

Course-CC-6 (Neuropsychology) Unit 2; Sem II

By

Ranjeet Kumar Ranjan,

Part time Assistant Professor, P.G Department of Psychology

Patna University

Contact No-993408701, E-mail: ranjeetkrbhu1234@gmail.com

TUMORS

A **tumor**, or neoplasm, is a mass of new tissue that persists and grows independently of its surrounding structures and has no physiological use.

Brain tumors grow from glia or other support cells rather than from neurons. The rate at which tumors grow varies widely, depending on the type of cell that gave rise to them. Tumors account for a relatively high proportion of neurological disease; after the uterus, the brain is the most common site for them.

Benign- Tumors that are not likely to recur after removal are called benign.

Malignant- Tumors that *are* likely to recur after removal—often progressing and becoming a threat to life—are called malignant.

Although there are good reasons for distinguishing between benign and malignant tumors, the benign tumor may be as serious as the malignant one, because benign tumors in the brain are often inaccessible to the surgeon. The brain is affected by many types of tumors, and no region of the brain is immune to tumor formation.

Tumors can affect behaviour in a number of ways. A tumor may develop as a distinct entity in the brain, a so-called encapsulated tumor, and put pressure on the other parts of the

brain. Encapsulated tumors are also sometimes cystic, which means that they produce a fluid-filled cavity in the brain, usually lined with the tumor cells. Because the skull is of fixed size, any increase in its contents compresses the brain, resulting in dysfunctions. In contrast with encapsulating tumors, so-called infiltrating tumors are not clearly marked off from the surrounding tissue; they may either destroy normal cells and occupy their place or surround existing cells (both neurons and glia) and interfere with their normal functioning.

SYMPTOMS

The general symptoms of brain tumors, which result from increased intracranial pressure, include

- i. headache,
- ii. vomiting,
- iii. swelling of the optic disk (papilledema),
- iv. slowing of the heart rate (adycardia),
- v. mental dullness, double vision (diplopia),
- vi. and, finally, convulsions, as well as functional impairments due to damage to the brain where the tumor is located.

TYPES

Brain tumors are distinguished on the basis of where they originate: they can be

- i. gliomas,
- ii. meningiomas, or
- iii. metastatic tumors.

Glioma is a general term for the roughly 45% of brain tumors that arise from glial cells and infiltrate the brain substance. Gliomas, ranging from the relatively benign to the highly malignant, vary considerably in their response to treatment.

Meningiomas are growths attached to the meninges, the protective outer layer of the brain. They grow entirely outside

the brain, are well encapsulated, and are the most benign of all brain tumors. But, even though meningiomas do not invade the brain, they are often multiple and disturb brain function by putting pressure on the brain, often producing seizures as a symptom. Although most meningiomas lie over the hemispheres, some develop between them and are therefore more difficult to remove. If meningiomas are removed completely, they tend not to recur. When they are present, however, it is not uncommon for these tumors to erode the overlying bone of the skull.

Metastasis is the transfer of disease from one organ or part to another not directly connected with it. Thus, a **metastatic tumor** in the brain is one that has become established by a transfer of tumor cells from some other region of body, most often a lung or a breast. Indeed, it is not uncommon for the first indication of lung cancer to be evidence of a brain tumor. Metastases to the brain are usually multiple, making treatment complicated, and prognosis poor.

TREATMENT

Surgery- The most straightforward treatment of brain tumors is surgery, which is also the only way to make a definite histological diagnosis. If feasible, tumors are removed, but, as with tumors elsewhere in the body, success depends on early diagnosis.

Radiation therapy-Radiation therapy is useful for treating certain types of tumors.

Chemotherapy-Chemotherapy has been successful in the treatment of tumors but has not yet been very successful in the treatment of brain tumors, partly because of the difficulty of getting drugs to pass the blood–brain barrier and enter the tumor.

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