DYSPHAGIA & ACHALASIA

APPROACH • MOTILITY DISORDERS • CANCER RED FLAGS **KMU FINAL YEAR MEDICINE**

1. DYSPHAGIA: THE FIRST QUESTION

Is it **Solids only** or **Solids + Liquids**?

A. Mechanical Obstruction (Solids First):
- Progressive: Cancer (Older), Peptic Stricture (GERD hx).
- Intermittent: Schutski's Ring, Eosinophilic Esophagitis.

B. Motility Disorder (Solids + Liquids):
- **Achalasia:** Regurgitation of undigested food.
- **Diffuse Esophageal Spasm:** Chest pain mimicking MI ("Corkscrew esophagus").
- **Scleroderma:** "Lead pipe" rigidity.

2. ACHALASIA CARDIA

Mechanism:
- Degeneration of **Auerbach's Plexus** (Myenteric).
- Failure of LES (Lower Esophageal Sphincter) to relax.
- Loss of Peristalsis.

Diagnosis:
1. **Barium Swallow:** "Bird's Beak" appearance (tapering).
2. **Manometry (Gold Standard):** High resting LES pressure + Incomplete relaxation.

Treatment:
- **Surgical (Best):** Heller's Myotomy (+ Fundoplication to prevent GERD).
- **Endoscopic:** Pneumatic Dilation (Risk: Perforation).
- **Medical:** Botox injection (Temporary).

3. ESOPHAGEAL CANCER (RED FLAGS)

🚨 THE WARNING SIGNS
Patient: Age > 55, Smoker/Drinker.
Symptoms: Progressive Dysphagia (Solids -> Softs -> Liquids) + Weight Loss.
Action: Urgent Endoscopy + Biopsy.
Beware: Barium swallow showing "Apple Core" lesion or "Shouldering".

4. ZENKER'S DIVERTICULUM

What is it? Pouch in upper esophagus (Killian's Dehiscence).
Signs: Halitosis (Bad breath), Regurgitation of old food, Neck lump that gurgles.
Diagnosis: Barium Swallow. (Do NOT stick an endoscope blindly - Risk of Perforation!).

5. CLINICAL SCENARIOS (HIGH YIELD)

Q: 30F, dysphagia to liquids and solids. Barium shows Bird's Beak. Next step?
Manometry to confirm Achalasia diagnosis.

Q: 60M, smoker, food sticking in chest. Lost 10kg. Barium shows irregular narrowing with proximal shoulder.
Esophageal Carcinoma. Irregularity + Shouldering = Malignancy.

Q: Young man with food sticking. History of asthma/eczema. Endoscopy shows "trachealization" (rings).
Eosinophilic Esophagitis. Allergic reaction. Treat with swallowed steroids/diet.

GERD & BARRETT'S ESOPHAGUS

REFLUX • METAPLASIA • SURVEILLANCE **KMU FINAL YEAR MEDICINE**

6. GASTROESOPHAGEAL REFLUX (GERD)

Symptoms: Heartburn (Retrosternal burning), Acid brash (Sour taste), Waterbrash (Salivation).
Atypical: Chronic cough, Asthma, Laryngitis (Silent Reflux).

Diagnosis:
- Clinical diagnosis usually.
- **Endoscopy** if: "Alarm Symptoms" (ALARM) or age > 55.
- **24h pH Monitoring:** Gold standard if diagnosis unclear or pre-surgery.

7. ALARM SYMPTOMS (ENDOSCOPY NOW!)

Anemia (Iron deficiency).
Loss of weight.
Anorexia.
Recent onset / Progressive symptoms.
Melena / Hematemesis.
Swallowing difficulty (Dysphagia).

8. GERD MANAGEMENT LADDER

Step	Action
1. Lifestyle	Weight loss, Raise head of bed, Avoid late meals/chocolate/caffeine.
2. Medical	**PPI (Omeprazole)** 4-8 weeks. (Best drug). H2 Blockers (Ranitidine) - weaker.
3. Surgical	**Nissen Fundoplication** (360° wrap). *Indication:* Failed medical Rx, large Hiatal Hernia, young patient unwilling to take lifelong pills.

9. BARRETT'S ESOPHAGUS (THE DANGER ZONE)

Definition: Intestinal Metaplasia of distal esophagus.
- Squamous epithelium (Normal) -> Columnar epithelium (Intestinal type).
- **Color Change:** Pale pink -> Salmon red mucosa.
- **Risk:** Precursor to **Adenocarcinoma**.

