INTERVENTIONAL RADIOLOGY
COMMON PRINCIPLES

● WE USE DYE – WHERE IS IT GOING?
  – IN THE BLOOD VESSEL – NEED TO KNOW CREATININE CLEARANCE
  • IF > 60 NO PROBLEMS
  • IF 30-60 GENERALLY NO PROBLEMS – GIVE FLUIDS FOR INPATIENTS, CHICKEN SOUP AND LOTS OF WATER FOR OUTPATIENTS
  • IF < 30 REQUIRE NEPHROLOGY CONSULT
  – ANYWHERE ELSE – CREATININE NOT IMPORTANT
COMMON PRINCIPLES

● WE STICK THINGS INTO PEOPLE
  – CBC/COAGS FOR ALL!
  – CBC
    • PLATELETS > 50 NOT A PROBLEM
    • PLATELETS 30-50 MAY BE A PROBLEM
    • PLATELETS < 30 A PROBLEM
      – PLATELETS IN A PINCH
  – INR
    • PROCEDURE DEPENDENT
    • FOR ELECTIVE PROCEDURES
      – 1.5 IS OK, 1.6 IS NOT
    • IF THE INR CANNOT BE CORRECTED THEN RISK/BENEFIT MUST BE CONSIDERED
      – FFP IN A PINCH
G-TUBE

● “BASIC” FEEDING CATHETER
● SIMPLE, CAN USE BOLUS FEEDS
● NO GOOD IF PATIENT ASPIRATES
● RIGOROUS BUT SIMPLE CARE REQUIRED TO KEEP TUBE PATENT
● PATIENT/FAMILY MUST BE COMPLIANT
● ROUTINELY CHANGED EVERY 6 MONTHS
G-TUBE

- PUT IN NG BEFOREHAND IF POSSIBLE
- STOMACH FILLED WITH AIR VIA NG
- PUNCTURE THE STOMACH
- PUT A WIRE THROUGH NEEDLE
  - DEPLOYS RETENTION SUTURE
- PUT TUBE OVER THE WIRE
  - 12 FRENCH STANDARD
  - CAN GO UP TO 20 FRENCH IF NEEDED
GJ-TUBE

- SAME TUBE, ONLY LONGER
- GOES THROUGH THE STOMACH, BUT TIP SITS IN FIRST PART OF JEJUNUM
- REQUIRES CONTINUOUS FEEDS
- GOOD IF PATIENT ASPIRATES
- RIGOROUS BUT SIMPLE CARE REQUIRED TO KEEP TUBE PATENT
- PATIENT/FAMILY MUST BE COMPLIANT
- ROUTINELY CHANGED EVERY 6 MONTHS
J-TUBE

- GOES DIRECTLY INTO THE JEJUNUM
- REQUIRES CONTINUOUS FEEDS
- USED FOR PATIENTS WITH PREVIOUS GASTRECTOMY/DISTAL STRicture
- PLACED BY SURGEON
- CHANGED BY IR
- RIGORous BUT SIMPLE CARE REQUIRED TO KEEP TUBE PATENT
- PATIENT/FAMILY MUST BE COMPLIANT
- ROUTINELY CHANGED EVERY 6 MONTHS
PEG-TUBE

- PERCUTANEOUS “ENDOSCOPIC” GASTROSTOMY
- SIMPLE, CAN USE BOLUS FEEDS
- NO GOOD IF PATIENT ASPIRATES
- MUCH HARDER TO PULL OUT
- GENERALLY PLACED BY SURGEON, BUT...
PEG-TUBE

- PUT IN NG BEFOREHAND IF POSSIBLE
- STOMACH FILLED WITH AIR VIA NG
- PUNCTURE THE STOMACH
- STEER WIRE UP THE DUODENUM AND OUT THE MOUTH
- SNARE TUBE DOWN THE ESOPHAGUS AND OUT THE STOMACH
  – 20-24 FRENCH STANDARD
CECOSTOMY TUBE

- PERCUTANEOUS CATHETER INSERTED INTO THE CECUM
- PROVIDES AN ANTEGRADE ENEMA
- USUALLY USED IN CHILDREN WITH OVERFLOW DIARRHEA SECONDARY TO REFRACTORY CONSTIPATION
PERCUTANEOUS BILIARY DRAINAGE

- FOR OBSTRUCTING STONES OR MASSES
- CAN BE BENIGN OR MALIGNANT
- RIGOROUS BUT SIMPLE CARE REQUIRED TO KEEP TUBE PATENT
- PATIENT/FAMILY MUST BE COMPLIANT
- ROUTINELY CHANGED EVERY MONTHS
PERCUTANEOUS BILIARY DRAINAGE

