

The Endoscopic Management of PSC

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“Why did my doctor order
an endoscopic retrograde
cholangiopancreatogram
(ERCP)?”

- Everyone with PSC just gets them periodically, right?

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- Everyone with PSC just gets them periodically, right?
- Really fun and if you don't get one you won't know what you are missing
- College – doctor's children are going
- Polking around – that's all doctors want to do

How ERCP can help

- Patients with PSC develop:
 - Ascending cholangitis from strictures or stones
 - Refractory pruritis and jaundice
 - Cholangiocarcinoma
- Extrahepatic bile duct and/or main hepatic duct
 - Treat to palliate symptoms
 - Exclude cholangiocarcinoma

Dominant Stenoses

- Options for palliative treatment and/or bridge to transplantation
 - ERCP with balloon dilation alone (ERCPBD)
 - Possibly preferred due to concerns regarding bacterial seeding and higher infectious complications with stenting in one study
 - ERCP with balloon dilation and stenting (ERCPST)
 - UCHSC preference
 - PTC with drainage tubes (PTCDT)

Primary Sclerosing Cholangitis



Primary Sclerosing Cholangitis



Is there an impact of pre-transplant endoscopic or percutaneous intervention on MELD, time to transplant, or post-transplant complications?

Do Pre-transplant Stents or Percutaneous Drainage Tubes Improve MELD or Delay Liver Transplantation?

- **Group I- DIAGNOSTIC** biliary intervention alone
- **Group II- THERAPEUTIC** sequential biliary intervention any time prior to transplantation until resolution of dominant stricture or transplant
 - ERCP with balloon dilation (ERCPBD) alone
 - ERCP with balloon dilation and stenting (ERCST)
 - PTC with drainage tubes (PTCDT)

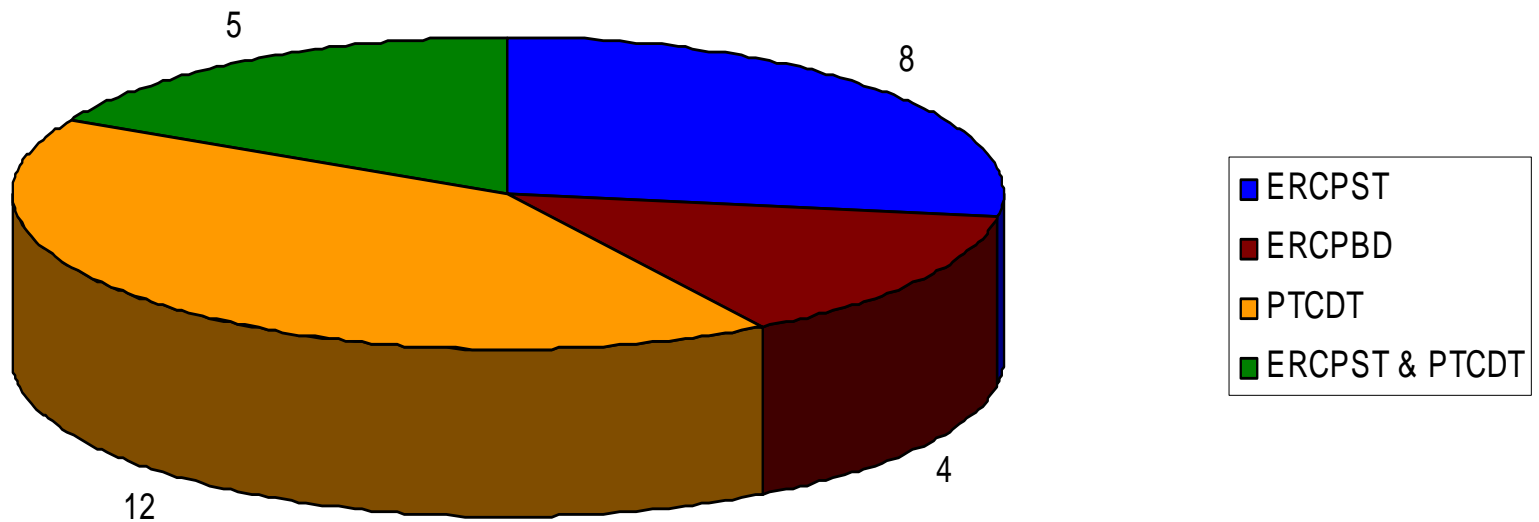
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 - ERCP with balloon dilation (ERCPBD) alone
 - ERCP with balloon dilation and stenting (ERCST)
 - PTC with drainage tubes (PTCDT)
- **Group II MELD** determined by the value prior to biliary intervention and at time of transplant or greater than 3 months post-completion of interventions (whichever came first)

Do Pre-transplant Stents or Percutaneous Drainage Tubes Improve MELD or Delay Liver Transplantation?

