An Approach to Lower GIT Bleed

Medical GIT Fellow Gecho Presentation
5 September 2022

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Introduction

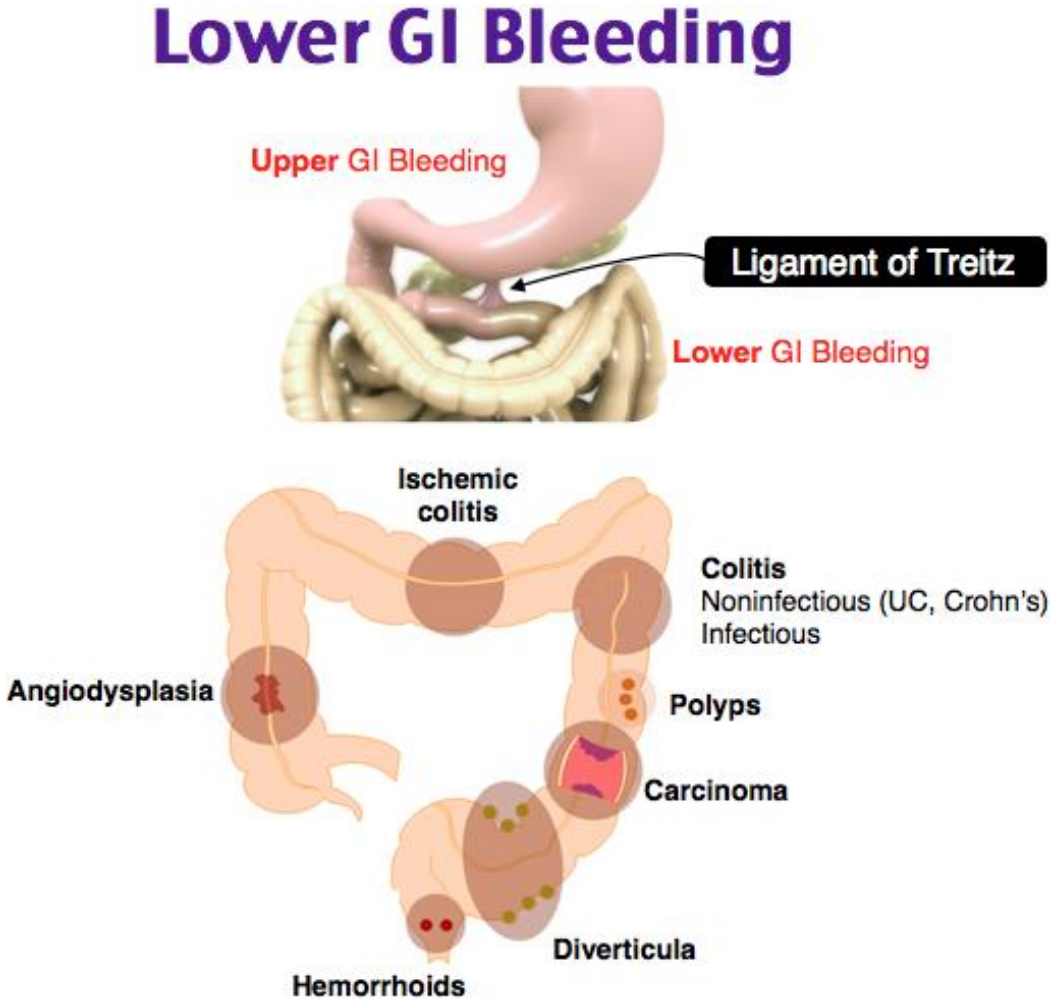
- **Definition of LGIB**
  - Source of bleeding beyond the ligament of Treitz
  - Beyond ileocecal valve→ colon- rectum
  - **Natural hx** of most -stops spontaneously, favorable outcomes/ rebleed

Overt –visible bleeding
Covert/Occult – blood loss not visibly obvious. But evidence towards its existence
Obscure – source unknown. May or may not be visible

UGIB	LGIB
Malena	Right side → malena (black tarry stool) / clots
Brisk→ red blood	Left side→ bright red blood/ maroon stools
Elevated blood urea nitrogen-to creatinine ratio (>30:1) ++ unstable/ UGIB 2-15%. NG lavage	

Epidemiology

- Acute LGIB →20% GIT bleeds
- Estimated incidence 33-87/100 000 in UK
- In hospital mortality 3.4%. 20% require RBC transfusion >4units
- Mortality:
  - Comorbidities
  - Elderly



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Causes

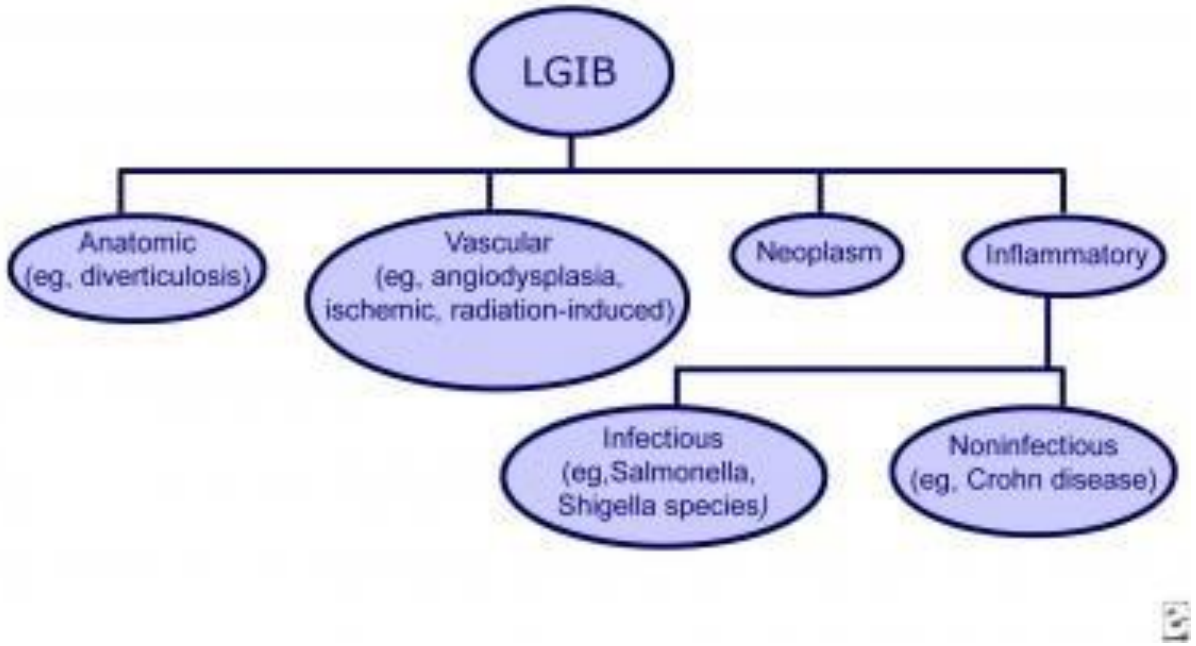

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Table 1. Causes of Acute Lower Gastrointestinal Bleeding in Adults.*

Cause	Percentage of Cases
Diverticulosis	30–65
Ischemic colitis	5–20
Hemorrhoids	5–20
Colorectal polyps or neoplasms	2–15
Angioectasias	5–10
Postpolypectomy bleeding	2–7
Inflammatory bowel disease	3–5
Infectious colitis	2–5
Stercoral ulceration	0–5
Colorectal varices	0–3
Radiation proctopathy	0–2
NSAID-induced colopathy	0–2
Dieulafoy's lesion	Rare

