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Managing Early Esophageal and Gastric Cancers: ASGE Recommendations on ESD and EMR

**Dr. Buch:**
Welcome to *GI Insights* on ReachMD. I'm Dr. Peter Buch, and today I'm with Dr. Vivek Kaul to discuss an article he co-authored—"Endoscopic and Submucosal Dissection for Early Esophageal and Gastric Cancers"—which was published in *Gastrointestinal Endoscopy* in 2023. Dr. Kaul is the Segal-Watson Professor of Medicine at the University of Rochester Medical Center. Welcome to the program, Dr. Kaul.

**Dr. Kaul:**
Thank you, Dr. Buch, and it's a great pleasure to be here with you and particularly to discuss this novel guideline that has come out recently.

**Dr. Buch:**
So let's start, Dr. Kaul. Please define and compare endoscopic mucosal resection, EMR, and endoscopic submucosal dissection, also known as ESD.

**Dr. Kaul:**
That's a great question. Both EMR, endoscopic mucosal resection, and ESD, endoscopic submucosal dissection, come under the general umbrella of endoscopic resection techniques or procedures. These two specific procedures have gained a lot of traction in most endoscopy units around the world and particularly in the western world in the last two decades or so. However, these two are different in their details as you get deeper into the details of the techniques themselves. While endoscopic mucosal resection is exactly that—we are using tools, techniques, and procedural interventions to remove pretty much the most superficial layer of the gastric or esophageal wall, which is the mucosa, using special apparatus—the endoscopic submucosal dissection uses different types of tools to get underneath the mucosa into the submucosa and do a more deeper resection and provide a more deeper level of tissue resection and present that for pathological review. So at the very high level, EMR is superficial removal of mucosal lesions or tumors, and ESD goes a little bit deeper with a different set of tools and different level of technical expertise and nuances.

**Dr. Buch:**
And, Dr. Kaul, just for the sake of our primary care providers, can you tell us some of the concerns with regard to EMR and ESD?

**Dr. Kaul:**
So in terms of concerns, EMR and ESD techniques have evolved very significantly over time, as I said, particularly over the last two decades. But in the last five to seven years, there has been a very robust progress both from the physicians' or endoscopists' perspective, as well as from collaborators in industry, where device development and technique enhancement has really led to very sophisticated interventions. So whereas previously there was some concern that these are quasi solutions that may or may not perform as well as our surgical interventions, either open or laparoscopic, in the last few years, we really have shown both through practice as well as through data, as is shown in this guideline, that when well-performed by experienced and competent endoscopists using the right techniques and tools, both EMR and ESD—with appropriate case selection—can deliver the same clinical success, technical success, and long-term outcomes. Very similar for early esophageal gastric neoplasia that we have traditionally seen with surgical techniques but with lower morbidity and cost that traditionally is seen compared to general surgery. So that's one of the concerns that we can address. We are much farther along in terms of sophistication, outcomes delivery, and performance and minimizing morbidity.


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Now, in terms of other concerns about more specific details of the procedures, EMR still requires some training and some skill set enhancement using tools that are different than for ESD, but they are relatively easier to use. The learning curve is somewhat steeper. The overall cost of the equipment is a little bit lower. And by the same token, it delivers a product that is relatively more superficial and somewhat limited in its scope, as is discussed well in the guideline. On the other hand, ESD, or endoscopic submucosal dissection, requires more training, significantly more skill in terms of performing it well, more expensive tools, more time during the procedure, and a slight increase in complication rates, particularly perforation and so forth. So the overall cost is also slightly more than the typical EMR.

So some of these concerns are prevalent in the GI community as well, but when used for selected cases, for the right application—again, that's discussed in the guideline—both of these deliver their promise very well in each particular instance.

**Dr. Buch:**
Thank you very much for that really substantive answer. And getting into the details of your article, what is the best approach in managing esophageal squamous dysplasia or early esophageal squamous cell carcinoma?

**Dr. Kaul:**
This has been a gap. One of the impetuses for the guideline like this was to address gaps in knowledge and recommendations, and that's why when I said at the outset this is a very novel guideline under the auspices of the ASGE that I was very honored to be part of, one of the gaps it addresses is how to handle early esophageal neoplasia on the squamous side and especially smaller lesions and then larger lesions endoscopically. So there has not been enough clarity on that, partly because esophageal squamous dysplasia is relatively less commonly seen in the western world—certainly in the Americas, but it's much more common in the far east, in China, Asia, India, and other parts of the world—so it was important to address that question in this guideline.

So more specifically, the recommendation stands that for early esophageal neoplasia of the squamous type, squamous cell dysplasia, or squamous cell carcinoma, if the lesion is less than 15 mm, EMR certainly can deliver an acceptable outcome. But once you get beyond 15 mm, ESD is the recommendation for these cases in the esophagus, so that's an important recommendation or guidance that came out from this document.

**Dr. Buch:**
So moving on, what is the recommendation for early well-differentiated non-ulcerated esophageal adenocarcinoma stage T1 or Barrett's dysplasia?

