

Dr. Linda Yin:

Hello, and welcome to another episode of ENT in a Nutshell. My name is Linda Yin and I will be your host. I am joined today by Dr. Dan Price, who is a head and neck surgeon. Thanks for being here.

Dr. Dan Price:

Thanks for having me, Linda. I'm excited to talk today.

Dr. Linda Yin:

I'm also fortunate enough to be joined by Dr. Katharine Price, who is a medical oncologist that specializes in head and neck cancers. Dr. Katharine Price, thank you for being here too.

Dr. Katharine Price:

It's a great pleasure, thank you.

Dr. Linda Yin:

Because we have two of the same name here, for the rest of the talk I'll be addressing Dr. Dan Price as Dr. Dan, and Dr. Katharine Price as Dr. Katharine. Now before we get started, just for the listener, I should clarify that we'll be talking about primary salivary gland malignancies here. These are malignancies that originate from the parotid gland. We will not be discussing benign parotid lesions, which have already been covered in a separate talk.

Dr. Dan, what is the typical presentation of a patient that comes to your clinic with a malignant tumor of the parotid gland?

Dr. Dan Price:

Great question, Linda. A lot of parotid malignancies really present very similar to benign parotid tumors, that is a painless lump in the cheek. But malignancies will have some warning signs that can key you in to being something worse. They may grow more quickly, so an enlarging mass, may have facial weakness, which is particularly alarming in the setting of a parotid mass, or facial pain and numbness.

An interesting symptom that patients often will complain of are formications, which is the sense of ants or insects crawling underneath the skin. This is a really reliable symptom that there's something ominous happening, and as a harbinger of a perineural invasion. And then of course if there's a neck mass that the patient notes along with a parotid mass, that will make you suspicious that they have a metastatic lesion in their neck.

Dr. Linda Yin:

What are some key questions that you ask a patient when obtaining a history?

Dr. Dan Price:

The history for a parotid malignancy is really similar to any history that you would take for a mass, which is how long has it been there? Have you had any associated symptoms? Has it changed? And are there things that cause it to change? And then of course, some of the things we've mentioned, so do they have any facial nerve weakness, which can suggest that there's perineural invasion. Do they have any pain or numbness, and particularly numbness in the trigeminal distribution? So numbness of their cheek, numbness of the brow, numbness of their lips or face. And again we ask them, do they have that

sense of formications, which patients don't know what that means, so you have to ask them, do you have a sense of insects crawling underneath your skin? And I've had several patients report that, so it's a very reliable symptom

Dr. Linda Yin:

After the history, when you conduct your physical exam, what sort of findings are you watching out for? And paying attention to?

Dr. Dan Price:

So of course you want to feel the mass, is it mobile? How large is it? Can you get a sense of the extent of its depth? Can you get your fingers underneath it and pull it away, so to speak? Or is there more to it than you can feel with your hands? You want to feel their neck as well for any lymphadenopathy. You want to do, of course, a cranial nerve examination, so you want to look at their facial nerve motion, you want to check for sensation in the trigeminal distributions.

Do they have any trismus? Are they able to open and close their mouth without any restriction? Does it feel like it's fixed to the mandible, or is it freely mobile? And then of course looking at the skin around it, so is there any changes in the overlying skin to suggest skin invasion?

Dr. Linda Yin:

Dr. Katharine, we're looking at this from an epidemiology perspective. What are some risk factors that can predispose someone to develop a parotid malignancy?

Dr. Katharine Price:

So parotid malignancies are a very heterogeneous group of cancers, so there isn't one unifying exposure or lifestyle behavior. Some of the risk factors include a history of prior radiation exposure, so when we say that we don't mean radiation you might get day-to-day from the sun, or from cell phones, or from having routine medical imaging, but we think about things like prior treatment radiation for a prior cancer, for example, or radioactive iodine for patients who have had thyroid cancer in the past. We also can see increased risk of salivary cancers with environmental exposures, such as nuclear accidents or chemical exposures during war.

We don't typically see a strong association for something like smoking or lifestyle behaviors that we might see in other more common cancers, such as lung cancer. That said, if somebody has a heavy smoking history or advanced age, that's certainly going to affect their ability to get through treatment and how they might tolerate treatment, so it could impact how they do with the cancer.

