Brain Tumors, Metastatic

A brain tumor is a growth in the brain. These tumors may be classified as primary or secondary. A primary brain tumor starts out in the cells of the brain. A secondary brain tumor means the tumor started elsewhere in the body and then traveled to the brain through the bloodstream. This spread of cancer is called metastasis.

Brain metastases outnumber primary tumors by at least 10 to 1. And they occur in 20% to 40% of cancer patients. About one quarter of lung cancer patients are discovered because their cancer spreads to the brain, before the patient knows there are problems in the lungs. The exact incidence of cancer spread to the brain is unknown. But it has been estimated that more new cases are diagnosed each year. This number may be increasing due to:

- Capacity of MRI (*magnetic resonance imaging*) to detect small metastases.
- Prolonged cancer survival, resulting from improved therapy.

80% of brain metastases occur in the cerebral hemispheres. 15% occur in the cerebellum. 5% occur in the brain stem. In more than 70% of cases, there are multiple metastases to the brain. But solitary metastases also occur. Brain tumors can develop directly from cancers that exist between the nasal passages and throat (*nasopharyngeal region*), by spreading along the cranial nerves or though the opening at the base of the skull (*foramen magnum*). Metastases in the dura (*thick covering over the brain surface*) may count for up to 9% of total central nervous system (CNS) metastases.

Even if a patient has had a previous cancer, a lesion in the brain should not be assumed to be a metastasis. This could result in overlooking appropriate treatment of a curable tumor. Brain tumors that start in the brain (*primary*) rarely spread to other areas of the body. But they can spread to other parts of the brain and to the spinal cord (*axis*).

The most common primary cancers that cause a metastasis in the brain are:

- Lung cancer (50%).
- Unknown primary cancer (10%-15%).
- Colon cancer (5%).
- Breast cancer (15%-20%).
- Melanoma (*skin cancer*) (10%).

SYMPTOMS

A patient with a brain tumor may experience:

- Headaches.
- Weakness.
- Seizures.
- Sensory problems.
- Problems with walking.
- Tiredness.
- Emotional changes.
- Personality changes.

Family and friends are often the first to notice emotional and personality changes.

DIAGNOSIS

The diagnosis of brain metastases in cancer patients is based on:

- Patient history.
- Neurological examination (*nervous system function test*).
- Specialized X-rays.
- A brain biopsy (*tissue sample*). This is usually a stereotactic biopsy (*using a precisely directed, delicate instrument*). Biopsy may be needed when there is a:
  - Solitary lesion.
  - Questionable relationship to a primary tumor, if one is present elsewhere in the body.

TREATMENT

Your treatment will depend on what the problem is and where it came from. Sometimes removal of the tumor will tell you where it started. It may be that the primary tumor can also be removed. Chemotherapy or radiation treatments are sometimes required. Your caregiver will discuss treatment options with you.

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