Stephen Calabria: [00:00:00] From the Mount Sinai Health System in New York City, this is Road to Resilience, a podcast about facing adversity. I'm your host Stephen Calabria, Mount Sinai's Director of podcasting.

On this episode, and in honor of May being Brain Tumor Awareness Month, we welcome Isabelle Germano, MD, MBA. Ano, M

Dr. Germano is an internationally recognized neurosurgeon and neurosurgery educator specializing in research into and treatment of patients with brain tumors.

In the Department of Neurosurgery at the Mount Sinai Health System, she serves as the Vice Chair for Faculty Affairs, Director of Mount Sinai's Comprehensive Brain Tumor Program, and as the co-director of Mount Sinai's Radiosurgery program.

Dr. Germano discusses how brain tumors may differ from cancers in other areas of the body, the physical, psychological, and emotional challenges faced by those who have received a diagnosis, and what makes for a truly successful and resilient patient journey.

We're [00:01:00] thrilled to welcome Dr. Isabelle Germano to the show.

Dr. Isabelle Germano, welcome to Road to Resilience.

Isabelle Germano: Hi. Thank you so much for having me.

Stephen Calabria: Could you introduce yourself to our listeners?

Isabelle Germano: My name is Isabelle Germano. I am a neurosurgeon within the Icahn School of Medicine at Mount Sinai.

I hold the title of a professor of neurosurgery, neurology, and oncological sciences. I also serve as the Vice Chair for Faculty Affairs, the director of the Mount Sinai Comprehensive Brain Tumor Program, and the co-director of the Mount Sinai Radiosurgery Program.

Stephen Calabria: What inspired you to pursue a career in neurosurgery and how did your early experiences shape your focus on brain tumors?

Isabelle Germano: It's difficult for me to really remember when exactly I wanted to be a neurosurgeon 'cause I felt, I feel like I always wanted to pursue medicine 'cause I wanted to [00:02:00] be a surgeon, and in particular to operate on the brain.

So I guess I would probably date that back all the way to maybe high school or maybe even before that. As mentioned, I went into medical school to really learn more about the brain and the way in which the brain works.

And I was really fortunate that a very important professor in neuropathology, Professor David Schiffer, accepted me into his lab and what I was doing in his laboratory as I started my MD PhD program was basically help him with whatever was necessary.

And the focus of his research was to understand brain tumors. The brain tumors would come into the laboratory and then he would have special techniques to do some special staining.

It was the very early days of molecular biology. And so to look at the molecular signature of the tumors, and that to me was fascinating and really confirmed my desire to continue on helping patients with brain [00:03:00] tumors.

Stephen Calabria: As someone who specializes in brain tumors, what makes brain cancer and tumors different from those that may be found elsewhere in the body? What makes them unique, at least from a practitioner's perspective?

Isabelle Germano: That's a really, very good question, because the terms, tumors and or cancer are interchangeable, yes or no?

So, we tend to use the word brain cancer when the patient has cancer somewhere else in the body, and then from that organ spreads to the brain. That is a situation that is also referred to as metastatic brain cancer.

Pretty straightforward. Brain tumors, so the word tumor from the Latin means to swell or swollen. It means something that is, quote unquote, swollen inside the brain does not belong to the brain.

And that could or could not be from another organ or could have just been inside the brain. A growth that stays [00:04:00] and starts and stays within the brain. So those are called primary brain tumors.

And they do not metastasize, they don't go from the brain to somewhere else in the body by and large. I dunno if I answer your entire question, but I think that basically as a practitioner, if I had a patient in the office that asked me, doctor, do I have brain cancer?

I would feel comfortable telling that patient, yes, you do. Most likely you do. If that patient already has a known history of body cancer, somewhere else in the body.

If the patient does not have a history of having cancers somewhere else in the body, I would tell that patient, you have a tumor, you have a growth in your brain, but at the present time, we do not know if it is cancer.

Stephen Calabria: What percentage of brain tumors are primary versus metastatic, and do you treat them differently?

Isabelle Germano: Absolutely. Yeah. The treatment is absolutely different, totally different. Metastatic tumors are five times as common as [00:05:00] primary brain tumors. So brain tumors are much less common. And the treatment for metastatic tumor very rarely requires surgery.