* NSAID denotes nonsteroidal antiinflammatory drug. Adapted from Strate and Naumann.[17]

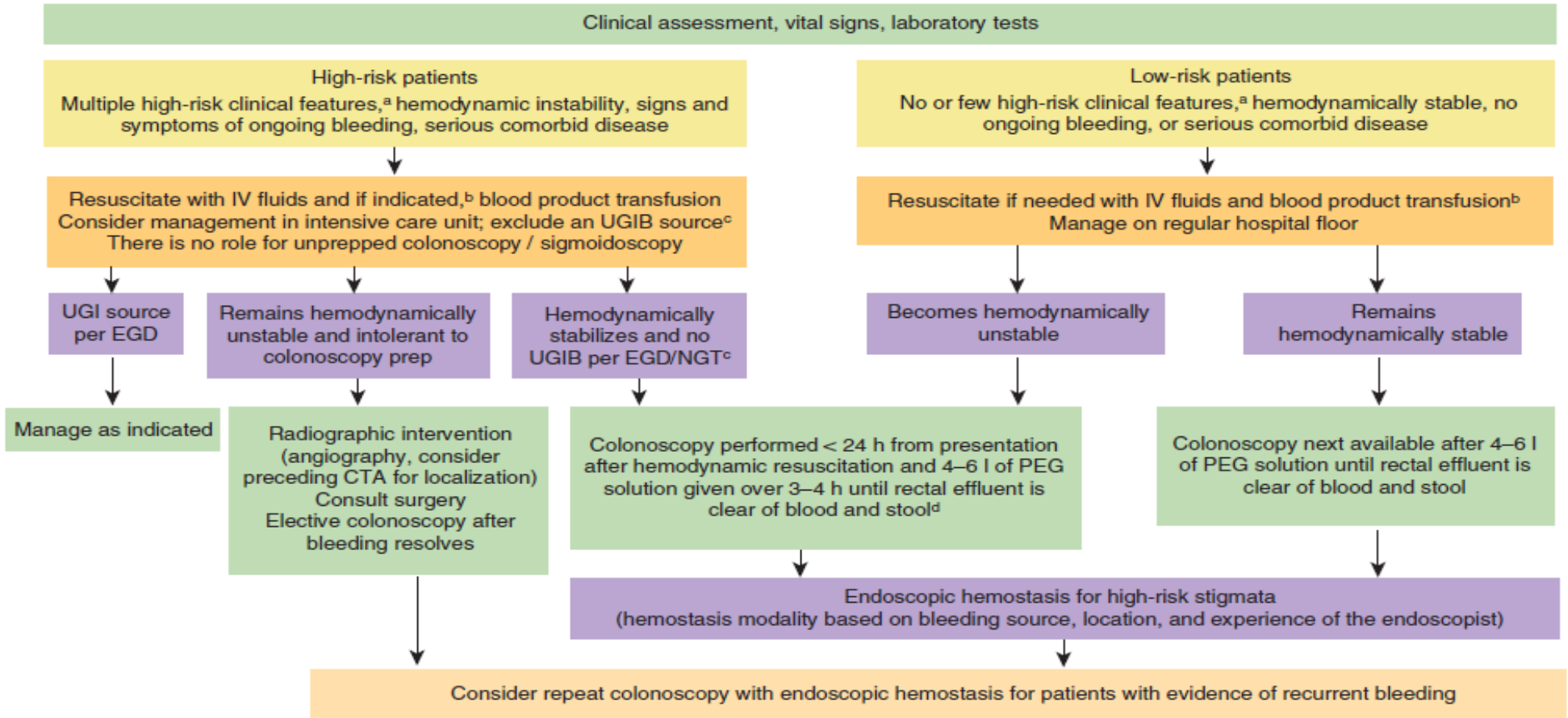


Figure 1. Algorithm for the management of patients presenting with acute LGIB stratified by bleeding severity. CTA, computed tomographic angiography; DAPT, dual antiplatelet therapy; EGD, esophagogastroduodenoscopy; LGIB, lower gastrointestinal bleeding; NGT, nasogastric tube; PEG, polyethylene glycol; UGIB, upper gastrointestinal bleeding.

Initial assessment of LGIB

- **Assess severity/ localize/etiology and resuscitate <u>simultaneously</u>**

UNSTABLE VS STABLE

UNSTABLE → shock index >1

STABLE → Major vs Minor

- **Shock index:** HR/systolic BP→ marker of active bleeding. Mortality predictor. (B-blockade)
- **Other scores-BLEED.**

- Low vs high risk of adverse outcomes → triage, timing of colonoscopy and level of care

- **OAKLAND SCORE:**
  - **LGIB specifically.** Stable bleed as major or minor.
  - **Variables:** age/gender/ prev admission/DRE/ vitals/Hb
  - **<8 →** 95% chance of safe discharge.
  - **No rebleeding, RBC TF or need for intervention**
  - **>8 – major bleed**
  - **Inferior to predict mortality. +rebleed and TF RBC**

- The Glasgow- Blatchford Score- UGIB. AO can be predicted in LGIB.

- STABLE (shock index <1) –minor→ discharge for outpt ffu
  - Minor → Discharged. Cscope within 2 weeks opd. *CRC. >50 (45)
  - Major → hospital admission and next list for endoscopy

History and Examination

Nature and duration of the bleeding & associated symptoms

- Timing of onset
- Rate of progression
- GI Specific symptoms present
    - Abdominal pain & diarrhoea→ colitis
    - Altered bowel habits & LOW → malignancy

PMHX

- Prior events of GI bleed
- GORD/PUD, diverticular dx, IBD, liver dx +portal hpt/ anaemia prev
- Abdominopelvic radiation
- Surgical hx
- Comorbidities- cardiopulmo, renal or hepatic → HR or poor outcome
- Drug hx→ NSAIDS/ aspirin/ anticoag/ DOAC/ steroids

- Substance Use Hx
  - Smoking/ETOH/illicit drugs
- Fam hx
  - NBL/IBD

Examination

- Vitals/ Postural changes → hypovolemia
- DRE- colour of stool. ?anorectal source/ perianal area/palpable mass
- Cardiopulmo/ abdominal

Labs

- FBC/UE/ INR PTT/ type and crossmatch

Hemodynamic resuscitation

- Keep NPO/ supp O2/ 2 large bore iv
- IV fluids→ crystalloid – goal BP and HR normalization

TRANSFUSION

- Restrictive transfusion strategy (AGA/BSG)
  - **Maintain hb >7g/dl. Target 9→** massive bleed/comx- cardiopulmo or ischemia/ or delay in therapeutic intervention
  - BSG: CVS: **trigger 8 and target Hb 10**
- RCT: Increased 6 week survival and reduced rebleeding. Most notable in portal hpt.
- In CAD/CVI/PVD UGIB crit care→ restrictive –increased risk of MI and cardiac arrest

