

Open Access

Diagnosis of Subepithelial Lesion: Still “Tissue Is the Issue”

Eun Young Kim

Department of Internal Medicine, Catholic University of Daegu School of Medicine, Daegu, Korea

See “Concordance of Endoscopic Ultrasonography-Guided Fine Needle Aspiration Diagnosis with the Final Diagnosis in Subepithelial Lesions” by Erkan Çağlar, İbrahim Hatemi, Deniz Atasoy, et al., on page 379-383

When an elevated lesion covered with normal mucosa is observed during endoscopy, the endoscopist would be suspicious of the presence of a mass underneath the mucosa and calls it a subepithelial lesion (SEL). However, SEL may be a true intramural mass underneath the mucosa or an extraluminal compression mimicking an intramural mass. For the evaluation of SEL, endoscopic ultrasonography (EUS) is considered as the best modality. EUS can differentiate between true intramural mass and extramural lesion accurately.¹ In case of true intramural lesions, presumptive diagnosis is possible by an educated guess based on the information obtained from EUS examination. EUS allows endoscopists to examine the size, echogenicity, and layer of origin of the SEL. SELs such as lipoma or cyst can be diagnosed accurately and easily by EUS due to their characteristic hyperechoic or anechoic echo findings, but hypoechoic lesions originating from 3rd and 4th wall layers cannot be accurately diagnosed by EUS findings only. As a result, accuracy of EUS in diagnosis of SEL was reported as 45.5% to 78.4%.^{2,3} At this point, “tissue is the issue” for the definite diagnosis of SEL.

EUS-guided fine needle aspiration (EUS-FNA) is one of the ways of tissue acquisition for a definite diagnosis. EUS-FNA is frequently performed to get tissue for pathologic diagnosis of any mass accessible with EUS. However, diagnostic yield of EUS-FNA is poor for SEL compared to mediastinal lymphadenopathy or pancreatic mass. Diagnostic accuracy of EUS-FNA for SEL has been ranging from 60% to 80%.⁴

In this issue of *Clinical Endoscopy*, Çağlar et al.⁵ reported

the diagnostic accuracy of EUS-FNA for SEL as 98.2%, which is unbelievably high. Authors performed EUS-FNA from 67 patients. Among them, adequate specimen was not able to be obtained in nine (13.45%) cases. Subsequently diagnostic yield of EUS-FNA was 85.5%. They reported that the concordance of EUS-FNA with final diagnosis was 98.2% when enough diagnostic material was obtained. However, with close look into the paper, you may find that final pathologic diagnosis was obtained only from 35 of 67 patients and final diagnosis of the other 32 patients was just assumed with endoscopic follow-up. In addition, they merely classified the diagnosis of EUS-FNA into benign and malignant and compared them to final diagnosis to find out diagnostic accuracy. It seems to be necessary to directly compare the actual EUS-FNA diagnosis to final pathologic diagnosis among 35 pathologically proven cases to calculate reliable result.

Some of the factors that can influence diagnostic accuracy of EUS-FNA are presence of on-site cytopathologist, experience of endosonographer, location and size of the lesion and equipment and technique used.⁶ There are many aspects that need to be discussed with the results of study of Çağlar et al.⁵ In the study, the size of the target lesions were 5 to 70 mm. According to the sizes of lesion that they worked on, 24 cases (35.8%) were less than 25 mm, and nine (13.4%) cases were more than 50 mm in size. Usually EUS-FNA is not recommended when the size of lesion is less than 20 mm or a surgery is already planned for symptomatic large SEL.⁴ They used 22 gauge needle for all cases without on-site cytopathologist. During the procedure of EUS-FNA, on-site pathologist could give the information on the adequacy of obtained specimen. To get a tissue which is sufficient for immunohistochemical staining for the diagnosis of gastrointestinal (GI) stromal tumors, Trucut biopsy needle could be considered for better result.^{7,8} Newly developed ProCore needle looks also promising and many endosonographers are trying to figure out its adoptability

Received: May 29, 2013 Accepted: June 4, 2013

Correspondence: Eun Young Kim

Department of Internal Medicine, Catholic University of Daegu School of Medicine, 33 Duryugongwon-ro 17-gil, Nam-gu, Daegu 705-718, Korea
Tel: +82-53-650-4092, Fax: +82-53-624-3281, E-mail: kimey@cu.ac.kr

© This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/3.0>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

and efficiency.

