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Editorial

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From Diagnosis to Treatment: Endoscopy

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In order to help surgeons locate lesions that required excision and surgical therapy, gastroenterologists employed endoscopy to diagnose gastrointestinal (GI) lesions twenty years ago. The field of gastroenterology has progressed beyond the diagnostic phase, and many GI lesions can now be treated by gastroenterologists using endoluminal methods without the need for surgery.

The area of gastroenterology has changed in recent years due to advancements in endoscopic imaging and instruments like snares, clips, and needles that can be administered through the endoscope channel. Endoscopic Mucosal Resection (EMR) and Endoscopic Submucosal Dissection (ESD) were able to develop and progress as a result. Japan was the birthplace of EMR and ESD, and the first publications outlining these methods were released in the 1990s.1, 2

To describe GI lesions that are taken into consideration for EMR and ESD, two classification systems are used. The Paris system, which was put forth in 2002, is the second system, and the Japanese classification3 is the first.4. Although it can be used for lesions anywhere in the GI tract, the Japanese classification was initially created for the early therapy of gastric cancer. Following lesion classification, EMR can be carried out in the stomach, colon, rectum, and esophagus, among other GI sites. ESD can be carried out with careful dissection in cases when the lesions are more complicated and extend beyond the mucosa.

When choosing between EMR and ESD, endoscopic ultrasonography (EUS) may be helpful. When the lesion is located in the proximal regions of the colon, EUS can help determine whether the tumor has penetrated to layers beyond the mucosa. Through the colonoscope operating channel, special high frequency mini-probes may be employed if a standard EUS endoscope is unable to reach the lesion.

There are two ways to accomplish EMR. "Suck and cut" is the first technique, while "lift and cut" is the second. Prior to lesion resection, both typically start with a submucosal injection. However, the suc and cut procedure can also be utilized without a submucosal injection, particularly when it is done in the esophagus. The deeper muscolaris propria is separated from the more superficial mucosa and submucosa layers by the injection's expansion of the submucosa. You can use a variety of solutions as the injectate. These consist of hypertonic saline, dextrose solution, sodium hyaluronate, fibrinogen combination, glycerol, fructose solutions, and normal saline with or without diluted epinephrine. Based on the endoscopist's preference, any of those could be mixed with methylene blue.5-8 Conio et al. evaluated the solutions and found that 50% dextrose, 10% glycerol, and hyaluronic acid solutions had disappearance times of 4.7, 4.2, and 22 minutes, respectively, whereas normal saline had a disappearance time of roughly 3 minutes with or without epinephrine.[9]

One of the two resection techniques may be used following injection. With the "suck and cut" technique, the lesion must be suctioned into the endoscope's transparent cap.

A snare that exits via the working channel and into the transparent cap then resects the lesion. Bands are used in place of an injectable fluid in this variant, which works best for treating esophageal lesions.10. The "lift and cut" technique pulls the lesion from the muscolaris propria after injection by using a grasper. Although the "lift and cut" method was the original EMR technique, the "suck and cut" method is now more commonly utilized due to its intricacy.

ESD may be utilized for resection if the lesion is believed to be deeper or wider, if it is a submucosal lesion, or if en bloc resection is desired. ESD uses the same inject and lift technique as EMR, but it dissects the lesion with a needle knife rather than a snare. The esophagus, stomach, duodenum, colon, and rectum are among the GI tracts where ESD can be carried out.

After the lesion has been removed, tattooing the operation site may be an option to help with surveillance. India ink tattooing is advised, however it must be injected carefully because it might cause tissue scarring if it gets into the submucosal area. One way to avoid scarring is to inject the ink after first separating the mucosa and submucosal layers with regular saline.

Both EMR and ESD have had successful long-term results. Merkow et al. evaluated the results of EMR and surgical treatment for individuals with early-stage esophageal cancer. The 5-year survival rates for the EMR and surgical groups were 77% and 88%, respectively, while the 30-day mortality rate was greater in the surgical group.11 EMR has also produced positive results for gastric lesions (where the lesion's edges are clean and free of dysplasia). The results of gastric and esophageal EMR are comparable to those of colonic EMR for early colon cancer. According to a meta-analysis of colonic EMR, piecemeal resection had a greater recurrence rate than en bloc resection (20% versus 3%, respectively), with a 15% recurrence rate, according to Bledebos et al.Twelve Ikematsu et al. documented long-term results following surgery or ESD excision of submucosal invasive colorectal carcinoma. Recurrence rates for rectal and colonic lesions were 0% and 6%, respectively, in patients with low risk lesions (lesion completely removed, well to moderately differentiated adenocarcinoma, no vascular invasion, and submucosal invasion <1 mm), whereas 1.4% and 16%, respectively, occurred in patients with high risk lesions.13.

Adverse events can result from both EMR and ESD, hence skilled endoscopists should perform the procedures to reduce the risk of complications. Perforations, strictures, and early or delayed bleeding during esophageal EMR were among the adverse events that were reported to occur in 0% to 13% of patients.14,15 The reported range of gastric EMR adverse effects is 1% to 5%.16, 17 Bleeding episodes can happen in up to 24% of colonic EMR cases.18 According to Ta-maei Y et al. (19), perforation may complicate colonic ESD in as many as 10% of cases; nevertheless, in the majority of these instances, the perforation can be managed endoscopically without requiring surgery.

In conclusion, during the coming years, EMR and ESD will probably continue to be performed globally, albeit more often. However, it is advised that EMR and ESD be performed at high volume centers by skilled endoscopists to prevent and minimize problems.

CONFLICTS OF INTEREST: None.

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