

Mayo Clinic Q & A- Dr. Jamie Van Gompel - Pituitary tumors

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SPEAKERS


Narrator, Dr. Jamie Van Gompel, Jason Howland

N Narrator 00:01
Coming up on Mayo Clinic Q&A...

D Dr. Jamie Van Gompel 00:03
The pituitary gland, what it really does is it runs all the day-to-day management for your body. So, it makes sure that you have enough sugar to get out and about on your walk or jog, and it helps you respond to things around you by controlling your heart, your lungs, your liver, and your immune system.

N Narrator 00:03
Pituitary tumors are abnormal growths that develop in your pituitary gland. Pituitary tumors can cause your body to produce too much or too little of the hormones that it needs to regulate important functions. While some tumors don't require treatment, others need to be surgically removed to relieve pressure caused by the tumor.

D Dr. Jamie Van Gompel 00:41
And nowadays most people do this with endoscopic surgery. And the upside to that is that we actually have to do normal sinus surgery. So, if you previously had some obstruction, so deviated septum or some of the things that cause some issues for patients, we actually have to fix that to get back to it.



J Jason Howland 00:59

Welcome, everyone to Mayo Clinic Q&A. I'm Jason Howland sitting in for Dr. Halena Gazelka. Pituitary tumors are abnormal growths that develop in your pituitary gland. Pituitary tumors can cause too much or too little of the hormones that regulate important functions of your body to be produced. Most pituitary tumors are non-cancerous growths called adenomas, which remain in your pituitary gland or surrounding tissues and don't spread to other parts of your body. There are various options for treating pituitary tumors, including removing the tumor, controlling its growth, and managing your hormone levels with medication. Joining us today to discuss the options available for pituitary tumors is Dr. Jamie Van Gompel, a neurosurgeon at Mayo Clinic. Welcome back to the program, Dr. Van Gompel.

D Dr. Jamie Van Gompel 01:51

Thank you, Jason. Thanks for having me. And I love talking about adenomas, this is my favorite subject.

J Jason Howland 01:59

All right, well, let's start it out. Where is the pituitary gland? And what does it do?

D Dr. Jamie Van Gompel 02:06

So, the pituitary gland is smack dab in the middle of the head. It's actually right between the back of the eyes where the eye nerves come into the brain. And it's kind of right above the top of the ear canal straight in. So, where all that meets. And also, it's at the back of the airfield cavities of the nose, where they kind of meet up with the back of your mouth. So that pituitary gland itself, it's thought to be the seat of the soul back in the days, but what it really does is it runs all the day-to-day management for your body, right? So, it makes sure that you have enough sugar to get out and about and on your walk or jog. It kind of gives you enough energy when you're, maybe you're a little scared, it might give some cortisol or steroid to get you a little bit extra energy. And it helps you respond to things around you by controlling your heart, your lungs, your liver, and your immune system.

J Jason Howland 03:09

And how common are pituitary tumors?

D Dr. Jamie Van Gompel 03:13

They're very common. They're one of the most common brain tumors that at least a neurosurgeon sees. Out of all the tumors that come through the door, about 10% of those are pituitary tumors, at least at the Mayo Clinic. And that's something that I see, or at least that's a huge part of my practice. That's my job here is to take care of these types of tumors.

J Jason Howland 03:35
And are all those tumors benign?

D Dr. Jamie Van Gompel 03:37
It's very uncommon for any pituitary tumor to be a malignancy, or what one would commonly think about as a cancer or something that would travel elsewhere. 99.999% of these are benign tumors that cause problems by growing and pushing on the gland or sometimes the eye nerves. And yeah, there are very few of these actually turned out to be cancers.

J Jason Howland 04:04
99.999 is very rare, it sounds like.

D Dr. Jamie Van Gompel 04:09
It's extremely rare. In fact, someone, even like myself with a really busy pituitary treatment practice, we may see a bad type of a pituitary adenoma maybe once or twice a year. And these are coming from other places after they've seen them.

