SUSPECTED COMMON BILE DUCT STONES: WHICH TEST IS BEST?

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Introduction:

- The American Society for Gastrointestinal Endoscopy (ASGE) guidelines for common bile duct (CBD) stone management were created to risk stratify patients into low, intermediate, and high-risk groups to optimize interventions.
- Low risk patients
  - Cholecystectomy with or without IOC
- High risk patients
  - ERCP or CBD exploration
- Intermediate risk
  - Widely varies, optimum management unknown
  - IOC, EUS, MRCP often used to establish diagnosis

Methods:

Retrospective analysis of data from the Eastern Association for the Surgery of Trauma (EAST) Retained Common Bile Duct stone database comprised of deidentified data and outcomes of patients prospectively admitted with suspected CBD stones and/or acute biliary pancreatitis from 12 US medical centers between 2016-2019.

Analysis of the testing characteristics sensitivity (SN), specificity (SP), and predictive values (positive (PPV) and negative (NPV)) were calculated for MRCP, EUS, and IOC based on definitive identification of CBD stones.

Results

- 736 patients met inclusion criteria
- 521 met the ASGE intermediate risk of choledocholithiasis
  - 208/521 (39.9%) underwent pre-op MRCP
  - 44/521 (8.4%) underwent pre-op EUS
  - 238/521 (45.7%) underwent IOC

Test	SN	(95% CI)	SP	(95% CI)
MRCP	68.2%	57.1-77.7%	83.7%	75.8-89.5%
EUS	95.0%	73.1-99.7%	91.2%	71.5-98.5%
IOC	78.4%	68.1-86.2%	88.7%	82.2-93.1%

Sensitivity (SN) and specificity (SP) with 95% confidence interval (95% CI) for MRCP, EUS, IOC

Test	PPV	(95% CI)	NPV	(95% CI)
MRCP	74.4%	63.0-83.3%	79.2%	71.0-85.6%
EUS	90.5%	68.2-98.3%	95.6%	76.0-99.8%
IOC	80.2	70.0-87.7%	87.5%	80.9-92.1%

Positive Predictive Value (PPV), Negative Predictice Value (NPV) with 95% CI for MRCP, EUS, IOC

Conclusions:

- MRCP is frequently used (39.9%) to stratify ASGE intermediate risk patients in many centers
- MRCP has the lowest sensitivity, specificity, positive, and negative predictive values of all three modalities
- With high rates of false positives and false negatives, there appears to be little role for MRCP for ASGE intermediate risk patients
- When available either EUS or IOC are preferred options for diagnostic clarification to identify choledocholithiasis in this group

Limitations

- While EUS appears to have the best diagnostic accuracy, this modality was the utilized the least with wide confidence intervals
- EUS requires advanced endoscopic training and may not be practical across all centers
- Retrospective review of prospectively collected non-randomized data
- 12 major academic medical centers may have biases in terms of patient population and management algorithms not applicable to other institutions