

New Insights on the Evaluation and Management of LGI Bleeding (and/or Hematochezia)

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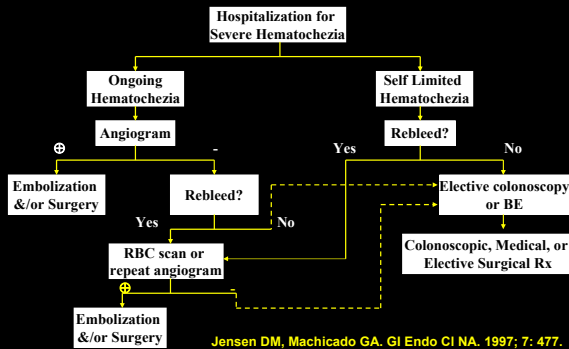
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LGI Bleeding Case

- 71 y/o WM with severe ongoing hematochezia & hypotension with 4 URBC to resuscitate
- 4 yrs ago had severe “diverticular bleeding” & refused surgery elsewhere
- On warfarin for chronic AFib, with INR 2.4
- On hemodialysis; has HTN, DM & CHF
- What is your approach to diagnosis & treatment?

Jensen DM. CURE DDRC 2009.

Traditional Management of Severe Hematochezia in Adults



Angio IMA - Close up (Splenic Flexure)






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**RBC Scan for Ongoing Hematochezia
60 minutes**



Jensen DM. CURE DDRC 2009.

**Appearance & Prevalence of Major Stigmata of
Definitive Diverticular Hemorrhage on
Urgent Colonoscopy (76 patients)**

Adherent Clot	Non-Bleeding Visible Vessel	Active Bleeding
		
(43.4%)	(22.4%)	(34.2%)

Jensen DM & CURE Hemostasis Research Group 2009

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

	RBC Scan	Angiogram	Colonoscopy
Colon Prep	None	None	Purge
Minimum Bleed Rate	0.2cc/min	0.5cc/min	None
Therapeutic Capability	No	Yes	Yes
Etiologic Diagnosis	No	No	Yes
Detection of Non-Bleeding Stigmata	No	No	Yes
Detection of Mucosal Lesions	No	No	Yes
Usual Diagnostic Yield	15 – 30%	10 – 20%	≥ 85%

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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?

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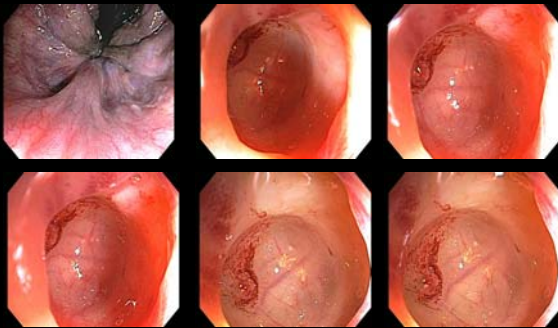
- An NG tube was placed & removed after bile was suctioned.
- A prep of 4L of Golytely was done.
- Colonoscopy showed clots, blood & fluid in diverticula & in rectum+internal hemorrhoids.
- Your assessment and recommendations?

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- Hematochezia recurred with Hgb to 9.0.
- Pt had NG tube placed & received 7L of Golytely until clear of all clots and blood.
- An urgent colonoscopy was performed.

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Your DDx & Recommendations?



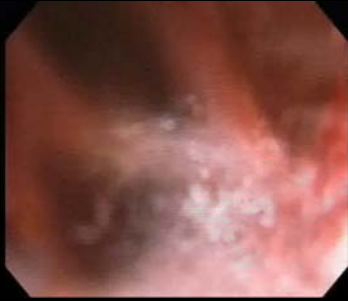
Jensen DM. CURE DDRC 2009.

Doppler Ultrasound Probe Vascular Technology Inc.



