6 Gastroenterology

ABDOMINAL PARACENTESIS

- Indications: therapeutic, diagnostic
- Contraindications: coagulopathy, big bladder

Complications

- Bowel or bladder perf
- CVS instability from fluid shift (give *Alb*!)
- Persistent leak
- Infection: local, ***peritonitis***

Interpretation

SAAG (serum to ascetic fluid albumin gradient)
≥ 11 g/L: hepatic, heart
< 11 g/L: peritoneal ca, TB, pancreatitis, nephrotic syn, serositis, SLE (& others on p. exudate list)

SBP vs Secondary Infection

	SBP	2ry
Total Protein	< 15g/L	> 10g/L[1]
Glc	2.8 mmol/L	< 2.8 mmol/L
LD	< serum upper limit	> upper limit
Amylase	Normal High	

[1]And 250/mm³ polymorphs

Technique

1 empty bladder
2 turn to side of asp
3 Sterile
4 USS guided
5 Choose site (See below)
6 20-22G LA, 18G for fluid

Site: 1. 2cm below umbilicus
2. RLQ lat to rectus (miss ***inf epigastric a***)
3. LLQ

Mx

- Replace every 2.5L with 2.5g albumin (500ml 4%)
- ABx for ***SPB*** *Ceftriaxone* 2g

FEEDING TUBE MX

- **Blocked:** warm water or carbonated drink, wait 20min then flush, refer if doesn't work

- **Dislodged:** ***replace within 4hrs if > 2-3wks old***, otherwise refer to gastro for endo replacement

  - topical anaesthesia (*xylocaine viscous*)
  - use emergency tube or ***largest Foley cath***
  - inflate balloon
  - confirm placement with aspiration
  - peg clinic follow up

OESOPHAGEAL

Oesophageal Foreign Body

- Seen in ***frontal plane*** (vs airway aka 'coin slot' = sagittal)
- Common places to stick
  - T4 Ao notch
  - T8 Ao crossing oesophagus
  - T10 GOJ

Oesophageal Perforation

Causes

- **Iatrogenic:** endoscopy, oesph intubation
- Boearhavve's, Barrett's
- Trauma
- **Cancer:** intrinsic or extrinsic
- **Aorta:** aneurysm, aberrant R subclavian
- Infection
- Zollinger-ellison syndrome *(makes too much H+)*

GASTRITIS

Peptic Ulcer Disease

- GU = pain ***after*** eating
- DU = pain ***btwn or before*** meals (*antacids* work)
- Tx *Esomeprazole* 80mg IV, 40mg BD
- Test/eradicate ***H pylori***

Bleeding PUD

- 80% H Pylori 20% NSAIDs
- 80% cease spont
- *Esomeprazole* 80mg IV, 8mg/hr infusion
- *TXA* controversial 1g stat then 1g over 8hrs
- Restrictive transfusion to ***Hb 70***
- *Triple ABx* & OT if perf suspected

Other PUD Complications

- Penetration eg into pancreas (most common)
- Gastric outlet obstruction (least common)
- Perforation: 5%, usually NSAIDs, ***Cxr 70% sens***

GASTROENTERITIS

Non-invasive Gastro

- ***Noro*** most common in adults; ***Rota*** most common in kids

Origin	Eg/Sx	Species
Cooked Food[1]	Mayo, ham, salad	***Staph***
	Rice, veges, fruits, meat	***B Cereus***
	Meat, poultry	***C Prefringens***
FOR	Virus	***Noro, adeno, rota***
	Rice water diarrhoea	***V Cholera***
	Bloating & flatus	***Giardia***

FOR Faecal-oral route
[1]Preformed toxins

Invasive Gastro

- Empiric is usually *Cipro* (*ceftriaxone* if can't PO)
  - Doesn't cover ***C Diff or Entamoeba***
  - Both covered by *metronidazole*
- Don't give empiric to kids (***E Coli = HUS***)

	Transmission	Notes
C Diff	Abx	Foul smelling
Campylobacter	H_2O, Poultry, Pets	Can casue GBS
Salmonella	H_2O, Poultry, Eggs, Reptiles	Fever, headaches
Yersinia	H_2O, FOR, milk, wild animals	Nil
Cholera	H_2O (north Aus)	Return traveller
Shigella	Food, FOR	Headache, seziures
Entamoeba	H_2O, sanitation, travel	OCP +ve

UPPER GI BLEEDING

Glasgow-Blatchford Bleeding Score

Low risk = none

- Urea ≥ 6.5
- Hb < 120 M <110 F
- SBP <100
- HR > 100
- Melena
- Syncope
- CCF
- Liver disease

Endoscopy

Criteria for inpatient endoscopy

- Co-morbid states
  - Varicaeal (or suspect)
  - Age > 65
  - Cardioresp disease
- Suspected severe bleed
  - Active/acute bleeding
  - Bright red haematemesis
  - Large bleed (≥ 2units)
  - Shock

