Aortic Arch Anomalies and Tracheal Obstruction

Pediatric Aerodigestive Meeting

November 9, 2013
Aortic Arch Anomalies with Tracheal Obstruction

Duct contralateral to arch

Innominate Artery Tracheal Compression (IATC)


Tracheomalacia

- **Primary:** idiopathic (<50%)
  - Prematurity
  - Syndrome (Hunter, Hurler)
  - TEF, esophageal atresia
- **Secondary:** extrinsic (>50%)
  - prolonged intubation (majority)
  - Recurrent tracheobronchitis
  - Innominate artery tracheal compression (18%)
  - Vascular ring (16%)

Rings, Slings, Aortopexies
Tracheomalacia

• **Mild**: Respiratory difficulties with URI (croup, bronchitis), retained secretions
• **Moderate**: Stridor, wheezing, recurrent respiratory infections, cyanosis
• **Severe**: Stridor during tidal breathing, marked sputum retention, upper airway obstruction, reflex apnea, cardiac arrest.
Compressive Tracheomalacia

Indications for surgery

• Severe respiratory distress
• Reflex apnea (death spells, ALTE)
• Cyanosis
• Failure of medical management
• Synchronous airway lesions
• Recurrent pneumonia
• Failure to thrive
• Exercise intolerance
• Parenchymal lung disease made worse by IATC
Anterior Aortopexy

- Left anterior thoracotomy (72%)
- Manubriotomysternotomy (14%)
- Thoracoscopy (1%)
- Bronchoscopic guidance


J Pediatr Surg 1990;25:30-32
Aortopexy - Outcome

• 758 tracheomalacia patients
  – 581 aortopexies
  – mean age 10 mo.
• Median 47 mo. follow up:
  – 80% improved
  – 8% unchanged
  – 4% worse
  – 6% mortality, 1% redo aortopexy
• No randomized trials
• Small single center series