

Mayo Clinic Podcast - Dr. Alyx Porter - YouTube Audio Export...

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SUMMARY KEYWORDS

brain tumor, tumor, patients, symptoms, mayo clinic, treatment, glioblastoma, meningioma, clinical trials, treated, radiation, headache, talking, primary brain tumors, people, call, brain, benign brain tumor, meaning, range

SPEAKERS

Dr. Halena Gazelka, Narrator, Dr. Alyx Porter

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- N** Narrator 00:01
Coming up on Mayo Clinic Q&A:
 - D** Dr. Alyx Porter 00:03
The skull is a fixed space. And so, there's only space for brain, blood and cerebrospinal fluid, which is the fluid that bathes the brain. And so, if you have anything else occupying that area, the brain will push back.
 - N** Narrator 00:16
That push back could be caused by a brain tumor. Often the first symptom of a brain tumor is a headache, but usually it's a headache in conjunction with other symptoms that warrant an exam from a neurologist.
 - D** Dr. Alyx Porter 00:28
A typical headache really isn't what concerns us for a brain tumor, it's headache and, have you had this weakness, numbness, language difficulty, cognitive changes, changes in

your thinking and memory. For some people, it may manifest as a change in personality.

D Dr. Halena Gazelka 00:43

Welcome, everyone to Mayo Clinic Q&A. I'm Dr. Halena Gazelka. May is Brain Tumor Awareness Month. According to the National Brain Tumor Society, an estimated 700,000 Americans are living with a primary brain tumor, and over 84,000 will be diagnosed this year in 2021. Joining us to discuss this today is Mayo Clinic neurooncologist, Dr. Alyx Porter. Thanks for being with us today. Dr. Porter.

D Dr. Alyx Porter 01:09

Thank you so much for having me.

D Dr. Halena Gazelka 01:11

Well, this is an interesting topic. I love to learn something new, and there's a lot to learn about brain tumors. So, can you tell us are there different types of brain tumors, are all of them cancerous?

D Dr. Alyx Porter 01:22

Yeah, there's a real range. The ones that end up getting the most attention, and the ones that many of us are most familiar with are indeed cancerous. And so, that falls under the glioma category, and the one that tends to get the most attention, given the devastating impact is glioblastoma, which is also known as a Grade 4 astrocytoma. And absolutely, that is an incurable tumor that we look to palliate as best as we can with multiple modalities of treatment. What's much more common, though, is a meningioma, which is actually a benign brain tumor. But it can still, based on its location, based on its aggressivity, can still cause what we call neurologic morbidity, meaning it can cause symptoms that can impact our daily living. So, still, though not as aggressive as a glioblastoma, for example, can still cause some difficulty and is important to have treated appropriately.

D Dr. Halena Gazelka 02:26

Well, it's got to be scary. Anytime that someone hears you have a brain tumor, but to know that many of them can be benign, is reassuring.

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Dr. Alyx Porter 02:35

Indeed, and in the example that I just gave with meningioma, these are tumors that we end up finding totally by accident. So, maybe someone had a trip and fall and ended up with a head CT. And now all of a sudden, they're told that they have a brain tumor, and that can be devastating to hear those words. But what I hope to reassure people with is that the majority of time, these tumors aren't doing anything at all. And oftentimes, we find that they've likely been there for a number of years, and just need to be screened or just need to be watched over a certain period of time. For others, based on the location, they may have caused symptoms, like a seizure or weakness or numbness. And that's a circumstance where the tumor may require some intervention. And that intervention can range from just a surgery, and then we're done with it, to sometimes something like radiation or a combination of both.

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Dr. Halena Gazelka 03:29

That's great. We'll get back a little bit to treatment later. But can you tell me, do we know what causes people to develop brain tumors?

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Dr. Alyx Porter 03:37

In some cases, we know there's a genetic syndromes that runs in families. So, we were just talking about meningioma, that benign brain tumor There's a genetic disorder that's called neurofibromatosis, where patients may be prone to multiple tumors, like meningiomas, or schwannomas. That's a pretty rare disorder. So, the majority of the time, there is no known cause for both malignant and benign brain tumors. We do know though, if patients have been exposed to heavy radiation, for example, if they've grown up next to a power plant, and there was some sort of spill . Just like the general cancer risk goes up, so does the brain tumor risk. Or if a patient has been treated previously for a head or neck tumor with radiation, that can make you prone towards developing a brain tumor later on. Short of that there's been a lot of research looking into that, looking into concussion, whether or not that can be associated. And the short answer is no, there's no clear cause.

