California Pacific Medical Center
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Neuroscience Institute Craniotomy for Brain Tumor

NEURO-ONCOLOGY

California Pacific Medical Center Neuroscience Institute's neurosurgical specialists bring new and advanced surgical options to the physicians we serve and the patients they care for. Working collaboratively, our neurosciences experts provide comprehensive patient care using leading-edge technology for treating the most complex neurological diseases and conditions. Through this procedure profile, our physicians illustrate actual medical situations that provide you with a window into their practice of diagnosis, treatment and patient recovery.

For patient referrals:
1-888-637-2762
www.cpmc.org

Our neuro-oncology specialists are at the forefront of treating patients with brain tumors, delivering treatment options and performing microsurgery for primary tumors such as gliomas and meningiomas; skull base tumors such as craniopharyngiomas; as well as, metastatic tumors and systemic cancer.

What is a Craniotomy?

Considered one of the most common surgeries today for treating brain tumors and other brain related conditions, a craniotomy is a small strategically placed window in the skull allowing neurosurgeons access to the brain for tumor removal and surgical repair.

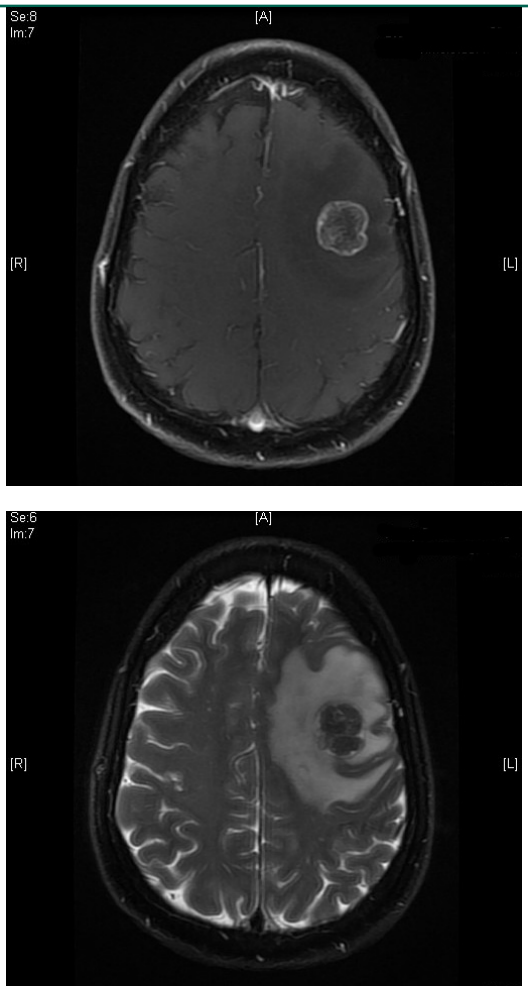
How is Craniotomy Done?

Emphasizing safety and efficacy, preoperative MRI, CT or arteriogram imaging studies identify the most appropriate site for the craniotomy. The head is then clamped in place to eliminate any movement during surgery. The surgeon shaves and marks the scalp where the scalp flap will be cut to expose the skull bone.

Several small-interconnected burr holes are drilled into the skull. A craniotome is used to cut from one hole to the next creating a removable bone section. The section of the skull is removed forming a window into the brain thus allowing access to the tumor. The bone section is retained and replaced after surgery, held in place with titanium fixtures. The scalp muscle and skin are stitched over the replaced bone section.

How does craniotomy allow brain tumor treatment?

Through the craniotomy window, neurosurgeons access the tumor directly. The tumor is removed using microsurgical techniques, aided, as necessary, with frameless stereotaxic techniques to minimize injury to the surrounding brain and to localize a deep-lying tumor.



Two MR images of left-sided brain lesions.

Microsurgery provides a magnified view of the operating area making it easier for neurosurgeons to see and remove tumor tissues while sparing more healthy brain tissue, as a smaller clean margin area is necessary. Neurosurgeons use microscissors and microscapels to remove diseased tissue. Additional surgical devices, ultrasonic aspirators and lasers, are employed for maximal or complete tumor removal to ensure patient safety.

