Appendix D

Glossary of Terms

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Intracranial and Central Nervous System (CNS) Tumors

ABTA: American Brain Tumor Association. The American Brain Tumor Association is a not-for-profit organization dedicated to the elimination of brain tumors through research and patient education services. ABTA is the oldest organization furthering this effort, begun in 1973 by two mothers struggling to understand brain tumors. Since then, ABTA has funded over $2 million in research awards to the most prestigious institutions in the United States. (From the ABTA website: http://neurosurgery.mgh.harvard.edu/abta)

ACOS: American College of Surgeons.

ANGIOGENESIS: The growth of new blood vessels from surrounding tissue into growing tissue.[2]

ANGIOGRAPHY: A radiologic procedure that produces images of blood vessels (ateries and veins). Angiographic images can be constructed by magnetic resonance, computed tomography, and by conventional X-ray techniques using a catheter injection.[1]

BLOOD BRAIN BARRIER: A protective barrier formed by the blood vessels and glia of the brain. It prevents some substances in the blood from entering brain tissue.[2]

BRAIN STEM: The portion of the brain that connects from the cerebral hemispheres to the cervical spinal cord.[1]

CAUDA EQUINA: The group of spinal roots which descend from the inferior portion of the spinal cord. (literally "horse's tail")[1]

CDC: Centers for Disease Control and Prevention.

CENTRAL NERVOUS SYSTEM (CNS): (sen' tral nur' vus sis' tem) Pertaining to the brain, cranial nerves and spinal cord. It does not include muscles or peripheral nerves.[2]

CEREBELLUM: The portion of the metencephalon which occupies the posterior cranial fossa, and is responsible for the coordination of movements.[1]

CEREBELLOPONTINE ANGLE: The angle between the cerebellum and the pons, a common site for the growth of acoustic neuromas.[2]

CEREBRAL: Referring to the cerebrum.[2]

CEREBRAL HEMISPHERE: Pair of rounded structures on either side of the midline of the brain that are partially separated by the longitudinal (interhemispheric) cerebral fissure.[1]

CEREBROSPINAL FLUID: The clear fluid made in the ventricular cavities of the brain that bathes the brain and spinal cord. It circulates through the ventricles and the subarachnoid space.[2]

CEREBRUM: The largest area of the brain, the cerebrum occupies the uppermost part of the skull. It consists of two halves called hemispheres. Each half of the cerebrum is further divided into four lobes: frontal, temporal, parietal and occipital.

CHOROID PLEXUS: A highly vascular secretory tissue, found within the ventricular system of the brain, responsible for secreting CSF (cerebrospinal fluid).[1]

CNS: See CENTRAL NERVOUS SYSTEM.

COC: Commission on Cancer. Established by the American College of Surgeons (ACoS) in 1922, the multi-disciplinary Commission on Cancer (CoC) sets standards for quality multidisciplinary cancer care delivered primarily in hospital settings; surveys hospitals to assess compliance with those standards; collects standardized and quality data from approved hospitals to measure treatment patterns and outcomes; and uses the data to evaluate hospital provider performance and develop effective educational interventions to improve cancer care outcomes at the national and local level. (From the ACoS website: www.facs.org.)

COMPUTED TOMOGRAPHY (CT): A computerized imaging technique that take multiple X-ray measurements and then constructs a 2D or 3D image of the body.[1]

CORPUS COLLOSUM: Literally "hard body". A large bundle of white matter, found in the longitudinal fissure, forming a "commissure" by interconnecting the two cerebral hemispheres.[1]

CORTEX: The outer layer of a body or organ structure. From the Latin word for "bark". (Like the "cortex" of the kidney or brain.)[1]

CRANIAL NERVES(7/8): The twelve pairs of "nerves" that are directly connected to the brain. They are the nervi olfactorii(I), opticus(II), oculomotorius(III), trochlearis(IV), trigeminus(V), abducens(VI), facialis(VII),vestibulocochlearis(VIII),glossopharyngeus(IX), vagus(X), accessorius(XI),and hypoglossus(XIII). The olfactory "nerve" and the optic "nerve" are actually post-synaptic tracts with glial cells like astrocytes and oligodendrocytes, rather than Schwann cells.[1]

CRANIECTOMY: Surgery performed on the skull where pieces of bone are removed to gain access to the brain, and the bone pieces are not replaced.[2]

CRANIOTOMY: Surgery performed on the skull where a portion of bone is removed to gain access to the brain, and the bone is put back in its place.[2]

CT or CAT SCAN: **C**omputerized **A**xial **T**omography. An x-ray device linked to a computer that produces an image of a predetermined cross-section of the brain. A special dye material may be injected into the patient's vein prior to the scan to help make any abnormal tissue more evident.[2]

CSF: See CEREBROSPINAL FLUID.

