PGY level: 5

Level of complexity: moderate

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Category: Airway

Objective(s) of the question

1) To know the principles of assessment of a patient with a glottic mass
2) To know the principles of LASER surgery and how to minimize A/W fire
3) To know how to manage a LASER induced A/W fire

Opening Scenario:

Your next patient is a 35 year old male scheduled for laser excision of a r vocal cord papilloma. He is a recent ex-smoker but otherwise healthy.

Critical Features for the response to Opening Scenario (i.e. Initial assessment of patient)

Considerations: Elective/A/W obstruction possible (intra-post op)/Smoker—possible reactive airways/LASER surgery-possibility of A/W burns/ Shared Airway/General anesthesia.

Assessment must include: Symptoms of A/W obstruction—stridor/positional symptoms/hoarseness/ hemoptysis. Smoking Hx—cough/wheeze/SOB/

P/E must assess for positional stridor/dyspnea/ Investigation must include ENT report re laryngoscopy/CT neck—for airway patency, distortion of glottis or laryngeal aperture

Major points of additional information to be provided to the candidate: Hx, Px, Labs, X-rays, consults etc.

Patient noticed gradual onset of hoarseness over 2 months. No difficulty breathing/no positional symptoms. No Dysphagia. Has smoked 1ppd since age 20 but quit about 2 weeks ago after the doctor said he had a mass on his vocal cord. Gets daily morning cough—non-productive/no hemoptysis. Gets positional reflux and takes TUMS/Otherwise healthy—fit and active—not limited. No prior GA/no FHx/ No meds/NKDA

O/E VSS/sats 99% on R/A/ obviously hoarse/no SOB/ no audible stridorA/W appears normal/trachea midline/no accessory muscle use/ if asked—lies flat—no stridor/no accessory muscle use/ A/E clear and equal bilat/ HS normal.

Lab: CBC/lytes Normal/ if asked CT scan neck and laryngoscopy report from ENT—small mass R vocal cord—non obstructing/ rest of glottic aperture patent and not otherwise distorted

What the principles of anesthetic management for this case?

Critical Features for the response to Major Points of additional information (i.e. Creation of diff. Dx, treatment plan)

1) Must discuss with ENT the need for intubation—to protect A/W (Patient has reflux)
2) Must determine type of LASER ---will be CO2
3) Must use LASER precautions—goggles for OR staff/saline soaked gauzes over eyes/Laser protected ETT with double cuff—saline lower/inner/methylene blue upper/outer/ use low FiO2/air/ no N2O/LASER beam check pre procedure/motionless patient/ basin of water to douse a potential fire
4) Must perform a RSI /pre op antireflux prophylaxis
5) Must reduce A/W reactivity—ventolin/lidocaine/adequate depth of anesthesia

Follow-up question, if applicable (new problem, complication)

1) The papilloma is quite adherent to the undersurface of the r vocal cord/ unfortunately the surgeon in attempt to excise this portion tells you that there is blue dye leaking from the cuff—what do you do?

Critical Features for the response to Follow-up question

1) Recognize that the cuff has been torn and that the underlying cuff might be broken which would compromise ability to ventilate the patient. Also recognize that the underlying tube may have been burned through and that the ETT might ignite

2) Stop further LASER use/ provided the saturations are stable/remove the tube with cricoid pressure and reintubate with a new laser guard tube

Before you respond with the previous maneuvers, the ETT ignites—what do you do?????

1) Disconnect from the O2 source
2) Remove the ETT and place it in the saline basin
3) Douse the oral mucosa with saline
4) Reintubate with *another* ETT—*inspecting the larynx*
5) Do bronchoscopy to confirm extent of tracheobronchial burn—remove any carbonaceous material
6) Lavage with saline
7) Depending on severity elect to keep intubated—to ICU
8) Serial ABG/CXR/consider PEEP/high humidity
9) Antibiotics and steroids controversial