Podcast: Brain Tumor Surgery — Endonasal endoscopic surgery for skull base tumors
Gary Gallia, M.D., Ph.D.

(00:00:00) Respondent: I’m Gary Gallia, I’m one of the neurosurgery faculty members at Johns Hopkins and my specialty is in skull base neurosurgery.

Interviewer: I am Elizabeth Tracy. Skull base neurosurgery and then I think it’s even a little bit more specific than that, isn’t it or no?

(00:00:14) Respondent: It is. I have an interest in transnasal endoscopic approaches to treat tumors that involved skull base.

Interviewer: Tell me some more about that. There’s a lot of medical-ese right there already. Transnasal, let’s first break that one down.

(00:00:27) Respondent: So the traditional approach to skull base tumors has a very long history and a lot of it was done at Hopkins and over the past decade people have developed techniques to go directly through the nose. So transnasal; to approach the structures and by going directly through the nose to hit the under surface of the skull base, you no longer have to rely on lateral approaches where you may have to drill off a lot of bone or retract the brain to get down to that area of the skull.

Interviewer: Why is this advantageous? Tell me about what happens to the brain if you do have just sort of move it to the side so that you can gain access to a spot you want to get to?

(00:01:01) Respondent: So, we’re very careful in the operating room when we do that. There are retractors that we can use and the brain is protected with a couple of different substances and we very gently retract the brain. Depending on the location of the tumor however and depending on the size of the tumor not all of that maybe accessible through that narrow window that you have with the brain retracted. So for centrally located tumors, coming through the nose represents a very good alternative.

Interviewer: And so how many of all the tumors that are out there, how many of them, what percentage of them would occur in an area where you could go through the nose to access the tumor?

(00:01:36) Respondent: One of the common tumors that we treat in our department here and probably the most common operation I do here are pituitary tumors. They are skull base tumors that involve the pituitary gland which kind of sits right in the central area of the skull base and that is probably the most common operation that we do through the nose. I do almost all of them through nose currently.

Interviewer: Pituitary tumors are pretty common.

(00:01:55) Respondent: They are quite common and really the key to that evaluation is sort of what’s the right decision for that particular patient?

Interviewer: Who is the perfect patient for an intranasal approach?

(00:02:06) Respondent: I think several things about that. I think it’s primarily based on what the radiographic appearance of the tumor looks like. So, there’s a principle in transnasal surgery and the principle is that you don’t cross nerves. So if the tumor is completely within the midline then it’s very approachable through the nose.
Interviewer: Are there size limitations?

Respondent: Not really. I think size limitations sometimes are staged surgical resection. So, sometimes we do some very large tumors that require extensive dissection actually get to the tumor.

Interviewer: So, besides that in pituitary tumors what else lends itself to this kind of a surgical approach?

Respondent: Really any tumor that involves the ventral skull base.

Interviewer: Of all the whole constellation of brain tumors, how often would you say this approach would be possible?

Respondent: Probably about 30%, I would say. 30%/35% of all tumors are classed as skull base tumors.

Interviewer: So that’s a pretty considerable number. Okay, so in your estimation what else needs to be done in order to perfect this technique or what research needs to be done in order to make us better able to purvey this technique else where?

Respondent: Several things about that as this is a very new field for neurosurgery, there are several things that can be developed that will make this even better in the future. One is that instrumentation sets that we have, I think the second thing that is important and some of the work that we are doing here actually is about imaging currently patients get CT scan or an MRI scan the day before surgery or the morning of surgery. Those scans get imported into the operating room into a computer that our tools can be registered to. So it’s kind of like a GPS system that we know within a millimeter to exactly where we are. We are developing some techniques where we can see behind structures so if you are looking in the nose and you see a big tumor, when it be useful to know and kind of see in a transparent way how far the carotid artery is from the surface of that tumor or how far is the optic nerve away from where you are drilling. So we have several active research projects that are focused on to the next phase of imaging development.

Interviewer: So why should someone come here?

Respondent: I think there is several places that are very good for this. When patients come to see me I actually spend a couple evaluations with them and we talked about traditional approaches to their tumor and we talked about these newer techniques. And some people say look I don’t want a craniotomy, I want you to take this out of my nose and I will be in a hospital for a day and go home and for that person it might be the right decision. For patients who may not be as certain about that I often will encourage them to get a second opinion. I think one of the advantages of Hopkins is that we have such a large brain tumor group here, there are six brain tumor surgeons. Patients that I see in clinic or other neurosurgeons may see in clinic we present their case very openly at tumor boards and they may say “Dr. Gallia is this something you can do through the nose should you meet this patient” or I may say “I don’t think this is something that can be done transnasally” and refer to another colleague in our department. So it’s a very collegial, very dynamic group. In these techniques something we haven’t talked about yet or are actually done in collaboration with otolaryngology colleagues of mines. So there are several ENT surgeons that has specialized training in sinus surgery and skull based surgeries, so these are performed together.
Interviewer: So people can feel confident that all of their options have been explored and that the best one will be chosen for their particular circumstance. Is that right?

(00:05:06) Respondent: That's right.

Interviewer: Good.

(00:05:07) Respondent: That's right and at those conferences we also have high resolution skull base imaging. So we've taken the standard imaging modalities in terms of MRI scans and we have made a very high resolution. So we very high detail anatomic resolution and at those conferences there's usual radiologist there and there's usually radiation oncologist, medical oncologist. So we just get a comprehensive plan for any patient and it's taken into account their medical comorbidities and medical history, together with them we make the best decision for that particular patient.

Interviewer: So let's just say that someone is a suitable candidate, they have a condition that would lend itself to this type of surgery. What are the advantages in comparison to other approaches to the patient?

(00:05:45) Respondent: It's a great question. I think for tumors that are amenable to transnasal and endoscopic resections as oppose to open procedures there are several advantages and I think people are very interested in this now and people are beginning to study this. In my experience I think the recovery is shorter for patients who have transnasal surgery, I think they go home in a day or two after surgery. I think depending on the tumor type I think the recovery can be quicker and I think the other advantage for it is - for particular tumor types and again this goes back to sort of the extent of the tumor based on a preoperative imaging which I think is very crucial is that some tumors are able to be better access surgically, transnasally than open. So for that subset of tumor types I think the oncologic resection and the long terms benefit from a tumor prospective is probably somewhat better.

Interviewer: So if you had a message, if you were going to sum this up to someone who was considering this, what would you say?

(0:06:35) Respondent: I think for patients who are considering a transnasal surgery and again we're talking specifically about tumors that involved the skull base I would encourage them to have a consultation with an endonasal skull base team and to explore that and figure out the pros and cons for endonasal resection versus the traditional resection and certainly craniotomies for skull base tumors have been around for 50, 60 years. So there's a lot of data that people have published and experienced that we can sort of give patients for these new techniques which are being developed now that have been around for maybe a decade or so. The volume of patients that have been treated with that and the longer term follow up is certainly not as long as the traditional approach. So, all that's taken into account when counseling a patient in terms of figuring out what’s the right decision for them.

Interviewer: Thank you so very much for you time.

(0:07:16) Respondent: You're welcome. Thank you for having me.