And then finally, patients who have a known growth called a pleomorphic adenoma, which is a non-malignant growth in the parotid gland, a small percentage of those can develop into an invasive carcinoma. So having one of those would also be considered a risk factor.

Dr. Linda Yin:

Great. So you mentioned that salivary gland cancers, and parotid malignancies in particular, can be made up of a large variety of histologic subtypes. But when we think about the parotid gland, what are some of the more common pathologies that we can see?

Dr. Katharine Price:

So in terms of the parotid gland, the most common pathology that will be seen is Mucoepidermoid carcinoma, and that comes in different flavors, low, intermediate, and high grade. But we also will commonly see other types of histologies, so adenoid cystic carcinoma, for example, is common. That's very common in the submandibular gland. So if there is a patient who has a mass in the submandibular gland, that would be your first suspicion, for salivary cancer. There are some other types of salivary cancer that can occur though in the parotid gland that we will commonly see, such as adenocarcinoma, acinic cell carcinoma, salivary duct carcinoma as well.

Dr. Linda Yin:

Good. So that brings us on to the pathophysiology section. And again, these cancers are a complex group of malignancies, and notoriously they can be really difficult to distinguish on pathology. Getting into all the details about the pathology would likely require a separate talk, but I do want to go through some general concepts that they share, and also discuss some common pathology findings that every ENT should know. When we talk about, as you've already alluded to, low grade and high grade salivary gland malignancies, can you shed light on what that means?

Dr. Katharine Price:

So when we talk about low grade and high grade, I think there are several pieces of information that would go into that. One is what it looks like under the microscope. So that's what we, when we classify them, we think about that under the microscope. Do they have features that are concerning? High mitosis, for example. And we can largely, when we see a salivary cancer, can classify it as one that we're worried could behave badly clinically, meaning it would have a high chance of potentially recurring, or maybe even spreading distantly and becoming incurable, and those that have a much lower chance of that.

I think what's also important with salivary cancer, because there's so many different types, there's actually over 20 different types, is that every piece of information really matters. So it's important to know what it looks like under the microscope, but it's also important to hear the patient's story and understand what has happened clinically. A patient who comes in with a parotid mass that is changing visibly, in days or weeks, obviously has an aggressive cancer, no matter what the pathology shows under the microscope. So you really have to look at everything.

Some common examples of lower grade tumors that we would see would include acinic cell carcinoma, for example, basal cell adenocarcinoma, oncocytic carcinoma. And high grade salivary cancers would include salivary duct carcinoma, with a 60% chance of developing distant metastases over time. Adenocarcinoma, squamous cell carcinoma, high grade or high grade transformation of acinic cell, or adenoid cystic carcinoma.

Dr. Linda Yin:

Back to Dr. Dan now. So when we're considering some of these most common pathologies, there's going to be a few histopathologic features that it's important for all of us to remember. So starting with mucoepidermoid carcinoma, can you tell us a little bit about the pathology of this?

Dr. Dan Price:

So it's important to understand the histologic grading system for mucoepidermoid carcinoma. These are rare tumors that your pathologist may not see very often, and being able to be conversant with them in what they're seeing, you can help them make a diagnosis. For mucoepidermoid carcinoma we see mixed

epidermoid and mucinous components, and the degree to which we see those components helps with the histologic grading.

The low grade tumors tend to have more mucinous cystic components to them, and look more like normal salivary tissue, and high grade tends to have more solid nests of cells and could be very difficult to differentiate from squamous cell carcinoma. Intermediate grade is controversial, and it can be hard to differentiate from low and high grade, both from a histologic standpoint, and predicting their clinical behavior. So that's important to understand.

Dr. Linda Yin:

I understand now there's a common test we can do to look for genetic alterations in mucoepidermoid carcinoma. Can you talk a little bit about this, and how you use it in your clinical practice?

