Dr. Linda Yin:

Hi there. Welcome to another episode of ENT in a Nutshell. I'll be your host. My name is Linda Yin, and I am joined today by laryngologist, Dr. Semirra Bayan. Dr. Bayan, thanks so much for coming on to the show.

Dr. Semirra Bayan:

Linda, thanks for having me. I'm excited to be here to talk about one of my favorite topics.

Dr. Linda Yin:

A few notes before we get started. Today we'll be talking broadly about the evaluation and management of benign vocal cord lesions, but we won't go into too much specifics about detailed pathologies of every single one. Some of these will be covered in future podcasts. So moving on now to presentation, Dr. Bayan, what is the typical presentation of a patient in your clinic with a benign vocal cord lesion?

Dr. Semirra Bayan:

So most commonly patients will describe a hoarseness, and hoarseness can mean different things to different people so you want to make sure they specify what exactly they mean by that. So hoarseness for some people is a breathiness or a roughness to the voice. Some people have changes in their pitch or even fatiguing when speaking. Other symptoms that can present would include a globus sensation. Some people can have dysphasia or even pain with swallowing as well as pain with speaking.

Dr. Linda Yin:

Great. So you mentioned that hoarseness can be somewhat of a difficult symptom to define, and when you see patients and they talk about hoarseness, what do they really mean? And is there any way objectively or even subjectively we can evaluate hoarseness in the clinic?

Dr. Semirra Bayan:

So it'd be important to have a good ear to be able to evaluate the quality of the patient's voice, so I really listened to how they're speaking. For the early learner, I think breaking the symptom of hoarseness down into raspy, breathy or strained can be very helpful and it helps differentiate between different pathologies. You can have a combination of those. So someone can be both raspy and strained or breathy and strained, you don't have to have just one, but I think those three are probably the most important ones when evaluating someone's voice.

Dr. Semirra Bayan:

You can also use certain grading tools. I think most commonly is the Cape-V, where they break down the voice evaluation into roughness, which is the perceived irregularity of the voicing source, breathiness, which is an audible air escaping the voice, strain or perception of excessive vocal effort, pitch, where they look at the perceptual correlation of the normal fundamental frequency you'd anticipate from the patient's norm and then the sound intensity or loudness. Additionally, we'll also look at the maximum phonenation time. So we measure how long a patient can sustain an [EE 00:02:36] and that can help measure a vocal fatigue.

Dr. Linda Yin:

Now, when you're interviewing a patient in the clinic with hoarseness, what are some key features to focus on when taking the history?

Dr. Semirra Bayan:

It's a great question. So I always tell all of our early learners that I am of Iranian heritage and in Farsi, there is a term called [foreign language 00:00:02:57] and [foreign language 00:02:57] is an incredibly nosy person. And so I say, you should always bring out your inner [foreign language 00:00:03:04] when you're gathering a history with a patient. So you want to get a good, good social history. You want to understand their smoking history. That includes not only cigarette use, but marijuana use, vaping. You want to know what their profession is, not only what the profession is, but how much are they having to use their voice for that profession? In what situations are they using their voice? Is it over the phone? Are they having to give group lectures? Are they doing a lot of face to face interaction? You want to get into the nitty gritty? Sometimes of their interpersonal relationships, what kind of social stresses are they having?

Dr. Semirra Bayan:

Everyone holds tension in different parts of their body, a lot of people hold it in their voice. So you really have to almost become not a therapist, but you really have to get into the nitty gritty of what's going on in someone's life. I think that's probably the most important aspect when taking a good voice history. And that goes right into evaluating potential signs of heavy voice use. I hate to use the word abuse, but heavy voice use, that includes people who are singing, people clearing their throat a lot, it goes back to interpersonal relationships. If they're yelling a lot, for instance, with a spouse, or having issues with a child at home, those are important things to know and to pull out. You also went to gather if they've ever had a history of intubation, a history of reflux, any allergy history as well.

Dr. Linda Yin:

Great. Now that we've taken our history and we move on to the physical exam, is it just a scope exam? We know that that's key to these patients, but any other things on exam we should pay attention to?

