“Massive UGIB can shake the Equanimity of the most experienced clinician”
Definitions

- Haematemesis: vomiting up of blood
  Proximal to ligament of Trietz

- Bright red: rapid and sizeable bleeding

- Coffee-ground: smaller bleed
- Melaena: Black tarry stool (> 60 ml)

- Occasionally hemorrhage into jejunum, ileum & right colon can cause melaena if transit is low. Contact time 8 h

- Massive UGIH may cause haematochezia if transit is rapid
Epidemiology

Incidence:
USA: 100 per 100,000 / year
UK: 103 per 100,000 / year

Mortality: 10 - 15%
Almost all deaths:
1- Elderly
2- Medical problems
Causes

- Distribution varies
- Cause°: 10 - 15%
- Multiple causes: 20 - 30%
The 3 Most Common Causes

1- Oes varices
2- Gastritis / Erosions
3- DU
<table>
<thead>
<tr>
<th>Oes:</th>
<th>Duod / Juju:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Varices</td>
<td>Peptic ulcer</td>
</tr>
<tr>
<td>Mallory - Weiss tear</td>
<td>Erosions / duodenitis</td>
</tr>
<tr>
<td>Ca</td>
<td>Vascular malformations</td>
</tr>
<tr>
<td>Reflux</td>
<td>Haemobilia</td>
</tr>
<tr>
<td>Foreign body</td>
<td>Polyps (including Peutz-Jeghers</td>
</tr>
<tr>
<td></td>
<td>syndrome and other polyposis syndromes)</td>
</tr>
<tr>
<td></td>
<td>Aorto - enteric fistula</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stom:</th>
<th>Idiopathic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peptic ulcer</td>
<td></td>
</tr>
<tr>
<td>Erosions / gastritis</td>
<td></td>
</tr>
<tr>
<td>Varices</td>
<td></td>
</tr>
<tr>
<td>Portal hypertensive</td>
<td></td>
</tr>
<tr>
<td>gastropathy</td>
<td></td>
</tr>
<tr>
<td>Ca</td>
<td></td>
</tr>
<tr>
<td>Lymphoma</td>
<td></td>
</tr>
<tr>
<td>Leiomyoma</td>
<td></td>
</tr>
<tr>
<td>Angiodysplasia</td>
<td></td>
</tr>
<tr>
<td>(including Osler’s</td>
<td></td>
</tr>
<tr>
<td>disease)</td>
<td></td>
</tr>
<tr>
<td>Dieulafoy’s</td>
<td></td>
</tr>
</tbody>
</table>
Massive UGIB

1- Oes / gas varices
2- Gas ulcer
3- DU
4- Stress
5- Dieulafoy’s
6- Aorto - enteric fistula
Bleeding with Cutaneous Stigmata

1- Hereditary haemorrhagic telangiectasia (R-O-W Syndrome)
2- Pseudoxanthoma elasticum
3- Ehlers - Danlos Syndrome
4- Degos’ Disease
5- Peutz - Jeghers Syndrome
R-O-W Syndrome
## Upper G I Toxicity of NSAID

<table>
<thead>
<tr>
<th>Relative Risk</th>
<th>NSAID</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>Ibuprofen</td>
</tr>
<tr>
<td>+</td>
<td>Fenoprofen</td>
</tr>
<tr>
<td>+</td>
<td>Aspirin</td>
</tr>
<tr>
<td>+</td>
<td>Diclofenac</td>
</tr>
<tr>
<td>++</td>
<td>Sulindac</td>
</tr>
<tr>
<td>++</td>
<td>Diflunisal</td>
</tr>
<tr>
<td>++</td>
<td>Naproxen</td>
</tr>
<tr>
<td>++</td>
<td>Indomethacin</td>
</tr>
<tr>
<td>+++</td>
<td>Tolmetin</td>
</tr>
<tr>
<td>+++</td>
<td>Piroxicam</td>
</tr>
<tr>
<td>+++</td>
<td>Ketoprofen</td>
</tr>
<tr>
<td>+ + +</td>
<td>Azopropazone</td>
</tr>
</tbody>
</table>

