

Chapter 3

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- Tumor Location and Symptoms

Symptoms Associated with Brain Tumors

Unfortunately, it is quite common for brain tumor patients to experience symptoms associated with their tumor, as well as side effects of the treatment. Symptoms and side effects may be the result of the type of tumor, the location and/or size of the tumor, and the type of treatments utilized (see Symptoms Based on Tumor Location, page 3.7). Surgery, radiation, chemotherapy, and drug therapies may all affect the regions of the brain they are directed to as well as alter neurological functions such as the release of hormones and chemicals in the brain. **The symptoms your loved one experiences may change over time. They may include both physical and psychological changes.** This chapter will briefly describe the most common symptoms in people being treated for a brain tumor, and will suggest what to do if the symptoms occur.



Common Brain Tumor Symptoms

The most common symptoms experienced by patients with brain tumors are headaches and seizures. Both may be managed with medication. Sensory and motor loss may be managed and adapted to with use of occupational and physical therapies. Deep venous thrombosis is best managed by preventive measures and early aggressive intervention if those measures fail. Hearing and vision changes may occur throughout treatment and may be treated with specialized interventions. Psychological symptoms such as fatigue, behavioral, and cognitive changes may be treated with cognitive therapy, psychotherapy, and medication¹ (see Psychological Symptoms of Brain Tumors, page 3.6).

Although you should discuss all new symptoms your loved one experiences with your physician or nurse, the table on the following page, “What To Do About Common Brain Tumor Symptoms,” offers some common advice about what to do and whom to call if these symptoms develop.

One symptom that deserves special attention is depression. Current research shows that symptoms associated with depression are common with brain tumors as well as after

surgery to remove the tumor, and may increase over time². Symptoms may include prolonged feelings of sadness, loss of interest or pleasure in things, feelings of worthlessness or guilt, insomnia, decreased energy, and even thoughts of suicide.

Untreated depression can slow rates of recovery from treatments and cause other health problems. Depression affects not only the patient’s quality of life, but also that of the caregiver.

It is critical that you are able to identify the signs and symptoms associated with depression. Your loved one’s medical team is likely to concentrate on the treatment of the brain tumor, and may overlook depression signs, which are similar to post-operative side effects. By carefully looking for symptoms of depression, you may be the first to identify this important illness and you can then alert the doctor to your concerns. The doctor can perform professional formal screening and diagnosis of depression and offer effective treatments such as medication and/or psychotherapy.

Common symptoms experienced by patients with brain tumors include¹:

- Headache
- Seizures
- Sensory (touch) and motor (movement) loss
- Deep Venous Thrombosis (DVT or blood clot)
- Hearing loss
- Vision loss
- Fatigue
- Depression
- Behavioral and cognitive (thinking) changes
- Endocrine dysfunction (hormone/gland changes)

What To Do If Symptoms Occur

The following chart is to help family caregivers understand some common symptoms that their loved one may experience. This chart provides only a rough guide and does not take the place of an in-person assessment by a physician. If there is any question about the seriousness of a symptom, please contact your loved one's physician or get your loved one to an emergency room immediately.



Seizures

DESCRIPTION	WHAT TO DO	WHO TO CALL
<p>Myclonic</p> <ul style="list-style-type: none"> ● Single or multiple muscle twitches, jerks, spasms <p>Tonic-clonic (Grand Mal)</p> <ul style="list-style-type: none"> ● Sudden onset ● Loss of consciousness and body tone, followed by twitching and relaxing muscle contractions ● Might bite tongue ● Lose control of body functions ● Patient may have short periods of no breathing (30 seconds) and may turn dusky blue ● Lasts 2-3 minutes, followed by limpness ● After-effect: sleepiness, headache, confusion, sore muscles ● Patient may have brief weakness or numbness after a seizure 	<p>DURING:</p> <ul style="list-style-type: none"> ● Make sure your loved one is breathing ● Clear area of sharp objects or anything dangerous ● Protect the head from being bumped ● Don't put anything in the mouth ● Don't attempt to restrain limbs during seizure since it could result in injury <p>AFTER:</p> <ul style="list-style-type: none"> ● Try to lie person on side, keeping airways open ● Allow time for recovery ● Help with reorientation: tell your name, where you are, what happened ● Encourage the person to rest until he feels like himself again ● May need to adjust dosage of seizure medication ● Maintain record of seizure symptoms 	<ul style="list-style-type: none"> ● Seizures in patients with known brain tumors are not necessarily an emergency ● Call your neuro-oncologist or treating physician during business hours to inform them if seizures are a new symptom ● CALL 911 if: <ul style="list-style-type: none"> ● Person is not breathing or has difficulty breathing ● Injury occurs ● Seizure lasts longer than 5 minutes ● 2nd seizure follows immediately after ● Patient doesn't wake up after first seizure, or has second seizure without waking up in between

