

Outcomes of Endoscopic Stent vs Balloon Dilation in Primary Sclerosing Cholangitis-Related Dominant Strictures: A National Database Study

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BACKGROUND

- Primary sclerosing cholangitis (PSC) is a chronic cholestatic disorder characterized by multi-focal bile duct strictures
- The presence of a dominant stricture in PSC is considered to be a poor prognostic factor
- The optimal endoscopic strategy (stent vs. balloon dilation) is unclear due to paucity of available data and small number of patients in existing studies

OBJECTIVES

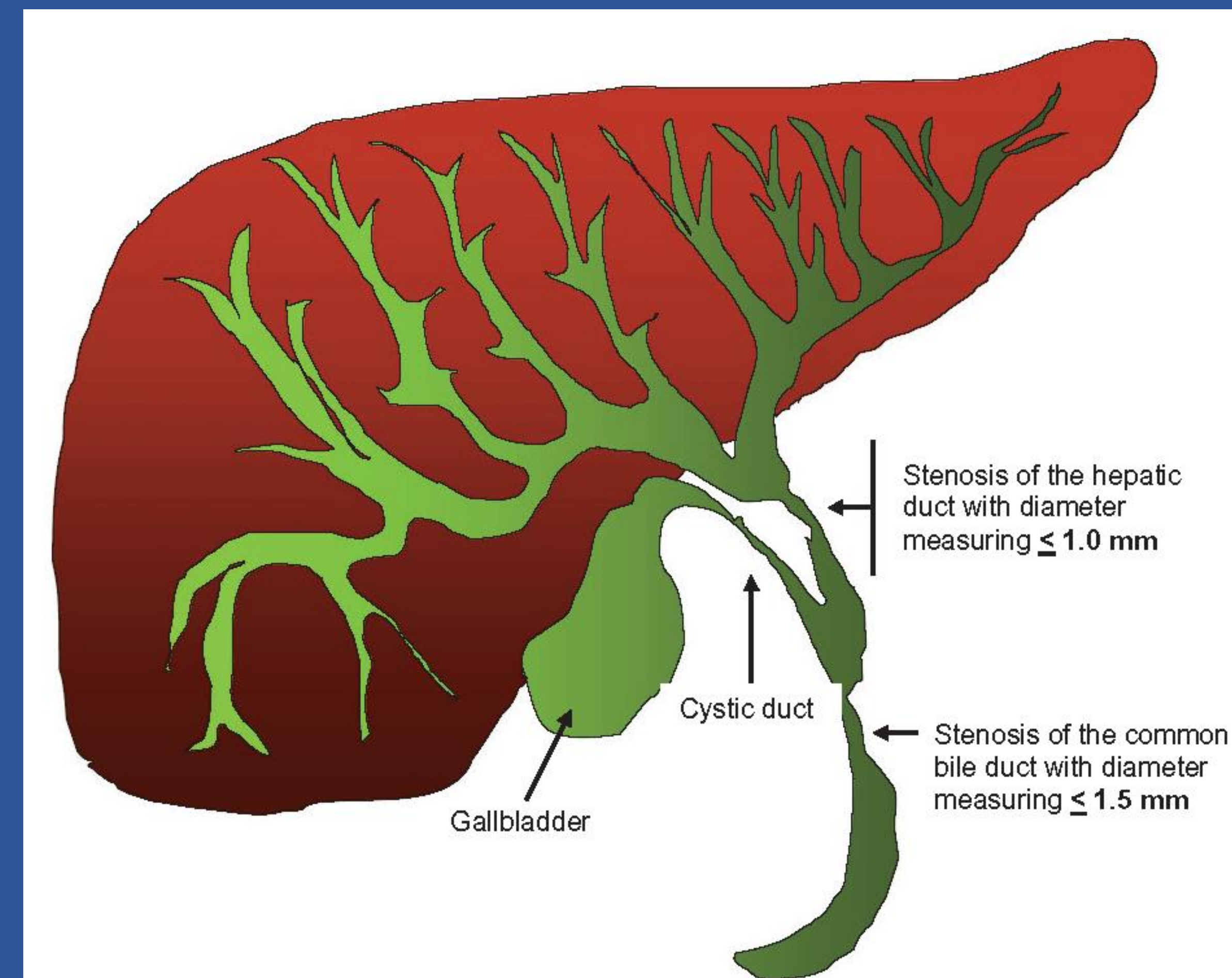
- To compare clinical outcomes in PSC in patients who undergo endoscopic stent placement vs. endoscopic balloon dilation

