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


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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

Emergency Angiography vs. Colonoscopy for Final Diagnosis of Severe Hematochezia

- Percent
- Angiography, N=17
- Colonoscopy, N=17

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 CI 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

3. No standardization of urgent colonoscopy procedures before starting study in 1993. 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 NSADS on ASA.
• No prior GI bleeds, colonoscopy or EGD
• Your DDx & recommendations after resuscitation?

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

- 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.

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**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>
<tr>
<td>Minimum Bleed Rate</td>
<td>0.2cc/min</td>
<td>0.5cc/min</td>
<td>None</td>
</tr>
<tr>
<td>Therapeutic Capability</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Etiologic Diagnosis</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Detection of Non-Bleeding Stigmata</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Detection of Mucosal Lesions</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Usual Diagnostic Yield</td>
<td>15 – 30%</td>
<td>10 – 20%</td>
<td>≥ 85%</td>
</tr>
</tbody>
</table>

Jensen DM. CURE DDRC 2013.
**Severe Hematochezia Management**

- Hx Cirrhosis, Ulcers, melena, hematemesis, or + NG
  - EGD or Enteroscopy
  - Purge & urgent colonoscopy
  - Push enteroscopy
  - Capsule Endoscopy; RBC scan or Angio
  - Treat

- Hx hemorrhoids, XRT, colitis, diarrhea
  - Anoscopy & flex sig
  - Treat

- Negative Hx, painless hematochezia
  - + Treat

- Hx Cirrhosis, Ulcers, melena, hematemesis, or + NG
  - EGD or Enteroscopy
  - Purge & urgent colonoscopy
  - Push enteroscopy
  - Capsule Endoscopy; RBC scan or Angio
  - Treat

- Hx hemorrhoids, XRT, colitis, diarrhea
  - Anoscopy & flex sig
  - Treat

- Negative Hx, painless hematochezia
  - + Treat

**Management of Severe Hematochezia**

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

**References**

- Jensen DM. CURE DDRC 2013.
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><strong>Active bleed</strong>&lt;br&gt; (N = 18)</td>
<td>83%</td>
<td>56%</td>
</tr>
<tr>
<td><strong>NBVV</strong>&lt;br&gt; (N = 5)</td>
<td>60%</td>
<td>40%</td>
</tr>
<tr>
<td><strong>Clot</strong>&lt;br&gt; (N = 14)</td>
<td>43%</td>
<td>29%</td>
</tr>
<tr>
<td><strong>Totals</strong>&lt;br&gt; (N = 37)</td>
<td>65%</td>
<td>43%</td>
</tr>
</tbody>
</table>

DM Jensen, GV Ohning CURE Hemostasis Research Group May 2012

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### Doppler Ultrasound Probe

Vascular Technology Inc.

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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>NBVVL</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>20</td>
<td>18</td>
<td>18/20 (90%)*</td>
</tr>
<tr>
<td>Presumptive</td>
<td>20</td>
<td>0</td>
<td>0/20 (0%)</td>
</tr>
</tbody>
</table>

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

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**Jensen DM & CURE Hemostasis Research Group 2013**
**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)

Presumptive Tic Bleed 31.9%  
(N = 129)

Incidental Diverticulosis 47.2%  
(N = 191)

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)

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

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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
Bleeding Internal Hemorrhoids – Emergency Banding

Jutabha R. Tech GI Endo 2001; 3: 199

Inpatient Severe Hematochezia Case

- 52 y/o Hispanic man with ESLD 2\(^0\) to ALD.
- Ascites, PSE, entubated in SICU; CRF on dialysis awaits OLT.
- Very severe inpatient hematochezia with shock.
- Hgb 11→5; platelets 45K, INR 2.5, PTT 60.
- 12U RBC, 8U FFP, 4 platelet Pacs in 24 hrs.
- Negative emergency abdominal angiogram.
What Diagnosis to Think of for Inpatient Hematochezia?
(6 most common diagnosis)

<table>
<thead>
<tr>
<th></th>
<th>Diagnosis</th>
<th>Count (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>UGI lesions (ulcers/varices etc.)</td>
<td>25 (19.4%)</td>
</tr>
<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
Hx Hemorrhoids, XRT, colitis, diarrhea
Negative Hx, melena, hematemesis, or +NG

Enteroscopy

Hx hemorrhoids, XRT, colitis, diarrhea
Anoscopy & flex sig

Negative Hx, melena, hematemesis, or +NG

Purge & urgent colonoscopy

Push enteroscopy

Treat

RBC scan or Angio

Capsule Endoscopy &/or Deep Enteroscopy or surgery

End of Slide Presentation