Dr. Semirra Bayan:

I think having a keen ear and a keen eye in the clinic is really important. So from the moment I walk into the room, I'm looking at the patient, I'm watching their body language, I'm watching how they're interacting with other family members in the room, how they're interacting with the other staff in my room. So I listen to how the patient's voice sounds, how they're sitting in the chair, do a good oral cavity exam too. You want to evaluate the quality of their dentition. I think looking for mandibular tori are also really important as well, because that can affect exposure for some of these patients. Obviously a scope exam is very crucial. So the AAO recommends a laryngeal visualization within four weeks or greater of experiencing hoarseness. I'd probably go one step beyond that and say that while scope exam is important, I think stroboscopy is even more helpful to evaluate the vibratory capacity of the vocal chords and see exactly how the lesion is interacting with the vocal cords themselves.

Dr. Semirra Bayan:

And when you're performing the exam, you don't just want to say that you see something on the left cord. You want to know, where is the lesion? Is it in the medial aspect of the cord superior aspect of the cord? Is it mid cord, anterior cord, posterior cord, unilateral or bilateral? Even if it's bilateral, you want to quantify, "Is one side larger than another?" for instance, if you have nodules, if you want to evaluate

the exact composition of the lesion. So is it a hemorrhagic looking lesion? Is it translucent? Are there other areas along the vocal chords, abnormal vasculature, such as vascular ectasias? So you want to have a very observant eye went looking at the cords. Don't just comment on the lesion.

Dr. Linda Yin:

Great. That's really helpful. When you see a patient that comes in with hoarseness, perhaps before you do your exam, but you know with a history that's convincing for a benign vocal cord lesion, what might be on your differential diagnosis?

Dr. Semirra Bayan:

So a differential at that point is very broad. I think being able to classify what type of hoarseness a patient has can be incredibly helpful, that can certainly help contribute to your differential. And that would range from anything from malignant to benign lesions. And if you want to think of some inflammatory processes that could be contributing, or infectious processes, and then there's often neurologic etiologies that you want to keep in mind. So careful history taking and then a good flexible laryngoscopic exam or rigid laryngoscopic exam could be very helpful and narrowing down your differential.

Dr. Linda Yin:

And this is a good segue way, I think, into talking about pathophysiology now. We said that we will be talking broadly and there's a whole host of benign vocal cord lesions. I always find it difficult to think about them and memorize them all individually. Are there any ways that we can group these lesions either by etiology or by their pathology so we can think about them and learn them in an organized way?

Dr. Semirra Bayan:

Yeah, there's actually several ways you can think about it. You can group them based upon etiology so you can use your [kittens 00:07:28] or whatever differential diagnosis, mnemonic that you like to use, with focus on things that are congenital, such as certain types of cysts. You can have traumatic etiologies to some of these lesions. That includes things like intubation trauma, like vocal process granulomas, or even vocal fold hemorrhage or vascular ectasias can be caused from trauma. You can have infectious etiologies such as our RRP, which is caused by the HPV virus. And then inflammatory would include things like Reinke's edema, or even polyps or nodules.

Dr. Linda Yin:

Now you mentioned traumas in etiology. I often hear the term phonotrauma. What is phono trauma?

Dr. Semirra Bayan:

It's actually not a huge fan of the word phonotrauma. So I think you have to be careful using it because it can end up having a relatively negative connotation, especially in the profession of voice world. So when you think of trauma, you think of abuse, but I think you'd think of it more as just heavy voice use rather than abusing your voice. So phonotraumatic lesions can be seen and people who are singers. And you have to think of a singer just like an athlete, right? So they're vocal athletes in their using their voice heavily, not necessarily abusing their voice, and because of that, you could get certain types of lesions or changes to the vocal chords from that. So we always tell people you don't blame a professional

basketball player for hurting their knee, right? They're pushing themselves to the max, and I think you can think of the same way with any type of professional voice user.

Dr. Semirra Bayan:

So generally when someone is using their voice heavily, you can have potential dilation or rupture of the blood vessels, especially when you're using your voice extensively. That can cause vocal fold hemorrhage, potential scarring. It can lead to vascular ectasias as well. Besides just using your voice heavily, I would say true phonotraumas, probably heavy and extensive screaming would be considered one of them, and you can have the same changes from that. Additionally, consider heavy coughing or frequent throat clearing as other types of phonotrauma.

