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ORIGINAL ARTICLE

Indeterminate diagnoses in EUS-guided FNA of the pancreas: analysis of cytologist and clinician perceptions, cytologic features, and clinical outcomes

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Introduction Indeterminate "atypical" or "suspicious for malignancy" diagnoses in the evaluation of pancreatic fine-needle aspiration (FNA) specimens can present challenges in the clinical management of patients with pancreatic masses. A main goal of this study was to identify, via survey, potential differences in perception between cytologists and clinicians with regard to the implications of, and factors contributing to, indeterminate diagnoses. We also evaluated clinical practice at our institution as it relates to such

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Atypical;
Suspicious

diagnoses and identified clinicopathologic features associated with indeterminate diagnoses, which allowed for correlation with survey results.

Materials and Methods Online surveys were sent to cytologists and clinicians to gather information on the respondents' experiences with pancreatic endoscopic ultrasound-guided FNA and their perceptions about the indeterminate diagnostic categories. Cytological specimens and patient medical records were reviewed to collect data on specimen acquisition, cytological features, tumor characteristics, and patient management.

Results Survey responses revealed that cytologists and clinicians held similar perceptions of the clinical impact of the indeterminate categories but had dissimilar ideas on the factors contributing to these diagnoses. Statistically significant associations were identified between indeterminate diagnoses and the following variables: number of passes performed; adequacy on rapid on-site evaluation; repeat FNA procedures; lesions with cystic changes; and well-differentiated tumor cytomorphology.

Conclusions Awareness of the perceptions of cytologists and clinicians about, as well as the clinical features and cytologic variables associated with, "indeterminate" cases has the potential to improve patient care.

Introduction

Endoscopic ultrasound-guided fine-needle aspiration (EUS-FNA) biopsy has emerged as the dominant modality for evaluating pancreatic masses.[1,2] Ideally, specimens obtained via this technique will yield a definitive diagnosis of either "benign" or "malignant" in order to assist clinicians in patient management. Although only a minority of pancreatic FNAs lead to "atypical" or "suspicious for malignancy" diagnoses, such equivocal results are generally dissatisfying for pathologists, clinicians, and patients. Given that "indefinite" specimens can create management dilemmas, it is important that both cytologists and treating clinicians understand the factors contributing to, and the clinical implications of, indeterminate cytologic results.

There were 3 main objectives of this study. First, we aimed to evaluate interdepartmental dynamics to determine if differences in perception existed between cytologists and clinicians with regard to factors contributing to indeterminate pancreatic EUS-FNA diagnoses, as well as the clinical consequences of such diagnoses. This issue was addressed via online surveys of cytologists and clinicians. Second, in order to assess our institution's practices, we retrospectively reviewed the clinical management of pancreatic masses with initial indeterminate EUS-FNA diagnosis over a 6-year period. Finally, we reviewed all EUS-FNA cytology specimens with initial indeterminate results to identify cytologic features associated with such a categorization. In addressing the latter 2 objectives, we were able to correlate actual diagnostic and clinical practice with perceptions (collected in the survey), the first objective.

We believe that an enhanced understanding of the clinical and cytologic features of indeterminate pancreatic FNAs and the perceptions of clinicians and cytologists about such attributes might allow for improved communication, increased diagnostic accuracy, and ultimately, better patient care.

Materials and methods

Online surveys

Surveys were created and emailed through the Survey Monkey online tool to cytologists and treating physicians. A 16-question survey was sent to cytologists (Supplement 1A) and a 13-question survey was sent to clinicians (Supplement 1B). Invited cytologists included all board-certified cytopathologists or anatomic pathologists signing out cytology in daily practice at our institution, Dartmouth-Hitchcock Medical Center (DHMC), as well as to subscribers of the American Society for Cytopathology listserv. Cytotechnologists and cytology fellows were also allowed to complete the survey. Targeted clinicians included primarily surgeons, gastroenterologists, medical and radiation oncologists, and radiologists involved in the care of pancreatic cancer patients at DHMC. Fellows, residents, and nurses involved in the care of pancreatic cancer patients were also permitted to complete the survey. Clinicians were encouraged to send the survey to colleagues. Respondents were required to choose the single most relevant answer for each question except for two questions (7 and 15) in the cytologist survey and two questions (6 and 11) in the clinician survey; all relevant answers for thsese questions could be selected.

The questions were designed to characterize the respondents' professional setting and experience with EUS-FNA. The surveys addressed the application and utility of onsite adequacy assessment during EUS-FNA procedures, the impact of indeterminate cytology results on the management of patients with pancreatic masses (resectable and unresectable), and the value of obtaining consultations when faced with a possible diagnosis of "atypical" or "suspicious for malignancy." Questions relating to the application of diagnostic criteria for indeterminate categories and the challenges encountered in cytological evaluation of pancreatic EUS-FNA were directed exclusively to cytologists.