Underwater endoscopic mucosal resection without submucosal lift

Underwater polypectomy is a new technique that has been developed for the endoscopic resection of colonic lesions. Submucosal injection is not usually required using this method.

In this example of underwater polypectomy (Video 1), a 35-mm polyp (granulartype laterally spreading tumor; Kudo classification IIa and IV pit patterns) was identified in the upper rectum (Fig. 1). After the polyp had been detected, the colonic lumen was collapsed by aspiration of all air and was then completely filled with water. The margin of the polyp was identified by pathology to be a tubulovillous adenoma.

Endoscopic mucosal resection (EMR) with submucosal injection using air or CO₂ insufflation significantly distends the colonic lumen and thins the colonic wall during the procedure, which may increase the risk of complications. Submucosal injection both creates a potential risk of seeding neoplastic cells into deeper wall layers [1] and prolongs the procedure time. Endoscopic ultrasound studies of the water-filled colon have shown that the colonic wall retains its natural thickness [1]. The underwater immersion floating effect of the mucosa over the submucosa keeps it apart from the muscularis propria. This makes underwater EMR technically easier and safer to perform than traditional EMR. In addition, thermal injury to deeper layers is less likely under water immersion because of the cooling effect of the water. Patients tolerate the procedure better as the lumen is not distended and there is less distension-related pain.

In our experience, underwater EMR seems to be an effective, safe and well-tolerated procedure that can be performed by an endoscopist trained in traditional EMR. Diathermy marking of the polyp perimeter is not required, when the scope with i-SCAN is used, as the polyp margin is clearly identified [1]. This not only reduces the cost of the procedure but also reduces the procedure time. It can be an alternative to traditional EMR, which requires either air or CO₂ insufflation.

Endoscopy_UCTN_Code_TTT_1AQ_2AD

Competing interests: None

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Reference


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DOI http://dx.doi.org/10.1055/s-0042-120263
Endoscopy 2016; 48: E371
© Georg Thieme Verlag KG Stuttgart · New York
ISSN 0013-726X

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