We usually handle a metastatic brain tumor treatment with another procedure that's called radiosurgery, which consists of very targeted, radiation that goes to that tumor, to that cancer and prevents it from growing and basically kills it on site.

And the reason why the pendulum has switched from open surgery to this minimally invasive procedure that does not require surgery is because for patients with systemic cancer, somewhere else in the body receiving that systemic treatment in the way of chemotherapy or targeted therapy or patient specific therapy is very important.

And so if we avoid the surgical step, then there, there are no delays in continuing with the treatment for the cancer. Now, primary brain tumors, on the other hand, most of the times require surgery and the [00:06:00] surgery has two goals.

The first goal is to remove the lesion from the brain because it doesn't belong there. And the second is really to provide ample tissue to our colleagues in the Department of Pathology that can look not just at the tumor cells, but also at the molecular signature of those cells.

And for brain tumors, primary brain tumors. This is incredibly important because we now know that just the term. Brain tumor is not sufficient to treat a patient. And the way in which their cells look like, let's say astrocytoma, oligo, dendro glioma is not sufficient anymore. We need to look at the specifical signature of each of the tumors to identify if there are areas or mutations that can be targeted with very precise systemic treatment.

Stephen Calabria: So to go upstream for a moment, what should folks be eating and doing to have a healthier brain? I assume plenty of fatty foods, maybe plenty of [00:07:00] alcohol and other illicit substances. Is that right?

Isabelle Germano: Yeah. Let's now split brain cancer and brain tumor. Okay. So if we look at brain cancer, I would say that the answer is pretty straightforward.

So all of those things that are known to increase the risk to have cancer in the body should not be done because if you don't have cancer in the body, it will not spread to the brain. So we know that smoking is associated with with lung cancer. So I would say that definitely not smoking is a good idea.

And that is really the main thing for the cancer, for the brain tumors. There has never been any association with any risk factors in the way of diet and or exposure. The only one is radiation.

So we do know that if you're exposed to radiation as a child, you might later in life have higher risk of developing meningiomas. That's about it. That is nothing else that we as humans can do to prevent a brain tumor.

Stephen Calabria: So what are the [00:08:00] most common ways, then, that you've found exposure to radiation increases a person's risk of brain tumors? What kind of radiation are we talking about?

Isabelle Germano: Yeah. So some kids require radiation for condition, let's say a primary brain tumor, and then they're healed from that primary brain tumor. And then there will be another tumor later in life that develops. All the way back, I would say a hundred years ago or maybe 70 years ago for some parasitic infection of the scalp, like the Tinia capitis.

They gave children a very small amount of radiation and that was linked with the subsequent meningioma growth later in life. So it's really not common nowadays that children and or young adults are exposed to radiation, but just something to keep in mind.

Stephen Calabria: Sure. Now you specialize in brain tumors. How does someone usually discover they have a brain tumor? Are there typical warning signs?

Isabelle Germano: Yeah, that's a, that's excellent question. How do we know that you and I having this conversation do not have a brain tumor? And the [00:09:00] answer is we do not know. Both you and I could have one, and it could be one that grows very slowly and not give us any symptoms for a very long time.

And in fact, there are a lot of brain tumors that are discovered as, quote unquote, incidental finding if an autopsy is done. Those tumors are usually meningiomas. There are vestibular schwannomas and there are pituitary adenomas.

They're present in a big chunk of the population. Patients do well and they do not even know that they have. And alternatively, if instead the tumor is growing really fast, some symptoms can start and those symptoms are a variety of symptoms, 'cause it depends on where the tumor is.

If the tumor is in an area of the brain that is supporting one function or the other, then the patient will have a deficit of that function. Let me rephrase this. We know that the there's an area of the brain and that is supporting our ability to move the hand.

And there's another area that is supporting the ability to [00:10:00] move our feet. And so if the tumor grows in proximity of where the hand, the motor hand is represented in the brain, that patient will present with weakness of the hand on the opposite side because we are wired so that our left brain is controlling the right side and vice versa.

Stephen Calabria: Is there such a thing as early detection? We recently devoted an episode of this show to breast cancer and mammograms, and folks are encouraged to start screening mammography when they hit 40. Is there a similar understanding with brain tumors?

