Case KO

AUBREY RAUKTYS, PGY3
TUFTS-BAYSTATE MEDICAL CENTER, SPRINGFIELD, MA

Presentation

41-year-old G2P0010 dichorionic twin gestation at 22 6/7 weeks by in vitro fertilization presents for scheduled ultrasound.

Ultrasound studies show echogenic material at the internal os, consistent with blood or clot. Advanced cervical dilatation of 2cm and uterine irritability noted. She denies symptoms of preterm labor, and reports good fetal movements

History

- **PMH**: mild intermittent asthma, anemia, oral HSV
- **PSH**: appendectomy (1980), splenectomy (1987), IPAS (2010)
- **Meds**: Valtrex PRN, prenatal vitamins, folic acid
- **Allergies**: NKDA
- **SocialHx**: denies tobacco, alcohol or illicit drugs
- **FamHx**: Noncontributory
- **OBHx**:
  - 1 SAB – IPAS
  - Current pregnancy with donor egg and donor sperm. Pregnancy complicated by progressively shortened cervix. She was initially started on progesterone IM, switched to vaginal progesterone by Reproductive endocrinologist. Received RhoGam for first trimester bleeding.
  - Infertility x 4 years. s/p 6 IUI cycles
  - Prenatal labs:
    - A-/Rubella immune/HepBsAg neg/RPR NR/HIV neg
- **GYNHx**: h/o abnormal pap with normal colposcopy

Physical Exam

- **Vitals**:
  - BP: 101/62
  - HR: 69
  - RR: 16
  - Temp: 97.9
  - O2 Sat: 96% RA
- **Gen**: alert, normal general appearance
- **Resp**: clear to auscultation bilaterally
- **CV**: regular rate and rhythm, no murmurs
- **Abd**: gravid, nontender
- **Ext**: within normal limits

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Case KO – HD1, 22+6

- Admitted to Maternal Fetal Medicine service
- NICU Consultation:
  - No intervention prior to 23 6/7
- Fetal Monitoring was discontinued
- Continuous tocometer
- Started on betamethasone course
- Indomethacin for tocolysis
- IM progesterone

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Case KO – HD2, 23+0

- AM rounds:
  - Continued abdominal cramps every 25-30 minutes
  - Vital signs::
    - BP 100/62
    - HR 68
    - T 98.4
  - Physical Exam:
    - Gen – no apparent distress
    - Abd – gravid, nontender, contractions palpate soft
    - Ext – bilateral lower extremities nontender
  - Plan: Continue tocolysis (+terbutaline x 1), steroid course, repeat NICU consult after 23+6, discuss delayed interval delivery and induction of labor

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Case KO – HD2, 23+0

- PM rounds:
  - Patient declined tocolysis during the day. Reports "intense gas pain."
  - Vitals:
    - BP 104/63
    - HR 84
    - Afebrile
- Plan: intermittent FH checks, add bicitra/Tums, continue colace
- Physical exam:
  - Gen- no apparent distress
  - Abd- soft, gravid, nontender
  - Ext- nontender, no edema
  - FH check positive x 2
  - Sterile speculum: Cervix 2-2.5 cm dilated. Membranes visualized at cervical os but not past external os. Small amount of white discharge seen. Negative pooling. Negative nitrazine and ferning

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Case KO – HD2, 23+0

- Overnight:
  - Continued pain with contractions. Offered morphine for pain relief which helped. Nausea and emesis x 1. Requests to restart indomethacin overnight; declined terbutaline.
  - Vitals:
    - T 98.5
  - Physical exam:
    - Abd- soft, nontender, contractions palpate soft
    - Ext- nontender, no edema
    - VE: 2cm, membranes palpable at os, no fetal parts palpable in bag, remains posterior.
- Plan: restart indomethacin, no resuscitation if delivery, continue subcutaneous morphine as needed, start PRN zofran

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Case KO – HD3, 23+1

- AM rounds:
  - Continued nausea and emesis, 3 episodes overnight; clear liquids. Minimal relief with zofran. Hard to describe upper abdominal pain, mentions "burning" and "pulling." No relief with Tums. Reports she has chronic constipation.
- Physical exam:
  - Vitals:
    - BP103/51
    - HR 84
    - T 98.5
  - Gen- appears mildly distressed, restless in bed
  - Abd- soft, mildly tender to palpation over entire upper abdomen, no point tenderness, some contractions but still palpate soft
  - Ext- nontender, no edema
  - VE - deferred

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Case KO – HD3, 23+1

- **Differential diagnosis and plan?**

- ?GI illness
- Anxiety
- Heartburn
- Preeclampsia : BP normal, no evidence of pre-e
- Chronic constipation
- Gallbladder disease
- Contractions: but is primarily upper abdominal and there is no lower abdominal pain or pelvic pressure.

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Case KO – HD3, 23+1

- Plan:
  - Pepcid
  - Phenergan suppository
  - Consider enema or additional laxative (patient believes symptoms related to constipation)
  - Additional pain medications as needed
  - CBC and LFTs if pain, nausea and vomiting does not improve

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Case KO – HD3, 23+1

- Continued nausea and emesis. Reports +sick contacts (family members with gastroenteritis). Symptoms similar to current gastroenteritis seen in community. She reports the abdominal pain is improved and generally related to vomiting. Good fetal movement, denies vaginal bleeding or leaking fluid.
- Physical Exam:
  - Vitals:
    - BP 103/51
    - HR 84
    - T 98.5
  - Gen- distressed, refuses to stay in bed or vomit in bucket
  - Abd- soft, mildly tender to palpation over entire upper abdomen, no point tenderness,
  - Ext- nontender, no edema
  - Vaginal exam: unchanged

