Minimally Invasive Surgical Techniques in Children

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Inguinal Hernias

Inguinal hernias are one of the most common pediatric surgical problems.
Almost all of them are of the indirect type, due to a failure of obliteration of the processus vaginalis.

First Video

4 week old baby boy, with an inguinal hernia that was diagnosed one week ago.
Easily reducible.
Pt. otherwise healthy except for coronal hypospadias.

Transcutaneous laparoscopic hernia repair in children: a prospective review of 275 hernia repairs with minimum 2-year follow-up
Sanjeev Dutta and Craig Albanese
Surgical Endoscopy Volume 23, Number 1, 103-107

4 out of 275 hernias (1.5%) recurred (mean age 4.5 years; 3 male, 1 female).
There were four superficial wound infections, two umbilical granulomas, two hydroceles, and six self-resolving hematomas.
There were no spermatic cord injuries, testicular atrophy, or symptoms of ilioinguinal nerve injuries.

Congenital Diaphragmatic Hernias

Postero-lateral (Bochdalek) type
Antero-medial (Morgagni) type

Embryology of the Diaphragm

• Between 3rd and 8th week of gestation.
• Union of 4 structures:
  1) septum transversum,
  2) pleuro-peritoneal membranes,
  3) Mesenchymal tissue of the esophagus
  4) Abdominal Wall Muscles
Postero-Lateral Diaphragmatic Hernia (Bochdalek type)

- Incidence about 1/3500 births
- Wide spectrum in severity with main challenge being persistent pulmonary hypertension

Second Video

Postero-Lateral Hernia

- Latent presentation in a 18 months old girl

  - 32 patients, 2 conversions to thoracotomy

  - 18 pts, 1 conversion

  - 29 cases, 1 conversion

  - Higher recurrence rate in thoracoscopic group

Third Video

Morgagni Hernia

- 7 yo boy
- Incidental finding of antero-medial hernia on CXR

= 14 cases, no conversion

Fourth Video

Diaphragmatic Eventration

- 9 months old boy
- Repeated right lower lobe pneumonias.
- Fluoroscopically demonstrated paradoxical movement of high riding right diaphragm.


= 10 cases, 2 conversions
Fifth Video

Lung Metastases

15 yo girl.

One year prior to presenting to us, had left proximal tibial osteosarcoma.

Recent CT chest showed two new lung nodules.

Sixth Video

Lastly a SILS case

- 8 yo boy with sickle cell anemia, requiring splenectomy

Ethics of Minimally Invasive Surgery

- How should we consent for new procedures?

- What is the role in teaching residents and fellows?

- Time and Money?