



BACKGROUND

Thyroid cancer

- US incidence: 13.22 cases per 100,000 individuals with 90% being papillary thyroid carcinomas (PTCs)³
- 6%-13% of well-differentiated intra-thyroidal tumors (~91% survival) progress to invasive extra-thyroidal tumors (~45% survival)⁴
- Most commonly invaded structures:
 - Strap muscles (53%), recurrent laryngeal nerve (RLN) (47%), trachea (37%), esophagus (21%), lateral neck vessels and vagus nerve (30%), and larynx (12%)⁵
- Shin Stage I and IV (Figure 1a/1b)
 - I: Abuts external tracheal perichondrium
 - IV: full thickness invasion of the tracheal mucosa

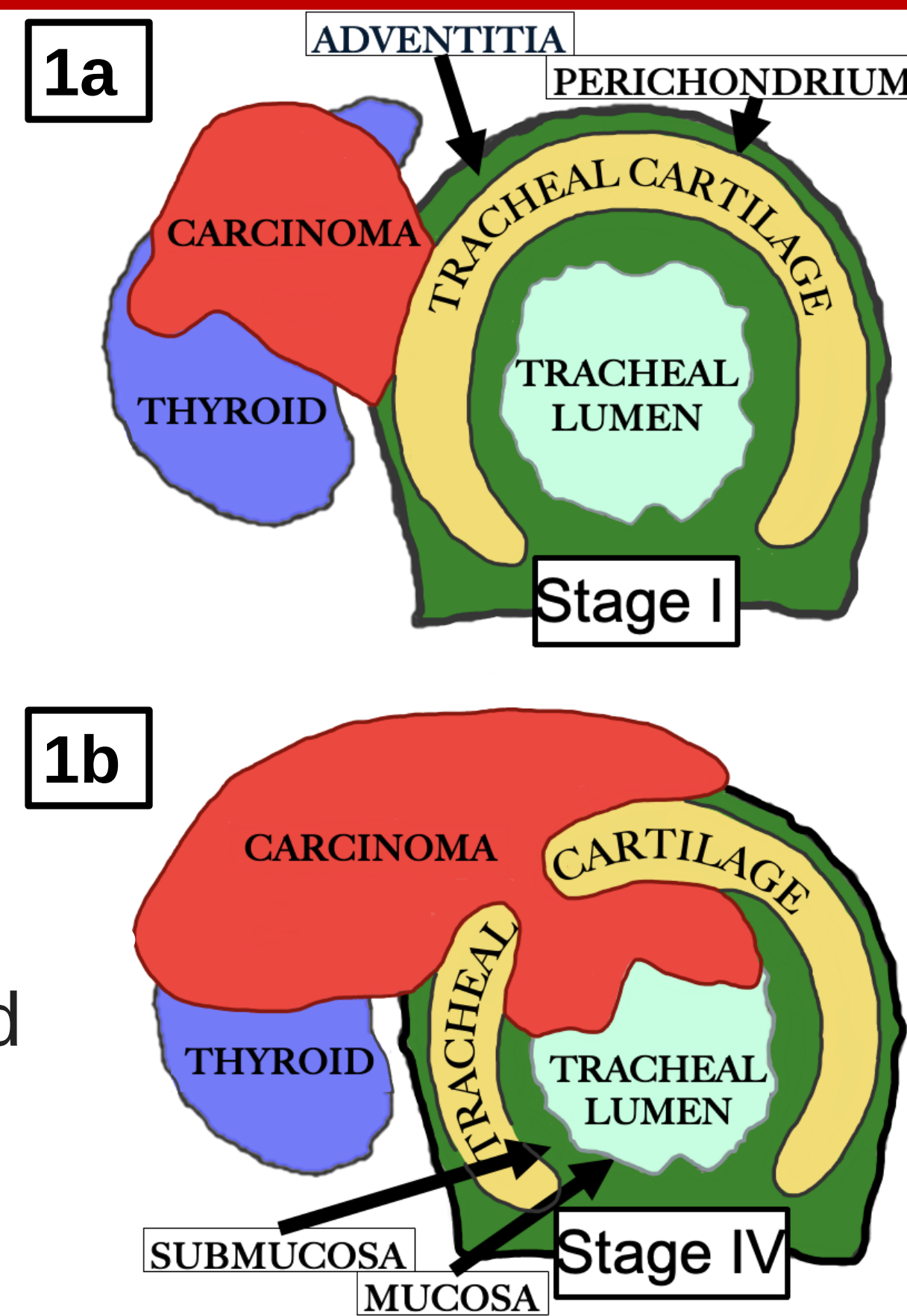


Figure 1a/1b: Shin Staging of Tracheal Tumors

CASE PRESENTATION

- Past Medical History:** 68-year-old male with PMH of HLD and pre-diabetes (HbA1c: 5.7); 5-week history of hoarseness and dyspnea
- Flexible laryngoscopy:** Left true vocal cord paramedian paralysis, and partial right glottic closure
- CT neck:** 2.4 x 2.1 x 2.2 cm left paratracheal mass invading the anterior esophagus and posterior left lower thyroid lobe the level of the thoracic inlet level with lymph node metastasis (level III/IV/Vb), esophageal narrowing, left tracheal effacement, & left RLN paralysis
- Fine needle aspiration biopsy:** PTC with hemorrhagic cystic changes
- Surgical plan:** Total thyroidectomy, left modified radical neck dissection, central neck dissection, and left RLN neurorrhaphy with possible tracheal resection

INTRAOPERATIVE MANAGEMENT

- IV induction:** fentanyl, lidocaine, and propofol
- Intubation:** Dual view technique via BF-P190 bronchoscope and GlideScope® video laryngoscope with 7.0 NIM™ (neural integrity monitor) EMG (electromyogram) endotracheal tube (ETT)
- Access:** right radial arterial line (ABG/BGLs), two peripheral IVs
- Maintenance:** propofol/remifentanyl
- Analgesia:** fentanyl, hydromorphone, ketamine
- PTC (Shin Stage IV) requiring resection of 30% of the trachea
- Resection adjacent to the NIM™ EMG ETT cuff and critical neck structures required strategic tube manipulation (Figure 2b)
- FiO₂ of 0.3 was used to decrease airway fire risk and during one-lung ventilation, the lowest SpO₂ drop was to 87%
- Tracheostomy was required due to pre-existing left RLN paralysis and intraoperative right RLN paralysis