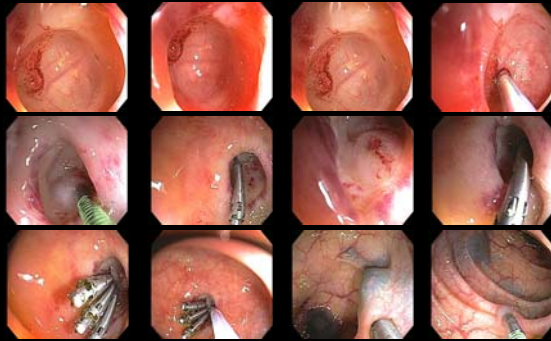
Jensen DM. CURE DDRC 2009

Combination Treatment (Epi Injection+Clip) of Pulsatile Visible Vessel in Diverticulum Base



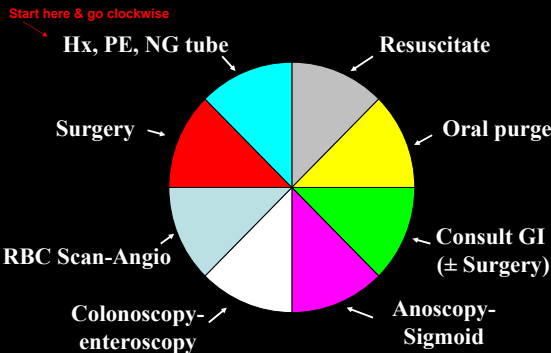
Jensen DM. CURE DDRC 2009.

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



Jensen DM. CURE DDRC 2009.

Management of Severe Hematochezia



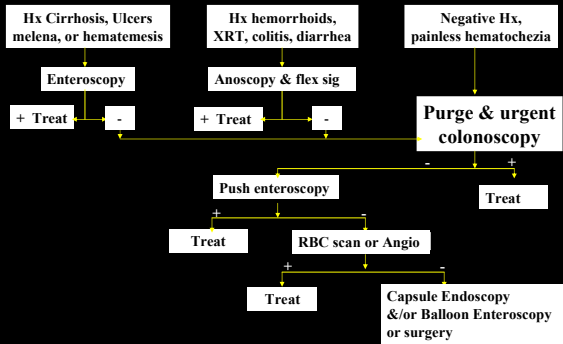
Jensen & Machicado. Gastro 1988; 95: 1569 & 2009.

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

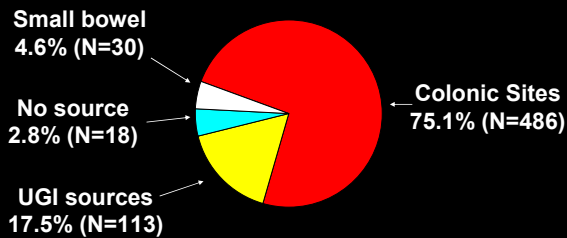
Jensen & Machicado. Gastro 1988; 95: 1569.

Severe Hematochezia Management



Jensen DM. CURE DDRC 2009.

Location of Diagnoses for Severe Hematochezia (N=647)



Jensen DM: CURE DDRC 2009.

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.

Green, Rockey, et al. Am J GI 2005; 100: 2395.

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](#)

Jensen DM. Am J Gastro 2005; 100:2403.

Eight Most Common Colonic Sources of Severe Hematochezia (486 cases)

(Expressed as percent of colonic sources)

✓Diverticulosis	31.9%
✓Internal hemorrhoids	12.8%
Ischemic Colitis	11.9%
✓Rectal ulcers	7.6%
✓Colon angiomias/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 Hemostasis Group 2009.

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.

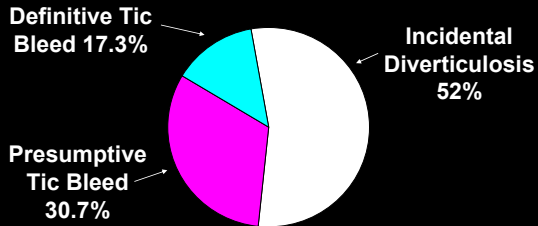
Presumptive diverticular bleed - diverticulosis without stigmata & no other bleeding lesions found by colonoscopy, anoscopy & enteroscopy.

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

Jensen DM. NEJM 2000; 342: 78 & 2009.

