Role of Repeated EUS-FNA for Inconclusive Initial Cytology Result

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Introduction

Despite the technical advancement of various imaging modalities, it is still impossible to differentiate benign and malignant pancreatic lesions by the images only. For tissue acquisition to differentiate pancreatic lesions, endoscopic ultrasound-guided fine needle aspiration (EUS-FNA) is the procedure of choice with high accuracy and low complication rate. Pooled sensitivity and specificity of EUS-FNA in the diagnosis of etiology of solid pancreatic mass was 86.8% and 95.8%, respectively in a meta-analysis.1 Although EUS-FNA shows high diagnostic accuracy in patients with suspected pancreatic carcinoma, the rate of acquiring indeterminate cytologic findings is still up to 10.9%.2 Endosonographer faces difficulties when cytology result of EUS-FNA is inconclusive while malignancy is highly suspicious in clinical presentation.

What can we do if initial cytology result of EUS-FNA is inconclusive?

1. Possible options

About 30% of patients with negative or nondiagnostic EUS-FNA result were finally able to be diagnosed as pancreatic cancer later.3 As a consequence, when we get negative or nondiagnostic EUS-FNA result while pancreatic cancer is highly suspicious clinically, we should set the most beneficial next step for the patient. First, alternative diagnostic tools would be chosen to get tissue for diagnosis such as bile duct brushing with endoscopic retrograde cholangiopancreatography (ERCP) or computed tomography guided biopsy. When the lesion is resectable, surgical exploration without definite tissue diagnosis may be considered. Careful short-term follow up with EUS or other imaging modalities would be another option. But all of these options have some concerns and/or risks. Retrial of EUS-FNA can also be a reasonable option.

2. Rationale of repeating EUS-FNA

EUS-FNA is a technically demanding procedure with steep learning curve.4 This means the result of EUS-FNA is very operator dependent. Some of reported causes of failing correct diagnosis with EUS-FNA are inadequate patient sedation, difficulty in positioning the echoendoscope, coexisting pancreatitis, extensive necrosis of the lesion, presence of ascites or collaterals and pathologist’s interobserver variation.5 A well trained
cytopathologist is an essential element of the successful EUS-FNA procedure and presence of on-site pathologist in the endoscopy suit also influence the accuracy of EUS-FNA result. When EUS was repeated for a similar clinical indication at a tertiary-referral center, a significant clinical impact was observed in 63% of the patients. Repeated EUS at the same center with various indications, also resulted in change of further management plan in 72% of the patients. From those results, we might expect that repeated EUS-FNA by expert at another center or by the same endosonographer with different setting can give successful result as the cases of colonoscopy or ERCP maybe successfully performed on the previously failed procedure.

Impact of repeated EUS-FNA

In a study, when initial EUS-FNA result was indeterminate for solid pancreatic lesion, repeat EUS-FNA was performed 3 weeks later. The result proved that 78%(7/9) of the patient with indeterminate cytology result had malignancy. When EUS-FNA was performed in 62 cases of repeated EUS, among them 82% (47/62) patient had inconclusive cytology with previous EUS-FNA, 73% (45/62) cases were prevented from undergoing further diagnostic work-up. Diagnostic accuracy of repeated EUS-FNA was 61-84% with no complication.

Conclusions

Repeated EUS-FNA shows high clinical impact with low risk. In clinical practice, repeat EUS-FNA is useful when the initial EUS-FNA result of a suspected tumor is nondiagnostic. Repeat EUS-FNA should be considered especially if predictors of malignancy, such as vascular invasion or lymphadenopathy are visible on the EUS.

References