Thinking the fact that "tissue is the issue" for diagnosis of SEL, diagnostic methods other than EUS-FNA should be considered. Bite on bite biopsy is a technique to dig into the mass with conventional or jumbo biopsy forceps. The diagnostic yield of bite on bite technique was 17% to 38% previously.^{9,10} One recent study has compared diagnostic yield of bite on bite biopsy with jumbo forceps and EUS-FNA in patients with SELs of the upper and lower GI tract. A definitive diagnosis was provided in 76 of 129 (58.9%) patients with jumbo biopsy forceps and 14 of 31 (45.1%) patients with EUS-FNA ($p=0.175$).¹¹ Lee et al.¹² suggested the unroofing of the covering mucosa by using a conventional snare and subsequent partial resection of the exposed tumor by snare for tissue diagnosis. They reported diagnostic yield of 93.7% and 56% of easily controllable minor bleeding complication. One study reported on EUS-guided needle-knife incision and forceps biopsy (SINK biopsy).¹³ After EUS examination of SEL, 6 to 12 mm linear incision was made on the lesion with needle-knife sphincterotome. Then three to five biopsy samples were obtained with conventional biopsy forceps. Reported diagnostic yield was 92.8% and there were no procedure-related complications. Other recently reported diagnostic technique is "retract-ligate-unroof-biopsy."¹⁴ In this technique, using double-channel endoscope, the stromal tumor was simultaneously retracted and ligated. Then, after unroofing of the overlying mucosa by incision, the tumor was exposed. Consequently multiple biopsy samples were obtained from the exposed tumor. Technical success with immunohistological diagnosis of biopsy specimens was achieved in 13 of 16 (81%) patients. But delayed bleeding requiring hospitalization and blood transfusion occurred in two patients. One thing that the endoscopist needs to keep in mind on these procedures is that the manipulation of the overlying mucosal layer of SEL may hinder the subsequent procedure if you want to apply endoscopic submucosal tunnel dissection method for the resection of SEL later.¹⁵

Back to the title, though EUS is an amazing modality to examine SEL, it is not perfect and a tissue from the lesion is still required for the accurate diagnosis of SEL. There are some methods suggested for tissue acquisition for the diagnosis of SEL. Among them, EUS-FNA is currently considered as a standard diagnostic method. However, the diagnostic yield of EUS-FNA is inconsistent due to many factors including inadequate data interpretation. There should be a continued effort to improve the accuracy of EUS-FNA with various techniques and equipment to provide sufficient material for immu-

nohistochemical analysis and further study is needed.¹⁶

Conflicts of Interest

The author has no financial conflicts of interest.

REFERENCES

- Oztas E, Oguz D, Kurt M, et al. Endosonographic evaluation of patients with suspected extraluminal compression or subepithelial lesions during upper gastrointestinal endoscopy. *Eur J Gastroenterol Hepatol* 2011;23:586-592.
- Karaca C, Turner BG, Cizginer S, Forcione D, Brugge W. Accuracy of EUS in the evaluation of small gastric subepithelial lesions. *Gastrointest Endosc* 2010;71:722-727.
- Won TK, Kim EY, Seo CJ, et al. Endoscopic ultrasonography in upper gastrointestinal subepithelial lesions. *Korean J Gastrointest Endosc* 2006;32:313-319.
- Moon JS. Endoscopic ultrasound-guided fine needle aspiration in submucosal lesion. *Clin Endosc* 2012;45:117-123.
- Çağlar E, Hatemi İ, Atasoy D, Şişman G, Şentürk H. Concordance of endoscopic ultrasound guided fine needle aspiration diagnosis with the final diagnosis in subepithelial lesions. *Clin Endosc* 2013;46:379-383.
- Kim EY. Introduction: value of endoscopic ultrasound-guided fine needle aspiration. *Clin Endosc* 2012;45:115-116.
- Fernández-Esparrach G, Sendino O, Solé M, et al. Endoscopic ultrasound-guided fine-needle aspiration and trucut biopsy in the diagnosis of gastric stromal tumors: a randomized crossover study. *Endoscopy* 2010;42:292-299.
- DeWitt J, Emerson RE, Sherman S, et al. Endoscopic ultrasound-guided Trucut biopsy of gastrointestinal mesenchymal tumor. *Surg Endosc* 2011;25:2192-2202.
- Ji JS, Lee BI, Choi KY, et al. Diagnostic yield of tissue sampling using a bite-on-bite technique for incidental subepithelial lesions. *Korean J Intern Med* 2009;24:101-105.
- Cantor MJ, Davila RE, Faigel DO. Yield of tissue sampling for subepithelial lesions evaluated by EUS: a comparison between forceps biopsies and endoscopic submucosal resection. *Gastrointest Endosc* 2006;64:29-34.
- Buscaglia JM, Nagula S, Jayaraman V, et al. Diagnostic yield and safety of jumbo biopsy forceps in patients with subepithelial lesions of the upper and lower GI tract. *Gastrointest Endosc* 2012;75:1147-1152.
- Lee CK, Chung IK, Lee SH, et al. Endoscopic partial resection with the unroofing technique for reliable tissue diagnosis of upper GI subepithelial tumors originating from the muscularis propria on EUS (with video). *Gastrointest Endosc* 2010;71:188-194.
- de la Serna-Higuera C, Pérez-Miranda M, Díez-Redondo P, et al. EUS-guided single-incision needle-knife biopsy: description and results of a new method for tissue sampling of subepithelial GI tumors (with video). *Gastrointest Endosc* 2011;74:672-676.
- Binmoeller KF, Shah JN, Bhat YM, Kane SD. Retract-ligate-unroof-biopsy: a novel approach to the diagnosis and therapy of large nonpedunculated stromal tumors (with video). *Gastrointest Endosc* 2013;77:803-808.
- Gong W, Xiong Y, Zhi F, Liu S, Wang A, Jiang B. Preliminary experience of endoscopic submucosal tunnel dissection for upper gastrointestinal submucosal tumors. *Endoscopy* 2012;44:231-235.
- Ramesh J, Varadarajulu S. How can we get the best results with endoscopic ultrasound-guided fine needle aspiration? *Clin Endosc* 2012;45:132-137.