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Dr. Halena Gazelka 04:40

That's interesting, because today, we're kind of focusing primarily on primary brain tumors. So, tumors that arise in the central nervous system. But people can have cancers in other areas of their body that can spread to their brain causing brain tumors, but that's not where it really originated, correct?

- D** Dr. Alyx Porter 04:59
Correct and so, that category of disease we would call secondary brain tumors or brain metastases. So, for example, if someone has a lung cancer or a breast cancer that then travels to the brain, that would be a secondary brain tumor or a metastasis. That is, again, different than what we're talking about with primary brain tumors.
- D** Dr. Halena Gazelka 05:19
You mentioned genetic risk or familial type of tumor syndromes. And you mentioned a little bit about radiation, etc. Are there any other groups of people who would be at higher risk for developing brain tumors?
- D** Dr. Alyx Porter 05:33
Yeah, that would be the main group, those that have inherited diseases or genetic disorders. The other that's less frequent, but certainly important are those of people who have survived childhood cancers. So potentially, if you were treated for leukemia as a child, and required craniospinal radiation as part of that treatment, in adulthood, there is a higher risk for what's called again, a secondary malignancy, a tumor that has grown as a result or thought to have arisen from the fact that you've had that radiation exposure earlier on.
- D** Dr. Halena Gazelka 06:10
Well, I know one thing that our listeners will want to know is how would you know if you had a brain tumor? What are the signs and symptoms?
- D** Dr. Alyx Porter 06:17
Yeah, that can be really tough, because the most common symptom that any of us experience is headache. And so, we want to make sure that we sort of recognize that we're not talking about the typical headache that can come on after a long day of work or those of us that get occasional migraines. But this would be a different kind of headache, the kind that maybe awakens you from sleep, or the type that is associated with nausea and vomiting in the early morning hours, that would be a sign of increased intracranial pressure as a cause to the headache that would then prompt neural imaging to follow. Otherwise, we're talking about things that typically aren't subtle. So, maybe weakness on one side of the body, difficulty getting the words out that you want to say or understanding what people are saying to you. Seizures or uncontrolled movements that

last momentarily. And that can be sort of a motor seizure, where you end up having jerking of the face or a limb. There can also be sensory sorts of seizures, or those sorts of seizures that stop movement altogether, where you're not able to get any words out. And then the more generalized convulsion, so any of those sorts of things, would prompt new neuroimaging, whether it be a CT scan, or an MRI, typically with contrast, to make sure that we've visualized the brain adequately.

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Dr. Halena Gazelka 07:42

Alex, I think it is interesting to people, because we've all heard that you may get a headache, a headache may be indicative of a brain tumor. And its sort of when those things that people either joke or worry about. But you mentioned increased intracranial pressure, meaning that because there's the tumor, also trying to occupy the space inside of our closed space of our skull that the pressure increases, correct.

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Dr. Alyx Porter 08:07

That's right. So, the skull is a fixed space, as you just mentioned, and so there's only space, only room for brain, blood and cerebrospinal fluid, which is the fluid that bathes the brain. And so, if you have anything else occupying that area, there's going to, the brain will push back, so to speak. And because of that massive factor, because of that additional occupant, there's increased pressure within that system. And that can lead to severe headaches. It also, if it's gone on for quite some time can lead to altered levels of consciousness, meaning sort of decreased alertness or awokeness. So, it ends up being a much more serious symptom. I will tell you that most people that I end up encountering don't have headache as their primary symptom. So, if that's another level of reassurance for all of the listeners today, that, you know, a typical headache really isn't what concerns us for a brain tumor. It's headache and... have you had this weakness, numbness, language difficulties, cognitive changes, changes in your thinking and memory. For some people, it may manifest as a change in personality. So, it really can be a bit tricky to sort out, but certainly those sorts of symptoms should prompt further evaluation.

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Dr. Halena Gazelka 09:28

And I would think that they would, because those are kind of scary symptoms, I would think. So, supposing that an individual is concerned and goes to be assessed. How is a brain tumor diagnosed?