Why perform a craniotomy vs. radiosurgery or gammaknife?

Craniotomy allows direct brain access and is most appropriate for larger tumors, particularly large and bulky tumors that compress

continued on back

brain structures and cause neurological dysfunction. Radiosurgery and gamma knife are techniques used more often for specific smaller tumors known to be radiosensitive in which total removal of the tumor is not necessary.

What are the Risks?

The risks of craniotomy are small, but include infection, bleeding, added neurological deficits caused by tumor removal, and seizures.

Procedure Risks

- Infection
- Bleeding
- Added neurological deficits caused by tumor removal
- Seizures

Who is a Candidate for Craniotomy?

Candidates include patients diagnosed with new or recurrence of a primary brain tumor or glioma. Most patients diagnosed with meningiomas and many with other types of skull-based neoplasms are all potential candidates for craniotomy.

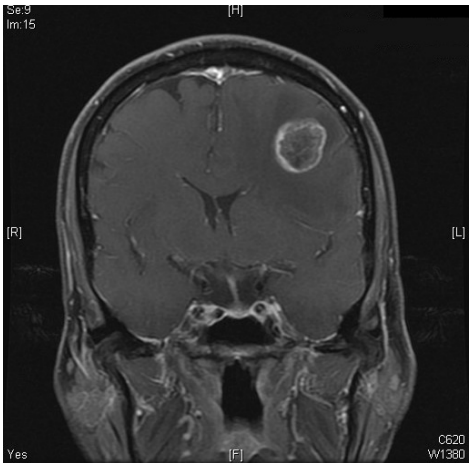
Case Overview

METASTATIC COLON CANCER

45-year old man presented status-post colon carcinoma resection with metastates to the liver and lung. He had had an excellent response to systemic chemotherapy with liver and lung lesion control. However, he began to complain of headache and progressive right side body weakness. MRI brain imaging identified a single lesion in the left posterior frontal brain region causing significant local edema and mass effect.

TREATMENT:

After the initiation of intravenous dexamethasone to control regional vasogenic edema, the patient was taken to surgery where craniotomy allowed complete microsurgical resection of the identified lesion. The pathology report



Left-sided metastic brain lesion.

confirmed metastatic colon carcinoma. Following surgery the patient's headaches and neurological deficits quickly resolved. Focal radiation therapy was subsequently provided to this area to control any microscopic cellular residual of the tumor.

OUTCOME

At delayed follow-up this patient remained free of both systemic and intracranial disease for a period of over one year and later had recurrence of tumor in the liver and lymph nodes treated with additional chemotherapy.

Patient Referral for Craniotomy

Most patients require referral from their primary care provider or physician specialist prior to craniotomy procedure scheduling. However, depending on insurance benefits, patients can self-refer for neurosurgical evaluation.

Insurance Coverage

Medicare, Medi-Cal, and most private insurance plans cover craniotomy. In order to avoid unexpected medical expenses, it is always best for patients to contact their insurance company after their initial consultation and prior to treatment to confirm coverage for this service and obtain prior authorization.

For More Information

For more information on craniotomy or the California Pacific Medical Center Neuroscience Institute's Neuro-oncology services please contact:

Brian Andrews, M.D., FACS
Neuro-oncologist, Neurosurgeon
Vice-chair, Department of Neuroscience

Charles Cobbs, M.D.
Neuro-oncologist, Neurosurgeon
California Pacific Medical Center Research Institute
Clinical Researcher, Primary Brain Tumors

415-600-7760 *phone*
415-600-7765 *fax*

For patient referrals or more information on the California Pacific Medical Center Neuroscience Institute, please call 1-888-637-2762.

www.cpmc.org

About the Neuroscience Institute

California Pacific Medical Center's Neurosciences Institute provides compassionate patient care you can trust. Supported by leading-edge technology and state-of-the-art surgical techniques, as well as, clinical research, our comprehensive continuum of care offers patients with neurological conditions the best possible outcomes.

Neurosurgery services are available at:
California Pacific Medical Center
Pacific Campus
2333 Buchanan Street
San Francisco, California 94115

Davies Campus
Duboce & Castro Streets
San Francisco, California 94114

Patient referrals 1-888-432-2762