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Reviewing the Role of Radiofrequency Ablation in Barrett's Esophagus with Dysplasia

Dr. Nandi:
Welcome to *GI Insights*. I'm your host Dr. Neil Nandi. On this episode, we'll be reviewing with Dr. Nicholas Shaheen what is the role of the gastroenterologist in serving patients who've already received post-ablative therapy for their Barrett's esophagus with dysplasia. Dr. Nicholas Shaheen is a dual-trained clinician gastroenterologist and epidemiologist who has helped conduct some of the nation's largest clinical and translational research studies in the field of Barrett's esophagus. Notably, he was the primary investigator of one of the largest multicenter studies of RFA, radiofrequency ablation, in Barrett's esophagus and has led studies understanding the application of other ablative therapies, such as cryotherapy too. In addition, Nick is the Chief of GI and Hepatology at UNC Chapel Hill and wears many other professional hats as teacher and mentor to many.

Nick, welcome to *GI Insights*.

Dr. Shaheen:
It's a pleasure to be here, Neil.

Dr. Nandi:
Absolutely. You've been a pioneer in understanding the management and shaping the management of Barrett's. Indeed, there have been many iterations of the guidelines through the years, and your research has played a key role. One of the aspects has been the application of ablative therapies to dysplastic Barrett's. Now, not all that is Barrett's should be ablated. I'm hoping you can give a brief summary of how we approach Barrett's esophagus with low-grade versus high-grade dysplasia before we talk about the role of ablative therapy.

Dr. Shaheen:
Happy to. So when we think about ablation, one thing we want to make sure is that the cure isn't worse than the disease. By that I mean there are some risks and clearly some costs inherent in doing ablative therapies, and we really want to reserve those for folks that we feel relatively comfortable are truly going to benefit. So how do you apply that to Barrett's? Well, this is what we know. We know that the risk of progression to adenocarcinoma of the esophagus in nondysplastic Barrett's is quite low, somewhere in the neighborhood of 3 per every thousand patients followed for a year. On the other hand, when you take that first step to low-grade dysplasia, you're talking about a risk that's at least double, if not more. And of course for high-grade dysplasia, you're talking about quite a higher risk, somewhere on the neighborhood of 6–7%, but some reports as high as 20% or even more rates of progression in that situation.

So how do we think about this? Well clearly, in the position of high-grade dysplasia, those patients are at very high risk of progression. The question there is not are you going to ablate or not? The question is, are you going to ablate, or when we started doing this—are you going to take them to surgery? So ablation was a Godsend for those folks because the vast majority of them can hold on to their esophagus. Low-grade dysplasia is quite a bit more interesting. There the risks are lower, but there we do have Level I evidence that you can markedly decrease the risk of progression with ablation. There was a very nice study called the SURF study that was done that showed that in the Netherlands. And we think that the risk there is high enough in many patients to make ablation a valuable intervention. Although, I will freely admit that that is still in question.

Finally, and I think this is what's really important for your listeners, many patients with nondysplastic Barrett's will come to their doctors and say, "I've heard about this ablation. I want to get rid of my Barrett's. You've already told me it's precancerous. Why won't you get rid of it?" Well, in that situation what I like to tell folks is that the risk of a complication here is somewhere between 6 and 9% with ablation, the most common one being obviously stricture. However, we have seen severe bleeding, we have seen and often see hospitalization for pain control, and we can see perforation, although that's a very rare side effect, so there are some real side effects with this treatment. For that reason, I think that that's a situation where the risks of the treatment may well outweigh the benefit, and that's why essentially all societal guidelines do not recommend ablation of nondysplastic Barrett's.

Dr. Nandi:
So I know that with certain lesions, we may pursue a referral to a tertiary care center for endoscopic treatment, and then utilize a tertiary high-volume center's expertise in deciding when to do EMR or local resection certainly to avoid esophagectomy. But how do you decide what type of ablative therapy to follow thereafter? How do you decide which one a patient will be best suited for?

Dr. Shaheen:
Sure. So the only ablative therapy with Level I evidence at preventing progression to cancer is radiofrequency ablation. That's why it appears in the primary position in all the societal guidelines. Having said that, I do think that there are times when cryotherapy may be the preferred therapy, and let me give you a couple of examples. To get effective radiofrequency ablation, the device has to have tight apposition to the tissue. You really have to be able to push hard on the tissue to get that good flow of energy that's going to cause the desiccation of the mucosa. Sometimes the patient has a big hiatal hernia, you push on them with a radiofrequency ablation catheter and the tissue just moves away from you, or perhaps, even because of the anatomy, you can't get good apposition at all. Well, in such a situation you're not going to do very well with radiofrequency ablation. And in fact, a spray technology, perhaps like spray liquid nitrogen cryotherapy, may well be preferred, and in fact, that's what we'll often times do.

Other times when we consider alternative therapies are situations when, perhaps, I've gone through a couple or three rounds of radiofrequency ablation and I'm just not getting the response that I'm looking for. Perhaps I've only gotten 30 or 40% reversion to neosquamous epithelium. Well, that's a situation where I'm going to think about perhaps changing my modality in the thought that some patients may be more susceptible to one kind of ablation than others. So that's a very common thing that we do as well.