- 622 liver transplants at UCHSC from 1999-2006.
- 62 patients (mean age 42 yrs) had PSC
 - 7 excluded due to lack of pre-transplant data
 - N=55 patients in study group:
 - Group I = 26 patients
 - Group II = 29 patients
- Comparable use of Actigall in both groups

Group II Interventions



Do Pre-transplant Stents or Percutaneous Drainage Tubes Improve MELD or Delay Liver Transplantation?

- **Group II Interventions:**
 - Mean number of ERCPST was 2.1 (CI = 1.0-3.2).
 - Mean number of PTCDT was 4.9 drain exchanges (CI = 1.2-8.6).
- Mean duration of ERCP/stent placement was 5.8 weeks (CI = 2.3-9.3).

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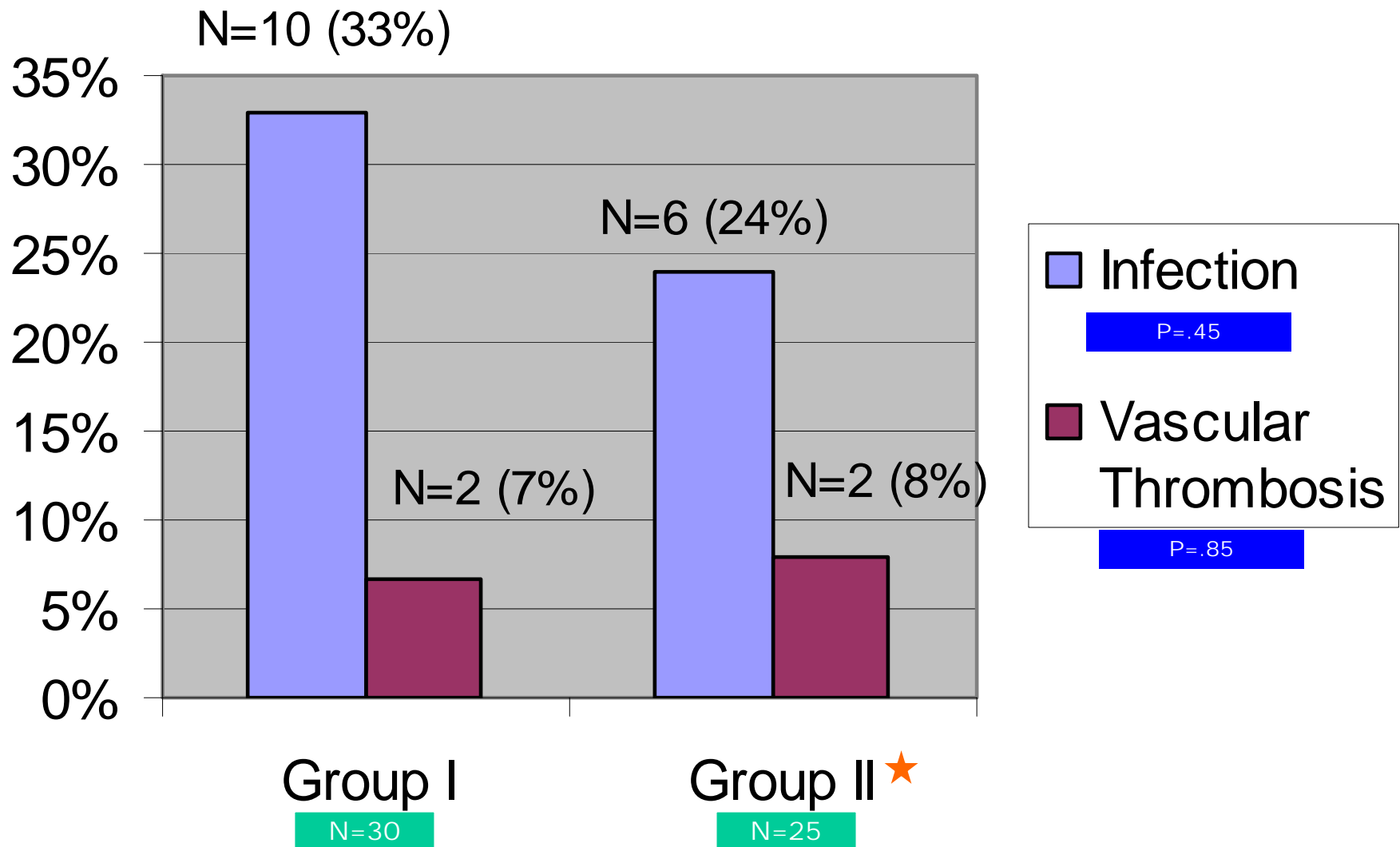
- *Mean MELD Scores from evaluable data:*
 - Group I = 17.0 at time of transplant
 - Group II = 13.5 pre-intervention to 15.0 post
- *Time from Diagnosis to Liver Transplantation:*
 - Group I = 10.5 yrs (+/- 7.6 yrs)
 - Group II = 9.8 yrs (+/- 5.0 yrs)