DURA MATER: The outermost, toughest, and most fibrous of the three membranes (meninges) that cover the brain and spinal cord.[2]

EDEMA: Swelling due to an excess of water. [2]

EPIDEMIOLOGY: The study of the distribution of disease and its impact upon a population, using such measures as incidence, prevalence, or mortality.[2]

EXTRACEREBRAL: Located outside the cerebral hemispheres.[2]

EXTRADURAL: External (outside) to the dura mater.[2]

FOURTH VENTRICLE: The cavity in the rhombencephalon located between the medulla oblongata, the pons, and the isthmus ventrally and anterior and the cerebellum dorsally and posterior.[1]

FRONTAL LOBE: The portion of the anterior cerebral hemisphere from the frontal pole to the sulcus centralis (central sulcus).[1]

GFAP: **G**lial **F**ibrillary **A**cidic **P**rotein. This protein, found in microfilaments of glial cells, helps distinguish glial from non-glial tumors. A laboratory stain is used to test for its presence.[2]

GLIA: Supportive tissue of the brain. There are three types of glial tissue: astrocytes, oligodendrocytes and microglia. Glial cells do not conduct electrical impulses, as opposed to neurons.[2]

GLIOMA: Any tumor arising from glial tissue.[2]

GLUCOCORTICOSTEROIDS: Medications used to decrease swelling around tumors.[2]

HYDROCEPHALUS: Excess water in the brain due to blockage of cerebrospinal fluid flow, increased production, or decreased absorption.[2]

HYPERTHERMIA: The use of heat to kill tumor cells.[2]

HYPOPHYSIS: Pituitary gland.[2]

INTRACEREBRAL: Located within the cerebral hemispheres (cerebrum).[2]

INTRACRANIAL: Within the skull.[2]

INTRADURAL: Beneath the dura mater.[2]

INTRATHECAL: Injection into the sub-arachnoid space of the meninges. Usually done by lumbar puncture.[2]

INTRAVENOUS: Injection into a vein.

INTRAVENTICULAR: Injection into a ventricle.[2]

LASER: An acronym of **l**ight **a**mplification by **s**timulated **e**mission of **r**adiation. A surgical tool that creates intense heat and power when focused at close range, destroying cells by vaporizing them.[2]

LATERAL VENTRICLE: The CSF filled cavities located in each cerebral hemisphere.1

MAGNETIC RESONANCE IMAGING (MRI):

MEDULLA (Oblongata): The cone of nerve tissue anterior to the cerebellum and connecting the pons with the cervical spinal cord. It contains nerves responsible for respiration, circulation and special senses.[1]

MENGINGIOMA: A hard, firm, or rubbery, slowly growing extraaxial neoplasm, hypervascular, and arising from the arachnoid. They are usually attached to the dura. Meningiomas may cause erosion and thinning of the skull, as well as hyperostosis (bone thickening).[1]

MIDBRAIN: (Mesencephalon)The portion of the brain developed from the middle of the three primary vesicles in the embryo. In cross-section, the midbrain resembles "Mickey Mouse": the ears are the cerebral peduncles.[1]

MRI: Magnetic resonance imaging. A radiologic imaging procedure that uses a magnetic field and radiofrequency waves to produce an image.[1]

NPCR: National Program of Cancer Registries. The Centers for Disease Control and Prevention (CDC) has administered the National Program of Cancer Registries (NPCR) since 1994. This program is currently helping states and U.S. territories to improve their cancer registries; meet standards for data completeness, timeliness, and quality; use cancer data to support cancer prevention and control programs; train registry personnel; establish computerized reporting and data-processing systems; and develop laws and regulations that strengthen registry operations. (From the CDC website: www.cdc.gov/cancer/npcr/register.htm.)

OCCIPITAL LOBE: The cerebral lobe from the posterior pole to the parietooccipital fissure medially and continuous with the parietal lobe laterally. The occipital lobe is immediately above the tentorium, and is supplied by *the posterior cerebral artery*.[1]

OMMAYA RESERVOIR: A device with a fluid reservoir implanted under the scalp with a catheter to a ventricle. It allows for medication to be given directly to the CSF and into the brain.[2]

PARIETAL LOBE: The upper central portion of the cerebral hemisphere, posterior to the central sulcus, and anterior to the parietooccipital notch (medial hemisphere).[1]

PET SCAN: Positron **E**mission **T**omography. A scanning device which uses low-dose radioactive sugar to measure brain activity. This is a limited-use diagnostic tool.[2]

PHOTODYNAMIC RADIATION THERAPY: A light sensitive drug is given through a vein and concentrates in the tumor. Then, during a surgical procedure, a special light activates the drug. The activated drug kills tumor cells.

