Preoperative Optimization of Hilar Cholangiocarcinoma

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Case Presentation

- 51M PMHx BPH here c abdominal pain x 5 d
- Associated with pruritus
- 4 months of jaundice, 30 lb weight loss
- Denies significant ETOH use
- Workup earlier negative for hepatitis
Physical Examination

• Afebrile, normotensive
• Icteric sclera, edentulous
• Equal breath sounds b/l
• Abdomen: firm, palpably enlarged liver
• Rectal: no varices, + enlarged prostate
Laboratory Tests

- CBC: 9.2>11.8/37.1<377
- BMP: 134/4.6/101/22/12/0.74<93
- LFTs: 7/2.8/102/84/581/11.2
- Coags: 12/28.5/1
Imaging
Hospital Course

• Admitted to floor
• HD#2 underwent IR drainage of L & R ducts
• HD#15: OR for planned R trisectionectomy
• Found to have macronodular cirrhosis
• Procedure aborted
Postoperative Course

- POD#5: IR drains internalized
- Post-procedure cholangitis.
- Two days in SICU
- Discharged home POD#13.
- Plan for outpatient follow up & EUS biopsy
Background

- Rare, comprising 3% of all GI tumors
- 2\textsuperscript{nd} most common primary hepatic tumor
- Subtypes include:
  - Intrahepatic
  - Hilar
  - Extrahepatic
Clinical Presentation

• > 90% present with obstructive jaundice

• Other symptoms:
  – Weight loss
  – Anorexia
  – Pruritus

• Cholangitis at presentation is rare

• Total bilirubin > 10 usually malignant
Diagnosis

• Imaging
  – U/S often ordered – limited use
  – CT
  – MRI/MRCP

• ERCP/Cholangioscopy

• EUS
Staging laparoscopy

- Only 50-60% of patients in OR are resectable
- Peritoneal disease not always seen on CT
- SL to prevent unnecessary laparotomy
Staging Laparoscopy

• Dutch study (Ruys et al 2002): 42% yield
  – Staging laparoscopy for all

• Ten years later study repeated
  – Yield now 14%
  – Attributed to improved imaging
Preop Biliary Drainage

- Cholestasis associated hepatic toxicity
- Cholestatic liver is sensitive to ischemia
- Purposes of biliary drainage:
  - Treatment of biliary sepsis
  - Decrease bilirubin level
  - Diagnosis of lateral tumor extension
  - Optimize hypertrophy of liver if PVE performed
Biliary Drainage

• Endoscopic vs percutaneous

• Bilateral vs Unilateral
Drainage Options

**Endoscopic**
- Low M&M
- Shorter hospital stay
- No external drains
- Prevents bile loss
- Risk for cholangitis
- Duodenal perforation
- Tube occlusion

**Percutaneous**
- Multiple drains possible
- Ultrasound guidance
- Can see proximal tumor
- Used as postop drains
- Biloma
- Biliovenous fistula
- Cancer dissemination
Endoscopic Nasobiliary

- Another variant of endoscopic drainage
- Lower rates of cholangitis vs ERCP
- Contrast studies via nasobiliary tube
- Permits evaluation of bile drainage
- **Bile lost from enterohepatic circulation**
To Drain Or Not To Drain?

- RCTs from 1980s:
  - no significant difference
  - Increased hospital costs

- Dutch metanalysis: higher morbidity

- Dutch RCT: higher morbidity

- Studies mainly distal cholangiocarcinoma
The Bottom Line

- High quality evidence is still lacking
- Mortality high post resection in jaundiced pts
- Most in favor of preop biliary drainage
- Method of drainage pt & center dependent
Portal Vein Embolization

• Initiates hypertrophy in future liver remnant
• Lower mortality c hypertrophy (3% vs 21%)
• Hypertrophy faster with lower t bili
• Suggest combination of BD and PVE
Indications for PVE

1. Future liver remnant of > 25% in normal liver

2. Scheduled concomittant extrahepatic sx

3. Any major hepatectomy in pts with liver dx
PVE - Methods

TIPE (transileocolic)
- Affords minilaparotomy
- Staging possible
- General anesthesia
- Postop ileus/complications

PTPE (percutaneous)
- Local anesthesia
- Low postop complications
- Puncture portal vein of FRL
The Bottom Line

• PVE valuable in extensive hepatic resections

• Only a preoperative procedure; an aid!

• Complications, therefore, are unacceptable
New Directions

- Renewed interest in cholangioscopy
- Baumgart et al. 2011: Two stage approach
- Neoadjuvant photodynamic therapy
- Early referral for transplantation
- Molecular targeted therapy
Summary

• Resectability can be improved in hilar CC
• Preoperative optimization is key
• Biliary drainage in prolonged jaundice
• Staging laparoscopy less common
• Portal venous embolization improves FLR
• Lau WY Hilar Cholangiocarcinoma Springer 2013
• Wiggers et al. Preoperative Endoscopic Nasobiliary Drainage in Patients With Suspected Hilar Cholangiocarcinoma; Better Than Endoscopic or Percutaneous Biliary Drainage?
• Jarnagin et al. Hilar cholangiocarcinoma: diagnosis and staging. HPB, 2005; 7: 244–251
Questions

Which of the following is a contraindication to resection of an adenocarcinoma of the bile duct

a. Tumor location in the distal common bile duct
b. Tumor location at the bifurcation of the bile duct
c. Peritoneal metastases
d. Invasion of the right portal vein and right hepatic artery
e. None of the above
Which of the following statements is true regarding intrahepatic cholangiocarcinoma?

a. Survival following resection is generally lower than that for distal bile duct cancer.

b. Resection is contraindicated unless histologically negative margins can be obtained.

c. The best survival is achieved with liver transplantation.

d. Adjuvant chemotherapy improves survival following resection.

e. None of the above
Who are the champions of this year’s Surgical Jeopardy?

a. Methodist
b. Maimonides
c. SUNY Downstate
d. Brooklyn Hospital
e. Brookdale
f. North Shore LIJ