Coagulation defects

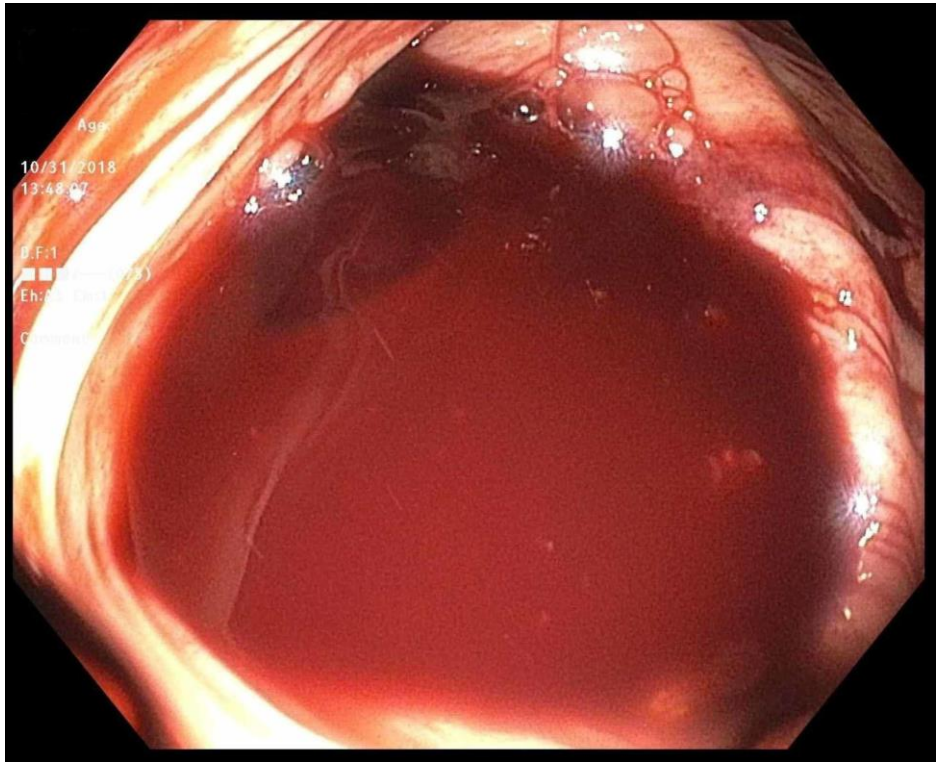
- Consideration of risk of ONGOING BLEED vs Thromboembolic event
- Endoscopic haemostasias → INR **1.5-2.5** before (no incr risk) or concomitant to administration of reversal agents
- **Reversal agents if INR >2.5**
- **Platelet tf – maintain >50** with massive bleed.
- **Massive RB tf**
  - Defn: >10units RBC in 24hrs/ 3+ units within 1 hr

  →plt (even normal plt) and plasma(FFP) tf 1:1:1

  →Better hemostasis and fewer deaths due to exsanguination

Colonoscopy

- Initial diagnostic procedure/ DO NOT recommend unprepped sigmoidoscopy
- Identify source & hemostasis
- TI intubation
- Large working channel (>3.3mm)→ wash- foot pedal, suction etc
- Stabilize then scope…
- **High risk endoscopic stigmata**
  - Active bleeding (spurting or oozing) / nonbleeding (visible vessel or adherent clot)
  - Source/site/experience
  - Diverticular/Angioectasia/post polypectomy



BOWEL PREP for Acute LGIB:

- Large volume & rapid protocol
  - Stabilized→ 4-6liters of polyethylene glycol based solution (with glycerine or water enemas) administered over 3-4hrs until rectal effluent is clear of blood and stool
  - NGT
  - Cscope within 1-2hrs of completion
  - Cx- aspiration/ electrolyte and fluid disturbances(older), hypotension, nausea and vomiting

- **Prokinetic or antiemetic agent prior to initiation of prep**
  - Facilitate gastric emptying/ decrease nausea

Timing of colonoscopy

- **HIGH RISK**: URGENT→ ongoing bleeding- WITHIN 24HRS
- **WITHOUT HIGH RISK/ no serious comx**: next available scope list.

- Urgent colonoscopy- 12-24hrs → improve diagnostic yield. Reduced hospital stay length. ?improved rebleeding or need for surgery

ORIGINAL RESEARCH FULL REPORT: CLINICAL—ALIMENTARY TRACT | VOLUME 158, ISSUE 1, P168-175.E6, JANUARY 01, 2020

Efficacy and Safety of Early vs Elective Colonoscopy for Acute Lower Gastrointestinal Bleeding

Ryota Niikura * • Naoyoshi Nagata * •
Atsuo Yamada * • ... Kazuo Hara •
Mitsuhiro Fujishiro • Kazuhiko Koike • Show all authors •
Show footnotes

Open Access • Published: September 26, 2019 •
DOI: https://doi.org/10.1053/j.gastro.2019.09.010 •

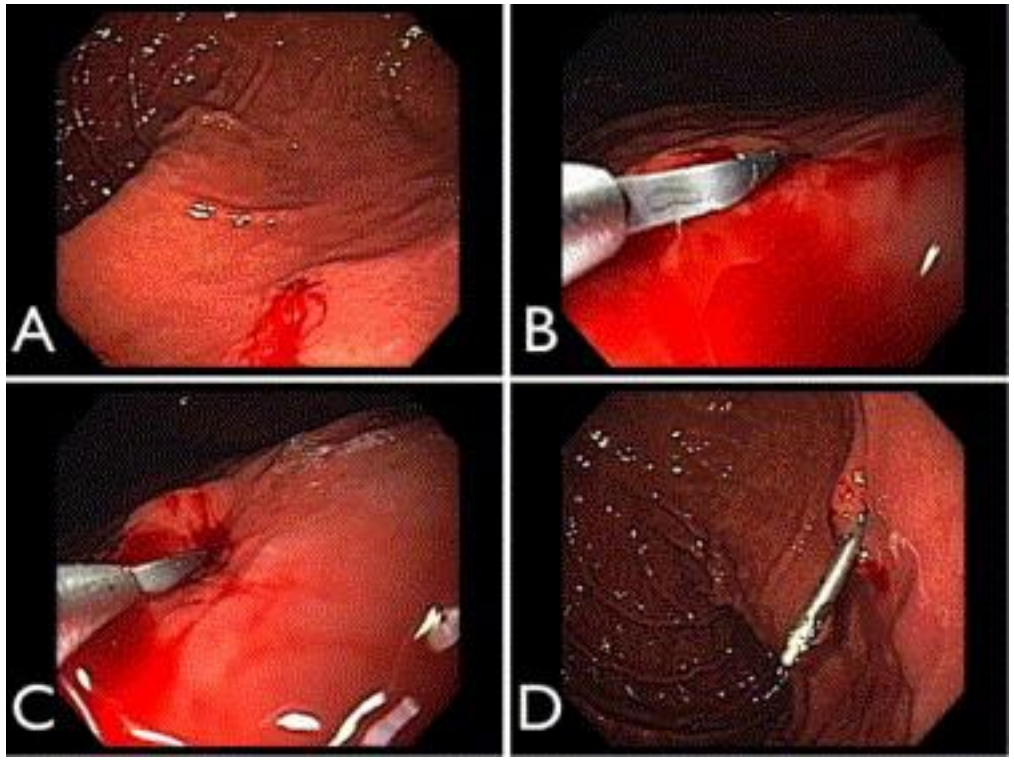
Multicenter, RCT to determine
15hospitals/170pts
Early – 24hrs/ Elective – 24-96hrs
Primary outcome- identification of stigmata of recent haemorrage
Secondary- rebleed in 30days, rx success, tf need, length in hosp, thrombotic events,death
Conclusion: no increase in SRH or reduction in bleed.

