

[MUSIC PLAYING]

DANIEL We have pioneers basically here at the Ohio State University. We're able to offer minimum invasive approaches.

PREVEDELLO: And we are able to remove complex pathologies, some tumors, large, invasive, most of them in between the brain and the skull base.

We receive patients that other places cannot really offer treatment usually because the disease is more complex or very close to very important structures, nerves and vessels, or situations where the patient already had multiple surgeries and still having problems, still having disease recurrences. And more and more in my practice, I see patients actually had treatment in other places. And they are struggling.

When we perform endoscopic endonasal surgery for resection of tumors, we advance a camera through the nostril. So usually, we use the right nostril of the patient to pass the camera. And the camera is very thin. It looks like it could be smaller than a pen. And we advance that through the nostril, separating the tissue.

So basically, we go all the way to the back portion of the nose. While one surgeon drives the camera, the other one with two hands passes one instrument under the camera on the right nostril with the left hand. And with the right hand goes through the patient's left nostril.

And these, at the back of the nose, we're able to triangulate the instruments. So you can actually touch, again, as we pass the level of the septum. We do remove a little bit of the septum in the back. And we get a full view of the skull base.

And we can actually advance two suctions or an instrument, a dissector, or even a drill. I would use a drill with my right hand. And we are actually able to remove a little bit of bone to expose the area usually behind where the tumor is located. And then with this camera that provides a high definition visualization of the skull base, we can really see in detail what is tumor, what is pituitary gland, and all the neurovascular structures, including the optic nerves and the vessels, as the carotid arteries and other arteries that feed the brain. And with that high definition visualization, we are able then to peel the tumor away from these structures and take it out, being very careful and direct and able to then remove sometimes large tumors through these nostrils of the patients.

So we have a laboratory where we focus on research and development of new technology and innovations to reach these areas of the skull base causing less disruption of tissues. So in order to do that, we have developed a series of different instrumentation to reach those difficult areas. We also have developed some models to teach people how to behave and how to learn the technique in the laboratory in a type of simulation device.

Our team of the James and the Ohio State University focus on skull base surgery, we not only perform courses that we attract people from all over the world to participate and learn from us, but we also get invitations to go around the world and teach the technique.