Do Pre-transplant Biliary
Stents or Drainage Tubes
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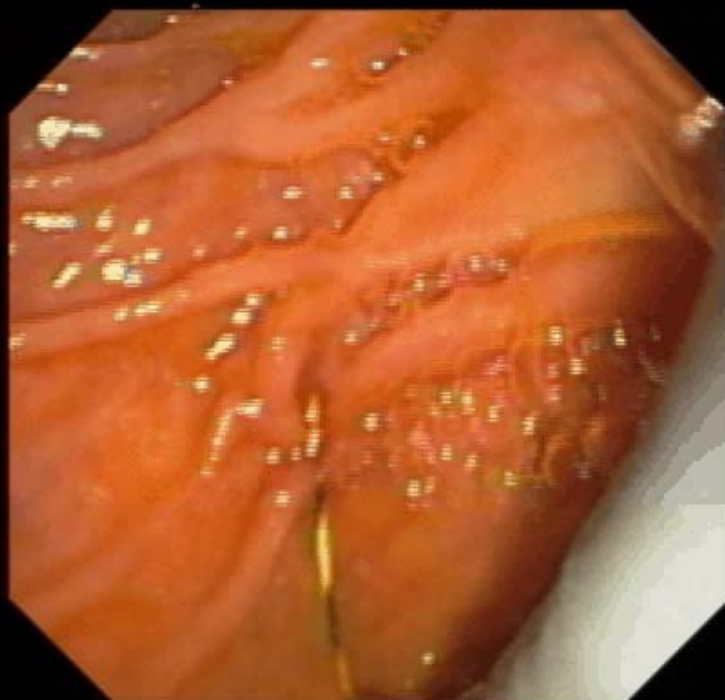
- **Group I-** diagnostic ERCP, ERCPBD, or no intervention (N=30)
- **Group II-** ERCPST or PTCDT (N=25)
- Similar mean duration of disease (10 years)
- Transplant reconstruction
 - Group I (Roux-Y=26, duct-to-duct=4)
 - Group II (Roux-Y=25).

Do Pre-transplant Biliary Stents or Drainage Tubes Increase Rates of Post-transplant Complications?



- 13/25 (52%) patients had stents/drains at time of transplant
- 5 patients (38%) had infectious complications
- 1 patient (8%) had vascular thrombosis





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Cholangioscopy in PSC

- Consecutive Patients (N=41)
- Objectives
 - Detection of CCA
 - Stones missed by cholangiography
 - Cholangioscopy-directed lithotripsy
 - Clinical Improvement
 - Resolution of jaundice or greater than 50% reduction in pain or cholangitis episodes requiring hospitalization

Cholangioscopy in PSC

Patient Characteristics	N=41 patients
Presenting symptoms	Cholangitis episodes (N=30) Jaundice (N=2) Pain (N=1) Worsening LFTs (N=8)
Indication for index cholangioscopy	Evaluation of Dominant Strictures (N=35) Stone Removal (N=1) Evaluation of PSC strictures and stone removal (N=5)

Results of stone removal using conventional ERCP methods or cholangioscopy

Technique	Stone Clearance (N=17)*	
	Complete	Partial
CP-directed lithotripsy (N=9)	7 (78%)	2 (22%)
Conventional methods only (N=8)	3 (38%)	5 (63%)
Total (N=17)*	10 (59%)	7 (41%)

* Stone removal was not attempted in 6 of 23 (26%) patients with stones.

Cholangioscopy in PSC

- Detection of CCA
 - Found 1 EHBD cancer; Missed 1 IHBD cancer
- Stones missed by cholangiography
 - 1 in 3 patients with stones were missed by cholangiogram
- Cholangioscopy-directed lithotripsy
 - Suggestion of more complete stone clearance with lithotripsy
- Clinical Improvement
 - Two-thirds

Conclusions

- Biliary interventions in PSC patients palliate symptoms as a bridge to transplantation
- Our data suggest that biliary interventions do not improve MELD, delay the time to transplant, or increase post-transplant infectious or thrombotic complications
- Cholangioscopy improves detection and treatment of stones in PSC and may be used in evaluating dominant strictures

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- Median years of disease duration until liver transplant was 9.0 yrs, IQR (1.0-25.0) for Group I and 11.0 yrs, IQR (1.0-22.8) for Group II.

Follow-up