*+, low; ++ medium; +++, high*
H hernia

Oes varices
D diverticulum
Gastric cancer

D diverticulum

Oesophageal cancer

Gas ca

Oes ca
Body Response of Acute Bleeding

1- Significant:
   Syncope, p hypotension, pallor, tach & ↓ JVP

2- 500 ml loss: changes° except:
   a- Elderly
   b- Existing anemia
   c- Cardiovascular disease

3- Tach & postural fall >20 mmHg
   The most sensitive signs of hypovolaemia
Clinical Presentation

Depends On:

1- Amount
2- Rate
3- General health
1- Haematemesis +/- Melaena
2- Shock
3- Chronic anaemia
4- M I , C V A
Evaluation
### History: 50%

| 1. Dyspepsia   | 7. Chronic liver disease   |
| 2. Heart burn  | 8. NSAID                   |
| 3. Dysphagia & weight loss | 9. Anticoagulants         |
| 4. Peptic ulcer | 10. Bruises               |
| 5. Vomiting / retching followed by haematemesis | 11. Aortic graft |
Examination

1- Shock: Pallor, Pulse, BP, P. hypotension
2- Stigmata of cirrhosis
3- Purpura, pigmented, Telangiectasia
4- Abdomen:
   ■ Tenderness
   ■ Masses
   ■ Hepato, spleno, dilated veins, ascites
5- Jaun + abd pain + melaena: Haemobilia
6- DRE
Investigations

1- CBC: “Hb poor indicator of volume loss”
2- U & Es
3- LFTs
4- INR, PTT
5- Grouping & X-matching
6- ABG
7- CXR
8- ECG
Specific Investigations

1- Endo: All
2- B Meal
3- Radionuclide
4- Angio
OGD Investigation of Choice

1- Diagnostic

2- Therapeutic

3- Predictor of continuous / recurrence
Endo Criteria of ↑ Risk Bleed in Oes Varices

1- Diffuse redness
2- Haematocystic spot
3- Large tortuous varices
4- Proximal extension
5- Oesophagitis
<table>
<thead>
<tr>
<th>Endo Criteria of Cont/Rec DU Bleed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1- Arterial spurator</td>
</tr>
<tr>
<td>2- Vessel in base of ulcer</td>
</tr>
<tr>
<td>3- Adherent clot</td>
</tr>
</tbody>
</table>
Complications of OGD

1- Aspiration
2- Bleeding
3- Perforation
4- Fever
5- Respiratory depression
6- Reactions to sedatives
### Relationship Between Clin and Endo Diag and Risk of Recu Bleed (MacLeod & Mills, 1982)

<table>
<thead>
<tr>
<th>Clinical</th>
<th>Rebleed Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>History of recent Alcohol</strong></td>
<td></td>
</tr>
<tr>
<td>Negative</td>
<td>15</td>
</tr>
<tr>
<td>Positive</td>
<td>30</td>
</tr>
<tr>
<td><strong>Shock</strong></td>
<td></td>
</tr>
<tr>
<td>Present</td>
<td>69</td>
</tr>
<tr>
<td>Absent</td>
<td>21</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>&lt; 60</td>
<td>18</td>
</tr>
<tr>
<td>≥ 60</td>
<td>34</td>
</tr>
<tr>
<td><strong>Endo</strong></td>
<td></td>
</tr>
<tr>
<td>Varies</td>
<td>42</td>
</tr>
<tr>
<td>DU</td>
<td>32</td>
</tr>
<tr>
<td>GU</td>
<td>48</td>
</tr>
<tr>
<td>Oesophagitis/gastritis/duodenitis</td>
<td>6-14</td>
</tr>
<tr>
<td>Mallory-Weiss</td>
<td>13</td>
</tr>
</tbody>
</table>
# Relationship Between Endo Stigmata of Recent Bleed and Re-Bleed Rate

