Dr. Jason Barnes:

Hey there. Welcome to another episode of ENT in a nutshell, my name's Jason Barnes, and today we're joined by rhinologist and skull-based surgeon, Dr. Garret Choby, and we'll be discussing benign sinonasal lesions. Dr. Choby. Thanks for being here.

Dr. Garret Choby:

Thanks for having me. It's a pleasure.

Dr. Jason Barnes:

I'll say that today. We're going to branch off a little bit from our normal structure. Today's going to be a little bit of a grab bag where we talk about several different pathologies in the sinonasal cavity, and we'll kind of walk through them step wise. So Dr. Choby, before we get started, why consider a sinonasal lesions that are benign in nature? What, what tips do you have for us to start?

Dr. Garret Choby:

The first thing that I'll mention is that these are relatively common lesions that we will all come across in our clinical practice. They come from a number of different areas because there are so many different types of tissue that arise in the sinonasal cavity, things from squamous epithelium to respiratory epithelium, to neural structures, and then also things like cartilage and bone. So this really causes a wide divergence in tumors you can see in the nasal cavity. Now we've done specific episodes in the past on some of these, including an inverting papilloma episode, as well as a JNA, or a juvenile angio fibroma episode, which are really important ones to think about. But there are a number of other ones that do occur and we should all be quite familiar with, although they may not warrant their own specific podcast, dedicated to them. So that's why we thought to be important to sort of cover all these today.

Dr. Jason Barnes:

So when you first evaluate someone who has a benign sinonasal tumor, what are some of the symptoms they present with?

Dr. Garret Choby:

So the most common symptom by far is unilateral nasal airway obstruction. And this occurs in about three quarters of these patients and is the most common reason why they would probably come in to see you. Although most of these lesions have been slow growing tumors over a long period of time, patients may have sort of gotten used to them over time and may not actually notice it until they develop something like a cold or an upper respiratory infection. So in that sense, they could present with a shorter history, even though the tumor has been growing for a longer period of time. So other patients also present with epistaxis, although that's more commonly associated with malignancy than benign lesions, but about 20% of patients or so will have some sort of bleeding from the area. Pain is not particularly common. Although some patients will have things like some facial pressure or those kinds of symptoms. And then some folks actually present with acute or chronic sinusitis, secondary to obstruction from the lesion.

Dr. Jason Barnes:

And when you are first evaluating these patients, what are some of the questions that you might ask them to tease out their symptoms and how this came to be?

Dr. Garret Choby:

I think it's always important to ask patients how long their symptoms have been present for. So again, these most commonly are slow growing tumors and patients many times have symptoms for a long period of time. But there can be situations where sort of a viral trigger occurs with either a, you know, a URI or a cold, or then it sort of illuminates this change in a nasal anatomy and you begin to feel it, which is a shorter time course than you may expect, but that does happen from time to time when these get quite large, they can push on the eye and cause things like diplopia or limitations and extra ocular movements. I also ask about any history of epistaxis or bleeding history as we mentioned earlier. And then, lastly, I also ask them about any symptoms of facial numbness or other neurologic related symptoms as that may insinuate a more aggressive lesions such as a malignancy.

Dr. Jason Barnes:

And when you perform physical exam, can you run us through briefly what your physical exam looks like and what you're looking for in these situations?

Dr. Garret Choby:

So as with all patients, I think they deserve a full head and neck exam, including a cranial nerve examination, but in the setting of a benign nasal lesion, that commonly is pretty un-revealing. Again, pay such special attention to cranial nerve function and eye function, just to make sure those things are normal in these patients, but really the key to your exam is nasal endoscopy. And this is really important in these patients. Now there are some lesions that occur primarily in the sinuses and do not extend into the nasal cavity. And these aren't readily visible on these endoscopy, especially things like osteomas. But other ones that are epithelial nature or vascular nature, may be readily visible on endoscopy. And you can take note of the attachment sites where they originate from and what the vascular characteristics are.

Dr. Jason Barnes:

I think that's a good brief summary of kind of how we evaluate these patients. And just as a reminder, you and I also did an episode on nasal obstruction, which a little bit more comprehensively talks about how to work patients up, who present with something like unilateral nasal obstruction. I next wanted to move on to the differential diagnosis. The differential here is long, and I was hoping we could just go through a comprehensive differential to start and then we'll break it down from there.