J Jason Howland 04:28
So, what are the symptoms? Are symptoms related to pressure caused by the tumor on the gland? Or is it hormone level changes, or is it both?

D Dr. Jamie Van Gompel 04:38
Well, it depends. So, out of all pituitary tumors, about half of them aren't making any kind of a substance. And those are called non-functioning adenomas or tumors. And they do cause problems by pushing on stuff. So they'll either take up enough room where the pituitary gland is, that it's not functioning well, and you have to get medications to replace some of that function, or you may start to lose vision. That's another very common presenting symptom with these. When they're actually making something, they cause distinct syndromes. The three most common are prolactin secreting tumors in which we see, especially in women, they have breast milk develop, even when they're not postpartum. Or they could have other issues with that. The other two are Cushing's disease, where people can have intractable hypertension, they can gain weight, especially around their belly, they can have diabetes with it. And the third syndrome that people can have is called acromegaly. In acromegaly, think of it as when we hear about giants and things like that, that's when people have this disorder before their growth plates close. And so very tall people in the past have almost always had gigantism, or acromegaly, when they're younger. Acromegaly in adults, what happens is the jaw gets bigger, you sweat a lot, your forehead grows out, you can develop diabetes with it, you can have a lot of joint pain, those kinds of things. All of them are distinct syndromes, and oftentimes are

picked up by primary care physicians when you see some of these things. But the functioning tumors that cause these syndromes are about half of the tumors and the other half are these non-functioning tumors..

J Jason Howland 06:30

And how do you diagnose? How are the tumors diagnosed?

D Dr. Jamie Van Gompel 06:35

So I'm really lucky in that they're almost all discovered before I see them because I work with excellent endocrinologists, internal medicine doctors, and family practice doctors. But fortunately, there's an army of primary care physicians out there in the world that have been trained to try to detect these things. But I think the big tip offs are, so the most common presenting things that we see patients have are either vision loss, so they get into accidents or they noticed that it's more difficult to read. They're either lack of energy, or lack of the ability to perform sexually. That's common with non-functioning tumors. With the other functioning tumors, obviously, having milk let downs, something that oftentimes shouldn't happen. So that's a symptom. But hypertension at an age when you shouldn't have it. So high blood pressure that's not responding to a couple of different types of agents. Those are the most common things that should kind of raise an alarm. When they come to me, someone's done a workup and found out that something's wrong with the pituitary gland. That's an indication to get a picture of it. And most commonly that's done with an MRI. And these tumors, very fortunately, very frequently we can see them. In some of the diseases, we can't see them as well but we know they're there, because they have the syndromes that some people have had before them with bigger tumors that we could see.

J Jason Howland 08:07

So then how do you decide on which treatment option medication versus radiation or surgery?

D Dr. Jamie Van Gompel 08:13

So for small tumors that aren't causing problems like reduction in pituitary function or not pushing on something, we commonly watch those tumors. For prolactin secreting tumors, so that's again, that's that syndrome that causes breast milk or in men it can reduce people's sexual function, that can be treated with a medication. In the acromegaly and Cushing's disease patients, so these are functioning tumors, they do have some medical options, but they're not very good. We oftentimes resect those tumors or take them out to try to treat that disease.

J Jason Howland 08:54

And then when patients do have surgery, what's recovery like after surgery?

