

ADVANCES IN GERD

Current Developments in the Management of Acid-Related GI Disorders

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Endoscopic Mucosal Resection as the Primary Treatment for Barrett Esophagus With Dysplasia



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G&H What is the current understanding of the relationship between gastroesophageal reflux disease and Barrett esophagus?

PS Chronic gastroesophageal reflux disease (GERD) is a risk factor for Barrett esophagus; this has been demonstrated in multiple animal and human studies. Animal models that have undergone myotomy have developed a columnar-lined esophagus. Several prospective human studies have shown that approximately 10% to 15% of patients with long-standing GERD will have Barrett esophagus discovered during endoscopy.

G&H How often does Barrett esophagus progress to cancer?

PS Nondysplastic Barrett esophagus progresses to cancer at a very low rate. Patients with GERD may develop Barrett esophagus, which progresses to low- or high-grade dysplasia, and that finally advances into cancer. In the 1980s and 1990s, the rate of patients with nondysplastic Barrett esophagus progressing to cancer was reported to be as high as 1%. Even in the early 2000s, it was assumed that this rate was 0.5%. However, from larger contemporary studies, this risk is now known to be in the order of 0.2% to 0.3% annually.

G&H Can early treatment of GERD prevent the development of Barrett esophagus or cancer?

PS It is still not clear whether early treatment of GERD can prevent Barrett esophagus or cancer. GERD is a known risk

factor for Barrett esophagus, so intuitively it makes sense that if the risk factor is controlled, then Barrett esophagus will be prevented from developing. Unfortunately, there are no data showing that this happens.

G&H What is the standard treatment for Barrett esophagus with dysplasia?

PS Patients who have dysplasia, especially high-grade dysplasia and even early esophageal adenocarcinoma, have the option of therapy either in the form of a surgical resection or endoscopy. As recently as the early 2000s, surgical resection was the standard of care for patients with high-grade dysplasia and early esophageal adenocarcinoma. However, there is good evidence from large, long-term studies showing that endoscopic therapy can also be used to treat these patients. Although surgical resection remains an alternative, and should be discussed with the patient, endoscopic therapy is the preferred treatment of choice.

G&H How is endoscopic mucosal resection performed?

PS There are 2 general ways of performing endoscopic mucosal resection (EMR). The first method is called cap-assisted mucosectomy. The area that needs to be resected is marked, and a specialized cap is fixed onto the tip of the endoscope. Saline is then injected in the submucosal space through the endoscope. The area that needs to be resected is lifted; a snare is applied to the marked section, which is then suctioned into the cap (Figure).

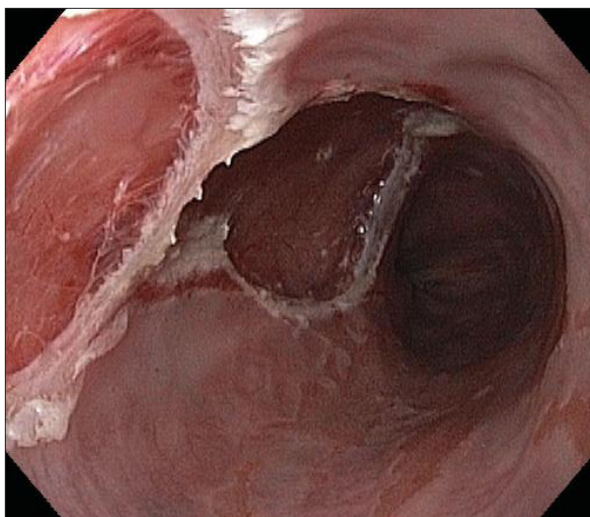


Figure. Endoscopic mucosal resection of an esophageal high-grade dysplastic lesion using cap-assisted mucosectomy.

The second method is called the ligation-and-snare technique, or multiband ligation. In this technique, a cap with multiple bands is placed on the tip of the endoscope. Once the abnormal tissue is marked and suctioned into the cap, the rubber bands are slipped around the tissue. The abnormal tissue is resected by putting the snare below the band.

G&H Should EMR be combined with any other treatment?