Dr. Garret Choby:

Yeah, this is important because again, this is, this is kind of a grab bag of a number of different lesions. It's always helpful to organize your thoughts in a specific manner. I think for the nasal cavity, probably the easiest way to do so is to think of the tissue site of origin and then go from there with your differential. So as you mentioned, this is a pretty exhaustive list, but I'll go through it just for, for completeness sake and for everyone's benefit, as they think about these lesions.

The first tissue of origin, I think about is the epithelial tissue, and most commonly, this would be an inverting papilloma. Although other things can occur in this tissue as well, such as dermoids or adenomas. We also think about neural tissue in this area. Things like a meningioma that can extend from the intracranial space into the nose, neurofibromas there can be ectopic, pituitary tissue, schwannomas can occur from any nerve in the nasal cavity. And then lastly, an important is also an encephalocele, which also has to be on the differential.

We think about odontogenic sources, things like Emilio blastoma, or an odontogenic keratocysts, which can arise from the dentition and extend to the maxillary sinus, and sometimes the whole way into the nasal cavity. Vascular origin is also very important. Things like hemangiomas or angio fibromas with a more famous juvenile nasal angio fibroma and paragangliomas as well. There can be sources of muscular lesions, such as leiomyoma or rhabdomyoma. Cartilaginous lesions can occur either from the septum or from the petroclival junction, where those bones come together. And those are the things like chondroma or chondroblastoma. Bony lesions can occur, most commonly is the osteoma, but also the osteoblastoma. Soft tissue lesions can occur as well. Things like fibroma, lipoma, or myxoma. And then finally there's other random things like plasmacytoma or a chordoma, which might be able to fit under the neural structures as well.

Dr. Jason Barnes:

So thanks for it. That's a good exhaustive list. And then when you see these patients and maybe you see a lesion on nasal endoscopy, do you have a shorter list that you kind of mentally consider that might be more realistic in these scenarios?

Dr. Garret Choby:

Absolutely, and this is probably even more salient for clinical practice reasons, but I tend to think of these more commonly as either a fiber osseous lesion as a vascular lesion or an inverting papilloma. It's probably the three most common ones I think about. I always entertain the idea of a fungal ball as well, because that can mimic this on some imaging studies and some of the symptoms can also mimic it, even though it's not typically, a lesion or a tumor, if you will, but it's something that can occur relatively commonly and can mimic it as well.

Dr. Jason Barnes:

So now that we've covered the differential diagnosis, I was hoping we could march through separate pathologies and just give the brass tacks or the quick summary, important information that we need to know regarding these individual pathologies. So would you mind telling us first about osteomas?

Dr. Garret Choby:

Absolutely. And this, of course fits under that sort of fiber osseous lesion category. An osteoma is classically considered the most common benign lesion of the nasal cavity. If you look at patient's CT scans, it actually happens more commonly than you think. In some studies, actually one to three percent of patients will have these, if you look very closely at their CT scans, but the vast majority are asymptomatic. So even though they may be the most commonly occurring lesion, they may not be the most commonly occurring lesion that presents to you for evaluation. They typically present in sort of middle age and, tend to be more common in men than women in the sinuses. They occur most commonly in the ethmoid and frontal sinuses. And especially at that sort of frontal outflow tract front of mouth motor region where they can cause some issues.

Typically you can't see them endoscopically because they're within the sinus and not in the nasal cavity yet, unless they become very large. There are two classically described subtypes. The first one is ivory, and the second one is mature. Ivory are extremely dense bone. When you operate these ones, they require a lot of very time-consuming extensive drilling, immature variants have more sort of cancellous bone and some interosseous spaces in are less firm if you will. These tend to grow very slowly. And as I mentioned earlier, most are asymptomatic. So many of them do not require treatment.

Dr. Jason Barnes:

Could you next tell us about fibrous dysplasia?

Dr. Garret Choby:

Absolutely. And this is another lesion that falls under that fibro osseous category. This is a bony lesion, that has a very classic radiographic appearance of a sort of a ground glass appearance. In the vast majority of cases, it can be highly predicted on a radiographic imaging and therefore does not require a specific biopsy or surgery to correct it. When you look inside of the microscope, there's some degree of normal bone then interspersed with this fibers and connective tissue that forms a very irregular shaped trabecula amongst the bone. The vast majority of time, this is managed with simple observation and surgery is not required unless it's causing some specific cosmetic deformity or on occasion from a neural compression cause pain. But it is classically very challenging to treat surgically and tends, to sort of fill back in with bone.