**Dr. Kaul:**
This is more commonly seen in the western world, including North America. Barrett's esophagus is now a well-established entity that most people are aware of, whether they're at the primary care level, or serving as an APP or endoscopist. And so one of the interventions that has really come of age is what is known as endoscopic eradication therapy for Barrett's. EET, as it's commonly known, is a combination of endoscopic resection whenever applicable and endoscopic ablation using one of several modalities, such as radiofrequency ablation or cryotherapy. So when we look at the endoscopic resection piece of it, for esophageal adenocarcinoma that's early, or T1a, or one that is limited to the mucosa, several of our resection techniques are well-applied and useful. For lesions that are less than 20 mm, the guideline recommends, based on current data, that EMR or ESD would be okay to do depending on the skill set and the resources available. But for lesions that get beyond 20 mm—larger lesions or more bulky tumors that are still superficial—ESD would be the way to go. And there has been increased performance of these ESD procedures in America in the last five years, including other data that have come out, including one other paper that just recently came out specifically addressing ESD and EMR long-term outcomes.

**Dr. Buch:**
Thank you for that. For those just tuning in, you're listening to *GI Insights* on ReachMD. I'm Dr. Peter Buch, and I'm speaking with Dr. Kaul about endoscopic and submucosal dissection for early esophageal and gastric cancers.

So Dr. Kaul, moving on to early gastric adenocarcinoma, what are the key features that lead us to either ESD or EMR?

**Dr. Kaul:**
Now, again, early gastric cancer is a paradigm that has been very well studied and managed in the far east, particularly our Japanese colleagues, but over the years have had a lot of contribution to the literature in this space. Again, it's a relatively less common phenomenon in the western world, but with the globalization of humanity and migration and so forth, we do have a relatively increased incidence, and certainly the concentration of early gastric cancer type of patients at referral centers. So many of us were beginning to see more of these referrals, at whatever stage of the gastric carcinoma or disease. But certainly very interesting that the endoscopist has a significant role to play, especially in older patients who are at higher risk for surgery and who have small and manageable lesions,


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so that's where the unmet need came in terms of guidance in this space, even in the Americas.

So to put it simply, when you have a patient with early gastric cancer that is limited, or expected to be limited, to the mucosa, is well-differentiated, and does not have any other adverse biologic factors associated with it, the recommendation from this guideline is that if the lesion is less than 20 mm or less than 2 cm, then certainly EMR or ESD can be the way to go. When the lesion gets about 2 cm to 3 cm in size, the preferred approach should be with endoscopic submucosal dissection to provide an unblocked specimen, and mostly to provide a curative resection whenever possible. But once the lesion gets larger in size, 3 cm or higher, then consideration for surgery should also be invoked, particularly if the tumor biology is not friendly.

Now, I can say that for experts in ESD, 3 cm may not represent the final ceiling, and certainly lesions larger than that have been successfully and safely removed endoscopically. So at that point it becomes more of a shared decision, reviewing all the options with the patient, case selection, and, of course, delivering a product that is based on what resources and abilities and technical skills are available in a particular situation.

**Dr. Buch:**
Thank you for that. And, Dr. Kaul, in the last few moments of our discussion, are there any other insights you would like to share with our audience?

**Dr. Kaul:**
Well, I think that it's important for folks to understand that endoscopic resection has come of age, and that this particular guideline is one of its kind in the Americas that specifically speaks to the role of endoscopic resection, or what I like to call endosurgery, and foregut neoplasia application, so that's important to keep in mind. It's important for our primary care colleagues and for our APP colleagues, and certainly our trainees and young faculty, whether they're in private practice or academics, to be aware that this is an option for their patients as they look at enhancing their practices and look at referrals. Most certainly, it is okay to invoke multidisciplinary evaluations in many or most cases, because at the end of the day, you are dealing with neoplasia or cancer, and all options are available, and the best option needs to be selected for the patient.

Another concept that we talk about is the accuracy of pathologic staging, and there's a wide variability in dysplasia evaluation, as we well know, so it's important for our colleagues to know that as accurate a clinical stage and pathologic stage that we can afford the patient is very important as a part of the algorithm to direct the care accordingly. As we discussed earlier, well-differentiated tumors might be more amenable to endoscopic resection, but once you have poorly differentiated tumor biology, lymphovascular invasion, or other high-risk features, the patient may need to be moved along different pathways.

Cost has been a consideration, but clearly, anything that we can do in a minimally invasive fashion— endoscopically, laparoscopically— has reduced morbidity, reduced cost, reduced time in the hospital, and overall produced a better outcome for the patient as long as we can have long-term outcomes that are comparable to our traditional surgical approaches.

**Dr. Buch:**
I want to thank my guest, Dr. Kaul, for an excellent review of management approaches to endoscopic and submucosal dissection for early esophageal and gastric cancers.

**Dr. Kaul:**
Thank you Dr. Buch, for this opportunity.

**Dr. Buch:**
For ReachMD, I'm Dr. Peter Buch. To access this and other episodes in this series, visit *GI Insights* on ReachMD.com, where you can Be Part of the Knowledge. Thanks for listening, and looking forward to learning with you next time.


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