Dr. Linda Yin:

Wow, I didn't realize it was such a loaded word.

Dr. Semirra Bayan:

It's very loaded.

Dr. Linda Yin:

With this kind of trauma, or I guess I should say voice over use, what are some types of lesions that we can see that can develop?

Dr. Semirra Bayan:

I think, as we mentioned in the question before a vocal cord hemorrhage can be seen with extensive voice use. That's generally seen as a sudden onset of hoarseness or sometimes complete voice loss. We'd also mentioned things like vascular ectasias. More classic lesions like vocal fold nodules, I think are often considered to be part of a phonotraumatic lesions. I think you don't necessarily have to get them from vocal abuse, so that's often I think a misconception again also in the professional voice world. So that is seen in people who use their voice heavily though, though not necessarily some people can be a little more predisposed to developing nodules than others. By definition, nodules are generally bilateral and they're often seen on the medial aspect of the mid part of the cord. In the beginning, they start kind of edematous and soft. They're generally a vascular, fiber vascular lesion, and they turn into more of fibrotic or firm thickened lesion with time.

Dr. Semirra Bayan:

I actually, in my own practice, don't use the word vocal fold nodules, or even vocal fold polyps. I refer to both of them as just fiber vascular change because in the end it doesn't really change how I deal with them, but they both are fiber vascular changes to the basement membrane of the epithelium. Again, that transitions into vocal fold polyps, so that's another pretty common one that you can see. Generally those are unilateral. They should be careful cause sometimes a large polyp can also cause a reactive fiber vascular change or even a nodule on the other side. But as a rule, you see them in a unilateral fashion. They can be pedunculated quite often they can develop into quite a large lesion too, especially if they're hemorrhagic and in those situations, they at times can cause issues with breathing, I've seen that very rarely, and they're classified into either non hemorrhagic or hemorrhagic.

Dr. Semirra Bayan:

And the last one that you see a somewhat more rarely, but it can usually only diagnose through palpation in the operating room would be mucosal, bridges. And those are often from pretty severe phono trauma where your vocal cord almost ... the epithelium splits open and then regrows in a bridge fashion back together. Again that seen rarely, but can be a sign of potential repetitive trauma to the vocal chords.

Dr. Linda Yin:

Got you. Now we also talked briefly history of intubation. Now, what are some sort of lesions that we can see as a result of intubation related trauma?

Dr. Semirra Bayan:

Most often you'll see vocal process granulomas. So that's either on the vocal process of the arytenoid, mainly because that's where the tube is sitting, more posteriorly in the glottis. In the earliest stages, it's often seen as an ulceration. And then you get this exuberant healing tissue that will lead to granulation formation. Vocal process or arytenoid granulomas can also be seen in patients who have chronic coughing. Severe reflux can often be a contributor to granuloma formation or persistence. So you don't necessarily have to have intubation to have a posterior vocal process or arytenoid granuloma. Very rarely intubation can cause subglottic cysts. Additionally, you can have acquired subglottic stenosis, which I know was mentioned in other talks within this podcast. The other one you see a little less rarely, but can be quite devastating for some patients would be a vocal cord granuloma, which is usually caused by a laceration to the muscular membranous portion of the vocal cord itself during intubation.

Dr. Linda Yin:

Now outside of traumatic causes, and we also talked about inflammation or local inflammation in the vocal cords that's a potential contributor. What are some sources of inflammation in the larynx and what type of lesions can we see from inflammation?

Dr. Semirra Bayan:

Well, most commonly smokers, which we see as Reinke's edema that can obviously be a more inflammatory process. You can also see within smokers' laryngitis sicca, which is essentially a drying of the mucosa of the larynx. It can cause some pretty severe crusting as well. Reflux can sometimes cause inflammation, though in my experience, it has to be some pretty severe reflux to cause inflammation that affects the vocal chords themselves. You can sometimes see more supraglottic inflammation within the intro arytenoid space or arytenoids that could be caused by reflux. You also want to consider inflammatory things like infection. So that includes viral laryngitis, fungal laryngitis, and a bacterial laryngitis of which you treat with the appropriate antibiotic or antifungal.