Dr. Jason Barnes:

And is there a hormonal component to fibrous dysplasia?

Dr. Garret Choby:

There is thought to be a hormonal component in most of these can experience some growth during puberty, but typically after puberty growth rates simply slow down or often even can regress after puberty.

Dr. Jason Barnes:

The next pathology that I want to talk about was hemangioma. And that's more of a broad term that can include several different types of lesions. But could you tell us about these vascular lesions that we might come across?

Dr. Garret Choby:

Yes. And this is commonly considered the second most common benign lesion of the nasal cavity. And these can be a couple different variants, most commonly that capillary hemangioma or the pyogenic granuloma. There's also other types, including the cavernous hemangioma. But those are somewhat more rare. The pyogenic granuloma is interesting because it, it can have an estrogen component to it. And it classically is associated with growth during pregnancy, but can oftentimes involute and go away after pregnancy is completed. It typically presents as a red or purple, smooth mass, and most commonly arises on the nasal septum, but can also arise from the inferior turbinate under the microscope this appears like globules of capillaries in a submucosal space. There's oftentimes, some surrounding feeding vessels in these areas. Now the cavernous meningioma does come from some larger blood vessels in more commonly rises in the middle tourmanent than the septum or the inferior turbinates, as opposed to the pyogenic granuloma.

Dr. Jason Barnes:

Next that I have on my list is the papilloma. Could you briefly tell us about that?

Dr. Garret Choby:

Yes. So papillomas can occur in a couple different varieties. The most common one we talk about in C is the inverting papilloma. And again, that's a tumor of epithelial origin. There is a separate episode dedicated to this, so I won't go into too much detail with it because that episode covers it in great detail. But these tumors do have a history of having very local, aggressive nature in a, small percentage about 10% or so can have some malignant change within it. Most commonly in to squamous cell carcinoma. It's thought to be the third most common one behind the osteoma and the hemangioma, but of those that present to us in clinical practice, it perhaps, maybe is the most common one that we tend to see. And again, we did a full episode dedicated this, which I can refer to for all the great details.

Dr. Jason Barnes:

Can we next talk about some odontogenic masses that we might see in our practice in the sinonasal cavity?

Dr. Garret Choby:

Yeah, and these, these are interesting because they probably in general, more commonly present to an oral and maxillofacial surgeon, but there are situations where they primarily involve a sinus or extension into the nasal cavity. They may present to us for evaluation. These are typically developmental situations dominated by dentigerous cysts. And also odontogenic keratosis. These are benign, but can be very locally aggressive tumors and are thought to arise from the dental laminate. And this is sort of a portion of the epithelial tissue, which is seen in the developing tooth. These are interestingly much more common in men than women by about a five to one margin. And we should keep in mind that the more common site of these odontogenetic tumor is actually the mandible, but we would tend to see them when they occur in the maxilla. They're typically removed via curettage or general removal, but they do have high rates of recurrence with these techniques.

Dr. Jason Barnes:

We briefly talked about J and a, and we do have a separate episode on that, but could you touch on that just briefly?

Dr. Garret Choby:

Yeah. This is a vascular lesion, typically arising in adolescent males, and there is again, a hormonal component to it. There's at least thought to be a hormonal component to it. So anyone that's a adolescent male that comes with a nose bleed should always have a scope done to rule this out. And this is one that should definitely avoid a biopsy in the clinic or else you're going to cause a major issue. Your clinic staff will not like you very much, but again, dr. Ron is a great episode on J and a and you can certainly refer there for the remainder of things.

Dr. Jason Barnes:

And then the last group that I wanted to talk about in terms of pathologies that we'll be discussing is what we're going to call masses of the sphenoid sinus. Could you tell us what you're considering in these situations?

Dr. Garret Choby:

Yeah, absolutely. And I wanted to bring this area up in particular because the sphenoid has so many other important surrounding structures around it that can arise with tumors that can then extend into the sphenoid sinus. So all of the above tumors can potentially occur in the sphenoid sinus, but things like

the pituitary gland above can have adenomas that extend into the sphenoid sinus. Things from the clivus like chordomas or condra sarcomas can also extend there. And other things that can occasionally arise there like a dehiscent internal carotid aneurysm, that could present in the sphenoid. And I bring this up because it's probably a good idea in the majority of these cases to also obtain an MRI with contrast, to make sure you're not dealing with an intracranial lesion, that's extended into this sphenoid and not simply a primary sphenoid lesion.