D

Dr. Jamie Van Gompel 08:59

Yeah, people always really want to know what the experience is like. And fortunately, because it's such a common tumor, there are a lot of resources on the internet to reach out to people and understand what it's like. We do the best we can explaining it. And I do want to emphasize that on the internet, there's a range of experiences. Back in the 80s and 90s, when they did these procedures, they would pack the nose because they were scared of things coming out of there. And it was not a great experience for patients. That's not how it is any longer. We've listened to our patients and understand what helps them recover quickly. So, fortunately, as we said before, this area is just in the back of the nose. We actually use a normal path to get back to these tumors. And nowadays most people do this with endoscopic surgery. And the upside to that is that we actually have to do normal sinus surgery. So if you've previously had some obstruction, so deviated septum or some of the things that cause some issues for patients, we actually have to fix that to get back there. So I tell patients all the time, you might get a twofer with this one. And a lot of times after surgery, people are better. Their noses are clear, they feel like they can breathe differently. They're not, you know, stuffed up at nighttime all the time anymore. So that's one benefit to these approaches. So, getting back there and taking out these tumors, the procedure is not very long, and most patients it's usually about 60 minutes to 90 minutes in the operating room. And then we're done when we take out the tumor. In a very small sub segment of patients we have what's called a CSF leak. These are clear fluid leaks from fluid that should be in the brain and it kind of makes it through where the tumor was. We used to take fat grafts all the time and plug this up. So, it was a separate incision. No longer do we do that very frequently, we take just little bits of skin tissue from inside the nose where we've done these repairs and treat it there. And it turns out that actually has a huge improvement in patients healing. When we're done, we put just a little bit of absorbable tissue just back where this is, so people can still breathe through their nose after. After surgery, people wake up commonly with a little bit of a headache. Not everybody needs pain medications. I would say it's actually in the minority of patients that need something more than ibuprofen or Tylenol. But of course, having narcotic agents is always provided if the headache is more severe. That headache goes away very quickly. And in most pituitary tumor surgeries, people feel like they can get back to doing what they want to do at two weeks. We still recommend people take about four weeks off because we still did a major surgery people are fatigued after. But a lot of people are just doing whatever they think they need to, usually by post op day two or three. And I think the recovery is actually quite easy for most patients with this particular operation. There is one caveat in patients that have symptomatic Cushing's disease. If we do our job and cure the patients, they don't feel well after surgery because their cortisone drops. And they're actually recovering from the disease process. And for those patients, it's a whole different ballgame for them. But that's not normally from the pituitary tumor surgery itself. That's the recovery from the disease process.

J

Jason Howland 12:28

When you've removed a pituitary tumor, how common is it for a tumor to come back? And what kind of surveillance do patients need after treatment?

D

Dr. Jamie Van Gompel 12:40

It's really uncommon for the tumors to come back. It's more common for some of the more

functioning tumors like Cushing's disease. For the nonfunctioning tumors, it's not very common. We did a study, not of my own patients, but we looked way back because Mayo Clinic has so many great records. Even before modern day techniques, in fact, almost two generations ago for techniques, if you had a tumor resection, and we even see if you had some tumor left behind. As long as you got about 80% of the tumor out, the chance of you needing another treatment over the next decade was only 10%. Now fortunately, there are not a lot of tumors that we actually choose to leave too much behind. There are very straightforward treatment options for residual tumor that's left behind and starts to grow, though. Nowadays, single session radiation, so radiation that's done literally an hour or two, is very effective at treating these tumors. So, it doesn't necessarily mean, even with recurrence, that you need another operation. And there's also a developing tool bag or toolbox of medications that endocrinologists have been able to use to help control if they come back. But it isn't that frequent that that happens, at least with a good pituitary surgery.

J Jason Howland 14:00

Well, I understand you are working on artificial intelligence that may help pituitary tumor patients, specifically the acromegaly patients, predict their outcomes. Can you tell us more about that?

D Dr. Jamie Van Gompel 14:13

Yeah, I think what's really important is understanding what realistic expectations are at the front end of an operation. So patients know what they should expect, especially in that tumor. So, it turns out, in that tumor when the patient walks through the door, 50% of the time we know that surgery may not be the the only thing they need to get control. And we can take characteristics, when you walk through that door, how big your tumor is, what your age is, what the blood levels of growth hormone or IGF one are, and we can tabulate what are the chances that we can cure you, and also what the potential next treatment options might be and give you all that information up at the front end. Currently we're validating this internally and hope to validate this across other centers. And I think that's going to continue to expand in pituitary surgery and other tumors, in fact, in which we can give you a lot more information at the outset to at least prepare you for what is normally supposed to happen with your tumor.

J Jason Howland 15:21

Why are referral centers important for the care of patients with pituitary tumors?

