Diagnosis & Management of Severe Hematochezia, Diverticular Hemorrhage, & Other Colon Lesions

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Traditional Management of Severe Hematochezia in Adults

Hospitalization for Severe Hematochezia

- Ongoing Hematochezia
  - Angiogram
  - Yes
    - Embolization &/or Surgery
  - No
    - Self Limited Hematochezia
      - Rebleed?
        - Yes
          - Elective colonoscopy or BE
        - No
          - Colonoscopic, Medical, or Elective Surgical Rx
  - Embolization &/or Surgery
    - RBC scan or repeat angiogram
      - Yes
        - Embolization &/or Surgery
      - No
        - Rebleed?
          - Yes
            - Elective colonoscopy or BE
          - No
            - Colonoscopic, Medical, or Elective Surgical Rx

Angiography for Severe Hematochezia

- Threshold bleeding rate is > 0.5 cc/min
- Can show abnormal vessels of tumors or AVM’s
- Can localize colonic, small bowel, or UGI lesions
- Does not usually give an etiologic diagnosis.
- Diagnostic yields are from 12 – 69%
- Hemostasis possible with coils, clots, drugs, glue
- Complications include bowel infarction, renal failure, artery occlusion

Jensen & Machicado. GI Endo Cl NA 1997;7:477.
Emergency Angiography vs. Colonoscopy for Final Diagnosis of Severe Hematochezia

Colonoscopy, N=17
Angiography, N=17

Percent

Angiomata
TICS
CA or Polyps
Blind Rectal
Total Yield

* p < 0.05


RBC Scan for Ongoing Hematochezia 60 minutes

Jensen DM. CURE DDRC 2013.
RBC Scans for Hematochezia Diagnosis

♦ Threshold bleeding rate is 0.1 cc/min
♦ Technetium tagged RBC’s stay in vascular space over 24 hrs
♦ Surgical yield of positive early scans (1 or 4 hrs) scans is high (70-80%)
♦ Late scans (12 or 24 hrs) have poor yield (<40%) & localization at laparotomy
♦ Can localize but does not give an etiologic diagnosis.

Jensen & Machicado. GI Endo Cl NA 1997;7:477.

Randomized Trial of Urgent Colonoscopy vs. Standard Management for Acute LGI Bleeding

• 100 patients randomized between 7/93 – 6/95 to urgent colonoscopy vs. standard management (RBC scan→angio, or elective colon).
• Significant differences reported for urgent colonoscopy vs. standard group in rates of definitive diagnosis (42% vs. 22%) & no source (4% vs. 24%).
• No significant differences in early rebleeding (22% vs. 30%), hospital stay (5.8 vs. 6.6 days), total RBC (4.2 vs. 5.0 units), surgery (14% vs. 12%) or death from bleeding (2% vs. 4%).
• Results of tests were not utilized for patient triage.

Limitations of Duke RCT & Recommendations for Improvement

1. Diagnostic procedures or medical therapy alone do not change natural history or acute outcome of LGIB.
   Use triage to level of care & early discharge for minor stigmata & effective hemostasis for major stigmata.

2. 64% of urgent colonoscopy group had fair or poor preps.
   Rec purge until clear of stool, clots, & blood

   Rec guidelines & standardization before RCT study

4. Rebleeding rate was very high – 22% vs. other study (5%).
   Use combination therapy for focal hemorrhage

5. Premature termination of study before complete.
   Rec large RCT – probably multicenter

Severe Hematochezia Case

• 58 y/o Hispanic man admitted with ongoing painless hematochezia – no melena or hematemesis
• Hgb 12.4 ➔ 8.5 ; INR 1.3 ; Platelets 75K ; Creat 2.0
• NG aspirate ➔ clear & orthostatic in ER
• Hx DM, HTN, Obesity, & CRI
• Former heavy drinker quit 5 yrs ago; No NSAIDs or ASA.
• No prior GI bleeds, colonoscopy or EGD
• Your DDx & recommendations after resuscitation?

Jensen DM. CURE DDRC 2013.
Severe Hematochezia:
Bleeding Site Locations

* p<0.05
Jensen DM. CURE DDRC 2013.

Gastric fundal varix with a platelet plug

Jensen DM. CURE DDRC 2013.
Appearance & Prevalence of Major Stigmata of Definitive Diverticular Hemorrhage on Urgent Colonoscopy (100 patients)

<table>
<thead>
<tr>
<th>Adherent Clot</th>
<th>Non-Bleeding Visible Vessel</th>
<th>Active Bleeding</th>
</tr>
</thead>
<tbody>
<tr>
<td>(42%)</td>
<td>(28%)</td>
<td>(30%)</td>
</tr>
</tbody>
</table>

Jensen DM. CURE DDRC 2013.