PITUITARY: An endocrine organ located at the base of the skull in the sella turcica ("*turkish saddle*"), and connected to the hypothalamus by a thin stalk.[1]

PONS (BRAINSTEM): Portion of the central nervous system between the medulla oblongata and the mesencephalon, consisting of the pars dorsalis and pars ventralis. The roof of the pons (the "*tegmentum*") forms the ventral/anterior floor of the fourth ventricle. In a sagittal view, the pons looks like the "pot-belly" of an overweight man.[1]

QUADRIGEMINAL PLATE AND CISTERN: The posterior part of the brainstem, at the mesencephalon (midbrain), has four knobby bit: two superior colliculi and two slightly smaller inferior collicul. The enlarged subarachnoid space posterior is called the Quadrigeminal Plate Cistern (QP or Kewpee Cister), and is contiguous with the ambient (circum-mesencephalic) cistern. The QP cistern looks like a smile. During brain herniation, the smile become crooked or disappears entirely, as the brainstem shifts and the subarachnoid space is obliterated.[1]

RECURRENCE: The return of symptoms or the tumor itself, as opposed to a remission.

SEER PROGRAM: The Surveillance, Epidemiology, and End Results (SEER) Program of the National Cancer Institute is an authoritative source of information on cancer incidence and survival in the United States. Case ascertainment for SEER began on January 1, 1973, in the states of Connecticut, Iowa, New Mexico, Utah, and Hawaii and the metropolitan areas of Detroit and San Francisco-Oakland. In 1974-1975, the metropolitan area of Atlanta and the 13-county Seattle-Puget Sound area were added. In 1978, 10 predominantly black rural counties in Georgia were added, followed in 1980 by the addition of American Indians residing in Arizona. Three additional geographic areas participated in the SEER program prior to 1990: New Orleans, Louisiana (1974-1977, rejoined 2001); New Jersey (1979-1989, rejoined 2001); and Puerto Rico (1973-1989).

The National Cancer Institute also began funding a cancer registry that, with technical assistance from SEER, collects information on cancer cases among Alaska Native populations residing in Alaska. In 1992, the SEER Program was expanded to increase coverage of minority populations, especially Hispanics, by adding Los Angeles County and four counties in the San Jose-Monterey area south of San Francisco. In 2001, the SEER Program expanded coverage to include Kentucky and Greater California, and New Jersey and Louisiana once again became participants.

The SEER Program currently collects and publishes cancer incidence and survival data from 11 population-based cancer registries and three supplemental registries covering approximately 14 percent of the US population. The expansion registries increase the coverage to approximately 26 percent. Information on more than 3 million in situ and invasive cancer cases is included in the SEER database, and approximately 170,000 new cases are accessioned each year within the SEER catchment areas. The SEER Registries routinely collect data on patient demographics, primary tumor site, morphology, stage at diagnosis, first course of treatment, and follow-up for vital status. The SEER Program is the only comprehensive source of population-based information in the United States that includes stage of cancer at the time of diagnosis and survival rates within each stage. The mortality data reported by SEER are provided by the National Center for Health Statistics. (From the SEER website: http://seer.cancer.gov)

SELLA TURCICA: Literally "turkish saddle", the rounded transverse depression on the superior side of the sphenoid bone that contans the hypophysis (pituitary gland).[1]

SHUNT: A drainage system. Spinal fluid flows from a ventricle into a body cavity via a tube. Used to relieve increased intracranial pressure caused by brain tumors that block the flow of spinal fluid.[2]

SPINAL CORD: Portion of the central nervous system within the vertebral canal, running from the foramen magnum to the upper part of the lumbar region, ending as the*conus medullaris*.[1]

STEREOTACTIC: Precise positioning in three dimensional space. Refers to surgery or radiation therapy directed by various scanning devices.[2]

STEREOTACTIC RADIOSRUGERY: A radiation therapy technique that uses a large number of narrow, precisely aimed, highly focused beams of ionizing radiation. The beams are aimed from many directions circling the head, and meet at a specific point.[2]

SUBARACHNOID SPACE: Cerebrospinal fluid filled space between the arachnoidea and the pia mater of the central nervous system.[1]

TEMPORAL LOBE: The lower lateral lobe of the cerebral hemisphere, containing the hippocampal formation and the amygdala.[1]

TRIGONE: (Lateral ventricle)The triangular area between the temporal and occipital horns at the junction with the body of the lateral ventricle.

1. Illustrated Glossary of Radiology; Anatomy, Examinations, and Procedures; From the Department of Radiology and Radiological Services; The Uniformed Services University of the Health Sciences. (From the website: http://rad.usuhs.mil/glossary.html)
2. American Brain Tumor Association Dictionary for Brain Tumor Patients. (From the website: www.abta.org/buildingknowledge3.htm)