Dr. Semirra Bayan:

But beyond that, if you have a laryngitis or what you think to be laryngitis, that's not responding to traditional medical therapy, that's when you take a step back and try and think of things beyond just your traditional infections. So that includes things like, for instance, more unusual fungal infections, like blastomycosis. Sometimes infection can be underlying cancer. So make sure that you're not trying to treat for infection when really have a patient that has a malignancy or a dysplasia.

Dr. Semirra Bayan:

Additionally, you want to look at, or at least have in your mind autoimmune diseases. So in particular things like GPA are wakeners, sarcoidosis, relapsing polycondritis. I've seen all three of these impact the vocal cords themselves. So not just the subglottis, So you want to have in mind when you're looking at an inflamed larynx, not just infection, not just reflux, you want to think beyond that and think of auto-immune and always make sure a patient doesn't have cancer and you're not missing the bigger picture.

Dr. Linda Yin:

Great. That brings us to work up now. When we were talking about how patients present, and we said that it was really important for us to do a scope exam for patients that present with hoarseness. I understand that this can be done either with a flexible or rigid scope. Can you talk a little bit about the pros and cons of each and when you would use them?

Dr. Semirra Bayan:

Yeah, absolutely. I use both a rigid and a flexible in my practice. So a rigid exam is done trans orally with a 70 degree scope. In my hands, I enjoy using this for looking at more benign lesions, especially in a professional voice user. It has a really clear picture, obviously depending on the product that you're using. It can sometimes be a faster exam. I have some people, especially people who get these exams frequently, like singers who prefer having a rigid exam over a flexible. What it does is just focuses mainly on the glottis and portions of the super glottis. You don't really get a great subglottic view, you don't get a whole view of the whole hypopharynx, so there are limits to it.

Dr. Semirra Bayan:

Another advantage I see, true rigid is, I can sometimes assess the amount of tongue based tension a patient has. So especially in may be with muscle tension dysphonia, it allows me to assess it in a slightly different way than I could with a flexible exam. A flexible exam for a lot of patients though, can be tolerated a little bit better, it really just depends on the patient, and I think it's great for evaluating pretty much everything. So you're never faulted for using a flexible exam and it's particularly good for evaluating neurologic diseases, cancer and airway stenosis, but can be highly effective for benign lesions as well, especially in a patient who won't tolerate a rigid scope. So one step, as we mentioned beyond, when we talk about flexible and rigid, I'm doing stroboscopy for either of those. So in general, rigid and flexible in a laryngology practice is used in conjunction with stroboscopy, which gives you a far superior evaluation of a majority of your benign lesions.

Dr. Linda Yin:

Can you explain to us what exactly stroboscopy is? And like you said, it can really give you a superior valuation, but how does it really contribute to the workup?

Dr. Semirra Bayan:

So stroboscopy utilizes flashing light, and what the light does is it tracks to the patient's particular frequency, so it synchronizes. And when you're looking at an image from stroboscopy, you're not looking at a real time video. So what it's doing is taking different parts of several vibrations cycles, and putting them together into a manufactured image that's showing you how the vocal chords are vibrating, but it's not really showing you a slow motion picture even though it does look like it's slower motion than you'd normally see with the naked eye. What it does allow you to do is better examine the vibratory amplitude, the phase, the periodicity of the glottal cycle., You can see the vocal fold edge, and how it's interacting in a more slow motion manner with the opposite vocal cord. It allows you to assess

the mucosal wave as well as the glottic closure, and you can slow this video down. So I think that's the huge advantage to a stroboscopy, and you really watch how that lesion's interacting with the remainder of the vocal fold. It allows a much more nuanced assessment for these benign lesions.

Dr. Linda Yin:

Now I know that when we see these patients in clinic, we're often taking quality of life scores as well as part of their workup. Can you just comment briefly on the role of these and how they can help us make decisions?

Dr. Semirra Bayan:

So I think quality of life evaluations can be helpful and not only in a research setting, but I find that particularly useful to use number one in assessing how much a patient's voice issue bothers them. And then also to evaluate pre and postoperative satisfaction. So most commonly used quality of life assessments include the voice related quality of life or a VR QOL, as well as the VHI10.

Dr. Linda Yin:

Now what about traditional types of routes of workup, like imaging or blood work? Is there any role of that when accessing a benign vocal cord lesion?