- Use ultrasound to puncture a biliary duct
- Can be left- or right-sided
- Put a wire through needle
- Guide wire through CBD into duodenum if possible
  - Allows internal/external drainage
- Otherwise catheter is left in CBD and drainage is via a bag
PERCUTANEOUS STONE REMOVAL

- ALTERNATIVE PROCEDURE TO ERCP
- BILIARY TRACT ACCESSED UNDER ULTRASOUND SIMILAR TO BILIARY DRAINAGE
- SPHINCTER DILATED USING A CUTTING BALLOON FOLLOWED BY A HIGH-PRESSURE ANGIOPLASTY BALLOON
- STONES CAN BE “PUSHED” INTO THE DUODENUM WITH A PARTIALLY INFLATED BALLOON
- DRAINAGE CATHETER CAN BE PLACED IF NEEDED
PERCUTANEOUS CHOLECYSTOSTOMY

- Usually in the setting of acute cholecystitis
- Catheter must remain in situ until tract matures to prevent bile peritonitis
  - 2 weeks minimum
  - 6 weeks optimal
Catheter passed through liver into gall bladder

Gall stone impacted in cystic duct

Inflamed, thick walled gall bladder
MESENTERIC ANGIOGRAPHY

● USUALLY PERFORMED FOR GI BLEEDING
● IF PATIENT CAN TOLERATE IT SHOULD HAVE A CT ANGIOGRAM PRIOR TO ANGIOGRAPHY
● ANGIOGRAPHY OF QUESTIONABLE VALUE IN THE SETTING OF A NEGATIVE CT ANGIOGRAM
● CAN PROPHYLACTICALLY EMBOLIZE GDA/LGA FOLLOWING ENDOSCOPY
MESENTERIC THROMBOLYSIS

- FOR ACUTE MESENTERIC ISCHEMIA
- CT ANGIOGRAM PERFORMED PRIOR TO ANGIOGRAPHY FOR DIAGNOSIS/PLANNING
MESENTERIC STENTING

- FOR CHRONIC MESENTERIC ISCHEMIA
- CT ANGIOGRAM PERFORMED PRIOR TO ANGIOGRAPHY FOR DIAGNOSIS/PLANNING
- FOR CHRONIC ISCHEMIA BOTH CELIAC AND SMA NEED TO BE STENOTIC TO WARRANT TREATMENT
  – EXCELLENT COLLATERAL CIRCULATION VIA GDA
TRANSJUGULAR LIVER BIOPSY

● FOR PATIENTS WITH UNCORRECTABLE COAGULOPATHY
● ACCESS IS VIA RIGHT INTERNAL JUGULAR VEIN
● STEEL CATHETER IS ADVANCED INTO RIGHT HEPATIC VEIN AND DIRECTED ANTERIORLY
● BIOPSY NEEDLE IS ADVANCED THROUGH THE CATHETER AND BIOPSY PERFORMED
● ANY BLEEDING FROM PARENCHYMA IS DIRECTLY INTO THE HEPATIC VEIN
TRANSJUGULAR INTRAHEPATIC PORTOSYSTEMIC SHUNT (TIPS)

● INDICATIONS
  – GI BLEEDING DUE TO PORTAL HYPERTENSION/VARICES
  – REFRACTORY LARGE-VOLUME ASCITES

● NEEDLE DIRECTED FROM HEPATIC VEIN INTO PORTAL VEIN
  – MULTIPLE TRICKS TO FACILITATE THIS BUT CAN BE EXTREMELY DIFFICULT AND REQUIRE LARGE AMOUNTS OF SEDATION

● TRACT IS STENTED TO CREATE A PERMANENT SHUNT AND REDUCE PORTAL PRESSURE
ABDOMINAL PARACENTESIS

- PERFORMED UNDER ULTRASOUND GUIDANCE TO INCREASE SAFETY
- ONE OF THE FEW PROCEDURES THAT CAN BE PERFORMED IN PATIENTS THAT ARE COAGULOPATHIC
- GENERALLY USE A 5 FRENCH YUEH CATHETER
TUNNELED PERITONEAL DRAINAGE CATHETERS

● FOR REFRACTORY ASCITES
● USUALLY PALLIATIVE
  – REFRACTORY MALIGNANT ASCITES HAS PROGNOSIS OF 1-4 MONTHS
● REQUIRES RELIABLE PATIENT/FAMILY
  – CAN INDEPENDENTLY DRAIN ASCITES AS NEEDED
● PROCEDURE IDENTICAL TO PLACEMENT OF A PERITONEAL DIALYSIS CATHETER
PleurX Pleura

Katheter Implantationstechnik
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