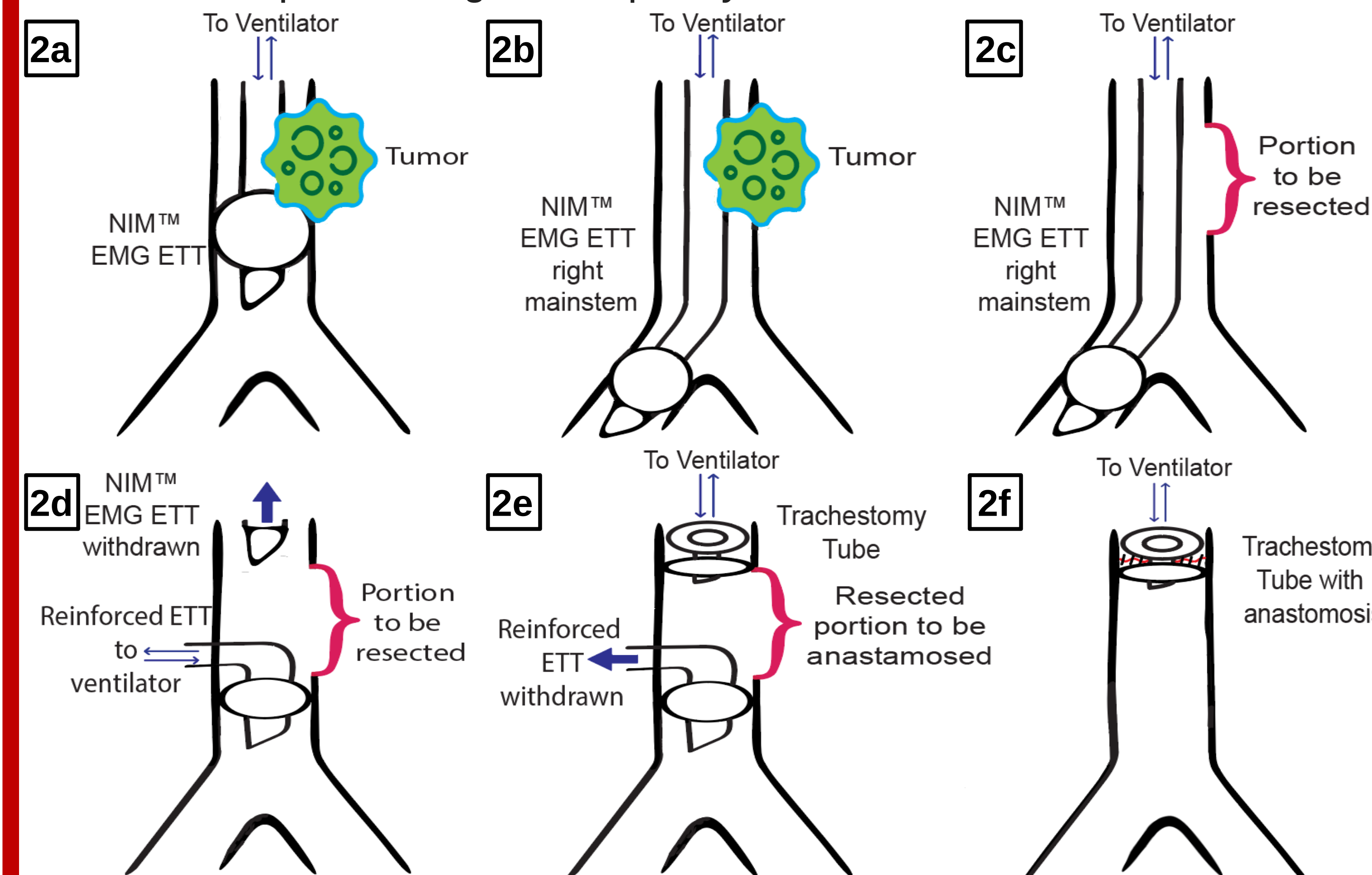


Figure 2a-2f: Schematic of cross-ventilation airway management

CONCLUSION

- Successful airway management was executed with no significant reduction in blood oxygen saturation despite the unforeseen challenges of tracheal resection, tracheal reconstruction, and tracheostomy
- Diligent FiO₂ and SpO₂ monitoring, endotracheal tube manipulation, perioperative tube exchanges, and