Dr. Dan Price:

Yeah, so there's FISH, or in situ hybridization for MECT-MAML translocation, or what we usually refer to as MAML2 translocation. It's diagnostic of mucoepidermoid carcinoma, it's not found in any other types of tumors, and it's present in about 85% of mucoepidermoid carcinomas. It's most helpful when you have a really low grade tumor that's difficult to differentiate from benign tissue, and in some of the confusing histologies, like squamous cell carcinoma, it's not prognostic. So it was initially thought to be prognostic, but it's seen equally in high grade and low grade tumors, as just that initially was used in low grade tumors that were difficult to diagnose.

Dr. Linda Yin:

Moving on to adenoid cystic carcinoma's now, do these tumors have any defining features on pathology that we should also be aware of?

Dr. Dan Price:

Yeah, so adenoid cystic carcinoma is classically divided into three different patterns, cribriform, cylindromatis, or cylindroma, and solid, and these are part of the histologic grading. So the low grade tumors typically have a predominant cribriform pattern, the high grade is more solid and dense, and the intermediate grade will show a combination of these patterns. Perineural invasion is seen in essentially all of these tumors, very common.

Dr. Linda Yin:

Dr. Katharine, moving on to different types of tumors now, what about a primary parotid lymphoma? What should we be thinking of when we see a patient with this type of tumor?

Dr. Katharine Price:

So the most common type of primary parotid lymphoma is a MALT lymphoma, which is a type of non-Hodgkin's lymphoma. [inaudible 00:11:23] this is associated with Sjogren's syndrome, which is an autoimmune condition affecting the salivary glands. MALT lymphoma is one of the few lymphomas that can actually be treated with surgery alone, and like everything, appropriate diagnosis of the type of lymphoma would be critical.

Dr. Linda Yin:

And how about adenocarcinoma? What are some key pearls that we should be aware of there?

Dr. Katharine Price:

So adenocarcinoma of the salivary gland is one of the high-grade malignancies that will have a high risk of spreading to lymph nodes or spreading distantly. It originates from the terminal tubules intercalated ducts of the salivary gland, and has a high risk for perineural invasion. One of the other features is that it occasionally will be positive for the androgen receptor, which is more common in another type of salivary cancer that we'll talk about in a minute.

Dr. Linda Yin:

I think that's the perfect segue into talking about salivary duct carcinomas now. You already mentioned the androgen receptor, but what are some other features we should be aware of?

Dr. Katharine Price:

Salivary duct carcinoma is a very unique type of salivary cancer. It is also one of the high grade subtypes with a very high risk of nodal spread and a 60% risk of developing distant metastasis after diagnosis. It is in appearance similar to ductal carcinoma of the breast, and what is pathognomonic for it is that over 90% of these tumors will be diffusely positive for the androgen receptor. Another unique feature is that about anywhere between 20% to 50% in some studies will also express the HER2 receptor, which is also found in breast cancer.

Dr. Linda Yin:

Let's move on to the workup section now. So Dr. Katharine, if a patient comes into your clinic, I understand that you're usually seeing them in a different setting, but say someone comes to you at presentation with symptoms that are highly suspicious of a parotid malignancy. What would be your next step in the workup?

Dr. Katharine Price:

So it would be important to get cross-sectional imaging of the head and neck to define the extent of tumor and whether any lymph nodes are involved. Typically this will be a CT scan of the neck, is the most common, but an ultrasound can sometimes be used as well. An MRI is helpful for certain characteristics, such as assessing margin status, perineural invasion, and muscle enhancement.

The next step of course, would be a tissue diagnosis with an FNA biopsy, and important to remember that these are very difficult cancers to diagnose and characterize on FNA, so if possible it's important to have an experienced salivary pathologist look at that to make a diagnosis. In terms of additional imaging, that may be determined by what is found on the biopsy. If it is a low grade salivary cancer, you don't necessarily have to do a lot of other extensive imaging, but if it is a higher grade histology, then we would move on to full systemic imaging with either a PET scan or CT scan of chest, abdomen, and pelvis.

Dr. Linda Yin:

Yeah, so I understand that FNA biopsies of the parotid can be somewhat controversial in terms of their utility. Dr. Dan, are you using these, and can you elaborate on how you're using them preoperatively?