Comparison of RBC Scan Angiogram & Colonoscopy for Diagnosis & Treatment of Hematochezia

<table>
<thead>
<tr>
<th>Colon Prep</th>
<th>RBC Scan</th>
<th>Angiogram</th>
<th>Colonoscopy</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>None</td>
<td>None</td>
<td>Purge</td>
</tr>
</tbody>
</table>

| Minimum Bleed Rate | 0.2cc/min | 0.5cc/min | None       |

<table>
<thead>
<tr>
<th>Therapeutic Capability</th>
<th>Yes</th>
<th>Yes</th>
<th>Yes</th>
</tr>
</thead>
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<table>
<thead>
<tr>
<th>Etiologic Diagnosis</th>
<th>Yes</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Detection of Non-Bleeding Stigmata</th>
<th>Yes</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Detection of Mucosal Lesions</th>
<th>Yes</th>
</tr>
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| Usual Diagnostic Yield | 15 – 30% | 10 – 20% | ≥ 85% |

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Severe Hematochezia Management

- Hx Cirrhosis, Ulcers meleia, hematemesis, or + NG
  - EGD or Enteroscopy
  - + Treat
  - -
- Hx hemorrhoids, XRT, colitis, diarrhea
  - Anoscopy & flex sig
  - + Treat
  - -
- Negative Hx, painless hematochezia
  - Purge & urgent colonoscopy
  - -
  - +
  - Treat

- Push enteroscopy
  - +
  - -
  - Capsule Endoscopy; RBC scan or Angio
  - Treat
  - Deep Enteroscopy or surgery

Jensen DM. CURE DDRC 2013.

Management of Severe Hematochezia

Start here & go clockwise

- Hx, PE, NG tube
- Resuscitate
- Oral purge
- Consult GI (± Surgery)
- Anoscopy-Sigmoid
- Colonoscopy-enteroscopy
- RBC Scan-Angio
- Surgery

Severe Hematochezia Management

- NG lavage - to document bile or blood
- Resuscitation & monitoring
- Purge-NG tube if unable to drink – 1 liter/30-45 min until clear effluent
- Metaclopramide 10 mg IV 30 min before & q 4-6 hrs
- Dialysis if severe CRF; diuresis for severe CHF or cirrhosis with ascites


Hematochezia Rebleed

- 73 y/o African F with polymyositis, DM, obesity, & arthritis on steroids.
- Admitted with painless hematochezia.
- Hgb 13.5 →10 & normal coagulation tests.
- No hypotension, melena or abdominal pain.
- What are your DDX & recommendations?

Jensen DM. CURE DDRC 2013.
Combination Treatment (Epi Injection+Clip) of Pulsatile Visible Vessel in Diverticulum Base

Jensen DM. CURE DDRC 2013.

Sigmoid TIC with NBVV (pulsatile), DUP, Hemostasis (Epi Inj, hemoclipping) & Tattoos

Jensen DM. CURE DDRC 2013.
### Natural History & Outcomes of Definitive Diverticular Hemorrhage on Medical Therapy

<table>
<thead>
<tr>
<th></th>
<th>Major Rebleed</th>
<th>Intervention For Rebleed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active bleed</td>
<td>83%</td>
<td>56%</td>
</tr>
<tr>
<td>(N = 18)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NBVV</td>
<td>60%</td>
<td>40%</td>
</tr>
<tr>
<td>(N = 5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clot</td>
<td>43%</td>
<td>29%</td>
</tr>
<tr>
<td>(N = 14)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>65%</td>
<td>43%</td>
</tr>
<tr>
<td>(N = 37)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DM Jensen, GV Ohning CURE Hemostasis Research Group May 2012

### Doppler Ultrasound Probe Vascular Technology Inc.

Jensen DM. CURE DDRC 2013.
Doppler Ultrasound Probe for Diverticular Hemorrhage: Definitive vs. Presumptive

<table>
<thead>
<tr>
<th>Stigmata of Hemorrhage</th>
<th>Number</th>
<th>+ DUP</th>
<th>Totals (Rate + DUP)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Major SRH</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clot</td>
<td>5</td>
<td>4</td>
<td>4/5 (80%)</td>
</tr>
<tr>
<td>NBVVV</td>
<td>12</td>
<td>11</td>
<td>11/12 (92%)</td>
</tr>
<tr>
<td>Ooze</td>
<td>3</td>
<td>3</td>
<td>3/3 (100%)</td>
</tr>
<tr>
<td><strong>Definitive Tic Bleed</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clean Base</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presumptive</td>
<td>20</td>
<td>18</td>
<td>18/20 (90%)*</td>
</tr>
</tbody>
</table>

* *p < 0.05  Jensen DM. GIE 2009:69:AB289:T1411 & 2011.

Diverticulosis & Severe Hematochezia

**Definitive diverticular bleed** – stigmata of hemorrhage on a tic found on urgent colonoscopy &/or surgery; or active bleeding on RBC scan or angiogram confirmed to be diverticulosis by other tests.

**Presumptive diverticular bleed** - diverticulosis without stigmata & no other bleeding lesions found by colonoscopy, anoscopy, enteroscopy, & capsule endoscopy.

