Open Biopsy guided by Endoscopic Ultrasonography from a Gastric Submucosal Tumor growing Outside the Stomach

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INTRODUCTION

Submucosal tumors (SMTs) of the stomach are commonly considered benign tumors. However, some tumors, particularly gastrointestinal stromal tumors (GISTs), exhibit potential malignancy [1, 2]. Submucosal tunneling bloc biopsy (STB) using the endoscopic submucosal dissection (ESD) technique has been demonstrated as a safe and reliable method [3, 4]. STB for SMTs growing inside the gastric wall is a safe and reliable method. However, it is difficult for an endoscopist to perform submucosal tunneling bloc biopsy and detect the demarcation line between the proper muscular layer and the capsule layer of SMTs growing outside the stomach [5-8]. However, as it is difficult to detect the demarcation line between the proper muscular layer and the capsule layer of SMTs growing outside the stomach, STB for SMTs growing outside the stomach can cause accidental perforation of the muscularis propria layer.

CASE REPORT

A SMT, 19 mm in diameter, in the lesser curvature of the stomach was identified in a 74-year-old man by esophagogastroduodenoscopy (EGD) (Fig. 1). Computed tomography revealed a heterodense tumor growing outside the stomach, that was connected with 10 mm of the muscular layer. The tumor was removed via snare resection between the markings located immediately above the top of the tumor. After the biopsy site was reconfirmed using endoscopic ultrasonography, a large bloc biopsy was conducted. This new “open biopsy under endoscopic ultrasonography” is a simple, safe, and reliable method to obtain samples from any type of submucosal tumor growing inside or outside the stomach.

Key words: submucosal tunneling biopsy – submucosal tumor – outside growth – endoscopic ultrasonography.

Abbreviations: EGD: esophagogastroduodenoscopy; ESD: endoscopic submucosal dissection; EUS: endoscopic ultrasonography; EUS-FNA: endoscopic ultrasound fine needle aspiration; GIST: gastrointestinal stromal tumor; LECS: laparoscopy and endoscopy cooperative surgery; NOTES: natural orifice transluminal endoscopic surgery; SEMF: submucosal endoscopy with mucosal flap; SMT: submucosal tumor; STB: submucosal tunneling bloc biopsy.
layer (Fig. 2). Endoscopic ultrasound fine needle aspiration (EUS-FNA) was performed; however, it was impossible to puncture the tumor because the puncture line extended outside the stomach.

In Japan, asymptomatic SMTs < 2 cm are followed up via endoscopy. The patient became nervous and stressed after being informed that periodic EGD follow-up should be performed every three months. Therefore, STB was attempted. However, it was difficult to detect the tumor capsule covered with the proper muscle layer, and a perforation was noted immediately in front of the tumor (Fig. 3). Fortunately, given that it did not expose the capsule of the SMT, the perforation site was immediately closed. Because the tumor grew from a small area of the proper muscle layer, we could cut the muscle layer immediately in front of the tumor (Fig. 4). After detecting the connected area by EUS and placing two markings at the opposite ends of the tumor, the tumor was snare-resected between the two markings immediately above the muscle layer (Fig. 5). After the biopsy site was reconfirmed by EUS, a large bloc biopsy was conducted (Fig. 6). The histological result indicated a GIST. We recommended surgical resection, particularly laparoscopy and endoscopy cooperative surgery (LECS), as the GIST was approximately 20 mm in diameter. Laparoscopy and endoscopy cooperative surgery was performed successfully, and the histological findings indicated an intermediate risk of the GIST in accordance with Fletcher’s classification.
CONCLUSION

This new “open biopsy under EUS method” is a simple, safe, and reliable method to obtain samples from any type of SMT growing inside or outside the stomach. This technique involves the detection of the SMT using EUS, accurate demarcation of the resected site by EUS, sufficient saline solution injections, minimal mucosal resection, reconfirmation of the bloc biopsy area by EUS, and retrieval of the appropriate specimen.

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