Dr. Jason Barnes:

And next I wanted to, to talk about some syndromes that we should consider when we see these benign masses. I know in clinic, there are a few times I've seen patients and haven't considered the more global picture. So could you walk us through some of these syndromes that might be associated with some of the benign sinonasal lesions that we might come across?

Dr. Garret Choby:

Yeah, that's a great point, Jason, we sort of get pigeonholed in our own line of thinking you don't always think about things from medical school or step one. The first one is, with osteomas. There is an associate with something called Gardner's syndrome. And that classically has a triad of things and that's colorectal polyps, which is more commonly their initial sort of presenting thing that they'll deal with as well as skeletal abnormalities, including osteomas and then also supernumerary teeth. And this is an autosomal dominant constellation. So many of these patients may have known, they may have it from, family members and those kinds of things, but they have a high chance of having a degeneration, a malignancy in their colon polyps. And then again, the thing that we're dealing with is the osteomas, which can occur in regards to this.

Dr. Jason Barnes:

And then for OKC, the odontogenic keratocyst is there something we should think about for that?

Dr. Garret Choby:

So classically these can be associated with Gorlin syndrome, and this is also another autosomal dominant condition. And these patients typically have multiple basal cell carcinomas, as well as skeletal abnormalities, cranial calcifications, and then OKCs as well. So something that you may want to entertain if they have some of these things going on.

Dr. Jason Barnes:

And then the last one is the syndrome associated with fibrous dysplasia.

Dr. Garret Choby:

This is McCune Albright syndrome. This is typically where they have multiple areas. A fibrous dysplasia is sort of that classic poli static, as opposed to a single area, they also have cafe au lait spots and can have some endocrine abnormalities, including precocious puberty and thyroid disease. So something they would have many other things going on in addition to Fabrice dysplasia, but when there's multifocal fibrous, dysplasia, it's something to think about.

Dr. Jason Barnes:

So now that we've talked about a lot of the different pathologies that we can experience in the sinonasal benign tumors, can you tell us briefly what your workup is going to be for these patients?

Dr. Garret Choby:

So besides the physical exam, which we already had discussed, a CT scan is where we start with a majority of these lesions. The challenge on a CT scan is to differentiate things like malignancies from benign lesions. With these benign lesions, typically they'll cause some bony erosion changes or even some sort of deformity around them. But we won't have the classic aggressive appearance of infiltrating soft tissue, in eating through bone, like a malignancy would. More commonly than things like expansion or pressure induced remodeling of bone, as opposed to that aggressive bone destruction. The one thing I will mention in particular is with inverting papillomas. It's really good to look for a area of hyperostotic bone, which is classically where the attachment of that tumor is, and that really needs to be addressed surgically, when you do a removal of inverting papillomas.

Dr. Jason Barnes:

And what's the role for MRI or what do you need to see in order to trigger the order of an MRI?

Dr. Garret Choby:

So as with most lesions and MRI is very valuable to evaluate things like skull base erosion or entrance into their intracranial space or things like entrance into the orbit, it can really help to differentiate those soft tissues of the lesion from the surrounding structures. When I think about surgically addressing a lesion, if I cannot tell on CT scan, what is something like a frontal sinus is secondarily opacified from blockage versus tumor extension. I make an MRI scan to help to delineate that it's important because you may counsel a patient, they need something like a trephination or an open approach if there's a lot of tumor in the frontal sinus, as opposed to secondary obstruction from a tumor below causing just some mucosal backup behind it.

Dr. Jason Barnes:

And what's the role of laboratory studies in this setting?

Dr. Garret Choby:

So for most of these legions, there's not a large role for a laboratory workup. Perhaps we think about one of those syndromes. As we mentioned above, there could be a role for some of the laboratory studies, but for most lesions there, there's not a strong rule for, for laboratory workup.

Dr. Jason Barnes:

I next wanted to talk about treatment options we'll mainly be talking about surgical excision, and since we're discussing lots of pathologies, which can occur in lots of different areas within the sinonasal cavity, I wanted to more pick your brain about how you think about moving forward with treatment options. What are the things you're considering when you're talking to a patient about possible surgical excision of this benign tumor?