Dr. Dan Price:

Sure, that's a great question. Salivary pathology, as we've said several times, is very difficult, and that's not limited, the complete section needle biopsy is also very difficult for pathologists. They have a wide

range of sensitivities and specificities in the range of 70 to 100%, which is largely probably dependent on the experience of the pathologist.

The reason why it's controversial is that it doesn't necessarily change the recommended treatment, which is almost always surgical excision, as that's the mainstay for benign and malignant parotid masses. It generates a charge, so there's a cost associated with it, and it's a procedure, so there's some minor morbidity of pain and swelling associated with it. The biggest downside to doing a needle biopsy is in a cystic lesion, the most common being a Warthin tumor, it will often be nondiagnostic and it can lead to some temporary changes inside the tumor that can make them look like a malignancy on a frozen section.

They are helpful in the setting of a malignancy as it can allow you to prepare your patient better for the more extensive surgery that you might be getting, and as Dr. Katharine said, a more extensive workup so that you can have them completely evaluated going to the operating room. We're really unique in that we use a lot of frozen section for salivary pathology, but that's not true everywhere, and so you have to weigh that in with what your local practice is.

And what we most frequently use it here for is deciding when not to operate on a patient. So these are very commonly found in elderly patients getting worked up for something else, and you may decide that patient doesn't really need to have an operation, and it's helpful to know then that you have a benign tumor, a benign needle biopsy is very reassuring. Sometimes they will represent a malignancy, but it's unlikely to represent a severe malignancy or an aggressive malignancy with a benign FNA that's diagnostic.

Dr. Linda Yin:

So it sounds like it can be helpful in some situations. Now when you're getting images preoperatively, what sorts of features are you paying attention to, from a surgical planning perspective?

Dr. Dan Price:

So of course we're looking both at the primary lesion itself, and then looking at any regional disease. So we want to look at the primary lesion, how extensive is it? Is there more to the tumor than meets the eye? So is there deep lobe involvement? Is there involvement of the mandible? Does it span both the superficial and deep lobes, which makes you worried about nerve involvement as the facial nerve will be running through there. We look at the facial nerve in close detail. On the CT scan we look for fat effacement at the stylomastoid foramen. And if there's really extensive facial nerve invasion, you'll see bone erosion at the stylomastoid foramen as well.

MRI is more helpful in this regard, so we look for nerve enhancement on high resolution post contrast images. You can see the fat really nicely on T1 images, and at the stylomastoid foramen, if you don't see fat around the nerve, that's worrisome for nerve invasion. As Dr. Katharine said, you can see muscle atrophy or enhancement. That's usually a pretty late finding in facial nerve invasion, so that's not that helpful for facial nerve invasion if they have muscle atrophy enhancement, that should be clinically apparent. But you can see evidence of trigeminal nerve invasion with a loss of muscle volume in the masticator muscles, so the pterygoids and masseter.

The association to the facial vein, the facial veins are really important landmark on imaging. So if a tumor is superficial to the facial vein, it's usually in the superficial lobe. If it's deep to the facial vein, it's usually in the deep lobe, as that vein runs right next to the facial nerve. And then of course, presence of lymphadenopathy is highly suggestive of a malignancy.

Dr. Linda Yin:

You talked a little bit about having a good understanding of preoperative facial nerve function. Is there any role of getting an EMG as part of our workup for understanding perineural invasion?

Dr. Dan Price:

So EMG has been studied in identifying early perineural invasion, and can detect early facial nerve involvement with tumors. I'll say practically speaking, I've never used it in this fashion, and I don't know people who use it regularly, but it is a tool that's out there. I think it's most useful in a patient who has complete facial nerve weakness to understand what your options are for reanimation of their face after the oncologic procedure is complete. And if they don't have any evidence of action potentials that are stimulatable, then your ability to use the distal aspect of the facial nerve for rehabilitation, whether it be with an interposition graft or across facial nerve graft, is going to be very low.

Dr. Linda Yin:

Going back to that Dr. Katharine now, can you talk a little bit about how we stage these tumors? I know we talked about low grade versus high grade, but is there also an official staging system that we can use?