Endoscopic haemostasis

- Injection (dilute epinephrine 1:10 000)
- Contact thermal (bipolar/multipolar electrocoag)
- Noncontact thermal (APC)
- Through the scope clipping device
- Band ligation

- Hemostatic topical sprays/powders
- Large-sized over the scope clipping devices

- Mono/combination



- Epinephrine→ submucosa. Quadrantic 1ml 1: 10 000 around the target
- Avoid injection into hemorrhoidal vessels- may drain directly into systemic circulation

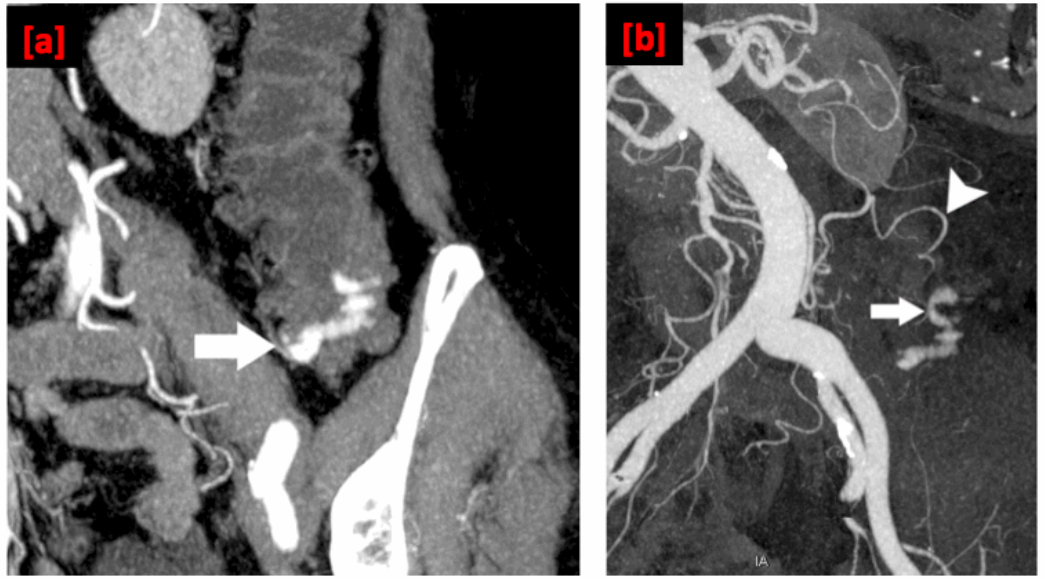
- Bipolar coagulation: Lower power/ less pressure & shorter pulses. in lower gi vs ugit → ERBE V10 10-15W. 2s pulses until vessel flattening
- APC: lower gas flow rates and power ERBE VIO 0.8L; 30W

CT Angiogram

UNSTABLE+ NO RESPONSE TO RESUSITATION

- Negative gscope
- First line- Diagnostic to **localize** bleed prior to +/- angiography.
- Widely available, feasible
- Sensitivity 79-95%/ specificity 95-100%
- Velocity of bleeding→ **0.3-1.0mL/minute**
- Higher yield in hemodynamically unstable/ no prep
- Highly accurate (almost 100%)

- Standard precautions: avoid contrast induced nephropathy/ blood loss AKI



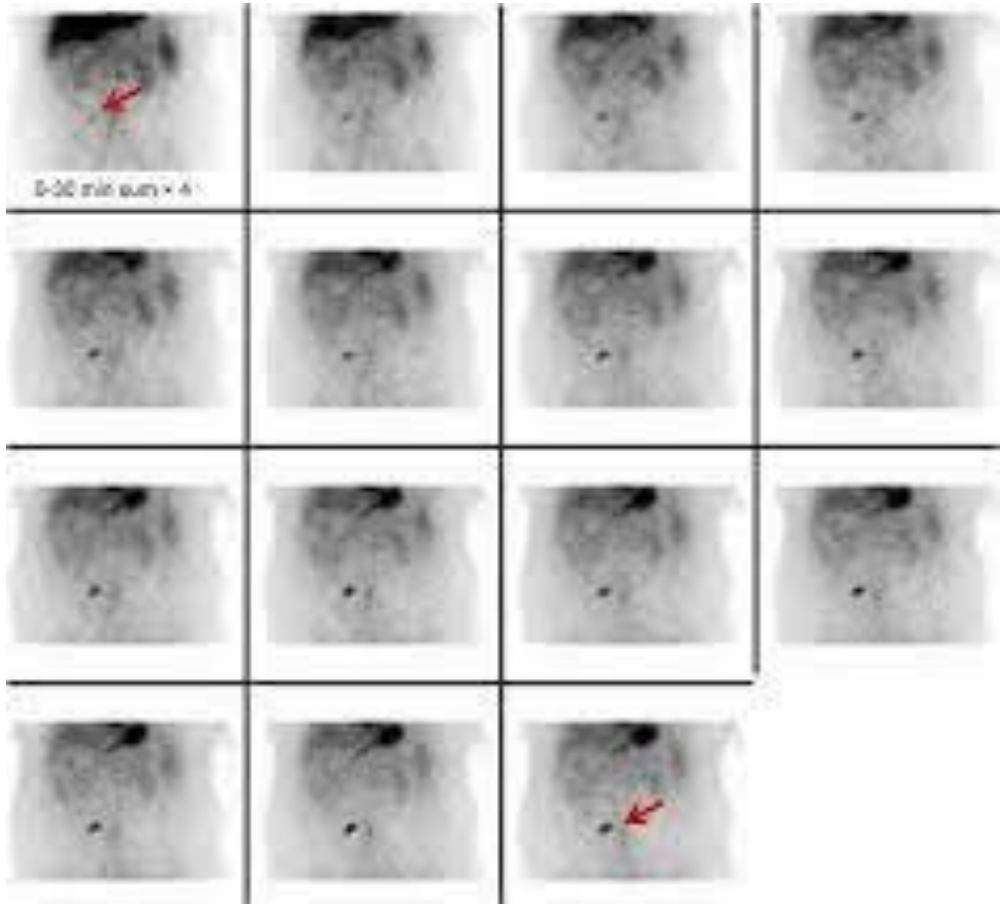
[a] Diverticular hemorrhage on arterial-phase coronal image
[b] Reformatted image from same CT scan shows vascular anatomy leading to lesion (arrowhead). This could facilitate precisely targeted invasive angiography.

Geffroy Y et al. Radiographics 2011 31:E41

Nuclear Medicine- Red cell scintigraphy

- Noninvasive. No prep
- Localize bleed. High sensitivity –comparable to CTA.
- if + also angio immediately to maximize success
- Accuracy – suboptimal in comparison to CTA.
- Bleeding rate →***0.1mL/min**

- ADVANTAGE: can perform multiple subsequent scans after initial injection of tagged cells
- Most suitable for evaluation of intermittent, obscure overt bleeds



Angiography

- Embolization should be performed asap post CTA to maximize chances of success
- Relies on VERY brisk ongoing bleeding
- **Rates of 0.5ml/min**
    - Visualization of bleeding point
    - Super selective angiographic embolization → immediate haemostasis 40-100%→ diverticular bleed
    - Coils, liquid agents or particles
        - Platinum coils/ N butyl cyanoarcylate / polyvinyl alcohol particles
- Complications: Bowel ischemia -7-24%/ short term rebleed 10-50%
- Empiric embolization- malignancy. Bleed not seen