Dr. Semirra Bayan:

In general, I tend to not do that unless obviously I'm worried that a lesion is in fact cancer, so typically not unless we're thinking of something like a large cyst. So for instance, like a saccular cyst, which that's a totally different podcast topic, but you'll sometimes get a CT neck to evaluate its extension, especially if you think it's very large. I also get imaging if there is a unilateral vocal fold paralysis on initial presentation, if we want to rule out a mass lesion. And then obviously autoimmune etiologies you'll get blood work, and that kind of ties into our discussion on inflammatory lesions that you can find, which is again another podcast topic. But if we're just focusing on benign lesions themselves, it's very rarely that you need to get additional imaging besides a very, very good flexible or rigid stroboscopic exam.

Dr. Linda Yin:

Great. Moving onto a treatment now. So we've now diagnosed and hopefully adequately worked up benign vocal cord lesion. What are some important considerations we should have before we offer the patient treatment?

Dr. Semirra Bayan:

So treatment ranges from conservative. So that includes things like voice therapy, smoking cessation to medical treatment, such as antireflux medication or antibiotics to surgery, and different lesions respond differently to conservative therapy. So you have to have a good understanding of what the pathology is. Also what you really need to understand, and that brings us right back to what we were talking about at the beginning, Linda, which was understanding the patient themselves, and you want to understand how that lesions actually causing their voice issues. So you have to understand what the limitations the patient's having. So for instance, if you have small vocal fold nodules or small fiber vascular changes on bilateral vocal chords, and you have a patient who's only using their voice for conversational speaking and the nodules on stroboscopy are not inhibiting glottic closure or inhibiting sustaining the mucosal wave, and the patient's main issue is vocal fatigue, just mainly conversational speaking, that's probably not someone you're going to operate on, that's someone who probably needs voice therapy. So you

want to have a strong understanding of what the exact limitations are that the patient has with their voice and what they're using their voice for.

Dr. Semirra Bayan:

Now, let's take those same lesions in a professional opera singer who is telling you that she's unable to achieve the highest aspects of her range, and on stroboscopy it's showing that those nodules are playing a role in her ability to achieve that. That's a totally different conversation. That's probably someone where you, while you may consider voice therapy initially, you may be moving towards surgery a little faster in that person. So you really have to understand a patient when you're talking about surgical intervention for a lot of these lesions. So essentially surgery for one person is not going to be the right choice for another person.

Dr. Semirra Bayan:

And it all goes back to that history taking, understanding, voice, limitations, understanding the patient. The other thing I think you have to have a pretty strong understanding of is the patient's motivation and their ability to comply to postoperative voice rest, as well as postoperative smoking cessation. So if you have patients that are smokers, that you're going to remove a polyp on, they may not heal very well if they're continuing to smoke. So they really have to commit to that and they need to also be prepared for a period of voice rest afterwards.

Dr. Linda Yin:

We've talked a little bit about voice therapy and voice rest now, which lesions respond best to these kinds of conservatives therapies?

Dr. Semirra Bayan:

So I'll make a plug here that ... I think voice rest should never be used as a primary treatment for pretty much anything. Besides someone who has an acute vocal fold hemorrhage. I think often patients are ... that come to me will have been on ...I've had patients who have been on voice rest for a month because they've been told that that would help their nodules. That's never helpful. So voice [inaudible 00:23:15] should only be used for the most part in the exception of hemorrhages temporarily in the postoperative period. Sometimes especially in professional voice users, we may direct them to take intermittent vocal breaks throughout their day, but that's directed by a voice therapist and laryngologist. Voice therapy can be great when you're preparing a patient for surgery, for instance, in someone with nodules or polyps, they can be very good in situations like muscle tension dysphonia. If you have vocal process granulomas that you think are related to chronic cough for throat, voice therapy could be great in those types of situations as well.

Dr. Semirra Bayan:

I will note that in some nodules they can sometimes be very helpful, and in fact, you could at times see maybe a regression, but not complete resolution of nodules with therapy. Very rarely at least, have I seen that as a cure for vocal fold polyps because it sometimes help a patient who maybe isn't motivated towards surgery to learn how to work around a polyp, especially if it's smaller, but generally I don't consider voice therapy here or a cause a regression of any of those lesions, but it can be really helpful in teaching them some appropriate techniques to help prevent vocal fatigue or even hyper function.