Isabelle Germano: So for brain tumors, there is really nothing that we can do in the way of screening. I think that any screening that is done for the primary cancer is very important because if you detect breast cancer early on, it's less likely that breast cancer will give you a metastasis to your brain.

Stephen Calabria: And to what extent is brain tumor development genetic versus environmental or accommodations of other factors?

Isabelle Germano: Yeah. The number of tumors that are genetically, that depend on the [00:11:00] genetic disease are very small, less than 5%. And so what that means is that 95% of brain tumors have really no relationship to any genetic mutation and or environmental factors. There are none that have ever been shown. The only one was the radiation that I mentioned.

Stephen Calabria: Let's fast forward to when you're sitting with a patient in your office and you have to break the news that they have a brain tumor. What's the first thing you tell them when you're diagnosing them, and how do you help them emotionally in navigating that moment?

Isabelle Germano: Yeah it's definitely when you go to the doctor and the doctor is telling you something about your health that is suboptimal, it's always a shock. And for brain tumors the brain is considered an important organ, so patients might really feel very disturbed by the idea that something is wrong with the brain.

Nowadays, there [00:12:00] are so many treatments that can be used for brain tumors that the diagnosis of a brain tumor or brain cancer is not as bleak as it was 10 years ago. And what I'm saying that is I tell patients nowadays and 10 years ago, I was not able to tell them that even if you have a brain tumor, you can be cured.

And so that is very reassuring. I think that the best possible outcome is for that patient to feel that yes, the diagnosis is serious. The doctor is telling me something serious, but there is a very good chance at I can fight it.

Stephen Calabria: What does resilience typically look like in patients who are facing a brain tumor? We always identify resilience as the ability to bend, but not break. And so what strategies do they employ to continue forward with a positive mindset? How do you help them in that regard?

Isabelle Germano: This is very important because I think that the ability of [00:13:00] bend but not break it is quintessential to any disease and for brain tumors for sure, for brain cancer, for sure.

What I have noticed over the years is that for those patients, with whom the conversation from the very beginning is a positive one in the way that, yes, I'm faced with this diagnosis. It's not a good diagnosis, but I know that I can fight it.

I know that I want to fight it, and it's much better than for those that. Are just not interested in fighting the disease. Now, the vast majority of the patients that

I see are really interested in learning what is there and how can the disease be fought.

Those that seem to have the best outcome are those that are also surrounded by a support system. So for those patients that are not alone, for those patients that have family, friends, social groups, pets it seems that the daily routine and [00:14:00] also when some of the bumps on the roads are occurring, it's much easier to get up and continue to go.

So it is very important not just to have a positive attitude, a positive mind and wanted to continue on the road, but also to surround oneself as much as possible with other people that are there to walk the walk with you.

Stephen Calabria: What are the most common treatment options for brain tumors? And if we're tackling this kind of holistically, how does that patient support system and mindset factor into that?

Isabelle Germano: So there are a variety of treatments, as I said. As a neurosurgeon, I perform both open surgery and radiosurgery, which does not involve to cut, but it is directing the radiation to do the same work that we would be doing with surgery.

The surgery nowadays is minimally invis invasive, even the open surgery. As I pioneered [00:15:00] the image guidance for the brain here at Mount Sinai. And now is wildly used across the us. There are a variety of interventions for patients.

And the vast majority of these does not require too much time off from work. So for the radiosurgery, there is no downtime. Patients continue to work because it's just one session, most of the times, 20 minutes treatment outpatient.

So there is really no interruption with the with the work. For those that require open surgery, typically I would say that the average patient will stay in the hospital for 3 nights- the night of the surgery, plus two, and then they resume work within a couple of weeks.

Those are really the things to consider when the word surgery for tumor comes about, right? That you don't have to worry that you're gonna be out for a very long time. That being said, then the treatment of brain tumors, for some brain tumors, requires additional steps, and those are in the form of radiation and or chemotherapy.

[00:16:00] And so that is a much longer process. But again with all the advances in the radiation field and in the chemotherapy field, the side effects are much less than 10 years ago. And so the majority of our patients continue to work as they're receiving what we call the adjuvant treatment, the XRT and TMZ, which is a pill that is given together with the radiation.