10. BARRETT'S SURVEILLANCE

How often to scope?
- **No Dysplasia:** Every 3-5 years.
- **Low Grade Dysplasia:** Every 6-12 months (or ablation).
- **High Grade Dysplasia:** Endoscopic Resection / Radiofrequency Ablation (RFA).

11. EXAM SCENARIOS

Q: 50M with chronic heartburn. Endoscopy shows "salmon-colored" mucosa above GE junction. Biopsy?
Intestinal Metaplasia (Barrett's). Treat with High dose PPI + Surveillance.

Q: Patient with GERD. 24h pH study shows acid reflux. Manometry shows weak LES. Best surgery?
Laparoscopic Nissen Fundoplication. (Wraps stomach fundus around esophagus).

Q: 45M with retrosternal pain after heavy meals. ECG Normal. Relief with antacids. Diagnosis?
GERD. Cardiac ruled out. "Heartburn" is literal. Trial of PPI is diagnostic & therapeutic.

12. PLUMMER-VINSON SYNDROME

Triad:
1. Dysphagia (Esophageal Webs).
2. Iron Deficiency Anemia.
3. Glossitis / Koilonychia (Spoon nails).

High risk of Squamous Cell Carcinoma.

UPPER GI BLEEDING

ETIOLOGY • RESUSCITATION • ENDOSCOPY TIMING **KMU FINAL YEAR MEDICINE**

1. DEFINITION & PRESENTATION

Definition: Bleeding proximal to the **Ligament of Treitz** (Duodeno-Jejunal flexure).

Cardinal Signs:
- **Hematemesis:** Vomiting blood. Bright red (fresh) or Coffee-ground (digested).
- **Melena:** Black, tarry, foul-smelling stool. (Requires >50ml blood + >14h transit).
- **Hematochezia:** Fresh PR blood. usually Lower GI, but can be MASSIVE Upper GI bleed (fast transit).

2. ETIOLOGY (THE BIG 4)

Cause	Clinical Clues
Peptic Ulcer (50%)	History of NSAIDs, Steroids, H. Pylori, Epigastric pain.
Varices (10-20%)	Cirrhosis signs (Ascites, Spider Naevi, Splenomegaly). **Massive** bleed.
Mallory-Weiss Tear	History of retching/vomiting (Alcoholics) *before* blood appears.
Gastritis / Erosions	NSAIDs, Alcohol, Stress (Burn/ICU patients).

3. CLINICAL SCENARIOS

Q: 48M Alcoholic, massive hematemesis, shocked. Spleen palpable. Diagnosis?
Ruptured Esophageal Varices. (Alcohol + Splenomegaly = Portal HTN).

Q: 56F on NSAIDs for back pain. Pallor, Hb 7.8. No hematemesis. Diagnosis?
Chronic NSAID-induced Gastritis/Ulcer. Causing occult bleed and Iron Deficiency Anemia.

Q: Young man, heavy drinking, vomited food 3 times then vomited fresh blood.
Mallory-Weiss Tear. (Tear at GE junction due to raised intragastric pressure).

4. IMMEDIATE MANAGEMENT (ABC)

🚨 **RESUSCITATION FIRST!**
Do not rush to Endoscopy if BP is 80/50.
1. Airway: Protect it! (Risk of aspiration).
2. Breathing: High flow Oxygen.
3. Circulation:
• 2 Large Bore IV Cannulas (16G Grey or 14G Orange).
• IV Fluids (Crystalloids) -> Blood Transfusion if Hb < 7 (or hemodynamic instability).
• Correct Coagulopathy (FFP/Platelets).

5. INITIAL DRUG THERAPY

Before Endoscopy (Empiric):
- **IV PPI:** Omeprazole 80mg bolus + 8mg/hr infusion. (Neutralizes acid, stabilizes clot).
- **IV Terlipressin / Octreotide:** If *any* suspicion of Liver Disease/Varices. (Splanchnic vasoconstriction).
- **IV Antibiotics:** Ceftriaxone (Prophylaxis for SBP in cirrhotics).
- **Prokinetics:** Erythromycin (clears stomach blood for better view).

6. INVESTIGATION OF CHOICE

Upper GI Endoscopy (OGD):
- **Timing:** Within 24 hours of admission (once stable).
- **Diagnostic & Therapeutic:** Can clip ulcers or band varices.

