Procore and Flexible 19G Needle Can Replace Trucut Biopsy Needle?

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Introduction

Endoscopic Ultrasound-guided fine-needle aspiration (EUS-FNA) is routinely performed for establishing tissue diagnosis in patients with gastrointestinal tumors. The concept of tailoring chemotherapy based on molecular markers has increased the demand for core tissue by means of EUS-guided fine-needle biopsy (EUS-FNB). Also, FNB may offset the limitations of FNA wherein the diagnostic sensitivity is incumbent on the availability of an onsite cytopathologist. To overcome the technical limitations induced by the rigidity of the Trucut biopsy needle, a new Procore needle with reverse bevel technology has been developed. Recent data suggests that the newly developed flexible 19G needle can also procure core tissue and has easy maneuverability when navigating the transduodenal route. The best clinical outcomes can be attained only by selecting appropriate needles, practicing evidence-based techniques, procuring adequate quantity of sample for ancillary studies and processing the specimens appropriately.

Review

EUS-FNA is safe, accurate, inexpensive, and the interpretation is reliable when performed by trained cytopathologists. However, the diagnostic sensitivity of EUS-FNA is superior only when the specimen is assessed onsite for diagnostic adequacy. However, most institutions do not have skilled individuals to render onsite assessment. A FNB specimen contains core tissue with better preservation of cellular architecture than an FNA specimen and therefore has greater diagnostic accuracy and provides more tissue for ancillary testing. It may be specifically requested by pathologists to establish a definitive diagnosis in challenging cases when FNA is inconclusive or for identification of molecular markers that are specific for neoplasms such as pancreatic neuroendocrine tumors and metastatic lung or breast cancer. To meet these expectations, a 19G Trucut (Cook Endoscopy, Winston-Salem, N.C.) biopsy needle (EUS-TNB) was developed to procure larger amounts of tissue with conserved architecture that would enable histological analysis. The overall diagnostic accuracy of the EUS-TNB for evaluating suspicious lesions at various sites in the body is reported to be 75-84% and 61-67.5% for pancreatic masses.1,2 While the EUS-TNB technique has some advantages over FNA, the rigidity induced by its 19G caliber and the mechanical friction of the firing mechanism produced by the torqued echoendoscope, lim-
its use for evaluating pancreatic head and duodenal lesions.

To overcome this limitation, a new 19G FNB device was recently developed with ProCore (ProCore, Cook Endoscopy, Winston-Salem, NC) reverse bevel technology to enable the acquisition of core specimens. In a recent study from Europe, histologic samples were obtained successfully with this ProCore needle in a majority of patients with a diagnostic accuracy of more than 90%. However, some technical difficulties were still encountered when performing transduodenal passes. The same FNB device is also available in a 22G platform to facilitate easy transduodenal sampling. The role of the standard 19G FNA needle for yielding histological samples was assessed prospectively in a recent study. Of the 120 patients who underwent EUS-guided tissue acquisition, the procedure was technically successful in 119 patients (98.9%) and adequate histological sample was obtained in 116 (97.5%). A major limitation of the study was that patients with pancreatic head or uncinate masses were excluded. As the standard 19G needle is too stiff to navigate the transduodenal route, a flexible 19G needle made of nitinol has been recently introduced. In a pilot study of 50 patients, which included several patients that underwent EUS-FNA via the transduodenal route, histological specimen was procured in 95% of patients.

While manufacturer guidelines must be followed when using specially designed biopsy needles, when using a 19G needle, to minimize bloodiness, one must not use suction or a stylet and repeated “jabbing” at the same area should be avoided. It is usually not necessary to perform more than 3 FNB passes in a lesion as repeated biopsies are more likely to yield blood clots.

Conclusions

The currently available ProCore and Flexible 19G needles are a significant advancement to acquiring core tissue during EUS-guided procedures. However, EUS-guided tissue acquisition is a multi-step procedure. Providing the correct type of sample by identifying the needs of the treating physician, sampling the lesion using the best evidence-based techniques, procuring additional tissue for ancillary studies and closely collaborating with cytopathologists are all important in order to have good technical and clinical outcomes.

References