So I guess that is what to look for or what to see yourself going through as you are dealing with your brain tumors. And it is very important to recognize that additional factors can really help the patient going through the treatments.

And those factors are physical therapy, so counterintuitively, sometimes after surgery and or during the radiation and chemotherapy steps, patients feel tired and counterintuitively, we always tell them, if that is the case, let us know, [00:17:00] because we will prescribe physical therapy.

Because counterintuitively, the more exercise you do, the more energetic you will feel. So that's very important. We always encourage them to do walking at least a mile a day. Even if they feel tired, and especially if they feel tired.

There are a lot of our patients that enjoy yoga, so we encourage the yoga to occur. Maybe not the acrobatic yoga. That's a little too excessive, there are so many other types of yoga that can be done and it's really helpful.

There are also patients that are open to try acupuncture. And that's another way to really get a lot of energy and to feel that some of the aches can definitely go away. We have music therapy. Some patients are open to that suggestion.

And also painting, it's another thing that some patients feel that even if they never painted in their life as they're going through the treatment to get that additional activity it opens really doors that they didn't even know that they are there.

So there are a variety of things that are excellent [00:18:00] for the healing and for the kind of balancing the mind and the body as the patients are going through treatment.

Stephen Calabria: We've talked on this show how some patients may be reluctant to share with the world or even some of their closest friends and family members, their diagnosis, let alone their treatment.

And it sounds like the treatment here is not as invasive and disruptive as the treatment for some other cancers, which I imagine has a large effect, a big

effect, on a given patient's quality of life as they navigate the treatment. Would you say that's true?

Isabelle Germano: So let's go to the first part of your statement, and that is a lot of patients don't wanna share the diagnosis. And I see that very often and I totally respect it.

And for this very reason, if the patient needs surgery, when the patient does need surgery, there's no shaving of their hair, so nobody will ever know that patient had brain surgery. And the scar is always hidden. It's hidden from the hair.

And for those patients that have a [00:19:00] receding hairline or they prefer to shave their heads, and some patients do, we hide it into a crease. And it never looks like Frankenstein, right? It's not obvious. So I totally respect the idea of not wanting to share the diagnosis.

Now, as you said, most of the treatments are not as taxing as some of the other cancer treatments. But sometimes patients after a while they could really feel tired and they might start losing weight, not just because of the treatment, but also because of the cancer that is progressing and some of the other, treatment.

Let's say if the patient requires whole brain radiation, which is really rare nowadays, then there could be some hair loss. So, in those cases, it is important to also support the patients and to make sure that it is hidden as much as possible.

And the other thing that I want to mention about the hair with the radiosurgery, that's another beautiful thing, is that although radiation is delivered, there is no hair loss. So nobody will ever know that you had that [00:20:00] treatment.

Stephen Calabria: Now you've been at the forefront of integrating image guided and minimally invasive techniques in neurosurgery. Could you explain what that actually means and how these innovations have transformed patient outcomes?

Isabelle Germano: Yeah, so I think that they transformed patient outcomes and patient quality of life. And to me that's very important to, to say that. Both right? Because if a treatment is, it's a devastating your mind, your body but then you live a little bit longer, it's not as good as if you actually feel really good and you live longer.

Those two are much better scenarios. So the quality of life is very important to anyone.

For patients with cancer or brain tumors, very important to make sure that whichever amount of time they have is full life. It's full of quality and not just being there, not being present, not being able to enjoy the [00:21:00] moments.

Outcome is incredibly important too, because by image guidance, by minimally invasive procedures, surgeries that, even 15 years ago or so were considered not possible, now are possible.

And the side effect of the surgery, the sequela of the surgery, are minimal. And so basically, by introducing those techniques and technology that you refer to, we open the door to many more patients being able to receive surgery whereas before they were excluded. From that because it was not possible.

And so now they receive surgery, their outcome is better because the tumor is taken out and there is a higher chance of survival. And the quality of life is improved because at the time of surgery, some of the side effects no longer occur because we can prevent it by using the techniques.

Stephen Calabria: Now you've talked about how [00:22:00] this treatment is not as noticeable and may not in some patients be as emotionally or psychologically challenging as some other cancers.

And yet, in your experience, what psychological and emotional challenges do brain tumor patients face? And how can healthcare providers support their continued resilience?

