Newborn male presenting with respiratory distress

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Patient Presentation

**HPI:** Newborn male born at 38 weeks via SVD presenting with respiratory distress

**Prenatal Hx:** Lagging fetal growth EFW: 2.7 kg (~9th percentile)

**Birth Hx:** SROM with bloody fluid; Presentation: LOA, SVD; Apgars: 5 @ 1min & 8 @ 5min; intubated at 1 min of life

**Maternal Hx:** 34 y/o white female G3P2002 with hx of anxiety treated with Zoloft and prior precipitous vaginal delivery

**Prenatal Labs:** RPR nonreactive, Hep B (-), Rubella immune, Gonorrhea (-), Chlamydia (-), HIV (-), HCV unknown, Blood Type: O+ Rh-
Physical Exam & Pertinent Labs

Physical Exam:

Vitals: HR: 130s Wt: 2580g (5lb 8oz) (4\textsuperscript{th} percentile)
Mechanical Respiratory Support: SpO2: >90%, PEEP: 6, RR: 30, FiO2: 50%
Lungs: Moderate subcostal retractions, B/L bowel sounds auscultated, BS over left hemithorax
CV: Normal S1 & S2, RRR, PMI displaced to right, pulses adequate, capillary refill ~3-4 secs
Abd: Soft, flat-scaphoid, no masses or hepatosplenomegaly
Labs: ABG: pH 7.204 PaCO2 44.6 PaO2 45.3 HCO3 17.6
CBC w/ diff: Hgb 12.9, Hct 37.8, RBC 3.40
What Imaging Should We Order?
Select the applicable ACR Appropriateness Criteria

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<td>Radiography chest</td>
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<td>US chest</td>
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<td>CT chest with IV contrast</td>
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This imaging modality was ordered by the NICU team along with abdominal radiograph.
Chest Abdomen X-Ray (labeled)

- Mediastinum & ET tube shifted to right
- Umbilical Arterial Catheter in Descending Aorta displaced to right
- Umbilical Venous Catheter in IVC displaced to right
- Hypoplastic Left Lung
- Air-filled bowel loops in left hemithorax
- Gaseous distension of stomach (normally positioned)
Final Dx:

Left-sided Congenital Diaphragmatic Hernia
Case Discussion

Congenital Diaphragmatic Hernia: Defect in the diaphragm resulting in abdominal contents moving into the thoracic cavity

Epidemiology: 0.8-5/10,000 births depending on population

Etiology:
• Multifactorial
• Failure of fusion of a pleuroperitoneal canal during organogenesis
• Can be an isolated defect or associated with pulmonary hypoplasia, aneuploidy, neural tube defects, congenital cardiac anomalies, Cornelia de Lange Syndrome, and Fryns Syndrome
Case Discussion (cont.)

Radiographic Findings:

• **Antenatal Ultrasound*** – bowel loops absent in abdomen, liver herniating into thorax, decreased abdominal circumference, and stomach and bowel present at same transverse level as heart

• **Fetal MRI*** – further assess hernia and pulmonary hypoplasia after U/S

• **Radiography** – after delivery with features of an indistinct diaphragm, scaphoid abdomen, bowel within hemithorax, deviation of lines and tubes, and mediastinal shift

* Can be used to calculate observed-to-expected lung to head ratio to assess for degree of pulmonary hypoplasia and probability of survival
Case Discussion (cont.)

Antenatal Management

• Corticosteroids prior to delivery of preterm infants to help with lung maturation
• Percutaneous fetal endoluminal tracheal occlusion (clinical trial)
• Delivery at tertiary care center with access to NICU, ECMO, and pediatric surgeons

Postnatal Management

• Intubation and mechanical support
• OG/NG tube to decompress bowel
• Manage pulmonary HTN
• Surgical repair (ultimate treatment)
References:


