









PCCL Session: Summary Report and Resources

PCCL session topic: "When Bellyaches go Rogue: A Hemorrhagic Tale"

Date: August 15, 2025

Learning objectives:

- 1. Review the different diagnosis of an upper GI bleed.
- 2. Discuss the acute management of an upper GI bleed, including potential surgical interventions.
- 3. Review the role of imaging in pediatric patient with an upper GI bleed.

Case:

- <u>Setting the stage</u>: Emergency department; pediatric patients are transferred to other centres for higher level of care. It is a small community ER with peds on call coverage.
- Patient Demographics: 8-year-old with uncomplicated past medical history. Fully Immunized
- Focus History of Presenting Illness:
 - Presented with fever and leg pain x 5 days, headache, poor appetite x 4 days, abdominal pain x 1 day
 - Associated refusal to eat/drink; lethargy and weakness; change in bowel habit and occasional cough, sick contacts in the family – cold and sinusitis. No vomiting, diarrhea, skin rash, jaundice, breathing difficulties
- Presenting Vital Signs and Physical Exam:
 - Vitals at presentation: HR 135bpm | RR 30cpm | Sat 98% room air | Temp 36.60C | BP 86/67mmHg | CRT 3 sec seconds. Conscious, dehydrated, pale. Wt 18kg.
 - o McBurney's negative, Murphy's negative, no CVA tenderness, no guarding, supple neck
 - o Abd: Flat, soft, tenderness in the periumbilical, lumbar and epigastric areas
 - o Abd pain Subacute appendicitis versus mesenteric adenitis? Sepsis? Dehydration?
- Initial Management:
 - Normal saline bolus then D5 NS at 56ml/hr. Acetaminophen and ondansetron. Taking small drinks encouraged.
 - o Labs: WCC 7.7, Hgb 146, Na 126
 - Vitals post bolus: HR 122bpm, RR 27cpm, Sat 99% on room air, Temp 36.5deg C, BP 102/61 (73) mmHg, CRT 3 seconds.
 - Initial stabilization by ER physician then Peds consulted.
 - Abd USS delayed unavailability of in-house USS tech/after hours.
 - 10 hrs after admission, nurse noted melena stool and sent for occult blood.
 - Repeat Vitals: HR 125bpm, RR 20cpm, BP 71/38 (49) mmHg, Sat 100%, N/S bolus 20ml/kg (x2)
 - Next steps: coagulation profile, repeat CBC. BP Q30mins; Pantoprazole and Ceftriaxone
- <u>Investigations:</u> Abdominal Xray results Distended stomach. No small or large bowel dilatation. No free air seen.











- Abdominal Ultrasound results -: Appendix not visualized. Appendicitis has not been ruled out.
- <u>Progression</u>: AXR grossly distended abdomen. NGT passed with frank blood and increasingly agitated. Stat CBC: Hgb 74 drop from 146. PRBC transfusion started.
 - o Re-conferenced PICU and GI: ITT transfer arrangement
 - o Advised on initiating massive transfusion protocol- no protocol in place at the hospital
 - o IV morphine x 1; PRBC transfusion x 2; Plasma x1; Platelet x 1
 - Adult Gen surgery consulted-> Intubated by Adult Anesthetist and immediately transferred for emergency OR procedure in the presenting hospital. ITT transfer after OR to BC Children's Hospital for further care.

Learnings:

Gastrointestinal Bleeds as a Differential Diagnosis in Pediatrics

- Differential Consideration
 - GI bleed should be considered when assessing fever and abdominal pain in pediatric patients. Important to distinguish from other common causes (e.g., appendicitis, gastroenteritis, sepsis).
- Diagnostics
 - o History & Exam: Hematemesis, melena, hematochezia, pallor, tachycardia, hypotension.
 - Labs: CBC (Hgb, platelets), coagulation profile, electrolytes, BUN/Cr (↑ BUN may indicate upper GI bleed), type & screen/crossmatch.
 - Stool/NG Testing: Stool occult blood, NG aspirate for blood.
 - Imaging: Abdominal x-ray if concern for obstruction/perforation. Ultrasound (esp. if concern for intussusception, appendicitis, liver/spleen involvement). CT abdomen in selected cases.
 - Endoscopy: Gold standard for diagnosing and treating upper GI bleeds (e.g., ulcer clipping).
 - Other: Consider Meckel's scan if lower GI bleed suspected in otherwise stable child.
- Clinical Course of Upper GI Bleeds
 - Upper GI bleeds rarely remain obscure for long—clinical signs (hematemesis, melena, anemia, instability) and typically declare themselves. Early recognition and intervention are critical.
- Interventions
 - o Initial Stabilization (ABCs) and establish IV/IO access (2 large bore if possible).
 - Begin fluid resuscitation with isotonic crystalloids (10–20 mL/kg boluses). Prepare for blood products if unstable (PRBCs, platelets, plasma as indicated).
 - Continuous cardiac monitoring, frequent vital signs (HR and BP trends). Serial CBCs and labs (coags, electrolytes, type & screen).
 - Strict intake and output monitoring. Maintain NPO status until source identified.
 - Acid suppression: IV proton pump inhibitor (e.g., pantoprazole).
 - Correct coagulopathies (vitamin K, FFP, platelets).
 - Maintain NPO status until source identified.











- Endoscopy (EGD/colonoscopy): Diagnostic and therapeutic (ulcer clipping, cautery, variceal banding). Consider Interventional radiology: Embolization if endoscopy fails or not feasible.
- Surgical intervention: Reserved for uncontrolled bleeding or perforation. If a pediatric surgical team is not available, the adult surgical team may step in to support care.
 Collaboration between pediatric and adult teams is essential in smaller centers or afterhours settings.
- Analgesia and sedation as appropriate (avoid NSAIDs).

Challenges

- A delay in ultrasound availability can make it more difficult to rule out appendicitis in some rural centers. During this time, maintain GI bleed as part of the working differential and monitor closely.
- o Consider transfer to tertiary pediatric center if resources not available locally.

Stomach Ulcers

- Presentation
 - Pediatric peptic ulcers often present acutely to the Emergency Department with signs of upper GI bleeding (hematemesis, melena, anemia, hemodynamic instability).
 - Chronic symptoms may include abdominal pain, vomiting, or poor appetite, but acute bleeds are a common first presentation.
- Causes / Risk Factors
 - Medications: NSAIDs and corticosteroids are common culprits.
 - Infection: Helicobacter pylori is a recognized cause, though less common in pediatrics compared to adults.
 - o Stress-related mucosal damage may occur in critically ill children.
- Management & Prevention
 - Acid suppression: Proton pump inhibitors (PPIs) are the mainstay of therapy.
 - If long-term NSAID therapy is required, consider co-prescribing PPIs to prevent ulcer formation and reduce risk of GI bleed.
 - Eradication therapy is indicated if H. pylori is confirmed.
 - Endoscopy may be required for diagnosis and therapeutic interventions (e.g., clipping bleeding ulcers).

Resources:

- Mass Transfusion Protocol
- Fluid Resuscitation Protocol
- Virtual Support Pathways
- Weight based drug sheets











Here's how to **bookmark the <u>Pediatric Critical Care Resources Website</u>** as a shortcut on your smartphone home screen, depending on your device and browser:

For iPhone (Safari Browser):

- 1. **Open Safari** and go to the website you want to save.
- 2. Tap the **Share icon** (square with an arrow pointing up) at the bottom of the screen.
- 3. Scroll down and tap "Add to Home Screen."
- 4. You can edit the name if you like, then tap **Add**.
- 5. The shortcut will appear on your **Home Screen** like an app icon.
- Only Safari supports this on iPhone (not Chrome or Firefox).

For Android (Chrome Browser):

- 1. Open Google Chrome and go to the website.
- 2. Tap the **three-dot menu** in the upper-right corner.
- 3. Tap "Add to Home screen."
- 4. Edit the name if desired, then tap Add.
- 5. Confirm by tapping Add automatically or drag it to your preferred location.
- Works with most Android devices using Chrome. Firefox has a similar option under its menu.

The resources shared throughout this session are for reference purposes only. Please consult your health authority leaders for guidance on adoption and use of these resources within your local context. The advice provided during the PCCL sessions is not intended to replace the clinical judgment of the healthcare providers who are with the patient. While PCCL sessions may suggest recommendations, the final decisions regarding a child's care and treatment should always rest with the healthcare professionals involved in their care at both the referring and receiving centres. If you need additional in the moment support refer to the Provincial Real Time Virtual Support Pathways: If you need additional in the moment support refer to the Provincial Pediatric Virtual Support Pathways: https://childhealthbc.ca/pcc/provincial-pediatric-virtual-support-pathways