

# ADVANCES IN ENDOSCOPY

Current Developments in Diagnostic and Therapeutic Endoscopy

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## Pearls and Pitfalls of Endoscopic Resection of Duodenal Adenomas

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**G&H** What endoscopic resection techniques are currently available for the treatment of duodenal adenomas?

**PD** Endoscopic mucosal resection (EMR) and endoscopic submucosal dissection (ESD) are 2 techniques that can be used to treat duodenal adenomas. The inject-lift-and-cut variation of EMR is employed most often. Underwater EMR has recently gained popularity. This technique is based on the concept that filling the lumen with water creates less tension in the duodenal wall compared to air distention, allowing the mucosa to float and promoting easier capture with the snare. The main advantage of underwater EMR is that the need for injection is eliminated, making the procedure easier to perform. Additionally, underwater EMR may allow larger lesions to be removed en bloc. Importantly, a higher en-bloc resection rate has been documented in the colon but has yet to be formally evaluated in the duodenum. Cap-assisted and cap-band-assisted EMR can be used for select lesions, typically those that do not lift well or are difficult to capture with a snare. There are little data regarding the use of ESD, but it appears that this technique carries a high complication rate, even in experienced hands. Ablation techniques, including argon plasma coagulation, radiofrequency ablation, and cryoablation, are also available but tend to be suboptimal.

**G&H** How do therapeutic strategies differ for ampullary vs nonampullary adenomas?

**PD** Endoscopic papillectomy is an alternative to surgery and is now considered first-line therapy for both sporadic and familial adenomatous polyposis–related ampullary adenomas. Ampullary adenomas require resection as well as endoscopic retrograde cholangiopancreatography (ERCP) in order to stent the pancreatic duct and to provide drainage of the biliary tree, either by biliary sphincterotomy or by biliary stenting. Nonampullary adenomas are typically treated with the various EMR techniques discussed previously. In some cases, a patient may have a combination of an ampullary adenoma with extension outside of the ampulla. These lesions tend to be difficult to remove due to their larger size and the need to apply both EMR and papillectomy techniques.

**G&H** What factors can impact the endoscopic resectability of duodenal adenomas?

**PD** The main challenge with endoscopic resection of duodenal adenomas is the presence of fibrosis in the submucosal space. Fibrosis can occur spontaneously but more frequently arises due to prior instrumentation, whether by aggressive biopsies, by EMR that has been initiated but not completed, or by injection of a

tattoo mark at the base of the lesion. The size of the lesion plays a role in resectability as well. The larger the lesion, the more difficult it is to remove. Traditionally, endoscopic resection was restricted to lesions occupying less than 50% of the luminal circumference and not extending beyond 2 duodenal mucosal folds, but with

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improvements in endoscopic resection techniques, now even large lesions can be successfully managed.

#### **G&H** What are the benefits and limitations of endoscopic resection?

**PD** Endoscopic resection is a less-invasive procedure than surgery, which is the alternative treatment method. Compared to any ablative technique, endoscopic resection also provides a histologic specimen for subsequent evaluation. However, endoscopic resection has the potential for serious complications, and recurrence tends to be common with piecemeal resection.

#### **G&H** What are the predictors and risk of recurrence?

**PD** The risk of recurrence is approximately 20%, although it can be less with smaller lesions and more with larger lesions. Thus, the size of the lesion is the main predictor of recurrence.

#### **G&H** When is piecemeal resection, as opposed to en-bloc resection, the appropriate approach?

**PD** En-bloc resection is always preferred compared to piecemeal resection. However, for lesions measuring more than 20 mm, only piecemeal EMR is feasible. Although recurrence tends to be high with piecemeal resection, most recurrences can be treated with endoscopic techniques. Close follow-up is recommended, typically within 6 months from the initial resection.

#### **G&H** What has research shown regarding the success rate for complete endoscopic resection, and how many sessions are typically needed to achieve complete resection?

**PD** The goal of endoscopic resection is to completely remove the lesion in the first session. Significant scarring occurs when only a portion of the lesion is removed and the patient returns at a later date. In such cases, what was a difficult procedure to begin with becomes that much more difficult, or even impossible.

#### **G&H** What are the main adverse events associated with endoscopic resection?

**PD** The most common adverse event is delayed bleeding, which occurs in up to 30% of all cases. Delayed bleeding can be quite severe; therefore, my institution will routinely admit patients for observation following duodenal EMR. Post-ERCP pancreatitis is another common complication when treating ampullary adenomas. Placing a pancreatic stent as well as using a rectal nonsteroidal anti-inflammatory drug may decrease the risk of postprocedure pancreatitis. Perforation, although uncommon, can be quite serious. The duodenum is a challenging location in which to close a perforation, whether endoscopically or surgically. Residual or recurrent adenoma is an additional concern, but, as previously mentioned, this can typically be treated successfully via endoscopic means.

#### **G&H** How should patients be followed up?

**PD** In my institution, patients are immediately admitted postprocedure to be observed for complications. Patients then undergo a follow-up endoscopy in 3 to 6 months. The results of that follow-up determine the subsequent follow-up interval. If a patient has no recurrence, follow-up can occur with a 1-year interval; if recurrence is observed, it should be treated and the patient should return in 6 months.

#### **G&H** When should patients be referred for surgery rather than endoscopic resection?

**PD** Surgery tends to be the preferred approach for patients with cancerous lesions. If a lesion is fully circumferential or extends beyond 2 duodenal mucosal folds, surgery was traditionally recommended. With improvements in EMR techniques, such lesions now can be removed endoscopically, although strictures may become an issue if an especially large area of the duodenal mucosa is being removed.

## G&H What are the priorities of research?

**PD** Studies are needed to identify a more optimal method for preventing delayed bleeding, as that tends to be the most common serious complication stemming from endoscopic resection in the duodenum. Two potential methods are to use some type of closure technique of the EMR defect or to use a powder or gel to cover the resection site. None of these techniques currently have mainstream use, making this area a priority for research. Furthermore, the currently available closure devices are of limited use in the duodenum; this is another area in need of innovation.

*Dr Draganov serves as a consultant for Olympus, Boston Scientific, Cook Medical, Micro-Tech Endoscopy, and Fujifilm.*

## Suggested Reading

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