

Submucosal tunneling endoscopic resection for submucosal tumors

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Since the introduction of ESD for gastric lesions beyond submucosa, it has been considered as minimally invasive resection methods for submucosal tumors (SMTs). Literatures on ESD for SMTs such as neuroendocrine tumor, stromal tumors etc. are limited to case reports or case series worldwide. However, we have much experience in ESD for SMTs with good outcomes and extremely low rate of surgery referral. With the maturity of endoscopic suturing technique, endoscopic full-thickness resection (EFTR) is also available in some high-volume centers with highly skillful endoscopists. However, the skills are more demanding for the endoscopist to seal the wall defect and the risks of GI tract leakage and/or secondary infection further limit the application of EFTR.

The emerging of POEM marked the rising of a new branch of therapeutic endoscopy—tunnel endoscopic surgery (TES), which includes several novel procedures utilizing a submucosal tunnel as an operating space. After the first introduction of submucosal tunneling endoscopic resection (STER) technique by our group in 2012, it has gained popularity as a safe and efficient treatment for submucosal tumors (SMTs). STER can maintain the mucosa integrity of GI tract by creating a submucosal tunnel towards the SMTs. The targeted lesion is dissection in the submucosal tunnel. Our initial experience in 15 SMTs (nine in the esophagus, three in the stomach and three in the cardia) yielded a good result. We later reported a larger series on 57 patients with SMTs who treated by STER. The average maximum diameter of the lesions was 21.5 mm (range 6-35 mm). The en bloc resection rate was 100 % (57/57). No delayed hemorrhage or severe adverse events occurred in any of the 57 patients following STER. No local recurrence and distant metastasis occurred during 24 months' follow-up.

There are still some questions to be answered. 1. What's the maximum size for STER? There are several case reports depicted the successful resection of large SMTs by STER technique up to about 5cm. 2. How to choose between direct dissection or STER? Is STER always the first choice to treat SMTs? One study suggested that if tumor size <1cm, there was no difference between STER or ESD. If tumor size >1cm, STER might be the better choice. 3. What are the risk factors for post-STER complications? 4. For large SMTs, when to refer to laparoscopic surgery or thoracic surgery?