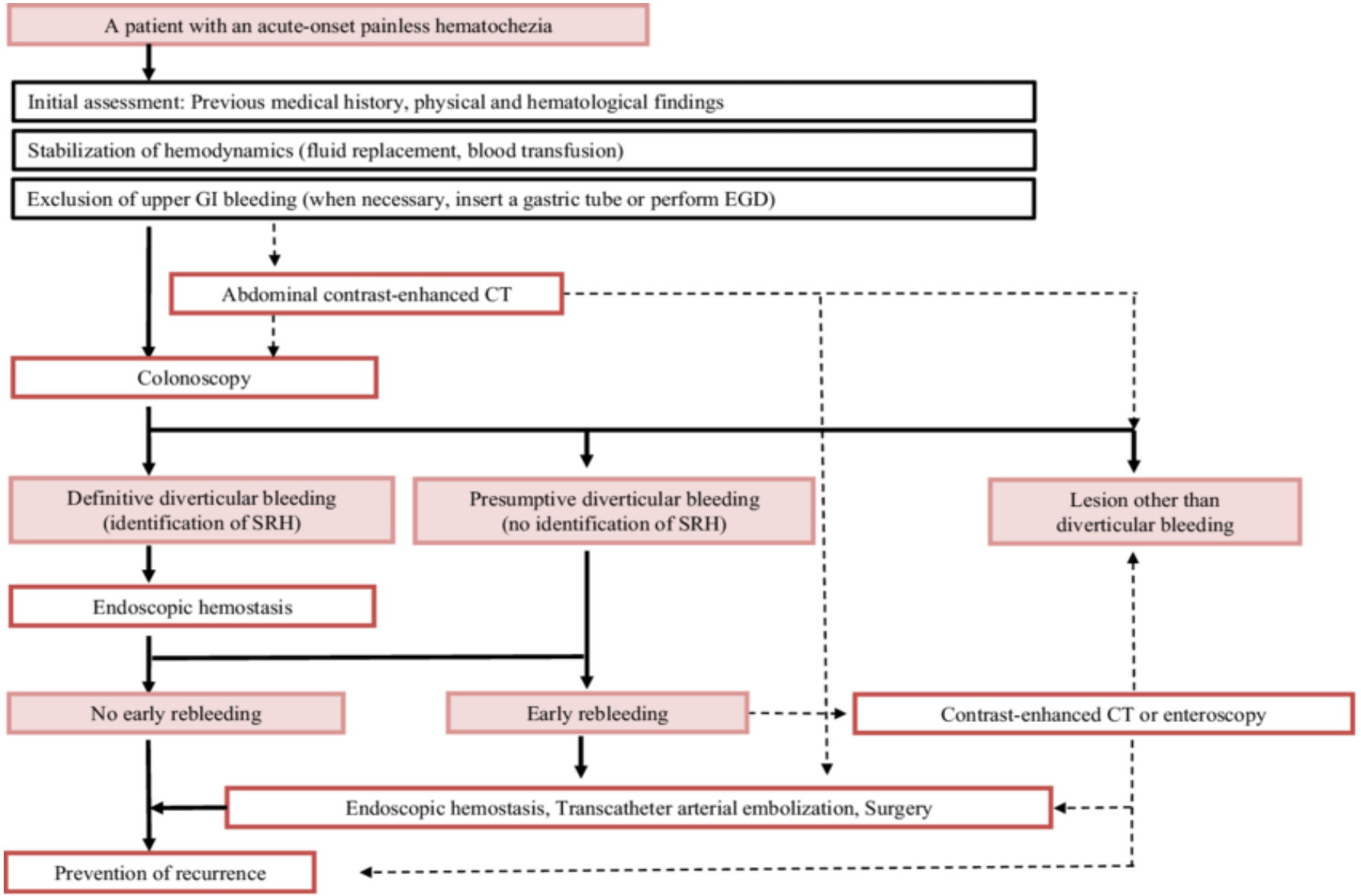
Surgery

- ***No patient should proceed to emergency laparotomy unless every effort has been made to localize bleed and rx with other methods*.**

- Emergent total abdominal colectomy or limited resection
- Uncommonly- aorto-enteric fistula→ direct to surgery

- Rebleeding rates 18% limited/ 4% total
- High mortality 27% post op

Diverticular bleed



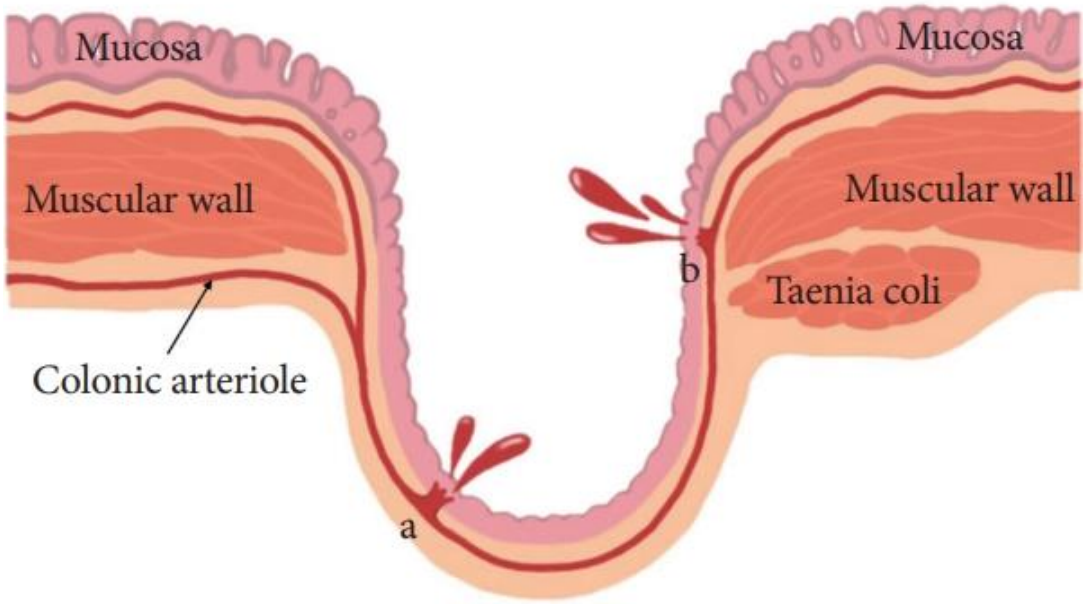
https://www.researchgate.net/publication/336239017/figure/fig1/AS:878288394260481@1586411679302/Flow-chart-in-the-management-of-lower-gastrointestinal-bleeding-and-colonic-diverticular.png

Diverticular bleed

Pathophysiology

- Intimal thickening and medial thinning of the vasa recta
- Exposure
- NSAIDS

- Abrupt, painless & self limited hematochezia
- Moderate –large
- Stop spontaneously in 80%
- 30day bleeding rate- 53%
- Emergency surgery 35%



Diverticular Bleed

Through the scope clips – first line –available, rapid to deploy, low risk, effective