Dr. Garret Choby:

So the first thing that I'll mention is that there is definitely a different approach to these benign lesions as compared to sinonasal malignancies, which we have covered in some other episodes. The first thing

I'll mention is when I see them in clinic and have evaluated their imaging studies, if there's any suspicion this may represent a malignancy, I think it's very important to obtain tissue to rule that out. So when you see what looks like inverting papilloma, besides just thinking it's inverting papilloma, it's probably worthwhile to make sure you get a biopsy to confirm that. Now other things may be more suggestive on radiographic studies like an osteoma where a biopsy is not necessary for those cases. But certainly if you're worried about malignancy, getting a biopsy is, very, very important. And again, because inverting papilloma and J and A are covered in other episodes, we won't go into a lot of the in-depth surgical treatment of those conditions.

But we think about things like an osteoma or a bony lesion or other benign lesions, we tend to think about treating those when they're causing a symptom. And for things like osteomas most commonly that's blockage of a sinus and then secondary obstruction and preps acute or chronic sinusitis above it. You may also think about treating someone let's say it's a young person with a very large osteoma that's just about to obstruct a frontal alpha tract. You may elect to treat them because you think that it'll probably grow slowly over time and may eventually cause an issue above it. But when it's a small incidentally noted osteoma, that's not causing any problems. There may not be a strong reason to actually treat that one.

Dr. Jason Barnes:

And when you're thinking about surgical excision, can you tell us about how you balance your excision and it being a benign lesion. Better said, because this isn't a malignancy, how do you consider whether or not to take out the entire lesion and what structures are you considering in your approach?

Dr. Garret Choby:

Great question. This is certainly a nuanced answer as we're dealing with a number of different pathologic subtypes here, but, I'll get back to the most common lesion that we see in presentation, an inverting papilloma, just to illustrate a principle. Presuming this is an inverting papilloma without any malignant degeneration, we will certainly recommend complete surgical excision of the lesion in these cases to prevent malignant degeneration down the road, as well as to prevent local complications. And we like to be very aggressive with these and remove the entirety of lesion, including its bony attachment by drilling it out and removing it. But situations occur where let's say it's eroded through the bone, it's pushing against dura and the question becomes well, do you resect dura to get a quote-unquote negative margin resection? Or do you leave it go? The same could be said for periorbita, let's say it's eroded through the lamina papyracea and it's pushing on the periorbita.

There are some people who may make an argument that you should resect those tissues and reconstruct them in order to sort of get a quote unquote negative margin resection. But most people would advocate with a benign lesion to leave that barrier in place to prevent things like recurrence with intercranial spread or occurrence with interorbital spread and to leave that natural barrier in place where it's easily monitored over time. So that's one example to think about it as sort as balancing, the morbidity and the optimal treatment of these things with an inverting papilloma. Another example would be an osteoma. Let's say it's a small osteoma causing blockage of a frontal outflow tract that you can operate on endoscopically and it's easily removed completely, I think you could go ahead and remove that lesion completely.

But I'm seeing a patient tomorrow who is a young man who has such an extensive osteoma involving both frontal sinuses, his entire cranial base from his outflow tract through his sphenoid. And he's someone who is primarily having symptoms right to his frontal sinus obstruction to completely remove that lesion would honestly require an entire cranial based resection with extensive

reconstruction. So I'll discuss that with him, but I may also offer him a draft three with drilling out the osteoma to relieve the frontal sinus obstruction, but perhaps leaving other osteoma behind that's not causing him symptoms right now.

Dr. Jason Barnes:

And I know this is a broad question and we're talking about a lot of pathologies again, but how do you counsel patients with expectations and follow up in removal of these benign tumors?

Dr. Garret Choby:

I think it's challenging because many people that undergo surgery sort of expect you're going to take out everything. So it does really require a pretty good upfront discussion with these patients. So with things like inverting papilloma, when we take those out again, our goal, assuming we're not causing seeping morbidity is to remove them completely and have no recurrence long-term. We look at historical papers, recurrence rate for those are 30%, or we're even higher. So they do certainly recur. Now that may be pre-endoscopic era when visualization was less well-described those kinds of things, but certainly recurrence can occur. If I'm anticipating I'm going to leave some tumor behind, let's say it's a sphenoid inverting papilloma. That's a rotor bone is stuck on a carotid artery. I would rather leave a little tumor on the carotid, then give them a stroke.