7. RARE BUT DEADLY SCENARIO

🚨 **AORTO-ENTERIC FISTULA**
History: Previous Abdominal Aortic Aneurysm (AAA) repair.
Sign: "Herald Bleed" (small bleed) followed by massive exsanguination.
Action: CT Angio -> Surgery immediately.

MANAGEMENT PROTOCOLS

8. VARICEAL BLEED PROTOCOL

Step 1: Resuscitate + Drugs
• Terlipressin + Antibiotics immediately.

Step 2: Endoscopic Band Ligation (EBL)
• Gold standard treatment.
• Sclerotherapy if ligation difficult.

Step 3: Rescue Therapy (If bleeding continues)
• **Balloon Tamponade:** Sengstaken-Blakemore Tube. (Temporary bridge, max 24h).
• **TIPS:** Transjugular Intrahepatic Portosystemic Shunt.

9. PEPTIC ULCER PROTOCOL

Endoscopic Therapy:
• Dual Therapy: Adrenaline Injection + Thermal/Mechanical (Clip) method.

Post-Endoscopy:
• High Dose IV PPI for 72 hours.
• Test & Treat **H. Pylori**.
• Stop NSAIDs / Aspirin.

10. RISK SCORING SYSTEMS

Rockall Score:
• Calculates Mortality risk.
• Components: Age, Shock, Comorbidity, Endoscopic findings.
• *Requires Endoscopy.*

Glasgow-Blatchford Score:
• Calculates need for Intervention.
• Components: Urea, Hb, BP, Pulse.
• *Pre-Endoscopy Score.* Score 0 = Discharge.

11. CLINICAL SCENARIOS (HIGH YIELD)

Q: 36M Cirrhosis patient. Endoscopy shows large varices but NO bleeding. Management?
Prophylaxis: Band Ligation OR Non-selective Beta Blocker (Propranolol/Carvedilol).

Q: Patient with massive variceal bleed. Terlipressin given. Endoscopy unavailable. BP dropping. Next step?
Balloon Tamponade (Sengstaken-Blakemore). Lifesaving bridge to transport/surgery.

Q: Elderly patient with massive painless PR bleed. NG aspirate is clear. Colonoscopy is full of blood but no source found. Diagnosis?
Diverticular Bleed (Most common lower GI cause) or **Angiodysplasia** (Right sided). *But remember: 15% of massive hematochezia is Upper GI source!*

12. DIFFERENTIATING FEATURES

Condition	Key Features
Dieulafoy's Lesion	Large tortuous arteriole in stomach wall. Massive bleed, difficult to see on scope. Recurrent.
GAVE	"Watermelon Stomach". Dilated vessels in antrum. Associated with Scleroderma/Cirrhosis. Rx: APC Argon Plasma.
Boerhaave's	Esophageal **Rupture** (not just tear). Severe chest pain + Subcutaneous emphysema. Surgical Emergency.

13. DRUG ADVICE SCENARIOS

Q: Patient had bleeding peptic ulcer. Needs Aspirin for stents. When to restart?
Restart Aspirin after 3-7 days once hemostasis is secured. Add long-term PPI cover.

Q: Patient on Warfarin comes with GI Bleed. INR is 4.5. Action?
Stop Warfarin. Give Vitamin K + PCC (Prothrombin Complex Concentrate). FFP is second line (too much volume).

LIVER INVESTIGATIONS & ALF

LFTs • ACUTE FAILURE • KING'S COLLEGE CRITERIA **KMU FINAL YEAR MEDICINE**

1. LFTS DECODED (CHEAT SHEET)

Hepatocellular Pattern (Damage to cells):
- **ALT/AST** Elevated (> ALP).
- **Viral/Ischemic/Toxin:** ALT > 1000 IU/L.
- **Alcoholic:** AST > ALT (Ratio 2:1). "S" for Scotch.

Cholestatic Pattern (Biliary Obstruction):
- **ALP/GGT** Elevated (> ALT).
- **GGT** confirms liver origin (ALP is also in bone/placenta).

Synthetic Function (True Liver Health):
- **Prothrombin Time (PT/INR):** Short half-life (hours). Best acute marker.
- **Albumin:** Long half-life (20 days). Marker of *Chronic* disease.

2. ACUTE LIVER FAILURE (ALF)

🚨 **THE DEFINITION**
Rapid loss of liver function in a patient with NO prior liver disease.
The Triad:
1. Jaundice.
2. Coagulopathy (INR > 1.5).
3. Encephalopathy (Altered mental status).
Timeframe: < 26 weeks onset.