Endoscopic band ligation → rebleeding within 30days in 6% vs clipping 33%

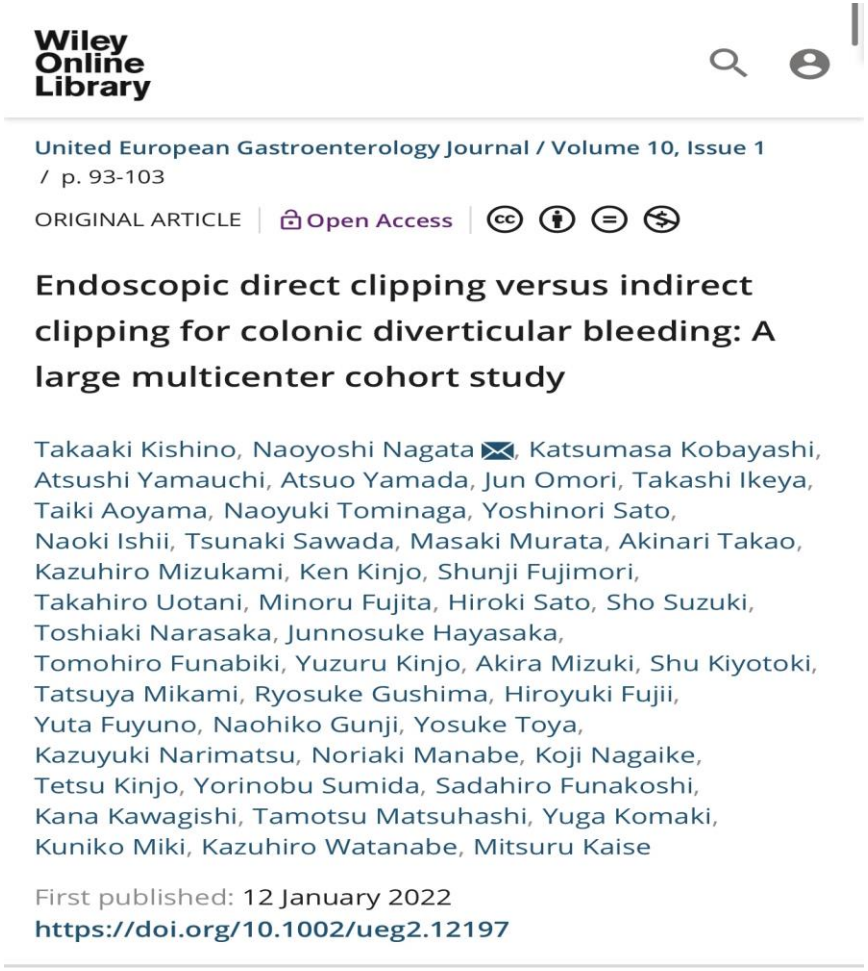
Banding→ removal of the scope after marking with clip & reintubation vs immediately with through the scope clip

Minimize perforation→ nonthermal > late diathermy induce perf

Epinephrine- then secondary modality

Hemostatic spray or powder- hemospray*

Diverticular Bleed



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United European Gastroenterology Journal / Volume 10, Issue 1 / p. 93-103

ORIGINAL ARTICLE | Open Access

Endoscopic direct clipping versus indirect clipping for colonic diverticular bleeding: A large multicenter cohort study

Takaaki Kishino, Naoyoshi Nagata, Katsumasa Kobayashi, Atsushi Yamauchi, Atsuo Yamada, Jun Omori, Takashi Ikeya, Taiki Aoyama, Naoyuki Tominaga, Yoshinori Sato, Naoki Ishii, Tsunaki Sawada, Masaki Murata, Akinari Takao, Kazuhiro Mizukami, Ken Kinjo, Shunji Fujimori, Takahiro Uotani, Minoru Fujita, Hiroki Sato, Sho Suzuki, Toshiaki Narasaka, Junnosuke Hayasaka, Tomohiro Funabiki, Yuzuru Kinjo, Akira Mizuki, Shu Kiyotoki, Tatsuya Mikami, Ryosuke Gushima, Hiroyuki Fujii, Yuta Fuyuno, Naohiko Gunji, Yosuke Toya, Kazuyuki Narimatsu, Noriaki Manabe, Koji Nagaike, Tetsu Kinjo, Yorinobu Sumida, Sadahiro Funakoshi, Kana Kawagishi, Tamotsu Matsuhashi, Yuga Komaki, Kuniko Miki, Kazuhiro Watanabe, Mitsuru Kaise

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https://doi.org/10.1002/ueg2.12197

Key summary

Established knowledge on this subject

- Among the various endoscopic therapies for colonic diverticular bleeding (CDB), the clipping technique is commonly used worldwide.
- Clipping methods for CDB are classified as direct or indirect, where direct clipping involves capturing the vessel directly and indirect clipping involves closing the diverticular orifice in a zipper-like manner.
- There has been no multicenter study with a large sample size that has evaluated the effectiveness of the two clipping methods for CDB.

What are the significant and/or new findings of this study?

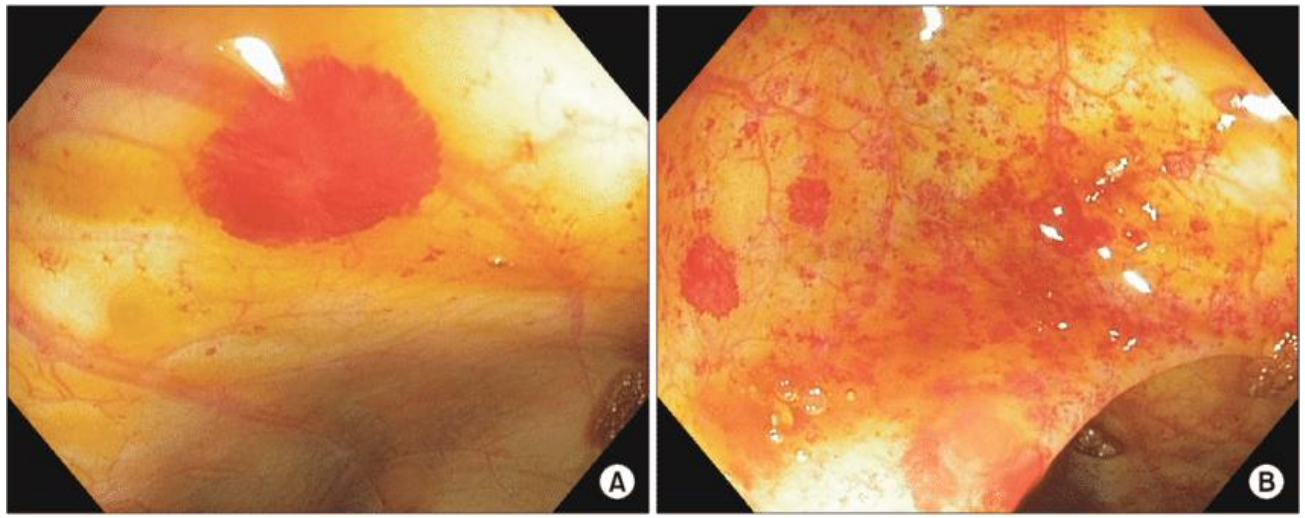
- Our large multicenter cohort study revealed that, compared with indirect clipping, direct clipping was associated with reduced risk of early rebleeding (within 30 days) after endoscopic treatment for CDB.
- Direct clipping also showed significantly reduced rates of late rebleeding (within 1 year) and blood transfusion requirement.
- In the stigmata of recent hemorrhage (SRH) with non-active bleeding group and right-sided CDB group, compared with indirect clipping, direct clipping was associated with lower rates of early and late rebleeding and blood transfusion need, but no associations were seen in the active bleeding group or left-sided CDB group.

- To determine short vs long term effectiveness of direct vs indirect
- 1041 patients with colonic diverticular bleeding. N – direct 360. N- indirect 681. 49 hospitals

Conclusions

Our large nationwide study highlights the use of direct clipping for CDB treatment whenever possible. Differences in bleeding pattern and colonic location can also be considered when deciding which clipping options to use.