So I will counsel that we're planning to do that. We will closely monitor and we'll take a biopsy over time to make sure there's no malignancy in it, but just so they expect that. Or similarly with tumor on the dura or the periorbita. And then again with osteomas I think it's important to counsel them that these are very slow growing tumors and you may drill it all out except for the attachment of the skull-base to prevent a CSF leak. But if it grows back enough over the next 20, 30 years, it may need to be removed again to establish that frontal outflow tract drainage. So I think having a good thorough conversation upfront is very important. And we'll also mention, I think that showing the patients their own imaging really drives those points home. You can show them the closeness to the orbit, the skull base, the carotid, et cetera. We think it helps us sort of illustrate that point to those patients.

Dr. Jason Barnes:

Well, dr. Choby, I think this has been a great discussion. I know this episode was a bit unique with the several pathologies that we talked about, but before I move into our summary, is there anything else you wanted to add?

Dr. Garret Choby:

The other thing I'll add is that if you are dealing with a lesion in a very tough anatomic area, that may be difficult to visualize long-term part of your long-term followup may be getting imagings of those patients. So things like a frontal sinus inverting papilloma that has extension sort of up over the orbit, getting MRIs long-term maybe useful for those kinds of patients, but in general, I think you can follow them closely with endoscopic exams in any recurrence you might want to biopsy down the road or those kinds of things. But it's important for everyone to entertain a very broad differential diagnosis. And if there's any suspicion for malignancy at all, make sure you're biopsying and monitoring those lesions. And then in most cases, besides inverting papilloma and JNA, taking out the lesion while balancing morbidity and Sargent resection is very important.

Dr. Jason Barnes:

Awesome. Well, thanks again so much for being here. I'll now move into our summary. Benign tumors of the sinonasal cavity most often present with unilateral obstruction though epistaxis pain and recurrent infections can occur. The differential diagnosis is long and you should consider a systematic way of working through these, and one way that we discussed was considering the different types of tissue, including the epithelium, bone cartilage, neural structures, and neighboring odontogenic sources. The most common benign tumor of the sinonasal cavity is the osteoma, which is present in up to 3% of CT scans. To evaluate a benign sinonasal lesion, CT scans of the sinuses should first be obtained, followed by MRI when there's additional suspicion or need, especially near the skull base. Consideration for treatment should be made based on the location of the lesion, patient symptoms, possible future complications, including malignancy and patient goals.

The goals of surgery are to minimize morbidity while obtaining complete excision, if possible, and follow up is similar to that of sinus surgery in terms of the need for possible in office debridement. And then long-term followup is really tailored to the specific lesion and the type of excision that was able to be obtained. Dr. Choby, anything else you'd like to add?

Dr. Garret Choby:

No, that was, that was great. Jason, I appreciate the time.

Dr. Jason Barnes:

We'll now move on to the question asking portion of our time together. As a reminder, I'll ask a question, pause for several seconds to give you the opportunity to think about the answer or push, pause yourself, and then I'll give the answer. So the first question is what is on the differential diagnosis for a benign sinonasal tumor?

So as dr. Choby and I discussed, we like to consider a systematic way of going through this. And in this instance, we'll use tissue of origin. So for epithelial tissue, you can consider papilloma adenoma and dermoid neural tissue. You can consider meningioma encephalocele, neurofibroma, ectopic pituitary, adenoma adaptogenic lesions. You can consider ameloblastoma and OKC for vascular lesions, hemangioma, angiofibroma, or even paraganglioma. For muscular leiomyoma or rhabdomyoma. Cartilaginous lesions include chondroma and chondroblastoma. Osseous lesions include osteoma and osteoblastoma. Connective tissue and soft lesions can be things like fibromas and possibly lipomas and Myxomas.

For our next question. What is the most common benign sinonasal tumor and what are the two subtypes?

The most common benign sinonasal tumor is the osteoma and the two subtypes are ivory and mature.

And for our final question, what are the considerations when thinking about removing a benign sinonasal tumor?

When considering surgical excision of a benign sinonasal tumor, there are three main things you want to consider. First, are there symptoms that are directly attributable to this lesion? Second, could the tumor become worse or cause complications? And third could the tumor become malignant? And of course you need to balance the morbidity of full surgical excision versus leaving some of the tumor behind. Thanks so much for listening and we'll see you next time.