Ascites

Definition – Excessive free fluid in the peritoneal cavity. >1.5L before clinically apparent.

Aetiology

Starling forces

- ↑venous pressure, ↑capillary permeability, hypoproteinaemia, lymphatic obstruction

Causes

- Liver cirrhosis (75%)
- Malignancy (15%)
  - Ca colon, other GI
  - Ca ovary(Meigs' syndrome)
  - Hepatic tumour
  - Lymphoma
  - Peritoneal mesothelioma
- CCF (3%)
- TB (2%)
- Pancreatitis (1%)
- Constrictive pericarditis
- Venous obstruction – e.g. Budd-Chiari
- Renal failure
- Myxoedema

Examination

Ascites: Abdominal distension umbilicus down, Shifting dullness to percussion, Fluid thrill
Look also for possible causes:

- Stigmata of chronic liver disease
- HSM
- Other masses: Ca colon/ovary, PR exam
- Lymphadenopathy
- Kussmaul's sign for constrictive pericarditis
- Signs of CCF, hepatojugular reflex
- Signs of IBD
- Kayser-Fleischer Rings (Wilson's)
- Jaundice
- Proteinuria

Investigations

Bloods: FBC, LFT, UEC, Coags, TFT, Hepatitis screen
Imaging: USS, CT, CXR
Paracentesis/Ascitic tap

Paracentesis/Ascitic Tap

Types

- Diagnostic - exudate vs transudate, ?infection, cancer, etc.
- Therapeutic or palliative – ↑comfort, ↓nausea, ↑pulmonary fn, ↓effect on venous return

Procedure

- Pre-procedure: FBC, coags ideallydone, but studies show no instances of sig bleeding even if plts<50 & INR>1.5.
- Preparation – equipment, explain to patient
- Aseptic technique
- Choose site: either lower flank (lateral to inf. Epigastric vessels ~15cm+ from midline) or in midline 2cm below umbilicus (but beware bladder).
- Skin prep & LA
- Pull skin caudally or use Z track technique & insert needle (18-22G needle or cannula).
- When popped through peritoneum, aspirate should be straw coloured typically.
- Withdraw 20-60ml for diagnostic tap or connect to a bag and allow as much as possible to drain over 4-6 hrs for therapeutic tap. Give 100ml albumin for every 1L over 3L drained.
- Albumin infusion not normally advised for palliative (Ca) paracentesis but is for cirrhosis as [>3L tap risks hepato-renal syndrome and post-paracentesis circulatory dysfn (PPCD)].
- Spironolactone after paracentesis may ↓ repeat rate from >90% to <20% in cirrhosis.

Complications:

- All <2%. Serious Cx as haemoperitoneum and bowel perforation <0.1%

Analysis

- Protein & LDH – for exudate vs transudate. The serum ascites-albumin gradient (SA-AG) is superior: *SA-AG = (serum albumin concentration) - (ascitic albumin concentration)* where SA-AG <11g/l = Ca, pancreatitis and TB; ≥11g/l = cirrhosis, CCF, nephrotic syn
- WCC (for SBP: WCC>500 cells, PMN>250 cells, pH<7.35& blood-ascites pH grad>0.1) , RBC (↑in hepatocellular Ca, some cirrhotics), amylase (↑in pancreatic)
- Culture (in blood culture bottles)
- Cytology

Management

Non-drug Management

- Avoidance of alcohol is important in pancreatitis and cirrhosis
- A no added salt diet, restricted to <90 mmol/day (5.2 g of salt/day) useful in cirrhosis

Drugs

Diuretics:

- **Spironolactone:** ↑sodium excretion and potassium reabsorption in the distal tubules. Initially 100mg/day gradually increased to 400mg as necessary. Monitor K+ levels **Amiloride** can be used but it is generally less effective.
- Loop diuretics, e.g. **frusemide** added when max doses of the spironolactone reached. Start with 40mg/day although up to 160mg/day may be used – watch electrolytes.
- If the underlying problem is CCF then treatment aggressively with usual Rx.
- Malignancy may respond to appropriate chemotherapy, depending upon the type.
- Myxoedema will resolve with gradual introduction of **thyroxine**.

Therapeutic Paracentesis

Surgical

- For malignancy and some patients may be suitable for liver transplantation.
- Options: Transjugular intrahepatic portosystemic shunt (TIPS), portocaval shunt, peritoneovenous shunt.
- Risks may incl blockage, encephalopathy, increased mortality.

Complications

- Hyponatraemia on diuretics
- Only fluid restrict patients who are not dehydrated and not taking diuretics whose creatinine is normal.
- Spontaneous Bacterial Peritonitis (SBP)
  - Incidence: 10-30% of patients with ascites and has mortality rate of 20%.
  - Organism is usually E. coli, streptococci and enterococci.

Prognosis

- Ascites is a major Cx of cirrhosis, occurring in 50% of patients over 10 years of f/u and associated with a 50% mortality over two years, and warrants consideration of liver Tx.
- In malignancy it tends to suggest widespread disease and a poor prognosis.