Angioectasia



- **Colonic angioectasias, including radiation proctopathy**
  - Elderly
  - Antithrombotic agents
  - 29 Argon plasma coagula- tion therapy is considered the treatment of choice for these lesions
  - Ease of use, safety profile
  - Observations of increased hemoglobin levels
  - Reduced blood-transfusion requirements associated with its use

https://www.researchgate.net/publication/322848292/figure/fig1/AS:589025970769920@1517446143354/A-Angioectasia-at-the-hepatic-flexure-B-diffuse-angioectasias-of-the-ascending-colon.png

Angioectasia

THE LANCET
Gastroenterology & Hepatology

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ARTICLES | VOLUME 6, ISSUE 11, P922-932, NOVEMBER 01, 2021

Effectiveness and predictors of response to somatostatin analogues in patients with gastrointestinal angiodysplasias: a systematic review and individual patient data meta-analysis

Lia C M J Goltstein, MD • Karina V Grooteman, MD • Alba Rocco, MD • Grainne Holleran, MD • Santiago Frago, MD • Paulo S Salgueiro, MD • et al. Show all authors

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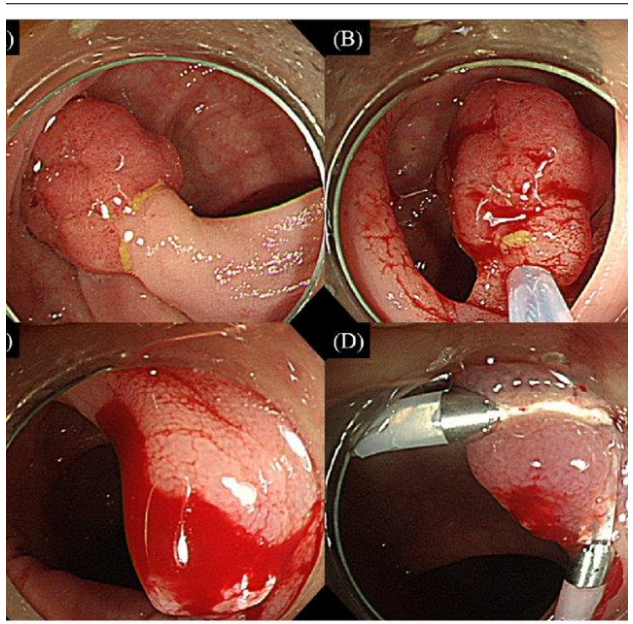
DOI: https://doi.org/10.1016/S2468-1253(21)00262-4 •

Implications of all the available evidence

Our study shows that somatostatin analogue therapy is safe and effective in most patients with red blood cell transfusion-dependent bleeding due to gastrointestinal angiodysplasias. Treatment is more effective in patients with angiodysplasias located in the small bowel and colon, and octreotide seems to be more effective than lanreotide. Both findings might be linked to somatostatin receptor expression in the gastrointestinal tract. An increased somatostatin analogue dose did not result in a larger reduction of red blood cell transfusions and adverse events were solely reported in patients on a higher dose. Therefore, we recommend octreotide 10 mg long-acting release (injected intramuscularly) every 28 days in patients with red blood cell transfusion-dependent bleeding secondary to gastrointestinal angiodysplasias that cannot be adequately controlled with endoscopic therapy.

Post-polypectomy bleed



https://www.researchgate.net/publication/339889182/figure/fig1/AS:868441179303937@1584063920544/A-case-of-postpolypectomy-bleeding-after-the-removal-of-a-large-pedunculated-polyp-a-A_Q640.jpg

- Discrete source of bleed→ likely already known location
- Colonoscopy
- Heater probe and bipolar diathermy used with caution/ reduced energy
- Through the scope clips > + epinephrine
- Thermal safer in thick walled area. Rectum, below peritoneum reflection

Prevent Recurrent LGIB

- Diverticular rebleed- 15%. Another diverticulum
- Angioectasia- new lesion, anywhere in GIT

ANTIPLATELET AGENTS

- 3x increase in rebleed with single agent
- ASPIRIN→ irreversibly inhibits function of plts 5-7 day lifespan.
- Endothelial prostaglandin synthesis –shorter.
- **Nonaspirin NSAID** use-NOT recommened (esp Diverticular or angiectasia on hx)

- **High Risk CVD + Hx LGIB**
  - Primary prophylaxis –stop permanently
  - Secondary prophylaxis –continue. If stopped restart as soon as haemostasis achieved. d/cont 3 incre in cvd/cvi cx.in 7-10days of stopping.

- **Dual antiplt or monotherapy (P2Y12/clopidegrel)**
  - **Cont aspirin / liase with cardiology. Other drug stopped.**
  - Resume within 5(BSG)- 7days (AGA)→ MDT
  - ACS, past 90 days or PCI/stent, 30days

WARFARIN

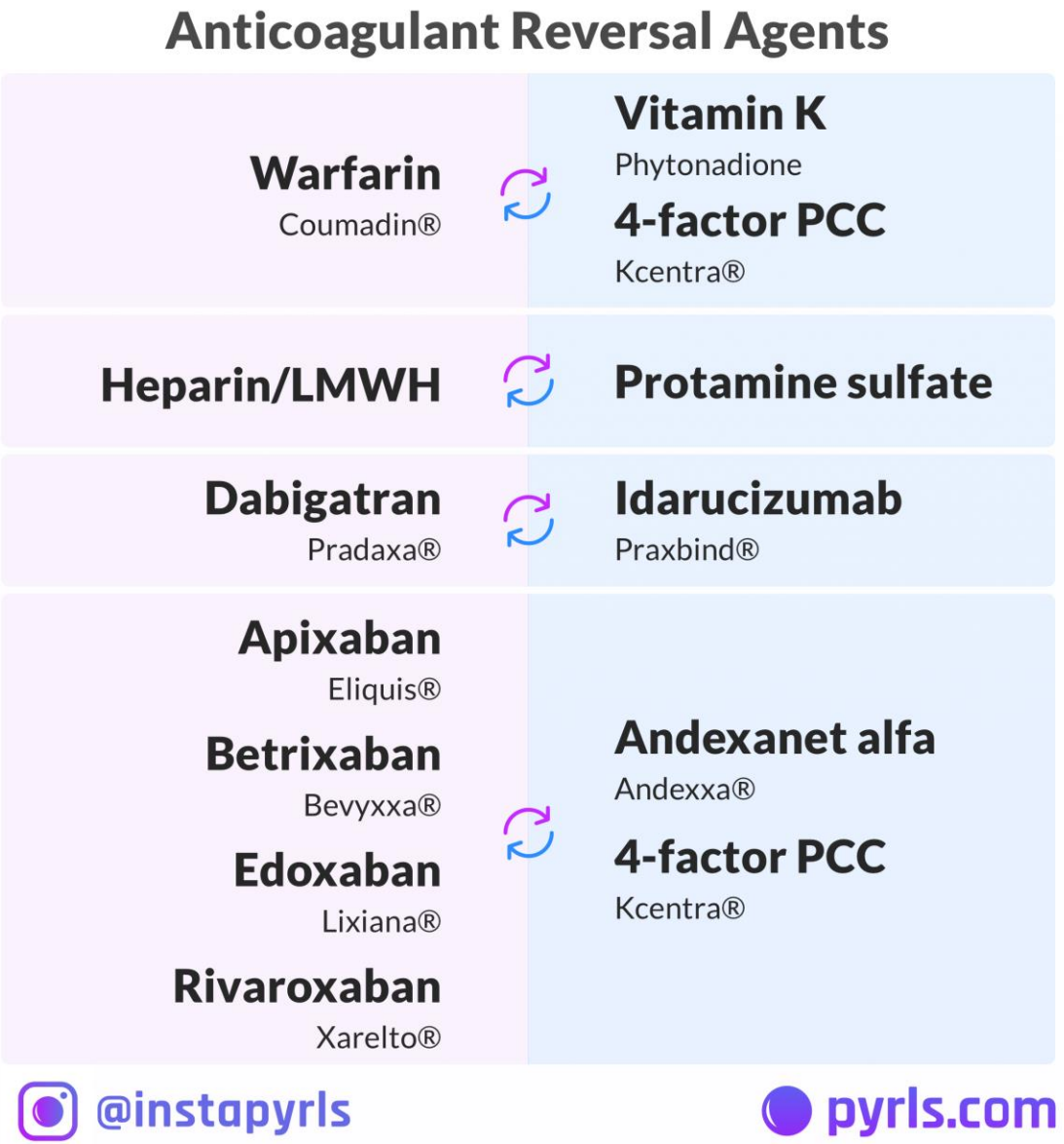
- Interrupt Rx at presentation
  - **Unstable-** reversal with prothrombin complex concentrate or vit K
  - **Low thrombotic risk, restart at 7days**. Starting prior to this 2x incr in rebleed.
  - Half life 3-5days after d/cont.

