



## *Editorial*

# Endoscopic mucosal resection

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Endoscopic mucosal resection (EMR) represents a major advance in the management of precancerous and early cancerous lesions of the esophagus, stomach, duodenum, and colon. EMR has rapidly become a therapeutic option in surgical resection for the treatment of early cancer.

The definition of early cancer remains an important issue and generally refers to a tumor with the absence or low risk of lymph node metastasis, which corresponds to lesions within the submucosal layer. Endoscopic appearance does not definitively identify early cancer, even though in superficial lesions, as described by the Japanese Gastric Cancer Association [1], the depth of invasion can be predicted by the morphology of the lesion. Additional diagnostic tools are needed, and endoscopic ultrasound can improve the accuracy of tumor staging regarding the depth of tumor invasion. High-frequency ultrasound makes it possible to distinguish nine layers within the wall of gastrointestinal organs, with accuracy ranging from 67% to 94%, depending on the organ and taking into account that elevated lesions have a significantly higher staging accuracy compared with depressed ones [2].

Several EMR techniques have been described. They can be divided into two main groups: nonsuction and suction techniques. The nonsuction technique can be performed either by injecting fluid at the site of resection or, in addition, by utilizing a double-channel endoscope and grasping the lesion to pull it up before resecting it with a diathermy loop. When the suction technique is performed, the lesion is aspirated and resected by simple suction with a monofilament snare, endoscopic aspiration mucosectomy, or endoscopic mucosal resection using a cap-fitted panendoscop (EMRC); by endoscopic mucosal resection device (EMRT); or by endoscopic mucosal resection using a

ligating device (EMRL) after injecting fluid at the site of the lesion. A new technique for endoscopic mucosal resection with an insulated-tip electrosurgical knife has been introduced by Japanese investigators and seems to improve the completeness of resection of intramucosal gastric neoplasms. This new technique has been described as “endoscopic submucosal dissection” [3]. The most common complications after any of these techniques are bleeding (1.5%–24%), perforation (5.2%), and stenosis (6%) [4].

Farrell and co-workers [5] compared EMRC and EMR using a single-channel method, without a grasping forceps, in a porcine model. They performed 36 gastric mucosal resections and found that EMRC resulted in a greater resection specimen and that a large cap EMRC resulted in greater resection specimens than a small cap EMRC. There was less diathermic injury when EMRC was used. No acute complications were observed with either method. The authors conclude that EMRC should be the EMR method of choice.

Theirs is the first prospective randomized study comparing standard EMR with EMRC in an animal model, and clinical data confirmed that both techniques are safe. The use of EMRC resulted in a significantly greater resection specimen by weight, size, and histological depth compared to EMR, which was even more evident when a larger cap was used. A large specimen can be an important advantage in R0-resection. The data showed that EMRC is superior to standard EMR in a porcine model.

This message must now be transformed to the clinical setting. The important parameters in the clinical setting are R0-resection, tumor recurrence, and survival. In the long run, EMRC has to improve these parameters in order to become a well-accepted method in the clinical routine. It is still unclear how the results of EMRC compare with those of more recent techniques such as endoscopic submucosal dissection. Furthermore, limited surgical techniques, e.g., the Merendino procedure

for early adenocarcinoma of the GE-junction, provide a 5-year survival rate of 83% and a good quality of life [6]. EMR or EMRC has to prove to be a comparable procedure with regard to survival.

Endoscopic mucosal resection is an exciting new technique that can increase diagnostic accuracy and decrease surgical trauma in the treatment of early cancers of the GI tract. Technical improvements such as EMRC will help to establish this technique in a selected number of patients with early cancer. Identifying those patients with early cancer and treating them with principles of GI oncology is the true challenge.

## References

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