Dr. Linda Yin:

And how about the role of medical therapy and antireflux medication? When do you prescribe these?

Dr. Semirra Bayan:

I think the evidence towards whether reflux is causing a lot of benign lesions is relatively controversial. And I see a lot of patients who have hoarseness who've been placed on reflux medications, and I think sometimes they're used a little too frequently. So reflux therapy should only be used if a patient's having active reflux symptoms. I think the best evidence for antireflux medication is a large role in management of vocal process granulomas. I think we have to use it for polypoid choroiditis as well or Reinke's edema, though there's the best evidence with vocal process or arytenoid granulomas.

Dr. Linda Yin:

And how about steroids? Do you ever prescribe steroids as part of treatment?

Dr. Semirra Bayan:

Very rarely. I'll sometimes in a setting of acute infection on top of using antibiotics for like a bacterial laryngitis and they can sometimes be helpful for certain autoimmune conditions as well. You have to be careful handing out steroids for any and all types of hoarseness though. So very rarely can steroids be helpful that doesn't really solve the problem. It's just kind of a temporary fix.

Dr. Linda Yin:

Fair. So that brings us to surgery. So when do we offer a patient surgery? And we already talked about some of the preoperative factors to consider, but in terms of surgery itself and different pathologies, when do you consider surgery?

Dr. Semirra Bayan:

That's a relatively loaded question because I think every lesion is a little bit different, and I think we've talked about this a little bit in prior questions. For most lesions, if conservative therapy fails, for instance like your voice therapy, you can consider surgery, but that's again, highly dependent on the patient, their demands and the limitations they have with their voice and the lesion itself. So for nodules, for instance, if a patient's still having issues with meeting their daily demands and you think the nodules are a contributor to that, you obviously can consider surgery. And we talked about that a little bit in the prior questions, for instance, things like Reinke's edema, you have to be careful in those types of patients. You obviously take them to surgery if there's any concern for cancer or they become obstructive to the point of creating breathing issues.

Dr. Semirra Bayan:

If it's purely for cosmetic reasons, meaning the patient has a lower pitch and would like to raise the pitch of their voice, you really have to make sure that they've committed smoking cessation before you're jumping into surgery for just regular straight of [inaudible 00:26:49] where you're not worried about cancer, and you're not worried about any kind of obstructive lesion. Polyps, I usually operate on unless they're incredibly small and the patient's able to meet their daily vocal demands, even with the presence of a lesion, but as a rule, most of those do get operated on. Vocal process granulomas are another one you need to be careful about, and they're a little bit more nuanced in deciding when to go to surgery. If you have a more broad based lesion, you generally want to treat that more conservatively because you're going to end up creating a large area of healing that the granuloma just reforms, and sometimes they can reform even more robustly once you take them out.

Dr. Semirra Bayan:

So those types of broad-based lesions, you want good reflux control. Soon as you can consider more in office or conservative management such as steroid injections or Botox. Now, if you have a vocal process granuloma that's causing airway obstruction, or that has a small stock attached to either the vocal process or the arytenoid, those could be considered for surgical removal. And obviously any ones that are causing obstructive issues, you would consider removing. But you want to take care and just jumping to surgery for any granuloma that you see. And obviously when it comes to granulomas again, if there's any concern for cancer, you obviously take that to surgery too.

Dr. Linda Yin:

Now we won't go too much into surgical technique in this podcast. For the listener, for reference, we do have several laryngology technique videos on headmirror.com, including videos on the basics of operating room setup and ergonomics. And we have a vocal cord polyp removal video, and a micro flap one as well. But here we're just going to talk about some general principles of surgical therapy. So what are some general principles that you think are important to keep in mind?

Dr. Semirra Bayan:

So anyone that's worked with me in the operating room could attest to the fact that I'm a stickler for good exposure. So you can't operate on what you can't see. I generally like to use a [cytos 00:28:47] modular glottis scope with a suspension laryngoscopy or a suspension gallows, mainly because the shape of the scope and the vector of force of the gallows allows for ...I feel it really superior exposure allows you to see the entirety of the vocal cords, including the anterior commissure. I'll also tape the anterior neck. So I'd say even if you're not using a suspension gallows system, taping the anterior neck can be very helpful. It kind of helps push the larynx and the glottis towards you. It allows you to get exposure of that anterior most aspect of the vocal chords.

