



Vycor ViewSite TC®: Endoscope-guided Intraparenchymal Brain Tumor Resection

As the field of neurosurgery evolves, optimized treatment modalities become increasingly available. Gradually, less invasive yet effective approaches to treating central nervous system (CNS) ailments are being developed throughout the world. One of the innovations found within these cutting-edge techniques is the Vycor ViewSite TC. Consisting of a plastic tube with several diameter options, this instrument is capable of creating a direct pathway to target areas within the brain and cerebellum, with minimal disruption of the surrounding tissues. It is inserted into the patient's nervous tissue under image guidance. Upon reaching the target area, whether deep seated or superficial, the introducer responsible for the blunt dissection of the CNS fibers is removed. The remaining transparent plastic tube functions as a working tunnel to the patient's lesion. Under direct endoscopic visualization the surgeon is able to dissect and remove tumors or other mass lesions, such as hematomas, as well as perform biopsies and obtain effective hemostasis. When finished, the surgeon simply removes the channel port and the surrounding CNS tissue returns to its previous position. An important aspect of this technique is its minimally invasive nature, since it only requires a mere 03 cm incision, regardless of the lesion's location.

Features of the ViewSite TC:

- Minimally invasive approach, through a diminute incision
- Enables treatment of deep seated lesions as well as superficial ones
- Full, richly detailed visualization of the target area with endoscopic aid
- User-friendly design
- Fast wound healing and short patient recovery period



Figure 1: the ViewSite TC Brain Access System seen in detail.



Figure 2: different formats are available, enabling the surgeon to choose a model that is best suited for the patient's needs.

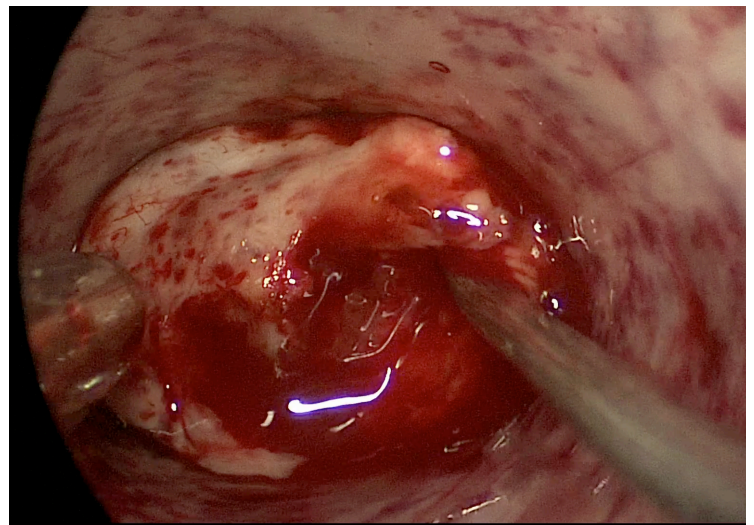


Figure 3: intraoperative view. Note the see-through working channel, giving the surgeon's full perspective of the surrounding tissue.

Illustrative Case

A 37 year old woman presented with an insidious, progressive, severe headache, followed by intense vomiting and a diminished level of consciousness. She was evaluated by Dr. Daniel Prevedello, MD, Director of the Minimally Invasive Cranial Surgery Program at the Ohio State University (OSU) Medical Center*. The patient had been recently treated for breast cancer and was undergoing chemotherapy with Avastin® (bevacizumab). Investigation with head MRI revealed a large mass within the right cerebellar hemisphere, causing brainstem compression and local edema. The key point to this case is the patient's morbid history: though the indication for surgery is obvious and raises little discussion, her ongoing chemotherapy posed a serious threat to her surgical recovery. Avastin® is a modern drug used in the systemic treatment of several modalities of cancer; however, it has the disadvantage of seriously delaying surgical wound healing¹.

At this point the ViewSite TC was an essential part of the surgical strategy. Because of its minimally invasive nature, this device can provide the surgeon with an effective route to the target area through a small, 03 centimeter scalp incision.

The patient was submitted to a suboccipital, right sided, small craniotomy after a skin 03 cm incision. The dura was open in "crux" fashion. Under image guidance, the apparatus was inserted into the right cerebellar hemisphere towards the tumor location. The inner plastic trochar was then removed. Under endoscopic visualization, the tumor was resected in piecemeal fashion. As the deeper portions of the lesion were removed, the plastic tube was slowly retrieved, allowing the more superficial areas of the tumor to present themselves into the tunnel. This simple technique grants the surgeon dynamic control of the visual field. Also, since the tube itself is made of transparent plastic, the surgeon can still detect any remaining suspicious areas surrounding the tunnel as he proceeds with the resection.