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Dr. Alyx Porter 09:40

Yeah, so it starts with a good neurologic examination. And the first step in a good neurologic examination is really taking the history, understanding what it is that the patient has been experiencing, for how long, when it started, what else was associated with it, really getting down to those details in regard to the patient's experience. Then the next step is part of the physical exam. So, there's a battery of questions that are asked to really understand the thinking and memory. And then we go through looking at various levels of the nervous system from the cranial nerves to the motor exam, checking the reflexes sensation, and even watching the gait, watching how someone walks and testing their balance. All of those components are part of the clinical evaluation that you'll have with a provider. And then the next step based on the history and the examination, then imaging likely is to be ordered. And so, that will include either a CT scan, or an MRI with and without contrast, to really have a sense of what's happening if the issue is suspected to arise in the brain. And so, otherwise, sometimes what we find is that patients symptoms might be coming from something else like a carpal tunnel syndrome, or something else that's much more common and not at all related to the brain. And so, that's where the neurologist really does great work to help sort out, where is the level of the lesion, where is the level of difficulty. And ultimately, the patient may not need an MRI or a CAT scan at all. Instead, they might need an EMG or something like going straight towards a wrist splint. So, just because you have some of these symptoms doesn't always mean that there's a brain tumor that's causative.

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Dr. Halena Gazelka 11:22

But reassuring to have it evaluated.

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Dr. Alyx Porter 11:25

Right.

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Dr. Halena Gazelka 11:26

Tell us Alyx, once someone is diagnosed with a brain tumor, what kinds of treatments are there?

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Dr. Alyx Porter 11:32

Yeah, so it really does range. I used the example earlier of meningioma which is a benign brain tumor for the most part, and those tumors, the treatment can range from what we call watchful waiting, where serial imaging will be recommended over a period of months, and then years, and then annually, bi-annually. So, the more time that gets put sort of

behind, where we see that the tumor is totally stable, not causing any difficulty, then the more time we're able to put in front of us in terms of that follow-up imaging. So, that's on the case of a benign brain tumor like meningioma or sometimes as you may have heard of vestibular schwannoma, or acoustic neuroma, those are benign tumors that grow from the hearing and balance nerve. So, our pituitary adenomas, which comes from the pituitary, in the region of the pituitary gland. So that's one spectrum of how benign primary brain tumors are treated. The opposite end of the spectrum is something as aggressive like glioblastoma. And that's a tumor that starts with surgical intervention first, based on where the tumor occurs, and what sorts of symptoms a patient may be having. The surgical intervention can range from a biopsy, just a sampling of the tissue, all the way to a resection, whereas much of the tumor that's able to be taken out safely is done. And then following that resection, that pathologist is able to study the tissue under the microscope and give us a sense of how aggressive the tumor is, and what the cell of origin is how it all started. And then based on that, treatment can really range. In some cases, like lymphoma, the treatment really is based in chemotherapy, as the backbone, when we're talking about something like glioblastoma, there's a combination approach using radiation and chemotherapy. And in some instances, there's a medical device that is also employed, that known as tumor treating fields. So, there are options for treating these tumors. But certainly, they vary based on what the pathology shows us.

 Dr. Halena Gazelka 13:39

So interesting, that it's very important to know what this is obviously, just like the treatment. When children are treated for brain tumors, are they treated with the same means that adults are?

 Dr. Alyx Porter 13:52

There are some nuances. There are some pediatric tumors that we know respond better to proton beam radiation therapy. And so that's one form of radiation that may differ in terms of what the recommendation is for pediatrics versus adults. There are some chemotherapy protocols that vary just a bit for children compared to adults. So, there are some nuances in how to treat pediatric brain tumors.

 Dr. Halena Gazelka 14:21

Alex, we're familiar with screening tests for so many things now mammograms for breast cancer. colonoscopies for colon cancer. Is there a screening test for brain tumors before someone would even have any signs or symptoms?

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Dr. Alyx Porter 14:35

No, unfortunately, there's not a screening test. And so, I have, you know, for many of my patients, their biggest concern is whether or not they have passed something along to the next generation. And so, or reassurance, I do suggest that if you have a first degree relative, whether that be a parent or sibling who's diagnosed with a primary brain tumor, because of that peace of mind, sometimes it's worthwhile just to have a CAT scan or an MRI, to take that worry off the list, but otherwise no, there's no screening that's recommended, like, as you mentioned, with breast cancer or colon cancer. This is a different kind of malignancy, and certainly is a challenge, because one of the issues that we find is that sometimes patients don't come to medical attention until the tumor has grown quite sizable to actually cause some of the symptoms that we've talked about. So, that's where there's really a need in the field.