Dr. Nandi:
For those just tuning in, you're listening to *GI Insights* on ReachMD. I'm Dr. Neil Nandi, and I have been speaking with Dr. Nicholas Shaheen on the role of the RFA in treating and ablating dysplastic areas of Barrett's esophagus.

Now, Nick, I want to switch modes now. Once the tertiary care center has actually performed ablative therapy and now the patient requires coming back for surveillance after all the treatment has been performed, what should the referring gastroenterologist do? What are the guidelines or surveillance intervals that should be expected, and what is the biopsy practice pattern that we should follow?

Dr. Shaheen:
That's a great question, Neil, and I think it's increasingly important for the general GI practitioner to know about this because of the large numbers of patients that have now undergone these therapies, many of whom are returning to the practices from whence they came to get their surveillance. So a couple things your listeners need to know: Number one, their patients are never off the hook. By that I mean we hoped that after successful ablation there might come a time when the risk of progression would be so low that we could liberate patients from surveillance. Now that we're well into the ablation era, it's clear that surveillance ongoing is going to be necessary, that we are getting even far out rates of recurrence about 8% per year, so high enough that we can't really leave these patients alone. So what are the right intervals? Well, what we suggested based on modeling studies from a large registry of 5,500 patients and looking at when parents recur is that the surveillance interval should be based on the baseline graded dysplasia for which you ablated the patient. By that I mean it appears that patients who had high-grade dysplasia or an early cancer are at higher risk for recurrence than those with low-grade dysplasia. That means that the patients who I ablated for high-grade or cancer are going to get more frequent surveillance than those with low-grade.

The most recent guidelines which were published in the *AGA* and in *Gastro* as part of a clinical practice update suggests that if a patient had high-grade dysplasia, their surveillance should be at 3 months after complete eradication of intestinal metaplasia, 6 months after

eradication of intestinal metaplasia, 1 year after and then annually following. So in other words, in that first year we're going to do a little more surveillance at 3 and 6 months to make sure that we've got that patient clear, and then they're going to get it once a year. For low-grade, the surveillance is attenuated. It's at 6 months, it's at 1 year, and then it's every 2 years after that, so it's a less aggressive schedule because we find both the rate of recurrence as well as what they recur with to be much less severe than the patients with high-grade or with cancer.

So that answers the surveillance intervals, but your second question, which is really important, is, what do I do when I'm down there? So I've got a patient. They have come back to see me. I'm doing surveillance. They look fine. Am I done? No, you're not done. You're going to take some biopsies. Where are you going to take the biopsies from? Well, you're going to take biopsies from 4 quadrants in the cardia, so essentially the top of the gastric folds, but clearly on the columnar side. Why do we do that? Because 50% of the recurrence of dysplasia actually occurs in the cardia. Dysplasia does not respect the GE junction for the Z-line, and we find dysplasia commonly after otherwise successful ablation in the cardia, so we're checking for that. If you are going to find dysplasia or recurrent Barrett's in what appears to be squamous epithelium in the distal esophagus, it almost always occurs in the bottom 2 centimeters, so our current practice is to take 8 biopsies in the bottom 2 centimeters of squamous epithelium and 4 more in the high cardia. If those are all normal, then you can feel pretty comfortable that that patient is fine until their next surveillance.

Dr. Nandi:
That's fantastic that you just outlined that because I think that's the rule for the referring GI to understand that their role is very critical in the surveillance outcomes of these patients. You've really given us some clear, insights into practical surveillance guidelines, practical biopsy techniques post endoscopic eradication and really beautifully reviewed when to use RFA and why. Before we close, are there any last take-home points you want to share with our listeners?

Dr. Shaheen:
Yeah. Number one, patients want to be done with us, and patients are sick of their doctors, and emphasizing when you get one of these folks back that, you know, "Gosh, as much as I'd like to leave you alone, you really are going to need this surveillance," because those are fairly substantial risks that I mentioned here earlier about recurrence of disease, so I think really emphasizing that this is a lifelong challenge that the doc and the patient are going to take on together is really important. And then the second thing I'll say is that it's so important to have good communication between the center and the referring doc. If you do find recurrent Barrett's, don't sit on it. These people are not at the same risk as naive Barrett's and they should come back to the center or to a large ablation facility with somebody that's doing a lot of this so they'll get really great outcomes. We know that those outcomes are volume-dependent. They certainly can be had in private practices as long as people have adequate volume to really be good at this, but you don't want to be a low-volume center for ablation.

Dr. Nandi:
You heard it right here, folks, Barrett's clinical pearls straight from Dr. Nicholas Shaheen.

Nick, thank you so much for joining us and sharing your GI insights with our greater GI community.

Dr. Shaheen:
Pleasure to be here, Neil. Thanks for having me.

Dr. Nandi:
hank you very much. For ReachMD, I'm Dr. Neil Nandi. To access this episode and others from *GI Insights*, please visit ReachMD.com/GI-Insights where you can Be Part of the Knowledge. As always, thanks for listening.