Finally, once the resection was complete and hemostasis achieved, the tube was fully removed. The dura was then sutured and the bone defect covered by a titanium mesh and screws. The surgical wound was sutured by layers, as in any conventional craniotomy. The patient was discharged uneventfully and there were no issues regarding her wound. The postoperative MRI scans showed a thorough resection of the tumor and appropriate decompression.

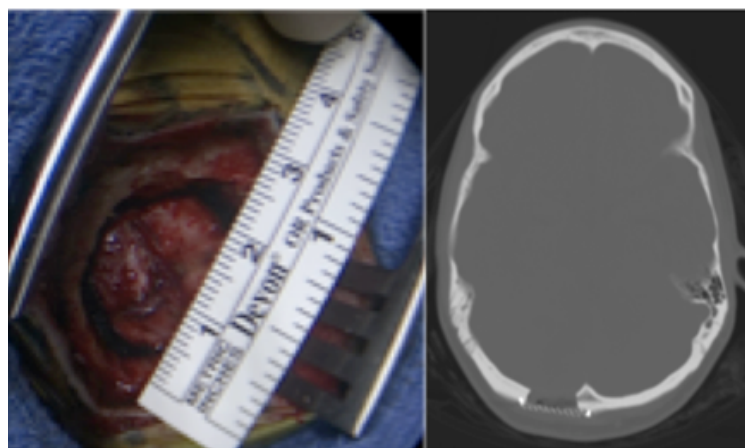
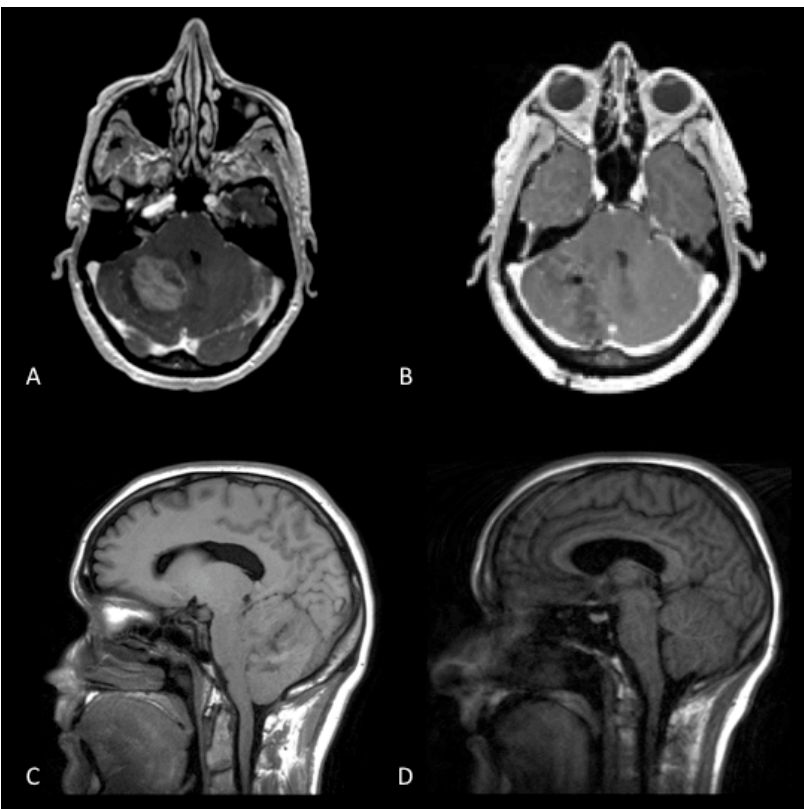


Figure 4: intraoperative image showing the incision and craniotomy diminute dimensions and postoperative bone window CT scan demonstrating the small bone removal.

Figure 5: Preoperative T1 axial MR imaging with contrast (A) demonstrates a large tumor on the right cerebellar hemisphere; the postoperative scan with the same technique (B) shows the thorough resection accomplished. On the preoperative (C) and postoperative (D) sagittal non-contrast scans the posterior fossa decompression can be observed.

* Participation by Dr. Prevedello in this report does not constitute nor imply endorsement by the Ohio State University of Vycor Medical or any of its products.