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Dr. Halena Gazelka 15:39

And what about preventing brain tumors?

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Dr. Alyx Porter 15:42

Yeah, as is the case in terms of surveillance, we don't have a good way of recommending preventive techniques. You know, we talked about some of the risk factors associated with brain tumors, being exposure to radiation and that sort of thing. But truly, when a patient is being treated for some other kind of cancer, they're not able to avoid that exposure. And so, I think that, again, we don't have much in the way of neither screening nor prevention.

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Dr. Halena Gazelka 16:16

Alyx, you talked about the wide range of tumors every were from very benign, to very aggressive. And so, I imagine the survival rate varies as well.

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Dr. Alyx Porter 16:27

Yeah, that's true. So, for those patients with benign meningiomas that never require me intervention, there's no bearing on their life expectancy from this particular tumor. They, you know, the opposite end of the spectrum are those patients with glioblastoma, who their life expectancy is typically around a year and a half or so with some patients doing much better, some patients not doing as well. And so, that's really where the hope for the future comes in, that we can one day find some additional treatments that would really

make an impact in this devastating disease.

D Dr. Halena Gazelka 17:06

And I just think how stressful this is, we talked about that earlier to receive a diagnosis. But then, for patients to wonder, am I getting the best care? Am I at the right place to get this care? How would they know?

D Dr. Alyx Porter 17:19

Yeah, so it's really important that you are seen at a place who has experience with a primary brain tumor specifically. So, I am a neuro oncologist, which means that I have fellowships of additional training, in oncology following my neurology residency, which makes me unique in that I wear a couple of different hats. And so, I can approach disease from both directions, not just the neurologic side, but also the oncologic side. And so, there really is a benefit to seeing a physician who has that level of expertise. Though, I recognize that folks with this sort of training are kind of hard to come by. So, you know, going to a tertiary referral center, getting that second opinion. And one of the things that has really helped us within the last 12, 14 months is the use of virtual visits. And being able to get a second opinion virtually, is also something that is really important just to ensure that what's being offered to you locally in terms of treatment is the same thing that would be offered by those of us who treat these sorts of tumors on a regular basis.

D Dr. Halena Gazelka 18:30

I think that can be incredibly reassuring to know that what you're being offered is what you would be offered in a larger center, if you are near one.

D Dr. Alyx Porter 18:39

That's right.

D Dr. Halena Gazelka 18:40

Alyx, does the Mayo Clinic offer any clinical trials for patients with brain tumors?

D Dr. Alyx Porter 18:45

We do. And those trials vary based on tumor type. And so, we're talking about things that range from surgical trials. So, using different dyes to have the tumor light up to make sure

the surgeon is able to remove everything that's lighting up abnormally, all the way to different new medications that are being used to figure out are these medications really effective at treating the tumor and keeping it from growing. You've heard a lot, sort of, we've talked a lot in the media of late, in regards to the immune system. There's immunotherapy, that we have a trial that is for patients with a glioblastoma. So, there is a range, but certainly the type of clinical trial really does depend on the type of tumor. And so, we're talking about things like imaging techniques that potentially there could be a trial that a patient could intervene in, all the way to trials, in regards to looking at the thinking and memory and the quality of life. So, we know that those patients that are enrolled in clinical trials, generally speaking, tend to get even higher quality of care, because there's much more frequent touch points and all of that by being involved in research. And so yes, indeed, we do have a robust clinical trial portfolio for patients with primary brain tumors.


D Dr. Halena Gazelka 20:11
is there a way that patients can find out about those?

D Dr. Alyx Porter 20:14
Absolutely. So, they can start by online MayoClinic.org, and going to brain tumor. And that will take you through some clicks to get to figure out what trials are available, and where, because sometimes there are certain trials that might be available at Mayo Clinic in Rochester only, or Mayo Clinic, Florida only, or Mayo Clinic, Arizona. And so, it's important to recognize some of those nuances when you're requesting an appointment.

D Dr. Halena Gazelka 20:41
You know, we talked about clinical trials, which involves patients themselves. But there's other types of research as well, that we don't talk about as much, which is usually kind of going on in the background. And sometimes, as providers, we call that bench research. Are there other research endeavors going on with brain tumors that wouldn't even be clinical trials at this point?