pain control were critical for successful anesthetic management during this 13-hour procedure
- Following surgical completion, the patient was transferred to the SICU in stable condition, ventilated via the tracheostomy tube, and advised to keep neck in flexion

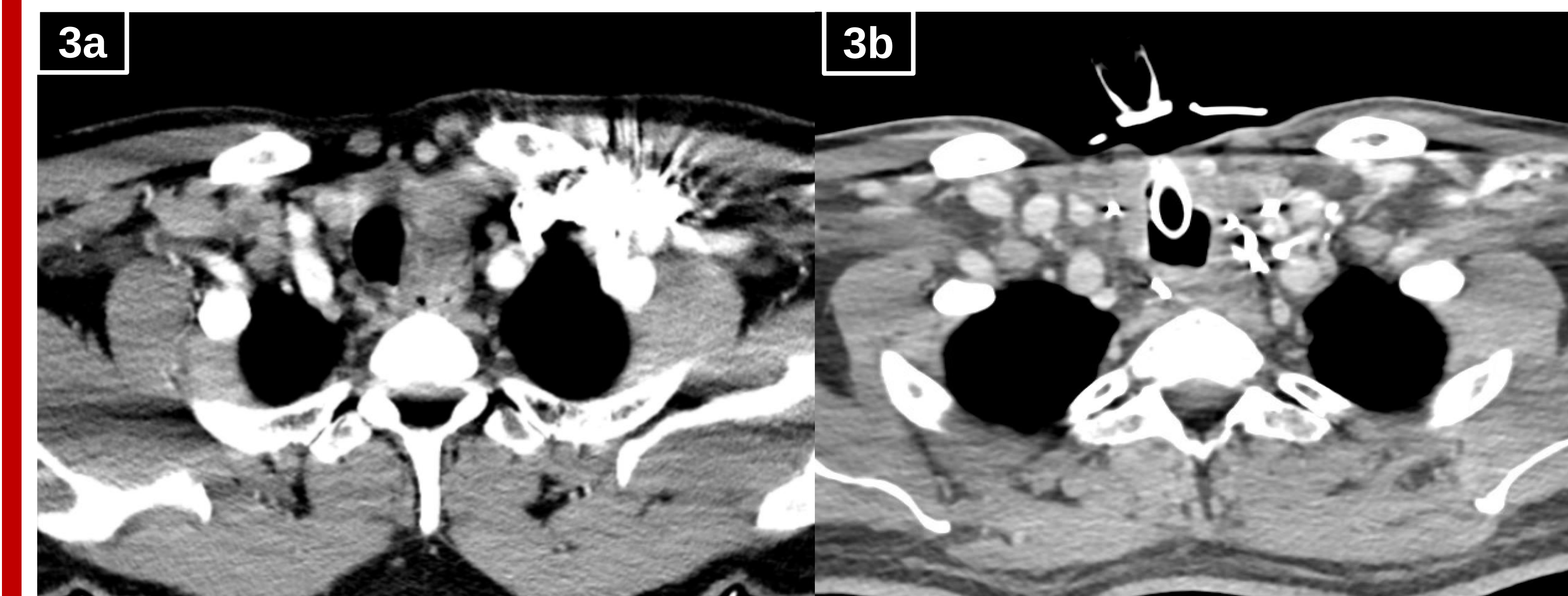


Figure 3a/3b: Preoperative and Postoperative CT scans

CONTACT INFO



ADDITIONAL INTRAOPERATIVE PHOTOS



REFERENCES

