Operating on the brain - through the nose

Earlier this year, Tricia Wharton gave birth to a healthy baby girl and underwent successful skull-based surgery to remove a large malignant tumour from her sinus cavity - all within the same week.

click to enlarge

Even more remarkable - she has no visible scars on her face from the extensive surgery to remove the tumour.

During her pregnancy, Wharton, 33, of Logan, Ohio, started having sinus pain and numbness on the left side of her face. Her pregnancy was 25 weeks along when doctors at The Ohio State University Comprehensive Cancer Centre - Arthur G. James Cancer Hospital and Richard J. Solove Research Institute (OSUCCC- James) diagnosed Wharton with a rare tumour called an adenoidsystic carcinoma that was quickly growing in her sinus cavity.

The surgical team of experts at the Ohio State Cranial Base Centre worked with Wharton's obstetrician to monitor both Wharton and her unborn baby carefully as they developed a plan to treat the mother while protecting the baby.

"This was a delicate balancing act, and a real collaboration between our team and her obstetrician," said OSUCCC - James head and neck cancer surgeon Dr. Ted Teknos, who also is a part of the Cranial Base Centre team caring for Wharton.

The baby, named Sarah, was delivered by caesarean section at the Ohio State University Medical Centre at 32 weeks, when her chance of survival was greatly improved.

Prognosis is good

One week later, during a five-hour operation, Teknos and other members of the Ohio State Cranial Base Team surgically removed the softball-sized tumour through Wharton's nose using an endoscopic endonasal procedure that spared her considerable pain. As part of Wharton's treatment, a prosthetic roof of her mouth was implanted, and she will soon start radiation treatments, said Teknos. Her prognosis is good, added Teknos, who is the David E. and Carole E. Schuller Chair

of Head and Neck Oncologic Surgery at OSUCCC - James.

Doctors perform brain surgery through the nose!

The endoscopic endonasal approach is a minimally invasive neurosurgical technique that gives surgeons access to the base of the skull, intracranial cavity and top of the spine by operating via the nose and paranasal sinuses.

Normally, a patient's face would be cut open or even peeled back to reach such a tumour, said Dr. Daniel Prevedello, director of Ohio State's Minimally Invasive Cranial Surgery Program.

One of the few

Prevedello is one of only a few neurosurgeons worldwide trained in this procedure. There are numerous benefits to this approach. It allows surgeons to treat many tumours that are difficult to reach, including those considered to be inoperable. It leaves no facial incisions or scarring, causes less trauma to the brain and nerves and has fewer side effects and quicker recovery times.

"By avoiding facial incisions, patients tend to heal faster and recover faster. So most of the time patients are discharged earlier, in comparison to standard approaches," said Prevedello, who helped pioneer the technology and techniques used at Ohio State, and who is training other surgeons to use the approach. Prevedello, Teknos, Dr. Bradley Otto and Dr. Matthew Old comprise Ohio State's Cranial Base Team.

Using tiny surgical instruments, a brain surgeon works in one nostril while an ear-nose-and-throat surgeon works in the other nostril. Using high-definition cameras and high-tech equipment similar to a GPS map of the brain, they find and remove tumours - all through the patient's nose.

Providing access for management of a number of conditions

Recently, Prevedello and Otto traveled to Brazil to perform the endoscopic endonasal approach on two patients, including a high-ranking government official. Their expertise in this approach provides access for management of these conditions:

- Benign intracranial tumours (pituitary, adenoma, meningioma, craniopharyngioma and schwannoma)
- Malignant cranial base tumours (chordoma, chondrosarcoma, olfactory neuroblastoma)
- Benign cranial base disorders encephaloceles, mucoceles, cerebrospinal fluid leak, osteomas)
- Benign sinonasal tumours (inverted papilloma, nasal polyps)

- Malignant sinonasal tumours (squamous cell carcinoma, adenocarcinoma)

The Ohio State University Comprehensive Cancer Centre - Arthur G. James Cancer Hospital and Richard J. Solove Research Institute (cancer.osu.edu) is one of only 40 Comprehensive Cancer Centres in the United States designated by the National Cancer Institute. Ranked by US News & World Report among the top cancer hospitals in the nation, The James is the 205-bed adult patient-care component of the cancer program at The Ohio State University. The OSUCCC - James is one of only seven funded programs in the country approved by the NCI to conduct both Phase I and Phase II clinical trials.

Source: Ohio State University