Headaches

DESCRIPTION	WHAT TO DO	WHO TO CALL
<ul style="list-style-type: none"> ● Steady and worse upon waking in the morning and clears up within a few hours ● Persistent non-migraine headache ● May or may not be throbbing, depending on location of the tumor ● May worsen with coughing or exercise or with a change in body position ● Some are associated with new neurological deficits 	<ul style="list-style-type: none"> ● Treat with medication prescribed by doctor ● Maintain record of headaches, if they are worsening ● Notify treating physician if prescribed medications are not working ● Ask patient the degree of pain: the worst headache of your life? 	<ul style="list-style-type: none"> ● CALL 911 or go the EMERGENCY ROOM if the headache is accompanied by a fever or neck stiffness ● CALL 911 or go to the EMERGENCY ROOM if the headache is the highest degree of pain ● Call local treating physician if you are unsure about what to do

Deep Venous Thrombosis (DVT)

DESCRIPTION	WHAT TO DO	WHO TO CALL
<ul style="list-style-type: none"> ● Swelling and pain in leg ● Skin on leg turns red ● One leg enlarges, and is bigger than the other one ● May indicate a blood clot 	<ul style="list-style-type: none"> ● Alert treating physician or neuro-oncologist immediately ● Seek medical care at primary care office or go to emergency room 	<ul style="list-style-type: none"> ● Call treating physician or neuro-oncologist immediately to alert them ● CALL 911 if you are unable to reach doctor

Pulmonary Embolism (a potential complication of DVTs)

DESCRIPTION	WHAT TO DO	WHO TO CALL
<ul style="list-style-type: none"> ● Chest pain ● Shortness of breath ● Fast heart beat 	<ul style="list-style-type: none"> ● Pulmonary Embolism is life threatening and needs immediate attention 	<ul style="list-style-type: none"> ● CALL 911

Nausea/Vomiting

DESCRIPTION	WHAT TO DO	WHO TO CALL
<ul style="list-style-type: none"> ● Nausea and decreased appetite can be associated with intracranial pressure ● May be a side effect of medication/ chemotherapy 	<ul style="list-style-type: none"> ● Maintain record of symptoms ● Alert treating physician at next appointment if symptom is new/severe 	<ul style="list-style-type: none"> ● Call treating physician during business hours if necessary due to symptom severity ● CALL 911 or go to EMERGENCY ROOM if patient is unable to stay hydrated

Motor & Sensory Problems

DESCRIPTION	WHAT TO DO	WHO TO CALL
<ul style="list-style-type: none"> ● Problems with balance and coordination; impaired coordination of arms, legs, and hands ● Problems with fine motor control (writing, eating) ● Awkward or stiff movements in arms and legs ● Tingling, numbness, or other odd sensations ● Falling ● Asymmetrical (lopsided) facial expressions ● Muscle weakness on one side of body ● Can be a temporary side effect of a seizure 	<ul style="list-style-type: none"> ● Most impairments don't require urgent care ● Maintain record of symptoms ● Some motor changes are symptoms of new stroke and need immediate attention 	<ul style="list-style-type: none"> ● CALL 911 or go to the EMERGENCY ROOM if motor changes have a sudden onset (new difficulty with balance, speaking, swallowing, walking, controlling hands or arms) ● Call treating physician or neuro-oncologist during business hours to inform them of recent changes if they have been developing over days or weeks ● Speak with a social worker, nurse, or neurologist for therapy referrals

