Standardized Toolbox of Education for Pediatric Surgery

Esophageal Atresias and Tracheo Esophageal Fistulas

APSA Committee of Education 2012-13
Esophageal atresia
Tracheo-esophageal fistula

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History

• Brief HPI
  – Newborn child normal vaginal delivery
  – Prenatal Ultrasound unremarkable
  – Now 3 hours old with difficulty feeding
History

• What other points of the history do you want to know?

• Characterization of Symptoms: spitting and coughing of attempted breast feeds

• Temporal sequence: immediate with beginning of feeding

• Alleviating / Exacerbating factors: appears fine while not feeding

• Associated signs/symptoms: otherwise normal appearing child

• Pertinent PMH: vaginal delivery

• ROS; unremarkable prenatal US

• MEDS: none

• Relevant Family Hx: none

• Relevant Social Hx: none
Physical Exam

• What specifically would you look for?
  • Vital Signs: HR 124bpm; RR 39/min; O2Sat: 97%RA
  • Appearance: Well appearing,
  • Relevant Exam findings for a problem focused assessment: mild abdominal distension
Studies (Labs, Imaging)

• What labs needed? None/standard labs

• What Imaging Needed?
  – Chest and Abdominal Radiograph, after placement of NG tube
Study Results
Study Results

NG tube coiled
Case Discussion

• Diagnosis
  – Esophageal Atresia With Tracheo Esophageal Fistula

• Plans
  – Pre-op: Cardiac Echo
  – Consent: for rigid bronchoscopy and right thoracotomy EA/TEF repair
  – Operative: 1: bronchoscopy
    – 2: ligation of TE Fistula
    – 3: esophageal anastomosis
Interval steps before / instead of surgery

• Timing of surgery can be quite emergent, as with every breath air is diverted into the stomach which can lead to severe distension and respiratory compromise
Operation

• Operative Steps:
  – Confirmation of diagnosis via bronchoscopy, opportunity to occlude fistula with balloon catheter,
  – Right Thoracotomy to close/divide fistula
  – Mobilization of proximal/distal Esophagus and tension free anastomosis
  – Same can be done thoracoscopically
Complications

• **Peri-operative:**
  – Air leak at tracheal repair site
  – Anastomotic leak of esophagus
  – Anastomotic stricture of esophagus

• **Long Term**
  – Gastroesophageal Reflux w/wo stricture formation
  – Tracheomalacia
Complications

• Intraoperative:
  – A long gap atresia, (more than 2 vertebral bodies) may require a different type of repair, or interposition of a piece of intestines
Post-operative Management

• Routine milestones for post op care
  – Assessment of patency of esophagus with esophagram, (post op day 5-7)
  – Oral feeds
  – Gastroesophageal Reflux prophylaxis for 1 year
Gross's Anatomical Classification

- **Type A:**
  - Esophageal atresia *without* tracheoesophageal fistula. 8%

- **Type B:**
  - Esophageal atresia with *proximal* tracheoesophageal fistula. <1%

- **Type C:**
  - Esophageal atresia with *distal* tracheoesophageal fistula. 87%

- **Type D:**
  - Esophageal atresia with *proximal and distal* fistula. 1%

- **Type E:**
  - Tracheoesophageal fistula *without atresia*. 4%
VACTERL Complex of Associated Anomalies

- Vertebral
- Anorectal
- Cardiac
- Tracheo Esophageal Fistula
- Renal
- Limb Anomalies
1) Newborn with flat abdomen, and gasless appearance on abdominal X-ray. Which type of atresia?

- A
- B
- C
- D
- E
Questions

• 1) Newborn with flat abdomen, and gasless appearance on abdominal X-ray. Which type of atresia?

  – A
  – B
  – C
  – D
  – E

Answer: A or B
Questions

2) Postoperative day 30 at home, patient after type C EA/TEF repair starts to take very long time to finish her bottle. Why?

A delayed presentation of mediastinitis
B undiagnosed cardiac anomaly
C anastomotic stricture of esophagus
D recurrent tracheoesophageal fistula
Questions

2) Postoperative day 30 at home, patient after type C EA/TEF repair starts to take very long time to finish her bottle. Why?

A delayed presentation of mediastinitis
B undiagnosed cardiac anomaly
C anastomotic stricture of esophagus
D recurrent tracheoesophageal fistula
Questions

3: Which Type of Esophageal Atresia or Tracheoesophageal fistula is most difficult to diagnose/presents the latest??

– A
– B
– C
– D
– E
Questions

3: Which Type of Esophageal Atresia or Tracheoesophageal fistula is most difficult to diagnose/presents the latest??

– A
– B
– C
– D
– E (H-type fistula without atresia)
Final Discussion/Review

• Top 5 take home points for disease
  • 1.) 1:3-4000 births, no risk factors
  • 2.) distal TE fistula Type C is most common
    • 87% proximal atresia with distal fistula
  • 3.) Respiratory distress can create emergency
  • 4.) Often associated with tracheomalacia
    • Seal like barking caugh
  • 5.) VACTERL associated anomalies
The preceding educational materials were made available through the American Pediatric Surgical Association.

In order to improve our educational materials we welcome your comments/suggestions:

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