<table>
<thead>
<tr>
<th>Stigma</th>
<th>Re-Bleed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actively spurting vessel</td>
<td>75 - 85</td>
</tr>
<tr>
<td>Visible vessel, not actively bleeding</td>
<td>50</td>
</tr>
<tr>
<td>Flat, red/black spot</td>
<td>8 - 10</td>
</tr>
<tr>
<td>No stigmata</td>
<td>0 - 5</td>
</tr>
</tbody>
</table>
1- ↓ diag accuracy

2- Obscures endo & angio studies

3- Chronic cases

4- Diagnostic
Predictors of Poor Prognosis

1- Age > 60 y
2- Shock (> 6 units)
3- Endo stigmata of recent bleed
4- Pathology
5- Concomitant disease
1- Bed rest
2- I V fluids
3- $O_2$: 5-10 l/min
4- Transfusion
5- Folye’s
6- Lavage
7- Tamponade
8- CVP
9- $H_2$ antagonist: no role
   ■ Prevent erosive gastritis
   ■ Prevent stress ulcer, ? Re-bleed
Tamponade

L N tube

S B tube
Outcome of Resuscitation

- 80% stop
- 20%:
  1. Continue to bleed
  2. Re-bleed within 48 h of adm
Non- operative Management

1- Endo:
- Nd - YAG
- Monopolar, BICAP, heater probe, APC
- Injection: sclerosants, alcohol, vasoconstrictors, adrenaline, thrombin, fibrin glue
- Banding
- Haemoclip

2- Radio:
- Emoblization (varices, gastritis, angiodysplasia)
- TIPS

3- Pharma: Vasopressin, Somatostatin, β-Blockers
### Endo modalities for UGIH

<table>
<thead>
<tr>
<th>Injection</th>
<th>Thermal</th>
<th>Mechanical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adrenaline (1:10,000 or 1:20,000)</td>
<td>Heater probe</td>
<td>Haemoclip</td>
</tr>
<tr>
<td>Fibrin glue</td>
<td>Bicap probe</td>
<td>Banding</td>
</tr>
<tr>
<td>Human thrombin</td>
<td>Gold probe</td>
<td>Endoloops</td>
</tr>
<tr>
<td>Sclerosants</td>
<td>APC</td>
<td>Staples/sutur</td>
</tr>
<tr>
<td>Alcohol</td>
<td>Laser</td>
<td></td>
</tr>
</tbody>
</table>
- Multiple varices ligation
- Excellent endoscopic view
- Firm and precise ligation
- High cost effectiveness
After placement, collaterals are less
UGIB

- Continuing massive hemorrhage
  - Emergency endoscopy
  - Definite bleeding lesion
    - Manage

- Recent hemorrhage, adequately resuscitated bleeding stopped
  - Early endoscopy
    - No recent bleed, normal endoscopy
      - Observe
        - Positive
          - Angio

- Hemorrhage >3 days stable
  - Non-urgent endoscopy
    - Recent bleeding but no lesion OR recurrent bleeder of uncertain cause OR actively bleeding but normal endoscopy
      - 99m Tc-labelled RBC scan
        - Negative
          - Laparotomy & Perioperative endoscopy
        - Positive
          - Angio
Erosive Gastritis

Antacids
H2-anta / PPI
Gastric lavage
Eliminae underlying cause

No hemorrhage
Medical management
Antacids
H2-anta / PPI
sucralfate

Continued hemorrhage
Endoscopic hemostasis
Intraarterial vasopressin
Operative treatment
H. Pylori
CLOtest

Rapid Urease Test
= Positive
= Negative

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## Peptic Ulcer

- **80%**: stops sponta
- **25%**: intervention
- **Rx:**
  1. **Endo**:
     - Nd - YAG, Bipolar, Heat probes, Adrenaline, Sclerosant, Clips *(no technique superior)*
  2. **Surgery**:
     - DU: suturing, vago + pylorop
     - All receive anti H Pylori
     - Gastric: resection, P gastrec
Bleeding Peptic Ulcer

Low risk of rebleeding
- Monitor
- No further bleeding

Active bleeding or high risk of rebleeding (shock, visible vessel)
- Endoscopic therapy
  - Rebleed
  - Unable to control bleeding
    - Repeat endoscopic therapy
      - Rebleed
    - Surgery
Bleeding Oes Varices