Dr. Semirra Bayan:

The other thing I really emphasize is good ergonomics, and that includes supporting your shoulders elbows hands wrists, because all of us will fatigue if we hold our hands in the air, trying to do this very delicate surgery. So you want either a good chair that has excellent arm support. So essentially just have to hang your wrists off of the side of the chair. You want to make sure your chairs at a height where your hands are resting, basically near the patient's mouth. If you don't have a chair like that, because those can be pretty expensive, you can also use something like a mayo stand to put either a pillow or sheet underneath or over top of that Mayo stand to give you some cushion and support, and you can place that right in front of your chair, but you want to make sure you have good supportive those arms. And that takes away a lot of the tremor that all of us have naturally when trying to suspend your hands up in the air. I also emphasize using a microscope for these. You want to use both hands, it's a bimanual operation and you want high magnification.

Dr. Semirra Bayan:

Once you're ready to operate, the first thing I do is palpate both of the vocal chords, I usually use a 90 degree probe. What that allows me to do is evaluate any types of pits, sulcus, and mucosal bridging that I may not have picked up on my flexible exam. I think that's important because you're not necessarily going to intervene on those in the surgical setting, but it does allow you to set expectations for the patient for kind of post their postoperative voice limitations. They may have, even if they have the best healing possible for the benign lesion that you're operating on. Once you've done the palpation, I usually

do a good saline injection to the cord that I'm going to operate on that helps lift the lesion off of the superficial laminar propria, and I do that in a subepithelial fashion. So you're separating the SLP from the epithelium.

Dr. Semirra Bayan:

Then you're using a great micro flap technique, you're separating the lesion from the underlying superficial laminar propria. And then the lesion itself is slowly peeled off of the basement membrane of the epithelium. You can trim the flap and then lay it back down. So it essentially looks like no one was ever there. So it could be a pretty slick operation when you're using that micro flap technique.

Dr. Semirra Bayan:

Another tool I really love to use and I get pretty excited talking about is the KTP laser. And that that can be used in a variety of settings, but specifically for benign lesions, it's good for vascular ectasia. So for instance, if you have someone who has a persistent hemorrhage, who's persistently hemorrhaged, and you notice this is coming from an act, a particular ectacia or vessel, those could be treated with the KTP laser. If you have a hemorrhagic polyp, you can find feeder vessels to that polyp that you could then use the laser for, and that can all be used in the same setting as removing the lesion.

Dr. Linda Yin:

Perfect. And after the surgery postoperatively, are there any special instructions that you give your patients?

Dr. Semirra Bayan:

I will generally put most of my patients that have surgery for benign lesion on voice rest, how long you put someone on voice rest is controversial. So I guarantee you ask every laryngologist in this country, they'll have a different answer for how long they put people on voice rest. I know people who, especially in a professional voice user will put a patient on three weeks of voice rest. And I know others who have as little as 48 hours of voice rest. So there's not a great consensus. Even if you look through the literature, not a great consensus. I think on average, most people do about week of voice rest.

Dr. Semirra Bayan:

Generally, once they're off of voice rest, we'll start people on some postoperative voice therapy. And that brings in something we haven't really talked about yet. But since we're kind of nearing the end here, I'd emphasize is the importance of having a speech and language pathologist who's familiar with voice to help manage your patients both before and after surgery. I think a huge advantage to having a good speech and language pathologist is they sometimes can get a history that you don't normally get because they have a little bit more time to spend with a patient, especially if they're with them for a few more sessions than just one clinic visit. And then it's a known person that can work with them following surgery. So a good multidisciplinary team for any benign lesion's important.

Dr. Linda Yin:

Perfect. I think you've answered all of my questions that I had on benign vocal cord lesions. Is there anything else that we haven't covered that you'd like to talk about?

Dr. Semirra Bayan:

No, I think we covered a lot of the really important points and thanks again, Linda for having me on ENT in a Nutshell.