Dr. Katharine Price:

So there is an official staging system, and just like for squamous cell carcinomas of the head and neck, the salivary gland malignancies are staged using the TNM staging system, where T stands for primary tumor, N stands for lymph nodes, and M stands for distant metastasis. So this gives information that gives you a sense of the local regional disease and whether they have developed incurable disease with distant metastases.

The T staging, for the most part, is based on size, with T1 tumors under two centimeters, T2 two to four, T3 above four. And once you get to a T4 tumor, you're talking about a local invasion into other structures, such as the facial nerve or the skull base. The N staging has a number of stages from N0 to N3, and it incorporates how many lymph nodes are they involving, one side or both sides of the neck and the presence or absence of extranodal extension. And then the M staging just refers to M0, where there are no evidence of distant metastasis, and those are patients that, most of the time, we will try to treat with curative intent, or M1 disease if they have developed distant metastases, in which case we don't typically approach those as being curable.

Dr. Linda Yin:

In talking about regional metastases, we focused quite a bit of attention on perineural invasion, but what are some other common routes of spread for these malignancies?

Dr. Katharine Price:

So the most common initial route is going to be through the lymphatic system, so involving regional lymph nodes in the parotid or in the neck. So some of the higher grade salivary cancers will have a high risk of developing cervical lymph node metastasis, and oftentimes these are patients, if they go to surgery, who will get a neck dissection to clarify the extent of that disease.

The other type of spread is hematogenous spread, or distant spread of disease, and as we mentioned before, some of the high grade histologies can have a very high risk of developing hematogenous spread. Salivary duct carcinoma has one of the highest risks of that, but classically adenoid cystic carcinoma, even if it's a lower grade cancer, can show up even decades later in the lungs.

Dr. Linda Yin:

All right. So we've diagnosed a parotid malignancy, let's move on to talk about some treatment options. Dr. Dan, what do you think is the best way to treat these malignancies?

Dr. Dan Price:

Well, one of the things we all love about parotid malignancies is the best way to treat them is with surgery. And the extent of surgery is determined by the location of the tumor, and the grade and stage of the tumor. So for superficial tumors that are small and low grade, superficial parotidectomy. And for higher grade tumors and higher stage tumors, total parotidectomy and usually neck dissection as well.

Dr. Linda Yin:

And how about the neck? How are we managing the neck surgically in these parotid malignancies? Do you always perform a neck dissection?

Dr. Dan Price:

No, that's a great question, Linda. So when we do a parotidectomy for a parotid malignancy, we usually ask the pathologist two questions, and that is, is this low grade or high grade, and do you see any nodes within the parotid specimen that you've given them? There is a very high rate of nodal metastasis in patients with broadened malignancies. If the answer to either of those two questions is yes, we see nodes within that primary parotid specimen, or this is a high grade tumor, then we're thinking about nodal dissection. And that nodal dissection is the remaining parotid tissue, as the highest risk nodes are in the parotid gland, and then a neck dissection as well.

Of course, the other component to that equation is the T stage of the tumor, so high T stage tumors also harbor high risk for occult nodal disease, and we know those before we go into the operating room. And for those patients, we anticipate doing nodal dissection as well.

Dr. Linda Yin:

So neck dissections, in other words, for high grade and high T stage tumors. When you do perform a neck dissection, which levels are you looking at and sending to the pathologist?

Dr. Dan Price:

That's a great question, and a hard one to answer with lots of really good data. So I'd say you probably get a different answer from a different surgeon, but it depends on whether it's a therapeutic neck dissection or whether it's an elective nodal detection. Levels two, three, and four are the highest risk nodal groups outside of the parotid gland, so again, the highest risk nodal basin is within the parotid gland itself, the superficial lobe and the deep lobe, but then levels two, three, and four. For therapeutic neck dissection, levels one and level five also have very high rates of nodal disease, and so really there's good evidence to suggest that your neck dissection in a therapeutic setting should be total parotidectomy, level one through five.

Dr. Linda Yin:

And how about the facial nerve? We've talked about that extensively in the presentation of workup, how are you surgically managing the facial nerve?