3. ETIOLOGY OF ALF

Cause	Key Feature / Clue
Viral (A, B, E)	Most common in developing world (Hep E in Pregnancy!).
Paracetamol	Dose dependent (>10g). Suicide attempt.
Drug Idiosyncrasy	Anti-TB drugs (Rif/Iso), Halothane, NSAIDs.
Wilson's	Young patient, Hemolysis (Coombs negative), Low ALP.
Ischemic	"Shock Liver". Post-cardiac arrest/hypotension. ALT > 3000.

4. KING'S COLLEGE CRITERIA (MEMORIZE!)

Indications for Urgent Liver Transplant.

A. Paracetamol Induced:
- **Arterial pH < 7.3** (Acidosis implies necrosis).
- **OR** All 3 of the following:

1. INR > 6.5
2. Creatinine > 3.4 mg/dL (>300 µmol/L)
3. Grade 3/4 Encephalopathy.

B. Non-Paracetamol (Viral/Drug):
- **INR > 6.5** (Bleeding diathesis).
- **OR** Any 3 of 5:

1. Age < 10 or > 40.
2. Etiology: Drug (non-para) or Unknown.
3. Jaundice to Encephalopathy time > 7 days.
4. INR > 3.5.
5. Bilirubin > 17.5 mg/dL.

5. MANAGEMENT OF ALF

1. ICU Admission: Monitor Glucose (Hypoglycemia kills!).
2. N-Acetylcysteine (NAC): Give in **ALL** causes of ALF (not just Paracetamol). It improves microcirculatory blood flow.
3. Cerebral Edema: Main cause of death. Elevate head 30°. **Mannitol** or Hypertonic Saline.
4. Coagulopathy: Do NOT correct INR unless active bleeding (Need INR to monitor prognosis!).

6. CLINICAL SCENARIO

Q: 20F, suicide attempt with Paracetamol 4 hours ago. Levels are pending. Action?

Start NAC immediately. Do not wait for levels if ingestion was >150mg/kg or unknown. Nomogram is used only if time of ingestion is certain.

Q: Patient with ALF becomes drowsy and pupil dilates. BP rises, HR drops.

Cushing's Reflex (Raised ICP). Give Mannitol IV + Hyperventilation immediately.

HEPATIC ENCEPHALOPATHY

WEST HAVEN CRITERIA • AMMONIA • MANAGEMENT **KMU FINAL YEAR MEDICINE**

7. PATHOPHYSIOLOGY

Reversible neuropsychiatric abnormality in liver failure.
Mechanism: Liver cannot detoxify gut-derived neurotoxins (mainly **Ammonia**).
• Ammonia crosses Blood-Brain Barrier -> Astrocytes convert it to Glutamine -> Osmotic swelling -> Cerebral Edema.

8. WEST HAVEN CRITERIA (GRADING)

Grade	Clinical Features
Grade 1	Trivial lack of awareness. Euphoria/Anxiety. Short attention span. Sleep reversal.
Grade 2	Lethargy. Disorientation to time. **Asterixis** (Flapping Tremor) appears.
Grade 3	Somnolence to semi-stupor. Responsive to stimuli. Confused.
Grade 4	**Coma.** Unresponsive to pain. Risk of aspiration.

9. PRECIPITATING FACTORS (THE HUNT)

"HEPATICS" Mnemonic:
• **H**emorrhage (GI Bleed = protein load).
• **E**lectrolytes (Hypokalemia, Hyponatremia).
• **P**rotein intake (excessive).
• **A**lkalosis (Metabolic).
• **T**rauma / **T**IPS procedure.
• **I**nfection (SBP, UTI, Pneumonia).
• **C**onstipation (More time for ammonia absorption).
• **S**edatives (Benzos/Opioids).

10. MANAGEMENT OF HE

1. Treat the Precipitant:
• Stop sedatives. Hydrate. Treat infection. Control bleeding.

2. Lactulose (First Line):
• Non-absorbable disaccharide.
• **Action:** Acidifies gut lumen (converts NH3 to NH4+ "Ammonium Trap") + Laxative effect.
• **Target:** Titrate dose to achieve **2-3 soft stools/day**.

3. Rifaximin (Add-on):
• Non-absorbable antibiotic. Kills ammonia-producing gut bacteria.
• Used if Lactulose alone fails or for recurrence prevention.

11. CLINICAL SCENARIOS

Q: Cirrhotic patient, drowsy, flapping tremor. Potassium 2.9. Why?
Hypokalemia precipitates HE. Low K+ increases renal ammonia production. Correct K+ first!