**Incidental diverticulosis** - diverticulosis present but another site of bleeding is identified.


Prevalence of Definitive, Presumptive, & Incidental Diverticular Hemorrhage (405 patients with diverticulosis & severe hematochezia)

- **Definitive Tic Bleed 21.0%**  
  (N = 85)

- **Incidental Diverticulosis 47.2%**  
  (N = 191)

- **Presumptive Tic Bleed**  
  31.9%  
  (N = 129)

Jensen DM. CURE DDRC 2013.
True Diverticular Hemorrhage: Prevalences of Definitive & Presumptive Bleeding (N=214)

- Presumptive Diverticular Bleed: 60.3% (N = 129)
- Definitive Diverticular Bleed: 39.7% (N = 85)

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Outcomes: 100 Definitive Diverticular Bleeds (CURE prospective, cohort studies)

<table>
<thead>
<tr>
<th></th>
<th>Med-Surg-Angio Rx</th>
<th>Med-Endo Rx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients</td>
<td>37</td>
<td>63</td>
</tr>
<tr>
<td>More bleeding</td>
<td>24 (64.9%)*</td>
<td>3 (4.8%)*</td>
</tr>
<tr>
<td>Severe rebleeding</td>
<td>16 (43.2%)*</td>
<td>2 (3.2%)*</td>
</tr>
<tr>
<td>Surgery or Embolization</td>
<td>16 (43.2%)*</td>
<td>2 (3.2%)*</td>
</tr>
<tr>
<td>Median time to discharge</td>
<td>8.5 days*</td>
<td>2 days</td>
</tr>
<tr>
<td>Complications</td>
<td>2 (5.5%)</td>
<td>2 (3.2%)**</td>
</tr>
</tbody>
</table>

* p < 0.05  *After anticoagulation  **1 post coagulation syndrome
1 pneumoperitoneum

Location of Diagnoses for Severe Hematochezia (N=795)

- Colonic Sites: 73.5% (N=584)
- UGI sources: 19.2% (N=153)
- No source: 2.5% (N=20)
- Small bowel: 4.8% (N=38)

Eight Most Common Colonic Sources of Severe Hematochezia (584 cases)
(Expressed as percent of colonic sources)

- Diverticulosis: 31.9%
- Internal hemorrhoids: 12.8%
- Ischemic Colitis: 11.9%
- Rectal ulcers: 7.6%
- Colon angiomas/XRT: 7.0%
- UC, Crohn’s, other colitis: 6.2%
- Other LGI sources: 5.6%
- Post Polypectomy Ulcer: 4.7%
- Focal stigmata amenable to colonoscopic hemostasis

Jensen DM. CURE DDRC 2013.
Bleeding Internal Hemorrhoids – Emergency Banding

What Diagnosis to Think of for Inpatient Hematochezia?
(6 most common diagnosis)

<table>
<thead>
<tr>
<th></th>
<th>UGI lesions (ulcers/varices etc.)</th>
<th>25 (19.4%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Colon Ischemia</td>
<td>19 (14.7%)</td>
</tr>
<tr>
<td>3</td>
<td>Rectal ulcers</td>
<td>15 (11.6%)</td>
</tr>
<tr>
<td>4</td>
<td>Diverticulosis</td>
<td>10 (7.8%)</td>
</tr>
<tr>
<td>5</td>
<td>Other colon</td>
<td>9 (7.0%)</td>
</tr>
<tr>
<td>6</td>
<td>Internal Hemorrhoids</td>
<td>6 (4.7%)</td>
</tr>
</tbody>
</table>

Spurting Rectal Ulcer: Hemostasis with Injection-Hemoclipping


Post-Polypectomy Ulcer – NBVV 9 days after 2 cm polypectomy

Gralnek IM. Tech GI Endosc 2001;3:216
Ascending Colon Large Angiomas

Machicado G. Tech GI Endo 2001;3:185

Severe Ischemic Colitis on Colonoscopy

89% of patients had diffuse lesions
Estimated Direct Costs in 1990 for Management of Patients Hospitalized for Severe Hematochezia Before vs. After CURE Practice of an Urgent Colonoscopy Approach

Estimated mean direct cost savings of $10,065 / patient with urgent colonoscopy

Jensen & Machicado. GI Endo Cl NA 1997;7:477

Severe Hematochezia Management

- Hx Cirrhosis, Ulcers melena, hematemesis, or +NG
  - Enteroscopy
    - + Treat
    - -

- Hx hemorrhoids, XRT, colitis, diarrhea
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    - -

- Negative Hx, painless hematochezia
  - Purge & urgent colonoscopy
    - -
    - +
      - Push enteroscopy
      - -
      - +
      - Treat

- RBC scan or Angio
  - -
  - +
    - Capsule Endoscopy &/or Deep Enteroscopy or surgery
    - -
    - +
      - Treat