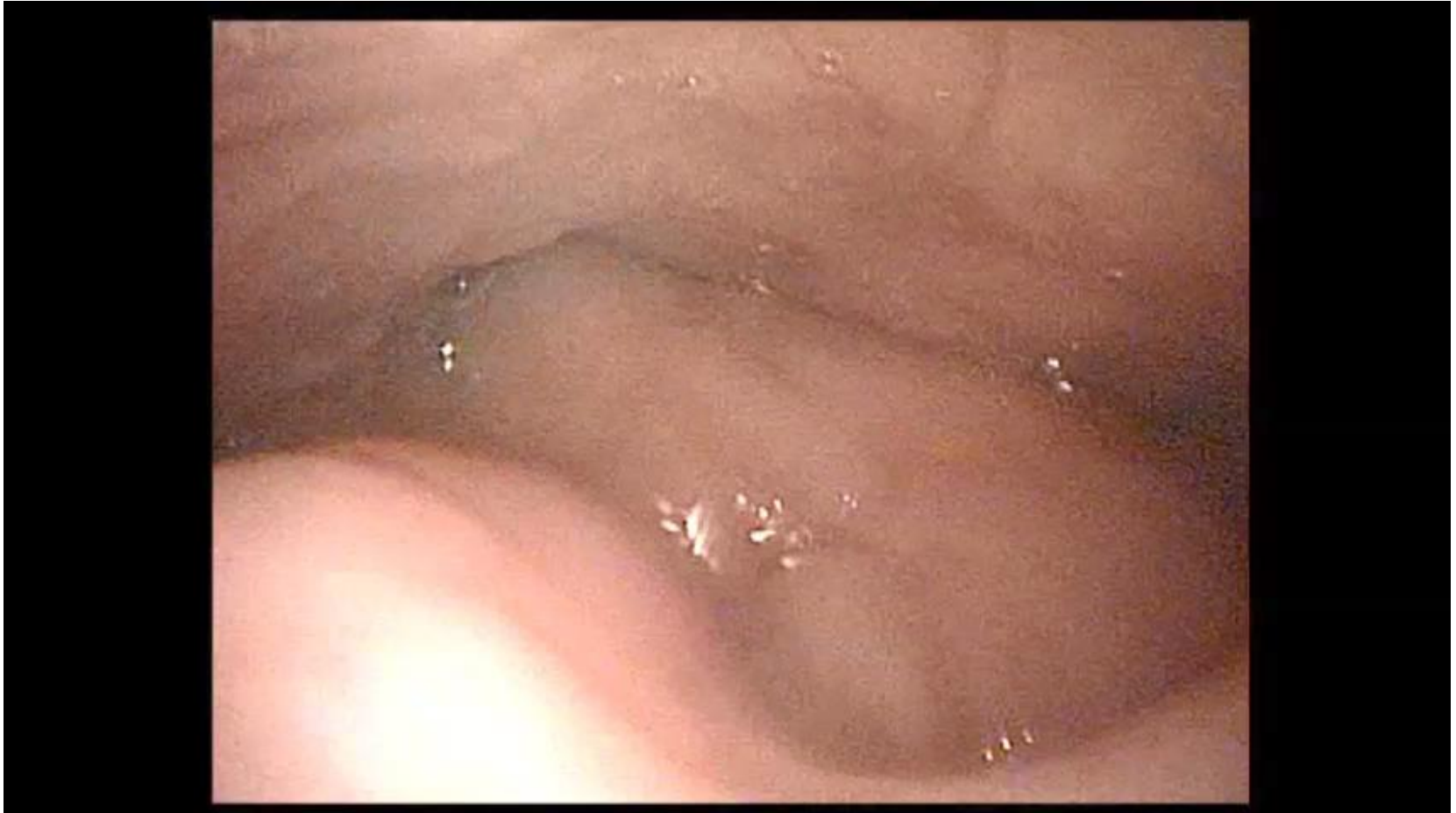


- Bilateral neck dissections performed, negative. No further treatment given.
- Some swallowing difficulty – required PEG for 2 weeks
- Resolved completely to normal PO diet

Endoscopic Supraglottic Laryngectomy 3 weeks postop



Endoscopic Supraglottic Laryngectomy 3 yrs postop



Partial Surgery Considerations

- Patient must be good medical/surgical candidate
- Postop expect swallowing difficulty
- If laryngeal then voice difficulty depending on depth of resection
- Needs especially close follow-up
- Riskier if in setting of radiation failure

Conclusions

- Early detection is critical
- Surgery is a consideration in select groups based on subsite
- MIS changes our surgical options
- Treatment and rehabilitation concerns vary with stage/subsite & is related to anatomy
- Significant morbidity due to **any** therapy is possible: cosmesis, xerostomia, dysphagia, social dysfunction

Thanks for your attention