  - High risk THROMBOTIC patients – metallic prosthetic heart valve+ AF. Mitral stenosis/ <3/12 after VTE. LMWH 48hrs after bleed as a bridge

DOACS

- Stop at presentation
- Reversal/ inhibitors for life threatening bleed
- Prothrombin complex concentrate reverses rivaroxaban but not dabigatran
- Haemodialysis – dabigatran.

- Elective- washout period →drug half life
- **Restart at max 7days post haemostasis**
- High risk for rebleed- consider warfarin. *



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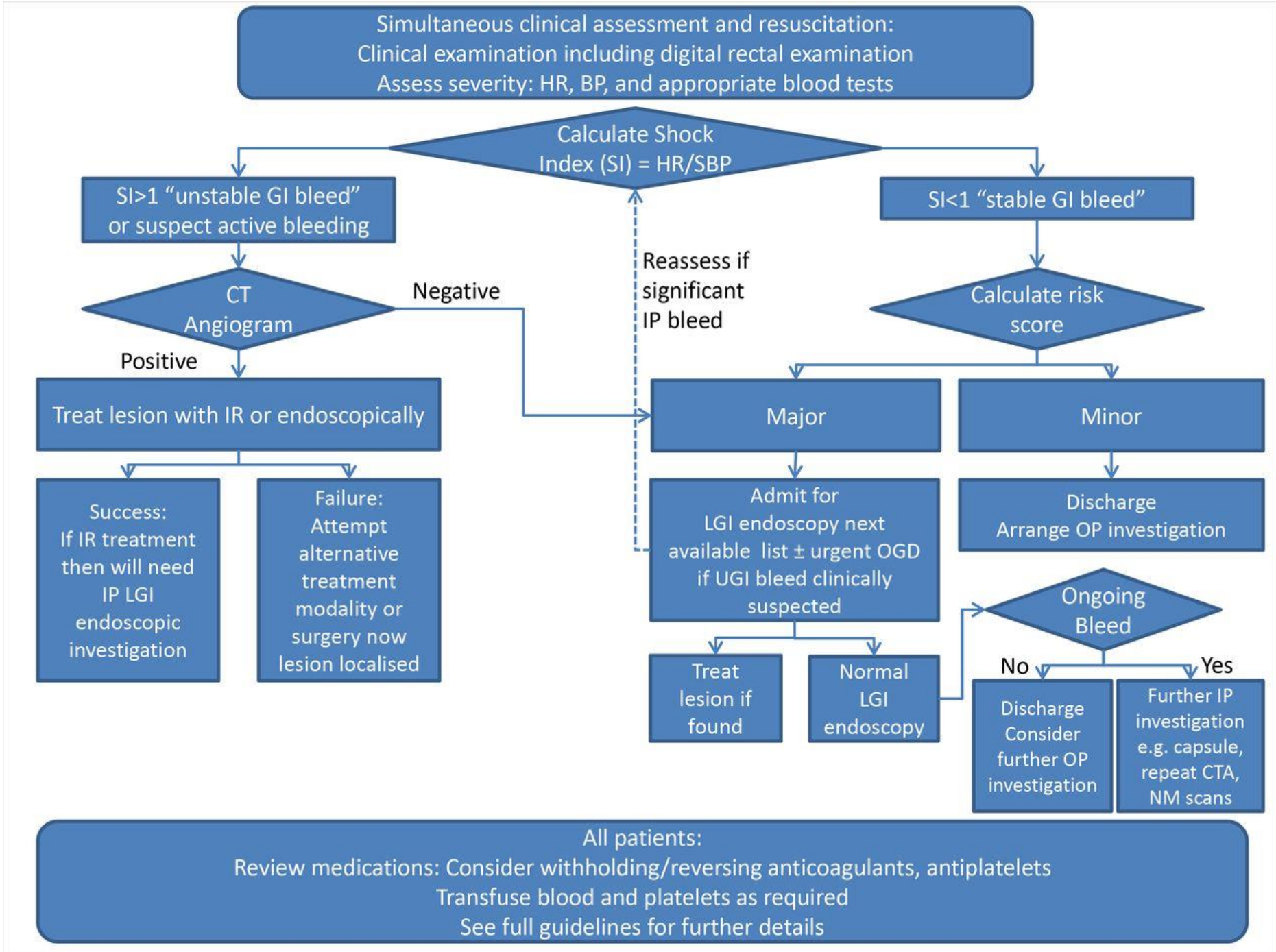
Simultaneous clinical assessment and resuscitation:
Clinical examination including digital rectal examination
Assess severity: HR, BP, and appropriate blood tests
Calculate Shock Index (SI) = HR/SBP
SI>1 "unstable GI bleed" or suspect active bleeding
SI<1 "stable GI bleed"
CT Angiogram
Negative
Positive
Reassess if significant IP bleed
Calculate risk score
Treat lesion with IR or endoscopically
Major
Minor
Success: If IR treatment then will need IP LGI endoscopic investigation
Failure: Attempt alternative treatment modality or surgery now lesion localised
Admit for LGI endoscopy next available list ± urgent OGD if UGI bleed clinically suspected
Discharge Arrange OP investigation
Ongoing Bleed
Treat lesion if found
Normal LGI endoscopy
No
Yes
Discharge Consider further OP investigation
Further IP investigation e.g. capsule, repeat CTA, NM scans
All patients:
Review medications: Consider withholding/reversing anticoagulants, antiplatelets
Transfuse blood and platelets as required
See full guidelines for further details

References

- Textbook – Sleisenger and Fordtran's, Gastrointestinal and Liver Disease. Edition 11. Mark Feldman et al.
- AGA Clinical Guideline: Management of Patients With Acute Lower Gastrointestinal Bleeding. L.Strate MD, Ian M Gralnek
- BSG Diagnosis and Management of acute lower gastrointestinal bleeding. K Oakland et al
- ESGE Guideline: diagnosis and management of acute lower gastrointestinal bleeding. K Triantaylllou et al.
- World Journal gastroenterology: initial management for acute lower gastrointestinal bleed. T Aoki et al.
- Image referencing within text

Thank you for your attention!

- Questions?