

## **Final Stages of Melanoma:**

Stage IV is the most advanced stage of melanoma. At this point, the cancer has spread to other lymph nodes, areas of skin and bodily organs such as the liver, lungs or kidneys. If there are few cancerous tumours, the doctor may choose to remove them.

Stage IV melanoma is advanced cancer that has invaded deep into the skin.

**Symptoms that will appear: all were in black, in blue are already being experienced by me**

### **Symptoms I am currently experiencing:**

Decreased coordination, clumsiness, falls

**Fever** (sometimes)

General ill feeling or lethargy or several days of manic energy – mine now over

Headache -- new or more severe than usual

Memory loss, **poor judgment, difficulty solving problems**

Numbness, tingling, **pain, and** other changes in sensation

### **Personality changes**

Rapid emotional changes **or strange behaviours**

### **Seizures that are new**

Speech difficulties

**Vision changes** -- double vision, decreased vision, peripheral animation

### **Vomiting -- with or without nausea**

Weakness of a body area

Panting when walking to fast or far

Legs and feet are sore, swollen and stiff

Hands are ultra sensitive, fingertips not the the same

Loss of strength, cannot open doors, operate keys, open jars

Always misplacing items

Forget how things works, get frustrated with cellphone, and sometimes pc.

Can only focus on one or two people at a time

Can not hear so well anymore when too much background people

Lost interest in world news and outer circle people

**Note: Specific symptoms vary. The symptoms commonly seen with most types of metastatic brain tumor are those caused by increased pressure in the brain.**

### **End of life symptoms of stage IV melanoma can be varied.**

First panting and is following by increasing difficulty breathing.

Patients who are gravely ill from stage IV melanoma may have changes in their breathing.

This is a period of rapid breathing followed by no breathing at all. Episodic coughing is not uncommon and rales and rattles can often be heard when a dying person breathes.

This is a result of the body's fluids collecting in the lungs. It can be a distressing sound but the Hospice Foundation notes that it is not an indication of pain or suffering.

### **Central Nervous System Changes**

Patients dying of stage IV melanoma may exhibit changes in their mentation. Their activity decreases and they may sleep quite a bit.

The Hospice Foundation notes that patients may not respond to conversation or questions. Patients with brain metastasis from the melanoma may lapse into a coma, a deep state of unconsciousness from which they cannot be aroused.

Hospice states that even though patients are in a coma they may still hear what is said and feel pain.

One of the last senses to go before death is hearing.

As patients near death, they may experience sensory changes and hallucinate or hear things that are not there.

### **Skin Changes**

Dying patients will exhibit skin changes.

The skin becomes cool to the touch as the body temperature decreases.

Blood pressure also drops and the extremities become cold due to decreased blood flow.

The normal pinkish colour of the skin may turn to a dusky, grey colour indicating that oxygen is not getting to the tissues. The fingernail beds may turn bluish or grey.

### **Pain**

Some patients may suffer with pain as they die due to metastasis to the bone. Others may feel pain because of difficulty breathing.

A dying patient need not suffer with pain. Hospice and palliative care teams are equipped to deal with pain and are able to administer medication to alleviate suffering.

### **Common Symptoms of metastatic brain tumours:**

Metastatic brain tumours present with the usual signs and symptoms of any expanding intracranial mass lesion.

These include increased intracranial pressure and focal neurological deficits with focal irritations.

Such symptoms include headaches, focal weakness, mental status changes, seizures, ataxia [inability to coordinate voluntary muscular movements] and sensory and visual changes.

Though most of these symptoms are of gradual onset, acute episodes may occur due to haemorrhages into a metastasis.

When such an event occurs, either choroid carcinoma or melanoma must be considered, because these have the greatest tendency to haemorrhage.

Because of the greater incidence of bronchogenic metastasis, these lesions represent the most common source of a haemorrhagic lesion.