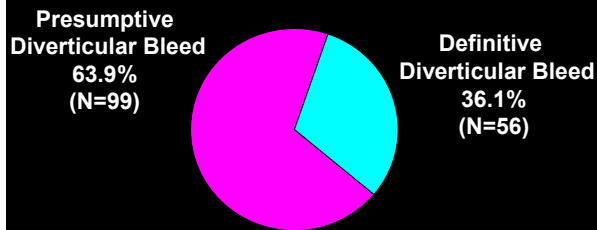
Prevalence of Definitive, Presumptive, & Incidental Diverticular Hemorrhage

(323 patients with diverticulosis & severe hematochezia)



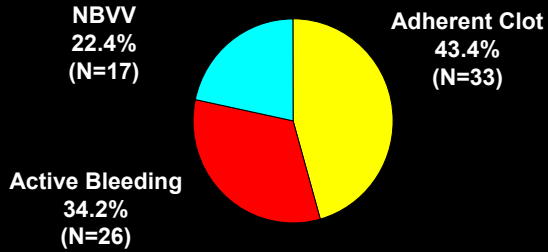
Jensen DM. CURE DDRC: 2009.

True Diverticular Hemorrhage: Prevalences of Definitive & Presumptive Bleeding (N=155)



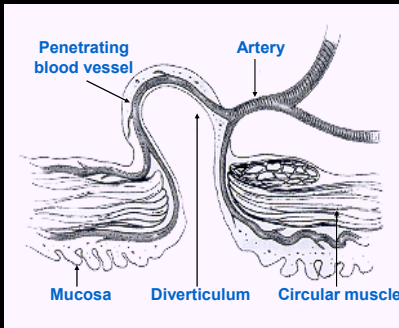
Jensen DM. CURE DDRC: 2009.

Prevalence of Major Stigmata of Definitive Diverticular Hemorrhage on Urgent Colonoscopy (76 Consecutive Cases)



Jensen DM. & CURE DDRC 2009.

Location of Diverticular Vessels



Jensen DM. CURE DDRC 2009.

Axioms About Colonic Diverticula Stigmata of Hemorrhage in Severe Hematochezia

- Excellent colon prep with purge facilitates finding stigmata-have MD check before.
- Look for fresh blood, adherent clots, & fecaliths.
- Majority of tics with stigmata were proximal to splenic flexure (63%), but most colon diverticula are distal (70%).
- Early colonoscopy (≤ 18 hrs after consult) rather than delayed (> 24 hrs later) helps identify stigmata.
- Use large channel colonoscope & target irrigation.
- Early colonoscopy findings (Dx & stigmata) permit triage of patients to level of care.

Jensen DM. CURE Hemostasis Research Unit 2009

Tailoring Colonoscopic Hemostasis to Location of Stigmata of Diverticular Hemorrhage

- NBVV was most commonly found at Tic neck (70%).
- Active bleeding from base in 65% of the time.
- Adherent clot at diverticular base 54% of the time.
- Overall 47% of stigmata @ neck & 53% @ base.
- Recommend combination epinephrine (1:20,000) + hemoclipping @ base.
- Combination of Epi + hemoclipping or MPEC @ Tic neck.

Jensen DM, Machicado GA. Am J GI 2006 & 2009.

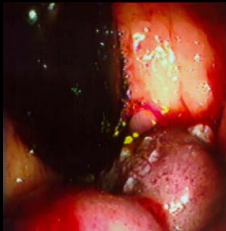
Outcomes: All Definitive Diverticular Bleeds (CURE prospective, non-randomized studies)

	Med-Surg-Angio Rx	Med-Endo Rx
Patients	34	42
More bleeding	17 (50%)*	3 (7.1%)+
Severe rebleeding	12 (35.3%)*	3 (7.1%)+
Surgery or Embolization	12 (35.3%)*	2 (4.8%)+
Median time to discharge	5 days*	2 days
Complications	2 (5.9%)	1 (2.4%)++

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

Jensen DM & CURE Hemostasis Research Group 2009.

Bleeding Internal Hemorrhoids — Emergency Banding



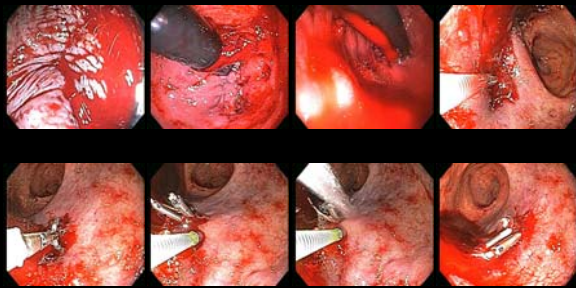
Jutabha R. Tech GI Endo 2001; 3: 199

Inpatient Severe Hematochezia Case

- 52 y/o Hispanic man with ESLD 2^o 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.

CURE DDRC Hemostasis Research Group 2009.