METHODS

- Study design: Retrospective case-control study
- Data source: TriNetX, LLC., a large commercial healthcare database which aggregates data from >70 healthcare organizations across the United States comprising more than 100 million patients using ICD-9/10 and CPT codes
- Cases: Adults ≥ 18 years with with PSC with a dominant stricture who **underwent endoscopic stent placement**
- Controls: Adults ≥ 18 years with with PSC with a dominant stricture who **underwent endoscopic balloon dilation**
- Matching: Cases and Controls were propensity matched (1:1 Greedy Nearest Neighbor matching algorithm)
- Matched variables: age, male sex, white race, BMI ≥ 30, diabetes, ulcerative colitis, smoking, alcohol use, history of appendectomy and hypertriglyceridemia
- Outcomes of interest: 1. 30-day risk of procedure related cholangitis, 2. 30-day hospital readmission rates, 3. 14-day risk of post-ERCP pancreatitis, 4. One-year mortality, 5. Three-year mortality, 6. Post-procedural bleeding, and 7. Perforation
- Analysis: Odds ratio (OR) and 95% confidence interval (CI) were calculated for the outcomes of interest (dichotomous variables), p-values for difference (continuous variables)

Table 1: Outcomes of Endoscopic stent vs. Balloon dilation in Primary Sclerosing Cholangitis with dominant strictures in the propensity matched cohorts

Outcomes	Risk in cases (PSC + dominant stricture + stent)	Risk in controls (PSC + dominant stricture + balloon)	Odds Ratio (OR)	95% Confidence Interval (CI)
Cholangitis within 30 days	18/232 (7.7%)	7/247 (2.8%)	2.8	1.2, 6.9
All cause hospital re-admissions within 30 days	89/336 (26%)	74/336 (22%)	1.2	0.9, 1.8
Post-ERCP pancreatitis within 14 days	20/293 (6.8%)	14/313 (4.5%)	1.5	0.7, 3.1
1-year mortality	27/336 (8%)	10/336 (3%)	2.8	1.3, 5.9
3-year mortality	45/336 (13.4%)	21/336 (6.3%)	2.3	1.3, 4.0



Patients with PSC related dominant stricture who had stent placement seem to have a higher risk of 30-day procedure related acute cholangitis, as well as higher 1-year and 3-year mortality

RESULTS

- PSC patients who received a stent had a higher 30-day risk of procedure related cholangitis when compared to those who only underwent balloon dilation (7.7% vs. 2.8%, OR = 2.8, 95% CI = 1.2, 6.9)
- No significant differences between the stent and balloon groups with respect to 30-day hospital readmission rates or 14-day post procedural pancreatitis (**Table 1**)
- PSC patients in the stent group had a higher risk of 1-year mortality and 3-year mortality as compared to balloon dilation (**Table 1**)
- Outcome data on post-procedural bleeding, perforation and 30-day mortality were too small to be able to detect differences between cases and controls

LIMITATIONS

- Information regarding disease specific outcomes (such as disease specific mortality) is lacking in TriNetX
- Case and control groups in this study were mutually exclusive, but it is possible that the stent group may have had balloon dilation done previously (for instance, at another hospital system which does not contribute data to TriNetX)

CONCLUSIONS

- Patients with PSC related dominant stricture who had stent placement seem to have a higher risk of immediate and long term mortality
- PSC patients undergoing endoscopic stent were likely sicker, thereby explaining the differences seen in mortality rates



TriNetX