Dr. Linda Yin:

Great. Well, we'll move on to the summary section. Now, here are the big summary points from this talk. Benign vocal cord lesions compose of a diverse range of pathologies. And these can include vocal cord, nodules, polyps, granulomas, and even scars. When patients present with hoarseness, it's really important for us to help delineate what the patient means, components of the voice, including roughness, breathiness, strain, pitch, and loudness should all be assessed. The social history is particularly important in understanding both the etiology of disease and in helping patients choose the best management strategy. The patient's smoking status, their profession, their vocal habits, and their interpersonal relationships should all be teased out in the clinic. Setting phonotrauma is a commonly used term, although as we've learned can be controversial in the professional voice world for benign vocal cord lesions. It can cause acute hemorrhages in the short term and in the long term can lead to nodules polyps, or even scarring the workup for hoarseness and a suspected benign vocal lesion includes an [inaudible 00:34:45] rigid or flexible or laryngoscopy, and ideally stroboscopy as well.

Dr. Linda Yin:

Stroboscopy allows us to slow down the video and really closely wash for that mucosal wave and how the lesion is interacting with the surface of their vocal cord, even in different pitches. Treatment for the benign vocal cord lesion is highly individualized and dependent on both the underlying pathology as well as the patient. Patient compliance and profession, as well as their motivation are all important factors to consider to offer patients the best treatment for them. Conservative management consists of voice therapy, smoking cessation, and sometimes in limited settings antireflux medications. The ladder should only be started if patients have a lesion that responds well such as a vocal process granuloma, or sometimes Reinke's edema.

Dr. Linda Yin:

As we've talked, surgery is not recommended for everyone. And we need to be particularly careful operating on certain lesions like broad based posterior glottic granulomas, but often it is necessary for other lesions, which are unlikely to resolve with voice therapy alone. Patients undergoing surgical intervention must be counseled and prepared for smoking cessation, voice rest and postoperative voice therapy. When we're in the operating room, surgical technique must include adequate exposure, comfortable ergonomics, and surgery should start with careful palpation of the vocal chords followed by the utilization of good technique, including the micro flap technique and endoscopic lasers. Postoperative voice dressed as often and recommended, although the length of this can be controversial. Voice therapy plays an important role as well, along with our speech language pathology colleagues.

Dr. Linda Yin:

Okay, we're going to move on to the question session now. So we'll be giving some questions followed by a brief pause to let you kind of think over the answer in your head. And then we'll give the answer to the question. Our first question is, what are some key things together from a voice history?

Dr. Semirra Bayan:

So some key things to gather would include what exactly are the limitations a patient has with their voice, how has their voice changed more specifically than just that it's horse? Getting a great social history, so remember to be a [foreign language 00:37:06], really dig into some of the more social aspects of their lives, their profession, what they're doing at work, and then other key aspects of their past medical history.

Dr. Linda Yin:

Next question, what exam is crucial to the assessment of benign vocal cord lesions?

Dr. Semirra Bayan:

So beyond getting a good history, another crucial aspect of assessment of benign lesions includes a good, flexible or rigid stroboscopic exam. Being able to describe the lesion as well as the remainder of the vocal cord, if you see any other abnormalities or lesions, so being specific and having a good eye.

Dr. Linda Yin:

Next question. What are the primary management strategies for benign vocal chord lesions?

Dr. Semirra Bayan:

Primary treatment options depend on the lesion itself, and again goes back to the exact limitation the patient has with their voice and how the lesion is interacting with the remainder of the vocal cord. But generally treatment options would include either medical management, voice therapy or surgical intervention, but again, depending on what the lesion is exactly.

Dr. Linda Yin:

And finally, what are some key points to consider for a good surgical technique?

Dr. Semirra Bayan:

So key points for a good surgical technique include one, getting great visualization, two, having good ergonomics, good hand support. Being able to use a bimanual technique with a microscope under high magnification, three, palpating the vocal chords to look for lesions beyond just the lesions you're operating on, including a sulcus, a pit or a mucosal bridge, four will be a good micro flap technique. Five is utilization of lasers as needed, such as the KTP laser for photo ablation of either vascular ectasias or prominent feeder vessels.

Dr. Linda Yin:

All right. And that's our talk. Thank you so much again for being here.