Spurting Rectal Ulcer: Hemostasis with Injection-Hemoclipping



CURE DDRC Hemostasis Research Group 2009.

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



Gralnek IM. Tech GI Endosc 2001; 3: 216

Results of CURE DPPIU Study

- Prevalence of DPPIU hemorrhage as a cause of colonic hematochezia markedly increased from 1.3% (2/150) 20 years ago to 7.4% (39/523) within the last 12 years (p=0.0057).
- Presence of stigmata and endoscopic hemostasis rates were significantly higher in DPPIU patients than other colon diagnoses.
- There was a trend toward decreased rebleed rate, surgery, and death in DPPIU patients.

Risk Factors by Multivariate Analysis for DPPIU hemorrhage vs. Other Colon Dx.

Risk Factor	Odds Ratio	95% Confidence Interval	P
Asian race vs. other race	2.52	1.02-6.23	0.0455
Antihypertensive med use	2.66	1.34-5.25	0.0050
ASA + warfarin	3.45	0.99-11.96	0.0510

Ghassemi K. GIE 2009; AB275.

Ascending Colon Large Angiomas



Machicado G. Tech GI Endo 2001; 3: 185

Severe Ischemic Colitis on Colonoscopy



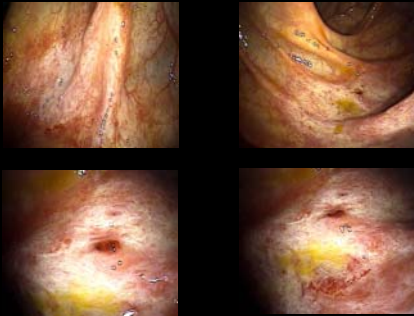
89% of patients had diffuse lesions

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- 77 y/o African Amer male with severe recurrent inpatient hematochezia.
- Hospitalized for 2 wks with UTI, COPD, DM, HTN, dementia, & non-Q wave MI.
- Heparin caused thrombocytopenia (80K); Lovenox started.
- Developed BRB, hypotension, & Hgb ↓ 10→6.
- Hgb 9 after 4 U RBC's; platelets 90K, INR 1.3.
- What are your differential Dx & recommendations?

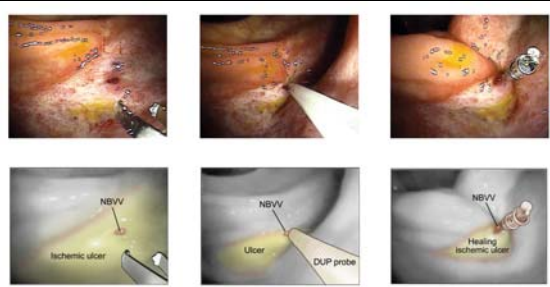
CURE DDRC Hemostasis Research Group 2009.

What are your Dx & Rx?



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Discussion of Ischemic Ulcer with NBVV



Jensen DM & CURE DDRC Hemostasis Research Group 2009.

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 CI NA 1997; 7: 477

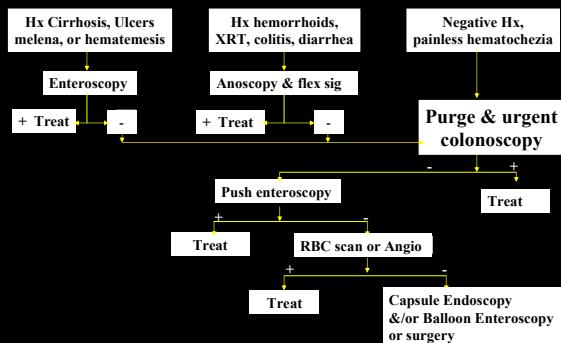
Timing of Colonoscopy: Impact on Length of Hospital Stay (LOS) for Acute LGI Bleeding

Two retrospective analyses with multivariable regression modeling:

- Strate (Am JGI 2003; 98: 317) reported shorter time to colonoscopy from admission as an independent predictor of LOS.
- Schmulewitz & Rockey (GIE 2003; 58: 841) reported mean LOS was shorter for colonoscopy within 24 hrs than later (5.4 vs. 7.2 days, $p < 0.008$).
- Having colonoscopy increased likelihood of discharge (hazard ratio 1.5, 95% CI [1.2, 1.8]).

Jensen DM. CURE DDRC 2009.

Severe Hematochezia Management



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