PS If a patient has short, noncircumferential areas of Barrett esophagus that need to be treated, most of the abnormal tissue can be removed with the help of EMR. However, patients who have residual Barrett esophagus after EMR has been performed (ie, patients with circumferential or longer, more extensive Barrett esophagus) will need to have the remainder of the flat Barrett esophagus ablated. The most common modality that is used to ablate the remainder of the Barrett esophagus after EMR is radiofrequency ablation. There are other techniques that can be used, such as cryotherapy or argon plasma coagulation, but radiofrequency ablation is by far the most common and most widely studied technique.

G&H Does the grade of dysplasia or the length of Barrett esophagus have an impact on the effectiveness of EMR?

PS Yes. The longer the abnormal tissue that needs to undergo EMR ($\geq 50\%$ circumference of the Barrett esophagus), the higher the likelihood that complications, such as strictures, may arise. Studies have shown that the efficacy rate is lower and the recurrence rate of the disease is higher if the length of Barrett esophagus is longer.

G&H Which patients are most suitable for EMR?

PS Patients with a visible lesion or any subtle abnormality within the Barrett esophagus segment are candidates for EMR. A biopsy diagnosis is not adequate; multiple studies, including meta-analyses, have shown that EMR can change the diagnosis in up to 40% of patients prior to therapy.

G&H Are there any patients in whom this procedure should be avoided?

PS Patients who are on anticoagulant or antiplatelet agents and patients who have esophageal varices and relative contraindications should be treated carefully. EMR should not be avoided completely in these patients, but other options should be considered.

G&H What are the advantages of EMR over other therapies?

PS EMR has been shown to be a highly effective and safe technique in the right hands as compared to other therapies, such as endoscopic submucosal dissection, esophagectomy, and photodynamic therapy. Endoscopic submucosal dissection is a technique that requires a very high level of expertise, long procedure times, and deeper sedation, and it has been associated with high complication rates. Esophagectomy is associated with high morbidity and mortality rates. Any ablative procedure merely ablates the tissue without acquiring a tissue specimen that can then be evaluated for depth of invasion, adequacy of treatment, margins, and so on.

G&H Are there any disadvantages or limitations of EMR?

PS One of the limitations of EMR, relative to the techniques mentioned above, is the extent that it can be performed. Extensive EMR is associated with a high degree of stricture formation. Strictureing is a complication that should be expected and that occurs in a high proportion of patients, but it does not mean that EMR cannot be performed.

G&H Is any training required to perform this procedure?

PS Yes. There are a variety of ways to receive training in EMR. First and foremost, endoscopists should receive adequate training as part of their fellowship training programs. There are multiple courses conducted on ex vivo models in which endoscopists can practice the technique. Endoscopists can also visit centers of expertise that perform the procedure and observe the process. Lastly, there are multiple educational

materials, available either through online or live courses, of which endoscopists should take advantage.

G&H Is any preparation required by the patient?

PS As with all invasive procedures, patients should understand the risks and benefits of the procedure, discuss the available alternative treatments, and consider what could happen if they do or do not undergo EMR. Patients should inform their physician of any anticoagulation or aspirin therapy, nonsteroidal anti-inflammatory drug therapy, or antiplatelet therapy that they may be receiving. Disclosing to the physician all the medications they are on prior to the procedure will ensure safety of the procedure.

G&H How should the patient be followed up?

PS Typically, patients are on high-dose proton pump inhibitor therapy to help heal ulcers that form after EMR. Patients should immediately report to their physician any symptoms that may be suggestive of complications. Patients are then followed up within approximately 8 weeks to undergo a repeat endoscopy; the site of the procedure is evaluated to see whether an additional EMR session is required or if additional ablation sessions or biopsies are required.

G&H How effective is EMR for the treatment of dysplastic Barrett esophagus?

PS EMR can be performed successfully for diagnostic purposes in virtually 100% of the patients, according to large series and prospective trials from tertiary care centers. As far as the efficacy of EMR, or removal of neoplastic tissue, is concerned, the rates reported in the literature are in excess of 95%. For complete eradication of the Barrett segment, rates are approximately 80%.

G&H What are the next steps in research in this area?

PS I think the next step would be to continue to improve the EMR technique so that the procedure can be performed faster and the risk of adverse events can be reduced. An improved technique would also allow an endoscopist to perform extensive EMR without increasing the stricture rate. Research is needed to determine specific risk factors as to why some patients develop these strictures and some do not, as well as to discover easy and effective ways to treat the complications.

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Suggested Reading

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