Vision Loss

DESCRIPTION	WHAT TO DO	WHO TO CALL
<ul style="list-style-type: none"> ● Inability to recognize objects by looking at them ● Hallucinations ● Unusual visual perceptions such as double vision or blind spots in vision 	<ul style="list-style-type: none"> ● Maintain record of symptoms ● Alert treating physician or neuro-oncologist at next appointment 	<ul style="list-style-type: none"> ● CALL 911 or go to EMERGENCY ROOM if blindness develops suddenly ● Call treating physician during business hours if necessary due to sudden onset or symptom severity

Hearing Loss

DESCRIPTION	WHAT TO DO	WHO TO CALL
<ul style="list-style-type: none"> ● Ringing in the ears ● Decreased hearing ● Dizziness 	<ul style="list-style-type: none"> ● Maintain record of symptoms ● Alert treating physician or neuro-oncologist if symptom is new 	<ul style="list-style-type: none"> ● Call treating physician during business hours if necessary due to sudden onset or symptom severity

Identifying and Treating Psychological Symptoms

COGNITIVE AND BEHAVIORAL SYMPTOM	DESCRIPTION	TREATMENTS
Language and Communication	<ul style="list-style-type: none"> ● Difficulty with verbal fluency: speaking, reading, and/or writing 	<ul style="list-style-type: none"> ● Speech and language therapy ● Cognitive rehabilitation therapy
Emotion and Personality	<ul style="list-style-type: none"> ● Development of psychiatric symptoms: depression, anxiety, obsessive-compulsive behaviors ● Changes in emotional control: irritability, mood swings, withdrawal ● Socially inappropriate behavior ● Denial that behavior is a problem 	<ul style="list-style-type: none"> ● Cognitive rehabilitation therapy ● Psychotherapy ● Medication therapies
Learning and Memory	<ul style="list-style-type: none"> ● Difficulty processing, storing, and retrieving information ● Short-term memory loss 	<ul style="list-style-type: none"> ● Cognitive rehabilitation therapy ● Speech and language therapy
Attention and Concentration	<ul style="list-style-type: none"> ● Confusion ● Easy distraction ● Difficulty multitasking and planning 	<ul style="list-style-type: none"> ● Cognitive rehabilitation therapy ● Medication therapies
Executive Functioning	<ul style="list-style-type: none"> ● Decreased reasoning ability ● Impaired judgment ● Inability to apply consequences from past actions ● Requires frequent monitoring of the appropriateness of one's actions 	<ul style="list-style-type: none"> ● Cognitive rehabilitation therapy ● Problem solving therapy

Syptoms Based on Tumor Location

The brain acts as a central control for the body and mind. It is extremely complex, and is made up of many different structures that control specific functions. The symptoms your loved one experiences will depend on the type of tumor, and where it is located in the brain. Here is a list of the major parts of the brain, and some possible symptoms or functional loss that may result from a tumor in that region.

Frontal Lobe

- Weakness
- Paralysis on one side of body
- Mood disturbances
- Difficulty thinking
- Confusion
- Disorientation
- Mood swings

Parietal Lobe

- Seizures
- Paralysis
- Problems with handwriting
- Mathematical difficulty
- Motor skill deficits
- Loss of sense of touch

Occipital Lobe

- Loss of vision
- Visual hallucinations
- Seizures

Temporal Lobe

- Seizures
- Perceptual/spatial disturbances
- Inability to understand multi-step commands (receptive aphasia)

Cerebellum

- Loss of balance (ataxia)
- Loss of coordination
- Headaches
- Vomiting

Hypothalamus

- Emotional changes
- Deficits in perception of temperature
- Problems with growth/nutrition (in children)

¹ Stewart-Amidei, C. Managing symptoms and side effects during brain tumor illness. Expert Rev. Neurotherapeutics 5, (Suppl. 6), 2005.

² Litofsky N, Farace E, Anderson F, Meyers C, Huang W, Laws E. Depression in patients with high-grade glioma: results of the glioma outcomes project. Neurosurgery 54:358-367, 2004.