Isabelle Germano: So I think that it, the word cancer is still. Consider by most not good news. And I think that as a provider, it is important to remind our patients that there are a lot of patients that are cancer survivors.

And each three months or so there are more substances and more techniques and more technologies that are curing patient from cancer.

So when I started as a neurosurgeon, the word cancer really frightened me, not just the patient, but also me because I [00:23:00] knew that when I mentioned that word for that patient the prognosis was really not great and that start to think about end of life was necessary.

Nowadays, that's not the case. Nowadays, patients with cancer can be cured from their disease. And so the fact that they have brain cancer does not mean that they're going to succumb because of that.

And so for us as physicians, we need to constantly learn more about it for those people that are not, dealing with brain cancer and to reassure our patients that clearly they are only one person, so we don't know where they fall within the statistics, but that there is a very large group of patients that survives brain cancer.

Stephen Calabria: What's something a patient or a family member has done that struck you as a powerful example of resilience?

Isabelle Germano: There are so many different ways, right? I think that, being close to the person that you care for is very [00:24:00] important. And I always tell the caregivers that they themselves need to support themselves.

In other words, when you care for someone, you put all the energy and all the effort into that person, and then maybe there is nothing left for you. And eventually you yourself are suffering.

And so I think that the best caregiver is someone who can support the loved one, but then also that individual has the opportunity and the wisdom to care for themself.

And so the same thing I was mentioning to you before, you know, go out for a nice dinner or go to the symphony or go to the theater depending on what you like to do for the caregiver to do that, so that then she or he empowers themself and then can take care of the patient with brain tumor again.

Stephen Calabria: What emerging technologies or therapies are you most excited about in the field of neuro-oncology?

Isabelle Germano: There are [00:25:00] so many of 'em. So for this surgery aspect of neurosurgical oncology, I think we have a constant new instruments and new devices that are allowing us to be more precise in the resection of brain tumors, visual visualization of brain tumors.

So, how to find the tumor, how to seed in the tumor is totally resected. But surgery, as I was mentioning before, is just the one step, right? Necessary step. And there are also other things.

And so for the neuro-oncology, the very exciting aspect is to really understand that each tumor is different and that each tumor has signatures that are possibly targetable by compounds that are being developed.

So one example is the IDH mutation which occurs in some of the astrocytomas. And now we know that there is a drug that is called baricitinib that can be used and that drug in a clinical trial as shown that is capable of [00:26:00] halting the regrowth for those patients who have that mutation.

So this is incredibly powerful and there are multiple examples of these that are coming about every so often. And another example that occurred quite a few years ago was the understanding that temozolomide that I was referring to before, called TMZ is a drug that is inoculating drug that is very powerful when associated with radiation and now is considered standard of care.

And patients that receive it have very minimal side effects. So I am really optimistic that our tumor patients have now multiple options to fight their disease. And the options that are here today are less than those that will be here, let's say July 22nd.

And so that's really to me this is really promising and that's always something I stress to my patients when I give them the diagnosis of a brain tumor.

Stephen Calabria: Especially with these new technologies, what can you tell us about [00:27:00] brain recovery and neuro rewiring post-surgery?

Isabelle Germano: Yeah, that, that is fascinating because part of the recovery is really the manipulation. So if the patient needs surgery, the manipulation of the brain at the time of surgery, and now we know that by using the mapping technology that you were mentioning before, the image guidance that is much more accurate.

And there is also the possibility of using magnetic stimulation outside on the brain to help the rewiring after surgery much faster. Now, this is still under investigation.

So I don't wanna give you the false impression that this is a certainty, but definitely is something that here at Mount Sinai we're planning to pioneer and to use it on our patients because we're very optimistic that the preliminary data shows that we could help patients rewiring or using the same word that you used much faster if this technology is [00:28:00] added.

Stephen Calabria: do you think is important for the average listener to know about brain tumors and about the people who face them?

Isabelle Germano: I think it's important to know that it is a relatively common condition and because the treatment against cancer is so successful, patients with cancer live longer and, when they live longer, statistically, there is a higher chance of developing brain cancer.