Q: Patient with Ascites develops fever and confusion. Ascitic fluid Neutrophils > 250.
Spontaneous Bacterial Peritonitis (SBP). It precipitated the HE. Treat with IV Cefotaxime/Ceftriaxone + Albumin.

Q: Can you use protein restriction in HE?
NO. Malnutrition is worse for survival. Maintain normal protein intake (vegetable/dairy preferred).

12. ASTERIXIS (THE FLAP)

Test: Arms outstretched, wrists extended ("Stop traffic" pose).
Sign: Sudden loss of tone causes wrist to drop, then reflexively jerk back up.
Causes: HE, Uremia (Renal failure), CO_2 Narcosis (Respiratory failure).

VIRAL HEPATITIS

SEROLOGY DECODED • MARKERS • MANAGEMENT **KMU FINAL YEAR MEDICINE**

1. THE VOWELS (A & E) - FECAL/ORAL

"The Vowels hit the Bowels"
• Transmission: Fecal-Oral (Contaminated water/food).
• **Acute ONLY:** No chronic carrier state (Exception: Hep E in immunocompromised).

Hepatitis A (HAV):
• Travelers, Shellfish.
• **IgM Anti-HAV:** Active Infection.
• **IgG Anti-HAV:** Past infection or Immunization (Protected).

Hepatitis E (HEV):
• **Pregnancy Alert:** 20% Mortality in pregnant women (Fulminant Liver Failure).
• Diagnosis: IgM Anti-HEV.

2. HEPATITIS B SEROLOGY (THE BEAST)

Think of it as a War Story:
1. Surface Antigen (HBsAg): "The Enemy Uniform". If present = Infection is present (Acute or Chronic).
2. Surface Antibody (Anti-HBs): "Victory Flag". Immune system won. You are protected (Cured or Vaccinated).
3. Core Antibody (Anti-HBc): "War Scar". You actually fought the war.
• **IgM:** Fighting NOW (Acute).
• **IgG:** Fought BEFORE (Chronic or Past).
4. E-Antigen (HBeAg): "Enemy Artillery". Virus is replicating/firing rapidly. Highly infectious.

3. INTERPRETING HEP B (TABLE)

Condition	HBsAg	Anti-HBs	Anti-HBc
Acute Infection	Positive	Negative	**IgM**
Window Period	Negative	Negative	**IgM**
Chronic Infection	Positive (>6mo)	Negative	IgG
Recovery (Natural)	Negative	**Positive**	IgG
Vaccinated	Negative	**Positive**	Negative

The Window Period: HBsAg is gone, but Anti-HBs hasn't appeared yet. The ONLY marker is **IgM Anti-HBc**.

4. HEPATITIS C (THE SILENT KILLER)

Transmission: Blood (IV drugs, transfusion pre-1990), Sexual (rare).
Chronicity: 80% become Chronic (unlike Hep B).
Diagnosis:
1. **Anti-HCV (Antibody):** Screening. If positive -> exposure.
2. **HCV RNA (PCR):** Confirms *active* infection.

Treatment (DAAs):
• Direct Acting Antivirals (Sofosbuvir + Velpatasvir).
• "Pan-genotypic". Cure rate > 95%.

5. HEPATITIS D (THE PARASITE)

REQUIRES HEP B
Hep D is a defective virus. It needs HBsAg to survive.
Co-infection: Get B & D together. (Severe acute, but clears).
Super-infection: Chronic Hep B gets Hep D on top. (High risk of Cirrhosis/Failure).

6. AUTOIMMUNE HEPATITIS

Patient: Young Female + other autoimmune diseases.
Type 1: ANA or **Anti-Smooth Muscle (ASMA)** positive.
Type 2: Anti-LKM1 positive (Kids).
Rx: Steroids + Azathioprine.

7. CLINICAL SCENARIOS

Q: Lab results: HBsAg Negative, Anti-HBs Positive, Anti-HBc Negative.
Vaccinated. (Victory flag only, no war scar).

Q: Lab results: HBsAg Negative, Anti-HBs Positive, Anti-HBc Positive (IgG).
Natural Immunity. (Victory flag + War scar = Had infection and cleared it).

Q: Pregnant lady with jaundice. Developed fulminant failure. Diagnosis?
Hepatitis E. (The vowel that kills in pregnancy).

Q: Needle stick injury from Hep B positive patient. You are unvaccinated. Action?
HBIG (Immunoglobulin) + Vaccine immediately (at different sites).