1- 90 % portal hypertension have varices
2- 30 % with varices will bleed
3- 80 % comes from varices
4- 70 % rebleed
5- Mortality : 50 %
6- Survival depends on degree of hepatic impairment
Treatment

1- Vasopressin & Octreotide
2- Tamponade: 90 % suc. 50 % re-bleed within 24 h removal
3- Endo: banding, sclero
4- Tipss: ↓re-bleed but ↑enceph
   Morta 1 %
5- Surgery: transection, devascularization, shunting

Emergency shunting: 20 % morta & 50 % enceph
Bleeding Esophageal Varices

- Sclerotherapy
  - No further bleeding
    - Definitive treatment
      - Sclerotherapy
      - Devascularization
        - Shunt
        - Liver transplantation
    - Continued hemorrhage
      - Temporizing methods
        - Vasopressin
        - Balloon tamponade
      - Sclerotherapy
        - No further bleeding
        - Continued hemorrhage
          - TIPS
          - Operative
# Bleeding Gas Varices

1- Endo:  
- Sclero:  
  - Ethonalamine oleate & Polidocanal: poor results  
  - Ethonalamine oleate & N-butyl-2-cyanoacrylate (NC): successful?  
- Embolism  
  - ligation (EVL)  

2- Radio:  
- Balloon-occluded retrograde transvenous obliteration  
- Transjugular retrograde obliteration  
- TIPS  

3- Surgical:  
- Devascularization  
- Resection of upper stomach
Prevention bleed varices

A- Primary:

1- β-blockers: bleed by 40 – 50 %

2- Banding: may be considered

3- Sclero / shunting: Ineffective
B – Secondary:

1- 70 % variceal bleed re-bleed
2- β – Blockers
3- Ligation
4- Sclero
5- TIPS
6- Surgery
Dieulafoy’s lesion

- Rare
- Large s/m artery protruding through m
- Within 6 cm of G - O junction on lesser
- Rx: injection, thermal, clipping, banding

Single: 50% rebleeding

Combined: 20% rebleed. 90% success
Indications for Surgery

1- Continuing bleed
2- Re-bleed
3- Failure of endo
4- Pathology:
   - Chronic posterior DU with clot adherent to a large artery
   - Gastric ulcer: Re-bleed is common
5- Fitness: elderly or ill
6- Loss > 30% blood volume
**Unknown Source of Bleed**

OGD & Colonoscopy fail to detect bleeding: S. bowel lesions are often responsible

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Haemobilia</td>
</tr>
<tr>
<td>2.</td>
<td>Ulcerating panc / duod tumours</td>
</tr>
<tr>
<td>3.</td>
<td>Aorto / cavo duod fistula</td>
</tr>
<tr>
<td>4.</td>
<td>Meckel’s</td>
</tr>
<tr>
<td>5.</td>
<td>Polyps</td>
</tr>
<tr>
<td>6.</td>
<td>Smooth muscle tumours</td>
</tr>
<tr>
<td>7.</td>
<td>Angiodysplasia</td>
</tr>
<tr>
<td>8.</td>
<td>Lymphoma</td>
</tr>
<tr>
<td>9.</td>
<td>TB</td>
</tr>
<tr>
<td>10.</td>
<td>Crohn’s</td>
</tr>
<tr>
<td>11.</td>
<td>Cavernous haemangioma</td>
</tr>
<tr>
<td>12.</td>
<td>Hamartoma</td>
</tr>
<tr>
<td>13.</td>
<td>Duplication cyst</td>
</tr>
<tr>
<td>14.</td>
<td>Chronic pancreatitis</td>
</tr>
<tr>
<td></td>
<td>Investigations</td>
</tr>
<tr>
<td>---</td>
<td>----------------</td>
</tr>
<tr>
<td>1-</td>
<td>Small bowel enema: most useful</td>
</tr>
<tr>
<td>2-</td>
<td>Radionuclide</td>
</tr>
<tr>
<td>3-</td>
<td>Sel S M angio</td>
</tr>
<tr>
<td>4-</td>
<td>CT, MRI, MRA, MRCP</td>
</tr>
<tr>
<td>5-</td>
<td>Capsule endoscopy</td>
</tr>
<tr>
<td>6-</td>
<td>Lapa + Intraop enteroscopy (IOE)</td>
</tr>
</tbody>
</table>
Radionuclide Studies