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Case KO – HD3, 23+1

- **Plan?**

- Stop indomethacin, change to IV dilaudid for pain control, obtain labs, consider GI consult

Case KO – HD3, 23+1

Labs	Values
CBC with differential	21.5>11.5/34.3<316 N 86.2% L 8.6% M 5.2% E 0.0% B 0.0%
Electrolytes	Na 140 K 3.9 Cl 102 Bicarb 23
Creatinine	0.5
Amylase/Lipase	84/41
AST/ALT	26/28

Case KO – HD3, 23+1

- **Any change in differential diagnoses?**

- Leading diagnosis: viral gastroenteritis with leukocystosis from recent steroid course

Case KO – HD3, 23+1

- Evening: Patient called out with painful contractions. Strong contractions palpated on exam.
- Declined tocolysis and requested epidural for pain control
- Plan: Anesthesia paged for epidural

Case KO – HD3, 23+1

- Patients reports feeling tired and slightly dizzy. Patient states had episodes of tachycardia in the past before the pregnancy, not on meds. No SOB, no chest pain.
- Physical exam
  - Vitals:
    - BP 107/66
    - HR 141
    - Afebrile
    - O2 99% RA
  - Gen: She appears pale, oriented x3
  - Resp: clear to auscultation bilaterally
  - CV: tachycardic but normal S1S2, grade 1/6 systolic murmur over precordium.
  - Abd: contractions every 3 minutes
  - VE: 3.5/70/-2

Case KO – HD3, 23+1

- **Assessment and plan?**

Case KO – HD3, 23+1

- Sinus tachycardia of unclear etiology
  - Possibly consistent with prior episodes of tachycardia
  - Possible complication of epidural
  - More serious development considered, such as pulmonary embolus but unlikely based on oxygenation and lack of other symptoms (SOB, chest pain).
- Plan:
  - EKG
  - IV fluid resuscitation.
  - Monitor closely. Consider CXR, and consult if no improvement

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Case KO – HD3, 23+1

- EKG: normal sinus rhythm, 140s

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Case KO – HD3, 23+1

- 2.5 hours after epidural placement:
  - Patient called out with severe abdominal pain. Reports that she may have seen blood in her emesis. No vaginal bleeding.
- Physical exam:
  - Vitals:
    - BP 106/74
    - HR 171
    - RR not reported
    - O2 sat 99% RA
    - T 98.1
  - Abd – positive guarding

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Case KO – HD3, 23+1

- **Next steps?**

Case KO – HD3, 23+1

- Bedside ultrasound:
  - No signs of abruption

Case KO – HD3, 23+1

- Labs:
  - Difficulty in obtaining lab draw x >1h
- Surgical consult called

Case KO – HD3, 23+1

- While waiting for surgical consult service to arrive, patient noted to be pale and clammy.
- Vitals:
  - HR 180s
  - BP 76/44
  - RR not reported
  - O2 sat 92% RA
- Rapid Response is called (ICU nurse, respiratory therapist)
- 2nd IV is placed, bolus lactated ringer's started in both IV's
- Started on 5L oxygen via nonrebreather mask

Case KO – HD3, 23+1

- Surgery consult:
  - Resident evaluates patient and reports patient does not have a surgical abdomen
- **What's next?**

Case KO – HD3, 23+1

- 12 minutes later:
  - Attending to attending consultation
  - Trauma surgeon attending arrives to evaluate the patient

Case KO – HD3, 23+1

- Trauma surgery consultation:
  - Vitals: hypotensive, tachycardic
  - Physical:
    - Gen – diaphoretic, ill appearing
    - CV – tachycardic
    - Resp – clear to auscultation bilaterally
    - Abd - well-healed RLQ and upper midline incision, distended, rigid, guarding/tender in LUQ.
  - Bedside ultrasound: Free fluid in upper abdomen

- **Differential and plan?**

Case KO – HD3, 23+1

- Suspected perforated viscus
- Patient taken to the OR for urgent exploratory laparotomy

- **Final thoughts?**

Case KO – HD3, 23+1

- Operative note:
  - Midline laparotomy
  - Copious serosanguinous fluid in abdomen; 800cc
  - Ischemic small bowel noted
    - *Appeared to be ischemic bowel that had herniated and volvulized through an omental-transverse colon adhesion*
  - Resected 240cm necrotic small bowel (7.5ft)
  - Temporary abdominal closure
  - Transferred to SICU postoperatively, remained intubated

Case KO – HD4/POD1, 23+2

- Operative Note:
  - All bowel noted to be pink and healthy in appearance
  - Reanastomosis of proximal and distal ends of remaining small bowel
  - 60 cm ileum and 100 cm jejunum remaining
  - Abdomen closed. Binder placed
  - Patient to SICU, intubated

Case KO – HD4/POD1/POD0, 23+2

- Spontaneous rupture of membranes, 6cm on VE with fetal head noted to be half through cervical os
- Labor augmentation with pitocin
- Delivered both fetuses
  - Baby AA pronounced 1 hr after delivery
  - Baby BB delivered with no signs of life
- Delivery complicated by inability to push secondary to recent surgery and retained placentas
- Underwent dilatation and curettage and received 3 units packed red blood cells

Case KO – HD8/POD5/POD4/PPD4

- Discharged home with outpatient follow-up
- Good bowel function on discharge

Case KO – Final diagnosis

- Internal hernia with ischemic small intestine
- Pathology: Diffuse hemorrhagic necrosis of the small bowel (transmural) and mesentery (clinically attributable to adhesion and internal hernia)

Case KO – Update

- Currently undergoing frozen embryo transfer with gestational carrier

Thank you!