



Beth Israel Deaconess
Medical Center



A teaching hospital
of Harvard
Medical School

Stereotactic Brain Tumor Biopsy

A Stereotactic Brain Tumor Biopsy is a neurosurgical procedure in which samples of tissue are taken from the tumor site. The biopsy will provide information on types of abnormal cells present in the tumor. The purpose of a biopsy is to discover the type and grade of a tumor as well as its molecular biology and its growth pattern. A stereotactic biopsy is the most accurate method of obtaining a diagnosis. Once a sample is obtained, a pathologist examines the tissue under a microscope and writes a pathology report containing an analysis of the brain tissue.

With a stereotactic biopsy, the neurosurgeon first attaches a titanium frame to the head which is used to reference all scans (CT, MRI, PET) to a coordinate system. This system allows computerized planning of the surgical approach with sub-millimetric precision. The neurosurgeon then drills a small hole into the skull and passes a narrow, hollow cannula into the tumor to remove samples of tissue. This is less invasive and much more precise than an open biopsy that requires a craniotomy which involves removing a piece of the skull in order to get access to the brain.

The complication rate of a stereotactic brain tumor biopsy is 2.3%, predominately caused by hemorrhage (0.7%), and edema or infection (< 2%). The diagnostic accuracy is 97%. Neurosurgeons at Beth Israel Deaconess Medical Center have a combined experience of 3000 procedures.

Stereotactic brain tumor biopsies are done under monitored anesthesia care (MAC) which combines intravenous sedation with local anesthetic or nerve blocks. During MAC, you are sedated but remain responsive when stimulated to do so. You may or may not wake up from time to time during the procedure but may not remember doing so. Ventilation is not assisted as in general anesthesia. When undergoing a procedure with MAC, you are evaluated and monitored in the same manner as if having any other form of anesthesia. The procedure takes about 1 ½ hours. After the biopsy is done, you are taken to recovery for an hour and then transferred to a hospital room for further monitoring. Expected length of stay is 1-2 days.

Post-operatively, you first follow-up in about 10 days with the Neurosurgery nurse practitioner for a wound check and suture removal, and you also follow-up with your neurosurgeon in the brain tumor center which is a collaborative clinic including various specialties such as Neurosurgery, Neurology, Radiation oncology, and neuropathology. The brain tumor center at Beth Israel Deaconess Medical Center offers a multidisciplinary approach and comprehensive care to patients with primary or metastatic central nervous system tumors.

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