Dr. Dan Price:



So a lot of times the discussions are around whether it's a functioning or nonfunctioning nerve, which I really don't think is the essential question to ask. Certainly if you have a patient who has a non-functioning nerve that's involved with malignancy, that's a pretty easy decision to make, and it can be a heart-wrenching decision to take a facial nerve out that's functioning.

But if the facial nerve is involved with malignancy, and you can resect that facial nerve, that will render that patient margin negative. So that is there's no other unresectable disease that you're going to leave behind, then you should take out that facial nerve. And it makes a difference whether or not you can get a negative margin. So if you can resect a facial nerve to microscopic disease, that's better than leaving in macroscopic disease on a facial nerve. And if you can get that microscopic disease to no disease, so if you can get a negative margin on the nerve, that's even better.

Dr. Linda Yin:

And we'll be discussing facial nerve reanimation, likely in a different talk, that's a whole separate topic, but can you briefly describe how you think about it when you approach facial nerve reanimation, or reconstruction when there's facial nerve involvement?

Dr. Dan Price:

Sure. So, as I said, we like to try to achieve a negative margin, but sometimes that's not possible. Sometimes you have such extensive perineural disease that every nerve you biopsy is positive, and no matter how far you trace them out, you get positive margins and it feels like an act of futility to try to get a negative margin. You can still do an interposition graft and the outcomes, if you have a good proximal and distal stone, are the same as if you had achieved a negative margin. So that positive margin shouldn't stop you from trying to reconstruct it.

Dr. Linda Yin:

Moving back to Dr. Katharine now. So when we think about other modes of therapy in a multi-disciplinary setting, what about the role of radiation therapy in these malignancies?

Dr. Katharine Price:

So radiation therapy definitely plays a role in the treatment of salivary cancers. As Dr. Dan mentioned, we strongly prefer doing surgery upfront for salivary cancers that are confined to the head and neck that we're treating with curative intent. A lot of those cancers, if they're higher grade, or if they're involving lymph nodes, would then require radiation therapy in the adjuvant setting.

Radiation therapy can be used as the primary treatment in situations where the parotid cancer is unresectable, for example. And sometimes if patients are unable to undergo surgery for a variety of reasons, they can be treated with definitive radiation therapy with or without chemotherapy, although the outcomes are typically not as good as it would be with surgery. There's also an evolving role for neutron or carbon therapy for adenoid cystic carcinoma specifically.

Dr. Linda Yin:

And what about in the adjuvant setting? When are we recommending radiation in adjuvant setting?

Dr. Katharine Price:

So adjuvant radiation therapy should be considered in cases of positive surgical margins, extracapsular extension, perineural invasion, lymphovascular invasion, regional lymph node metastasis, but also if there is a high tumor grade or a high tumor stage.

Dr. Linda Yin:

Moving on, finally, to, I suppose your favorite topic, I understand that platinum-based chemotherapies are what's used to treat most head and neck malignancies, but what about in primary parotid malignancies? What chemotherapy agents are you considering?

Dr. Katharine Price:

So if we look at the adjuvant setting, or we're looking at definitive radiation therapy as the primary treatment, we will extrapolate from squamous cell carcinoma and use cisplatin in those situations. Although it's important to note that we do not have the same level of data for doing that. When we're commonly using chemotherapy for salivary cancers, it is, unfortunately in the incurable, the metastatic setting. Traditional chemotherapy, cytotoxic chemotherapy, for recurrent or metastatic salivary cancer is not terribly effective. So unfortunately, salivary gland cancers tend to be a bit more chemotherapy resistant than other types of cancers. Some types of salivary cancers are more responsive to chemotherapy, adenocarcinoma being a good example of that.

When we do use cytotoxic chemotherapy, we typically will look at cisplatin, Adriamycin, cyclophosphamide, doxorubicin, those are historic chemotherapies that are used in the metastatic setting. But again, because of the heterogeneity of salivary cancers, there really isn't a one size fits all or a standard first-line treatment when we talk about chemotherapy.