Role of endoscopy

- ID bleed
- Prognosticate: rebleed, mortality
- Direct therapy: sclero, coag, band/clip
- Sampling for histo/micro
- Morbidity < 0.01%

Varices

- 2-15% of all UGIB; 20-30% spont stop; Mortality 25-40%

Specific Therapy

- *Octreotide* 50 mcg bolus → 25 mcg/hr
- *Terlipressin* 2mg (6.8% ARR)
- *Ceftriaxone* 2g (4.7% ARR)
- *Esomeprazole* 80mg IV
- Mechanical
  - Balloon tamponade
  - OT: TIPS, Endoscopy, Surgery

THIAMINE DEFICIENCY

Syndrome	Clinical Feat	Thiamine Dose
Wet (cardiac) Beri-Beri	- HR, CO - Cardiac failure - Fluid overload - Vasodilation	100mg OD
Dry (neuro) Beri-Beri	- Neuropathy[1]	100mg OD
Wernecke's[2]	- ALOC - Opthalmoplegia - Horizontal nystagmus - Ataxia - Vestibular dysfcn - Fever - Vomiting	500mg IV TDS
Korsakoff's[2]	- Short term mem loss - Confabulation - Chronic/irrev	100-200mg IV

[1]Bilateral peripheral sensory & motor; weakness & hyper reflexia
[2]Strictly speaking, these are forms of dry beri-beri

Causes of Beri-Beri

- White rice diet
- ETOH
- Dialysis
- Diuretics

JAUNDICE

Neonatal Jaundice

Unconjugated (systemic cause)

- Haemolysis eg **haematoma, ABO/Rh incompatibility**
- Physiological ie Breastmilk
- Breastfeeding (not enough supply = dehydration)
- Infection (***TORCH***)/***Sepsis***
- Shock
- Bowel obstruction
- Prematurity
- Metabolic: CF, hypothyroid

TORCH Infections

- Toxoplasmosis
- Other eg syphilis, VZV
- Rubella
- CMV
- HSV/HIV

Conjugated (hepatic cause)

- Biliary atresia
- Choledochal cyst
- Neonatal hepatitis
- Metabolic eg G6PD

Investigations

- Haemolytic screen: smear, Coomb's
- G&H, LFTs, Bili (> 200, > 25% conj), TFTs
- USS abdo
- Septic screen

Kernicterus Mx

- Phototherapy & exchange transfusion

Adult Jaundice

- **Adolescent:** gilbert's, viral hepatitis
- **Preg:** hyperemesis, intrahepatic cholestasis
- **Old:** tumour, biliary, drug tox
- **All:** biliary disease, ***paracetamol OD***, tumour, infection incl ***viral***, cirrhosis incl ***etoh***, asc cholangitis, cholecystitis, pancreatitis

Cholangitis

- ***Charcot Triad:*** **RUQ pain, jaundice, fever**
- Tx: Urgent ERCP, *ABx* (triple)
- Similar sx to cholecystitis BUT ***much sicker/faster***

Hepatitis B Serology

HBsAg	= infective, could be acute or carrier
anti-HBs	= immunity
anti-HBc IgM	= recent infection
anti-HBc IgG	= past inf (+ anti-HBs) or carrier (+ HBsAg)
HbeAg	= if HBsAg +ve = more infective = if slow to clear = high risk chronic liver
anti-HBe	= lower risk infection or progression
HBV DNA	= viral replication

Hepato-renal Syndrome

- Cirrhosis → AKI (unknown mechanism)
- Median survival 1 month
- Type 1 causes death, Type 2 mild

HEPATIC FAILURE

Liver Function Tests

Labs		Aetiology
Cholestasis		
ALP, GGT, Bili	↑	Biliary Obstruction
Hepatocellular		
AST:ALT	< 1	Direct eg *para*, viral hep
	1	Ischaemia eg CCF
	> 2.5	Alcoholic hepatitis
Hepatic Function		
Bili	↑	Haemolysis, autoimmune, mechanical (valve), toxins (arsenic)
Alb	↓	Loss via urine, gut, inflammation
INR	↑	Vit K malabsorption, severe hepatic dysfunction

NB Hepatic synth: alb, glc, protein, INR, APTT

↑ PT + APTT = liver
↑ PT only = warfarin
↑ APTT only = heparin

Causes

SAVED

- Sepsis
- Alcohol
- Viruses: Hepatitis A, B±D, C, E, CMV, EBV, HSV
- Extras: Fatty liver of pregnancy, HELLP, Ischaemia, Wilsons, Budd-Chiari, NASH
- Drugs: *Paracetamol*, amanita mushroom, *halothane*

Management

- Treat precipitating event eg ***SBP***
- Encephalopathy: *Lactulose* 30ml q2h ± *metronidazole*
- Coagulopathy: *FFP* only if bleeding/before procedures
- TIPS if Budd-Chiari
- MARS (liver dialysis)
- Monitor electrolytes, glc, crea