

Endoscopic Retrograde Cholangiopancreatography (ERCP) in Tertiary Care Hospital: Clinical Evidence and Literature Assessing Diagnostic Performance

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Objectives

- To assess diagnostic performances of ERCP techniques in the setting of indeterminate biliary strictures (IDBS) at Kelowna General Hospital
- To carry out internal quality improvement by comparing our findings with corresponding literature values as well as diagnostic performances of other modalities of pancreatobiliary tissue acquisition

Introduction

- Pancreatobiliary malignancies often present with late disease, with only 30% being resectable tumours, contributing to poor prognosis and outcome¹
- ERCP is a mainstay for diagnosing and treating conditions of the bile and pancreatic duct
- Indeterminate biliary strictures (IDBS) are lesions whose nature remain ambiguous even after imaging, ERCP, and laboratory analysis, and run the risk of misdiagnosing cholangiocarcinomas or pancreatic adenocarcinomas²
- Current ERCP techniques have statistically offered sensitivities and specificities below desired values

Methods

- Retrospective study of 3723 ERCP procedures
- 222 patients (285 ERCP procedures) met study inclusion/exclusion criteria
- Patients were ≥19 years old who had undergone fluoroscopy-guided pancreatic and/or biliary ERCP sampling at KGH for which cytology brushing and/or tissue biopsies were obtained
- Demographic, clinical, and disease information was collected
- Three main ERCP techniques were analyzed: brushing alone, biopsy alone, or brushing and biopsy dual modality approach
- Test performances of ERCP sampling methods were determined by reviewing clinical reports

Results

- 125 (56%) male patients and 97 (44%) female patients
- Mean age 71 years old (range 40-95)

Table 1. Test performance of ERCP sampling modalities.

Clinical Characteristics	N (%)
Mass identified on CT	99 (45%)
History of pancreatitis	20 (9%)
History of primary sclerosing cholangitis	5 (2%)
Abnormal liver enzymes at presentation	157 (71%)
Abnormal lipase levels at presentation	48 (22%)
History of cancer	37 (17%)
History of metastases	23 (10%)

Table 2. Test performance of ERCP sampling modalities.

	Brushing Alone	Biopsy Alone	Biopsy and Brushing
Total (N)	85 (29%)	36 (13%)	164 (58%)
Diagnostic Results			
Sensitivity	73%	56%	79%
Specificity	96%	93%	94%
Accuracy	85%	83%	86%
Prevalence of cancer in this population	40 (47%)	9 (25%)	84 (51%)

Results (continued)

Table 3. Test performance of ERCP sampling modalities in the literature.

Modality	Sensitivity	Specificity	Accuracy
Brushing Alone ³⁻⁷	6 – 64%	100%	38 – 80%
Biopsy Alone ⁶⁻¹¹	43 – 81%	90 – 100%	65 – 81%
Biopsy and Brushing ¹²	54 – 65%	99 – 100%	70 – 73%
SOC for Visual Inspection ^{12,13}	78 – 100%	77 – 96%	80 – 97%
SOC Biopsy ^{12,13}	38 – 88%	82 – 100%	61 – 96%
EUS FNA ^{14,15}	75%	100%	79%

Discussion & Conclusion

- Combining modalities of tissue acquisition appears to improve both sensitivity and specificity, which is supported in existing literature
- Brush cytology remains first-line method of obtaining tissue at ERCP despite its low sensitivity
- There is a definite need for more effective screening and diagnostic measures in pancreatobiliary malignancies

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