There's been a lot of investigation into targeted therapy for salivary cancer, and as a whole, this has not met with a lot of success. Response rates are typically less than 10%. There are a few exceptions, I had mentioned previously that some of the adenocarcinoma's, or salivary duct carcinomas, can be HER2 positive, and those can be successfully treated with anti-HER2 agents, such as trastuzumab, and those are strategies that are borrowed from breast cancer. There also have been some recent studies of a targeted drug called lenvatinib that has shown the best response rates in adenoid cystic carcinoma, but still down at 15%. So certainly not a home run by any means.

The other group of treatments that we think about in the recurrent metastatic setting would be for salivary duct carcinoma or adenocarcinoma if they express the androgen receptor. So in that situation, we can borrow from what we know from prostate cancer and use hormone therapy to suppress testosterone in the body, and these can be quite effective in that situation.

The role of immunotherapy is undefined currently in salivary cancer. We definitely have seen some responses in higher grade malignancies, but there is no standard role for that to date, that's still being studied in clinical trial. And finally, of course, palliative radiation therapy for people who have advanced incurable disease can be helpful to treat, for example, bone metastasis that are painful.

Dr. Linda Yin:

Okay, well those were all the questions that I had on primary parotid malignancies. Is there anything else that I haven't covered that you feel is important to touch upon?

Dr. Dan Price:

No, Linda, I think that's parotid cancer in a nutshell.

Dr. Linda Yin:

Okay, so we'll move on to the summary section now. Primary parotid malignancies are comprised of a wide array of histologic subtypes, but they do share some general principles for workup and management. Patients typically present to the clinic with a facial mass that's palpable, and they may have facial weakness or even numbness as well. We need to stay vigilant for these advanced symptoms, as well as do a careful neck exam to look for any nodal disease. Tumor grade and tumor stage are both important prognostic indicators and are important pieces of information that can be used to determine our management strategy.

The most important part of our workup will include cross-sectional imaging with a CT or MRI scan. MRI can be particularly useful to look at perineural invasion of the facial nerve. A fine needle aspiration biopsy can play a role in certain cases, but it's not always recommended. Surgery is our mainstay of treatment, with definitive radiotherapy used only in patients who have unresectable disease, or who may not be good candidates for surgery. When thinking about surgery, a total parotidectomy should be performed for cases of high-grade malignancies, or those with evidence of nodal disease, or those who have a high T stage. We can determine this best from the frozen section pathology specimen that we give for the pathologist to read, but there can be some clues of this on preoperative imaging as well.

A neck dissection should be performed in those with clinically apparent nodal disease, or radiographically apparent nodal disease. When we perform a neck dissection for obvious nodal disease, this should include a comprehensive dissection of levels one to five. Elective neck dissections should also be considered in patients with high grade or high stage tumors, and the highest risk nodal basins are that, which is in the parotid gland, and on levels two to four of the neck.

Adjuvant radiotherapy should be considered with patients that have high risk features, and these include positive margins, perineural lymphatic vascular invasion, lymph node involvement, extranodal extension, and again, high-grade and high stage tumors. Traditional platinum based chemotherapies, cytotoxic chemotherapies, and even some newer targeted therapies, have all played a limited role in the definitive treatment of parotid malignancies. Response rates have not been very encouraging. However, in some specific pathologies, including salivary duct carcinomas, or adenocarcinomas, where targeted therapy is possible, specifically with the androgen receptor, there have been studies showing pretty good response rates. Immunotherapy in the setting of parotid gland cancers is still an evolving field.

Moving on to the questions now. So for this section, I'll be giving a question followed by a brief pause to let the listener think about the answer, and then I'll give the answer to the question. So first question, what is the most common primary parotid malignancy?

The most common primary parotid malignancy is a mucoepidermoid carcinoma.

What is the most common genetic alteration that is found in Mucoepidermoid carcinomas?

The most common alteration is a mect, or MECT, MAML2 And this can be found on FISH.

What parotid malignancy is most notorious for perineural invasion?

Adenoid cystic carcinomas almost always have some component of perineural invasion. This is also a disease that, keep in mind, can present with delayed distant metastases even decades after the primary disease.

And finally, what is the most common lymph node basin for regional metastasis from a primary parotid malignancy?

The highest risk nodal basin is the intraparotid lymph nodes. This is then followed by level two of the neck.

That's our show. Thanks for listening, and we'll be back soon.