Anterior Mediastinal Masses and Lower Airway Problems

25 y.o. Female Ant. Mediastinal Mass
Cervical Mediastinoscopy + Biopsy

Most Important History?

A) Dysphagia
B) Fever
C) Orthopnea
D) Chest pain

Anterior Mediastinal Mass
25 y.o. Female, Diagnostic Biopsy

Hx: c/o cough + supine dyspnea x 2 months

Physical exam:
Other nodes to biopsy
SVC Syndrome

25 y.o. Female Ant. Mediastinal Mass
Most Important Investigation?

A) Spirometry
B) Chest CT scan
C) Trans-Esophageal Echocardiogram
D) DLCO

Flow-Volume Loop

Variable Extra-thoracic Airway Obstruction
Abnormal Flow-Volume Loops in Patients with Intra-thoracic Hodgkin’s Disease

<table>
<thead>
<tr>
<th>Flow-Vol. Loop</th>
<th>CT Trach. 0-mild</th>
<th>CT Trach. Mod.</th>
<th>CT Trach. Severe</th>
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</thead>
<tbody>
<tr>
<td>Normal</td>
<td>8</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Fixed Obstr.</td>
<td>3</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Variable Extra-Thor.</td>
<td>5</td>
<td>2</td>
<td>0</td>
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</tbody>
</table>
25 y.o. Female Ant. Mediastinal Mass, 40% Distal Tracheal Compression
Optimal Anesthetic Management?

A) Propofol/Rocuronium Intubation
B) Awake FOB intubation, +Roc.
C) Inhalational Spontaneous Ventilation
D) Ketamine/Succinylcholine

Anterior Mediastinal Mass Concepts:

NPIC Anesthesia (Noli Pontes Ignii Consumere)

Anterior Mediastinal Mass Concepts:

- NPIC Anesthesia
- Procedure: Diagnostic vs. Therapeutic
- Children vs. Adults
- Symptoms: mild/moderate/severe

Anterior Mediastinal Mass Concepts:

- Symptoms: dyspnea/cough (airway) vs. syncope (cardiovascular)
- Symptoms:
  - mild: supine no problem
  - moderate: supine some problem
  - severe: cannot lie supine

Anterior Mediastinal Mass Concepts:

- NPIC Anesthesia
- Procedure: Diagnostic vs. Therapeutic
- Children vs. Adults
- Symptoms: mild/moderate/severe
- Patients: safe/unsafe/uncertain for NPIC

Anterior Mediastinal Mass Concepts:

- Safe: Asymptomatic adult no tracheal compression
- Unsafe: Severely symptomatic adult/child, child CT trach. compress. > 50%
- Uncertain: all others
**20 y.o. Female, Diagnostic Biopsy**

**Anterior Mediastinal Mass**

? Management:
- Safe
- vs. Unsafe
- vs. Uncertain

**25 y.o. Female Ant. Mediastinal Mass, 40% Distal Tracheal Compression**

Most Important Pre-Induction Preparation?

A) IV Access Lower Limb
B) Helium
C) Rigid Bronchoscope + Surgeon
D) Cardiopulmonary Bypass Pump in OR

**Management for Uncertain Patients for “NPIC” Anesthesia:**

**ALL Patients:**
- Determine Optimal Positioning
- Secure Airway Beyond Stenosis if Possible
- Rigid Bronchoscope Immediately Available

**Selected Patients:**
- Helium/O2
- Prep. Chest for Sternotomy, Elevate Mass

**Peripheral Cardiopulmonary Bypass Assisted Thymoma Resection**

- 52 y.o. Female
- Fem-Fem Veno-Art partial CPB
- Sevoflurane spont. Vent. Induction and intubation
- PPV after sternotomy


**Cardiopulmonary Bypass on “Standby”?**

**Mediastinal Sarcoma**
Anterior Mediastinal Mass
25 y.o. Female

Post-op. Mediastinoscopy/ Biopsy
Severe dyspnea
post-op. in
Recovery Room
? Diagnosis

25 y.o. Female Ant. Mediastinal Mass
Severe Stridor in PACU Management?
A) Propofol/Sux. Intubation
B) FOB intubation in PACU
C) Midazolam
D) Spontaneous Ventilation
Induction in OR

Perioperative Complications in
Adults with Mediastinal Mass
Bechard P, et al. Anesthesiology 100: 826-34, 2004
N= 105; M'scope, sternotomy, VATS, thoracotomy, other

- Intraop. 4/105: hypotension/ AF/ hypox. predictors: pericardial effusion.
- Postop. 11/105 (7 life-threat.): resp. fail., atelectasis, pneumonia
  predictors: preop. s/s, trach compress. >50%,

Silastic Stents:
- Rigid Bronchoscopy (GA)
- Unstable
- Temporary
- Easily Removable

Flexo-Metallic Stents:
- Rigid or Flexible Bronchoscopy
- Fairly Stable
- Difficult to remove
- Tend to stenose

17 y.o. Male
Germ cell tumor
L thoracotomy
Lower Airway Problems: Tracheal Stenosis

- 38 y.o. obese, Male
- # L1, Laminectomy + Fixation, Prone
- Remote tracheal resection for stenosis
- Inspiratory & Expiratory Stridor
- ? Management


Perioperative Management of a Patient with Tracheal Stenosis

Your Management?

A) Spinal
B) LMA
C) Fiberoptic intubation
D) Other


Perioperative Management of a Patient with Tracheal Stenosis

My Management:
- Rigid Bronchoscopy
- Tracheal Dilation
- 7 mm armoured (wire reinforced) ET Tube distal to stenosis
- Turn Prone

30 y.o. Male following bar fight, for Rigid Bronch. Removal of FOB

One episode of coughing/cyanosis in ER, uncooperative
- Proceed/delay?
- Other investigations?
- Anesthetic management?
Rigid Bronchoscopy Anesthetic Management Considerations

- Spontaneous Ventilation vs. Paralysis

Rigid Bronchoscopy Ventilation Management Options:
- Intermittent Ventilation
- Apneic Oxygenation
- Jet Ventilation (Saunders, Monsoon, etc.)
- Ventilating Bronchoscope

Rigid Bronchoscopy Anesthetic Management Considerations

- Laser (Nd-YAG vs. CO2)
- FiO2
- Monitoring CO2

Anesthetic Management of a Patient with Tracheal Pathology

- Start and End of Case

Anterior Mediastinal Masses and Lower Airway Problems

- History: dyspnea/cough, syncope
- Investig: CT (+/- Echo)
- Path: GA: Collapse/No
- Management: NPIC safe/unsafe/uncertain
- Myths: Flow/vol. loop, CPB standby
- Postop. Mgmt.