D Dr. Jamie Van Gompel 15:27

Because I think that they collect the most modern intervention techniques. And I believe that they ultimately have the best opportunity for curing someone from these tumors with the lowest potential for complications. I do think it's important to be in an environment that you have excellent colleagues in neuroradiology, because the imaging matters. So, in certain tumors, if we can see it, in some images you can't sometimes ,if we can talk to our neuroradiologists and say, hey, find this thing for us. And they can tell us with confidence

where it is that might be with 7T MRIs, we're opening a PET study this coming spring, that might help us find these small tumors in patients, we are eminently more effective at curing patients. And we're also way better at avoiding secondary side effects. Our endocrine colleagues are extremely important at tertiary referral centers. Even if you've received an endocrine workup outside, the people that we work with only do pituitary tumors, and they can actually find ways, in some circumstances to say, hey, this is not the diagnosis here, this patient doesn't need a surgery. Going through their nose and taking the tumor out that we don't know is there is not the right thing to do. So they can sometimes help us pump the brakes. Because, you know, our job is not to cause damage if we don't think we can help you, right? And then on top of that, for some of the really uncommon cases, so you asked earlier about these aggressive pituitary tumors, it turns out, we do see them, and you might need other colleagues that have an expertise in treating uncommon tumors with chemotherapy agents and things like that. Now again, that's not a common thing that we have to do with pituitary tumors. But when they're there, we have huge expertise, and a group of people that know how to manage these types of things with molecular profiling of these tumors with targeted therapies for them. That kind of stuff.

J

Jason Howland 17:33

I think you're you've sort of answered this question already. But what does Mayo Clinic offer that makes it unique for pituitary tumors?

D

Dr. Jamie Van Gompel 17:42

The endocrine department is one of the most well-known endocrine departments in the world in the multitude of PG. So, we call them PG, pituitary group endocrinologists that just do pituitary all the time, a remarkable group of people. Not only do they have one person that just spends all their time on pituitary tumors, they have a group of almost eight of them. And if they're confused by something, all they have to do is walk across the hallway to the next door and say, what do you think about this? So, I think it's hard to replace that kind of collegiality and ability to have those conversations in real time. In the same way, I'm not the only pituitary surgeon at the Mayo Clinic. So, I have a couple of other colleagues that I can talk to, to say, hey, you know, this is a little odd. What do you think about this, and we can talk about it and talk about the potential outcomes, and what do we think is the best thing for this patient? And there's not a lot of centers across the world that can say that they can do things like that. Oftentimes, when you go to even a referral pituitary center, there's one surgeon and maybe one endocrine specialist. Here, with such a large group of people, it's very helpful to be able to treat, especially, very difficult cases. In addition to that we have a lot of resources at the Mayo Clinic that a lot of patients don't have like 7T MRIs, which have been helpful for identifying small tumors, or understanding cavernous sinus invasion. PET studies that would help us find tumors that maybe are very hard to find. And also, there's a bunch of new lab tests that are coming down the line with our endocrine colleagues that would be helpful to figure out some of the more nuanced parts pituitary tumors. We also have advanced molecular techniques and diagnosis that we think will help us in the future understand some of these tumors and how they may act if they are not completely resected.

J

Jason Howland 19:33

And all of those things, ultimately improving care for the patients.

D Dr. Jamie Van Gompel 19:38

I think so. And I think that's a really good point, Jason. Not only do we have all those advanced technology things, we're also actively engaged in registry. Registry around pituitary patients so we can continue to study our outcomes and make sure they are as good, if not better, than they were last year. Okay, Fantastic. We are unfortunately all out of time but I'd like to thank our guests today, Mayo Clinic neurosurgeon Dr. Jamie Van Gompel for joining us today to discuss pituitary tumors. Thank you, Dr. Van Gompel. Thank you very much, Jason. I appreciate it. Have a great day.

J Jason Howland 20:15

And thank you for joining us on Mayo Clinic Q&A. Have a great day.

N Narrator 20:18

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