### **Whole Brain Radiation Therapy (WBRT)**

**Brain metastases carry an ominous prognosis regardless of primary status or treatment given.**

**The median survival of untreated patients, or those treated with corticosteroids alone to reduce brain edema, is about one month.**

**Whole brain radiation therapy (WBRT) is the most widely used method of treating brain metastasis, despite the fact that patients treated this way have an expected survival of only three to four months.**

Death from recurrent or persistent tumours occurs in about 50% of the patients.

The radiosensitivity of the tumor itself is not taken into account when these patients are being treated. Most tumors that metastasize to the brain, such as non-small cell lung, renal, colon, and melanoma are radioresistant [resistant to radiation therapy].

**Worse yet, many treating facilities continue to use prophylactic cranial radiation despite the fact that only one study has ever demonstrated a statistically significant increase in life span.**

(Prophylactic radiation therapy is treatment given before lesions have appeared within the brain.

Significant neurotoxicity has been reported with the use of WBRT.

Acute effects include hair loss (alopecia), nausea, vomiting, lethargy, otitis media and severe cerebral edema.

Though some of these effects can be transient, dermatitis, alopecia, and otitis media can persist for months after irradiation.

Chronic effects are even more serious, and these include atrophy, leukoencephalopathy, radiation necrosis, neurological deterioration and dementia.

Reports of development of severe radiation induced dementia have varied between 11% in one-year survivors (23, 24, 27) to 50% in those surviving two years (7, 23). The time involved in this therapeutic intervention frequently is over two weeks, in itself a burden to many patients (5, 8).

Though adjunct WBRT has been prescribed in the past, and Patchell et al (16) showed that a subset of patients with favorable prognosis and a single brain metastasis that had surgery followed by adjunct WBRT had a median survival of 10 months, other subsequent randomized trials failed to show a benefit to surgical resection.

## **Radiosurgery**

Radiosurgery is a technique which allows the delivery of a single high dose of radiation in a highly accurate manner. The Gamma Knife (a dedicated neuro-surgical instrument) allows numerous beams of radiation to converge on a target site, resulting in a high dose of radiation delivered to the target site with a sharp dose gradient at the target edge. A recent report by Somaza et al (25) revealed that even in patients with radioresistant tumors (such as melanoma), local tumor control was achieved in 97% of patients and neurological improvement occurred in 53% of affected patients.

Median survival with radiosurgery alone improved from two to three months to nine months in patients with single or multiple metastatic melanoma lesions to the brain.

Despite such results, radiosurgery has not been considered a primary therapy. In the recent past most treatment centers treat only unresectable tumors or recurrent tumors with this modality

## **Multiple Metastases**

Twenty-two patients were treated: 8 females and 14 males. The range of lesions was between 1 and 21, with a median of 3.4 per patient. Twelve of 22 (55%) had WBRT. Age ranged from 38 to 80, with a median age of 60.

**The median survival was 8.7 months (3 to 55 months), with local control in 20 of 22 patients (91%). Eight patients (36%) required re-treatment for new lesions.**

Survival at one year was 24% in patients older than 60, but 54% in those younger than 60. Once again, the number of sites or prior WBRT did not have statistically significant effects on survival.

**Previous whole brain radiation therapy results have yielded no survival advantage to the treatment.**

The overall complication rate with one-session Gamma Knife has been 1.2%, in which patients having biopsy proven radiation necrosis required treatment with stereotactic aspiration and corticosteroids. This is a very low rate of complications.

## **Conclusion**

In conclusion, we believe that one-session Gamma Knife radiosurgery for brain metastases is a superior mode of treatment for either single or multiple metastases. Survival rates match or exceed those previously reported for surgery with whole brain radiation or whole brain radiation alone.

Radiosurgery yields added advantages: outpatient treatment, lower morbidity, greater flexibility in terms of local and number of tumors treated, and the ability to treat the patient over multiple periods of time for the development of new lesions.

We have not found that WBRT leads to a survival benefit nor that it prevents later onset of remote metastases in other brain locations.

In our opinion, radiosurgery alone is the primary mode of therapy for brain metastases, unless the patient presents with neurological deficits resulting from mass effect, thus requiring surgical intervention.

Radiosurgery clearly provides a very high rate of local control and preservation of neurological function with minimum effort and morbidity to the patient.