1- More in L G I bleed

2- Bleed rate: 0.1 ml/min

3- Of value in intermittent bleed
Radionuclide Scanning

- Technetium Pertechnetate (99Tcm)
- Sulphur-colloid (TcSc): emergency
- Technetium-labeled autologous red cells (intermitent bleeding) long time
## Angiography

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1-</td>
<td>Bleed rate &gt; 0.5 - 1.0 ml/m</td>
</tr>
<tr>
<td>2-</td>
<td>Diagno &amp; Therap</td>
</tr>
<tr>
<td>3-</td>
<td>Accuracy: 90%</td>
</tr>
<tr>
<td>4-</td>
<td>Complication: 2%</td>
</tr>
<tr>
<td></td>
<td>□ Catheter</td>
</tr>
<tr>
<td></td>
<td>□ Contrast</td>
</tr>
<tr>
<td></td>
<td>□ With embolization → perforation</td>
</tr>
</tbody>
</table>
## Conclusion

1. Collaboration of Gastroentero, Radio & surgeon
2. NSAID important cause
3. Only 10 - 20% require intervention
4. Early endoscopy
5. Variceal bleed has a significantly higher mortality than others
Thank You
## Angiographic Therapy of UGIH

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Success Rate in Arresting Hemorrhage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Mallory-Weiss tear</td>
<td><strong>Vasopressin infusion into left gastric artery</strong> 77</td>
</tr>
<tr>
<td></td>
<td><strong>Gelfoam embolization of left gastric artery</strong> 88</td>
</tr>
<tr>
<td>2. Stress ulceration</td>
<td><strong>Vasopressin infusion into left gastric artery</strong> 75-84</td>
</tr>
<tr>
<td></td>
<td><strong>Gelfoam embolization of left gastric artery</strong> 80</td>
</tr>
<tr>
<td>3. Gastric ulcer</td>
<td><strong>Vasopression infusion</strong> 65-70</td>
</tr>
<tr>
<td></td>
<td><strong>Embolization</strong> 79</td>
</tr>
<tr>
<td>4. Duodenal ulcer</td>
<td><strong>Vasopressin infusion</strong> 33-62</td>
</tr>
<tr>
<td></td>
<td><strong>Embolization</strong> 79</td>
</tr>
</tbody>
</table>
## Endoscopic stigmata of ulcer bleeding: prevalence, risks of rebleeding and reduced risk of rebleeding following endoscopic treatment

<table>
<thead>
<tr>
<th>Endoscopic Appearance</th>
<th>Prevalence (%)</th>
<th>Rebleed Rate with success Endoscopic Stigmata</th>
<th>Rebleed Rate with Endoscopic treatment (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active arterial bleeding</td>
<td>12</td>
<td>90</td>
<td>15-30</td>
</tr>
<tr>
<td>Visible Vessel</td>
<td>22</td>
<td>50</td>
<td>15-30</td>
</tr>
<tr>
<td>Adherent clot</td>
<td>10</td>
<td>33</td>
<td>5</td>
</tr>
<tr>
<td>Oozong without stigmata</td>
<td>14</td>
<td>10</td>
<td>Not available</td>
</tr>
<tr>
<td>Flat spot</td>
<td>10</td>
<td>7</td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Clean base ulcer</strong></td>
<td><strong>32</strong></td>
<td><strong>3</strong></td>
<td>Not available</td>
</tr>
</tbody>
</table>
Endoscopic Management of Continuous or Recurrent DU Bleeding

1- Diluted adrenaline 1 : 10,000

2- 3 - 4 injections of 0.5-2 ml of edges

3- 1 injection of 0.5 - 2 ml into base