But when, and if they do develop the brain cancer, the brain cancer can be fought and can be controlled, and can be cured. So I think that, to the listener, it's important to know that if your physician is telling you you have brain cancer, the knee jerk should be, okay, I will fight it and I will win.

And as mentioned earlier in this conversation, that was not the same frame of mind that I would encourage my patients to have 10 years ago. So I think we did really well. For the primary brain tumors, I would [00:29:00] say that the patients should know that there are new drugs, very specific, that are coming about every so often.

And so it's important to understand that even if your tumor at the present time has a mutation or a molecular signature that doesn't have that drug that may be in, in the next few months, that will be discovered and can be used.

So as much as possible to keep a very open mind, positive attitude and whether or not wanted to reveal your diagnosis, I think it's a very personal choice. I support either of the two choices. Some people feel that if they share the information, they can, remove the burden from their shoulders and open up.

For other people, it's much better for no one to know, and I'm totally supportive of that as well. So I think it's a little bit of dealer's choice and we are all different. So we should go with our gut feeling and to do what we feel is best for ourselves.

Stephen Calabria: Now, you've been doing this a while. What is the biggest brain tumor you've ever seen, [00:30:00] and what were the circumstances surrounding that particular situation, insofar as you're allowed to discuss it?

Isabelle Germano: Yeah. Does size matter or does location matter? Both you and I are New Yorkers, so we know that both of those statements are correct and sometimes very small little tumors in the location of the brain where it's very tricky to get, are much more difficult.

To remove than a tumor that is the size of a grapefruit. So I, I feel for me it's not measuring the centimeters, but where the tumor is located, how to get to the tumor, and how to take it out, without giving a deficit.

Stephen Calabria: So what is the most difficult area of the brain on which to operate on a tumor?

Isabelle Germano: We call those areas eloquent areas. So any area that supports a function and the functions that we need the most are the ability to move, the ability to [00:31:00] feel, the ability to see, to speak, and to hear.

So all of those are very important. And then there are also other areas like centers where there are some hormones that are secreted. And so those are also important. I guess that the question you're gonna ask me next is there an area of the brain that is dispensable? And the answer is yes.

Luckily we have a few areas we're having a tumor there. It's not as complex and dangerous as in other areas. And those are the right temporal lobe for people that are right-handed as well as the right frontal area. So if a patient comes in with a brain tumor in that area, I also tell them, it's not good to have a brain tumor.

It's not good to have brain cancer, but if you had to pick a spot of the brain where to have it, you picked the right spot. So I try to give one more aspect to be relieved about.

Stephen Calabria: Finally, if someone wants to get themselves checked out, what should they do?

Isabelle Germano: So [00:32:00] it depends on what kind of brain tumors, right? For meningiomas, we know that there is a, an association between breast cancer meningioma. There might be some familiarity also with the meningiomas, so that's easy, just get a brain mRI.

For the primary brain tumors, it's exceedingly unlikely that is familiar, but if you feel like you're worried about it you're losing sleep over, it's always a good idea to see that a neurologist that specializes in brain tumors is called a neuro oncologist or to see a neurosurgeon.

Stephen Calabria: And how may patients get in touch with you or your practice?

Isabelle Germano: They may get in touch by calling the office number, which is 212-241-9638. And then the office will ask them question and get in touch.

Stephen Calabria: That's it for my questions. Was there anything else you wanted to say?

Isabelle Germano: I wanted to say that this was a very a very good conversation that we had and I hope that patients can be uplifted if they have a brain tumor or if they know somebody with a brain [00:33:00] tumors. And possibly that they've learned a little bit more about this very serious condition, yet a condition that we're optimistic about.

Stephen Calabria: Dr. Isabelle Germano, grazie mille.

Isabelle Germano: You're very welcome, and thank you to all our listeners.

Stephen Calabria: Thanks again to Dr. Isabel Germano for her time and expertise.

That's all for this episode of Road to Resilience. If you enjoyed it, please rate review and subscribe to our podcast on your favorite podcast platform.

Want to get in touch with the show or suggest an idea for a future episode? Email us at podcasts@mountsinai.org.

Road to Resilience is a production of the Mount Sinai Health System. It's produced by me, Stephen Calabria, and our executive producer, Lucia Lee. From all of us here at Mount Sinai, thanks for listening and we'll catch you next time.