

Commentary

Telecytopathology facilitates the use of rapid on-site evaluation in endoscopic ultrasound fine needle aspiration of the pancreas to improve patient outcomes

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SUMMARY

Telecytopathology (TCP) has a variety of different applications in clinical practice and is becoming more widely utilized. Potential uses are broad and include second opinion consultation, primary diagnosis, educational/tumor board, and immediate fine-needle aspiration (FNA) interpretation. More recently, TCP use has been increasingly applied to the immediate evaluation of FNA biopsy adequacy evaluation. This process is generally known as rapid on-site evaluation (ROSE). Khurana *et al.* reported their findings using TCP for ROSE in endoscopic ultrasound (EUS) FNA of the pancreas.^[1] They separated 217 patients into two cohorts. One cohort had on-site evaluation performed by a cytopathologist utilizing TCP. The other cohort did not have on-site evaluation. The TCP system utilized a commercially available passive live video from the microscope, obtained at the point of care (EUS gastrointestinal suite) and delivered to the attending cytopathologist in their office at a remote location. A cytotechnologist at the point of care operated the microscope. This was a retrospective study and the decision for ROSE versus non-ROSE was made by the gastroenterologist performing the endoscopy. Based on the on-site evaluation, it was possible for the TCP ROSE cohort to have additional passes performed, as deemed necessary for diagnosis. The majority of solid lesions were selected for TCP ROSE, and the majority of cystic lesions were not selected for TCP ROSE. The authors examined a variety of individual data points, including the nature of the lesion being evaluated (solid vs. cystic)

and the diagnostic rates. The four major diagnostic categories included: (1) Nondiagnostic, (2) negative/benign, (3) atypical/suspicious, and (4) malignant. In solid lesions, the percentages for negative/benign and atypical/suspicious were similar in each cohort. Use of TCP ROSE favored solid lesions and had a nondiagnostic rate of 3.7% in comparison to a 25.6% nondiagnostic rate in the solid lesions without immediate evaluation. There was no statistical difference in nondiagnostic rates for cystic lesions between the two groups, although most did not have TCP ROSE (79/93). For all patients, after using multivariate logistic regression, the odds of a nondiagnostic sample were 6.9 times greater without the use of TCP ROSE.

COMMENTS

Rapid on-site evaluation for FNA biopsy is an important and valuable service, which is integral to optimal patient care and diagnosis. It provides the performing clinician with real time feedback about the nature of the biopsy and gives them the ability to know when they need to persist in tissue sampling to obtain a diagnostic sample.

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This involves a team approach and centers on the pathologist/cytotechnologist providing this at the site of the procedure. A variety of studies has shown that this can improve diagnostic yield and provide a better utilization of health care resources.^[2] The request of the endoscopist and performing clinician to have ROSE provided is a reflection of their understanding of the importance of having on-site feedback, and how it helps for them to care for the patients. However, providing this patient centered service is not without its difficulties and challenges. It involves a significant time commitment for a single case, the procedures are performed in multiple separate locations at a distance from the laboratory and overlapping procedures can present adequate staffing challenges. Current commercially available technology exists which can provide robust and effective TCP solutions.^[3] The use of TCP ROSE can help mitigate the problems of travel time to distant sites, the time required to wait between multiple sites on the same patient or repeat FNA biopsies, and improves overall efficiency by decreasing the time commitment for the pathologist.^[4] And while TCP is a time efficient process for the pathologist, it is a time consuming process for the cytotechnologist requiring a significant time commitment which can impact the overall laboratory operation.

Khurana *et al.* have shown the value of TCP ROSE for pancreas lesion EUS FNA biopsy.^[1] Utilizing a commercially available system with passive live video microscopy operated by a cytotechnologist and distributed remotely to a cytopathologist, they show a statistically significant improvement in the nondiagnostic rate for patients (3.7% with TCP ROSE versus 25.6% without TCP ROSE). This has significant patient

care implications for patients undergoing EUS FNA of the pancreas. A nondiagnostic classification causes a delay in the patient's treatment. A solid lesion of the pancreas in the correct clinical context is often adenocarcinoma, and definitive pathologic diagnosis is necessary. A nondiagnostic rate of around 20% in the non-TCP ROSE group would result in a high proportion of these patients having a repeat EUS FNA or another more invasive procedure such as laparoscopy. Apart from subjecting the patient to additional procedures and delaying the final diagnosis, this also adds additional cost to the health care system.

Considering the value and importance of ROSE for FNA, finding innovative and efficient solutions for the delivery of the service is imperative as the laboratory is subjected to increasing volume and time demands. Khurana *et al.* have added to our understanding about how to utilize TCP ROSE for FNA and clearly demonstrate its value in delivering optimal patient care and improving patient outcomes.

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