D Dr. Alyx Porter 21:03
Yeah, absolutely. So, we have things ranging from phase zero research, really looking at what sorts of drugs might even be promising in the future. There is, when you're thinking about laboratories, and you think about, you know, cell lines, which are looking at different sort of tumors, what tumors might be reactive with certain medications, we have


that sort of research happening in labs across the Mayo Clinic Enterprise. And then what's in Arizona, where I'm located, we have a mathematical neuro oncology lab run by Dr. Kristin Swanson. And that's really fascinating. Looking at the trajectory of growth in recurrence, and assigning mathematical models to be able to predict how a patient might be impacted by their future tumor, based on what their current growth pattern looks like, and how the nuances of the MRI really interact with what we might be able to predict for that particular patient. Those are some of the keys that get down to individualized and precision medicine. And that's really exciting work that's happening on this campus specifically.

 Dr. Halena Gazelka 22:14

I am so glad that there are people intelligent enough and interested enough to do that kind of research. That's amazing.

 Dr. Alyx Porter 22:21

It's really incredible.

 Dr. Halena Gazelka 22:23

You know, Alyx, we're always thinking about that we want individuals to be able to receive equivalent care, no matter what their socioeconomic status, their ethnicity, their religious practices, etc., etc. And that's a big topic of concern here at Mayo, how we can extend care and make sure that individuals are receiving appropriate care. Are there disparities that are related to brain tumors that we should know about?

 Dr. Alyx Porter 22:53

There are so we know that for patients who are coming from underserved communities, and when we talk about underserved, sometimes that has to do with racial and ethnic backgrounds, sometimes it has to do with population density, and rural backgrounds. And so, we know that those underserved groups oftentimes have limited access. And with that limited access comes reduced opportunity for that multimodal treatment that I explained is so important. So, having the various specialties really give the best of what they have for those tumors. So, as I mentioned, with malignant primary brain tumors, these are patients that need radiation, they need chemotherapy, they need neurosurgery. And unless you have access to all of those specialties, there's the risk that you might not be receiving what we would consider the gold standard of care and what should be given. We also know that patients that are coming from underserved areas might not have the

same access to being able to enroll in clinical trials. And we just briefly spoke about the impact of being enrolled in a clinical trial. And we know that those patients in general compared to patients who aren't on clinical trials typically will experience an improved what we call overall survival. So, and that's just because of the frequent touch points and the close contact of care that they're given, the close attention that they're given while being part of that clinical trial.



Dr. Halena Gazelka 24:23

So yeah, I'm sorry, Alex, I didn't mean to interrupt you finish your thoughts.



Dr. Alyx Porter 24:27

Yeah. No. So there are some opportunities to really make some headway in terms of disparities as it relates to brain cancer care itself.



Dr. Halena Gazelka 24:37

I got excited because it was making me think about the virtual visits that you had mentioned earlier, and how useful those might be for individuals who may not be close to major medical centers, etc., but could learn about what the options are.



Dr. Alyx Porter 24:52

Absolutely. And I think that virtual has been one of the biggest gifts, if you will, of this pandemic, and our opportunity to work in a different way. Because it really has lower that barrier of, you know, difficulty with access. And so now, part of our goal is just raising awareness. We're here, we're available, we want to see patients who have primary brain tumors, we have exciting treatments to be able to offer. And so, even if it's just for, as we mentioned a second opinion, to ensure that you're being offered everything that we would offer as well, there's certainly some benefit to that.



Dr. Halena Gazelka 25:28

Any last thoughts you'd like to share with our listeners today, Alyx,



Dr. Alyx Porter 25:32

You know, every day that I come to work, I'm inspired by this patient population. You know, I am given the privilege on a daily basis to really walk with patients in a journey

where they are frightened, and grieving in some ways. And I get to witness that fear and that grief, and I see that really evolve into courage. And it's something that inspires me daily. And so, I do this work every day because of what the patients and their families really give to me. And so, it's really an honor to be here and to have an opportunity to share a little bit more about as we raise awareness about brain tumors and what patients experience for brain tumor awareness month.



Dr. Halena Gazelka 26:23

Thank you so much, Alyx, it was wonderful to hear from you today.



Dr. Alyx Porter 26:27

Thank you.



Dr. Halena Gazelka 26:27

Our thanks to Mayo Clinic neuro oncologist, Dr. Alyx Porter, for being here with us today to educate us about primary brain tumors. I hope that you learned something. I know that I did, and we wish all of you a wonderful day.



Narrator 26:41

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