BC Cancer Agency www.bccancer.bc.ca

Headlines

Summer 09 A newsletter for brain tumour patients and their families

MEDICAL UPDATE

What type of tumour do I have?

BRAIN TUMOURS are classified according to specific features discovered in a pathologist's laboratory. A specimen from your tumour is critical for this analysis, whether the surgeon has removed as much tumour as possible or performed a biopsy, taking a very small sample. The pathologist uses special stains and other laboratory techniques to visualize the types of cells within the tumour sample. The most common type of brain tumour in adults is called a **glioma**, from the Greek word for "glue" or "holding together." Glial cells are the cells in the brain that support and nourish neurons, the "thinking cells" of the brain. There are far more glial cells than neurons.

Specific tumours under the glioma heading include **ependymomas**, **astrocytomas**, **oligodendrogliomas**, **and oligoastrocytomas or mixed tumours**, which are tumors that have features of both astrocytomas and oligodendrogliomas. Each type of tumour has distinctive characteristics that are recognizable by a pathologist, but sometimes the pathologist encounters unusual features that do not fit any particular tumour type. In this case, other pathologists might be asked to consult and help decide on the final diagnosis.

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Choice of View

By Jared Brick

Jared Brick was diagnosed with a pineal germinoma in January, 2000, and successfully treated with 2 brain surgeries, 4 cycles of chemotherapy and 17 radiation treatments. He graduated from Douglas College where he earned an associate of science degree in the spring of 2008. In September, Jared will be continuing his studies at UBC in the bachelor of science program.

I get out of bed in the morning,
pushed by the hope that today, by faith,
will be better than yesterday.
I hope that my getting up, and showing up,
will affect someone in a positive way.

Hope can be grand
and encourage us to change the world.
If not globally, than in one person's life.
Hope can be petite
and move us from point A to point B.

Yet, with hope, there is also hopelessness.
Usually brought on by the why questions.
Why get up?
What difference will it make?
Where do I fit in the grand scheme of life?
The questions that keep me from getting out of bed.

But why does life's scheme have to be grand?
From a mindfulness perspective,
all that exists is this moment we are in.
No moment to be the same again.

Jared Brick (right) and his brother Dustin

So what does this moment offer to me?
Either the hope that the next moment will be better or hopelessness in the fact that this moment will be the apex of my life.

It all comes down to my point of view,
and I choose hope.

Travel Tips

Planning a vacation? Here are some suggestions to keep your travel worry-free.

1. Stock up on medications before you leave so that you don't run out, especially if you're taking seizure medications or dexamethasone (steroid medication). Those medications should not be stopped abruptly, as this could bring on seizures or headaches, nausea and other symptoms of steroid withdrawal.
2. Carry your medications in your carry-on bags in case your luggage is lost.
3. Bring along your medical information, including:
   - your diagnosis
   - treatment you're receiving
   - your medication list
   - any allergies to medications
   - contact information for a member of your health care team
4. It is safe for you to travel by air, but for long flights (over 4 hours) drink lots of water and get up and walk in the aisles every couple of hours. This will help avoid blood clots, which may occur in people confined to cramped seats for long periods of time, especially when they're dehydrated. Your risk of developing a blood clot is also greater if you have a brain tumour.
5. Check your insurance to make sure you're covered for any medical emergencies in a foreign country.

What should I eat to make healthy blood?

CHEMOTHERAPY AND RADIATION therapy may temporarily affect your blood cells. Time is the most important factor in the recovery of your blood cells. However, a healthy diet will contribute to your general health and well-being and ensure a supply of the right building blocks for new blood cells. Here are some of the nutrients that are critical for the formation of blood cells, and the foods where you can find them.

Protein
Folate
Iron
Vitamin B12

1. High **protein** foods:
- Meat, poultry, fish
- Eggs – omelettes, quiche, etc
- Milk products – yogurt, cheese, custard, etc.
- Peanut butter, seeds, nuts
- Dried peas, beans – split peas, kidney bean, lentils, etc.
- Soy products – soy beverages, tofu

2. High **iron** foods
- Organ meats like liver, kidney, red meat, poultry
- Eggs
- Dried fruit – figs, prunes, raisins
- Whole grain and enriched breads, cereals, pasta
- Soybeans, firm tofu, lentils, kidney beans, chick peas
- Baked potato with skin
- Blackstrap molasses

*To improve absorption of iron in iron-rich foods, have a vitamin C-rich food at the same meal (such as orange, grapefruit, tomato, kiwi, strawberry, red pepper, cantaloupe, or papaya with the foods listed above in category 2).

3. High **folate** foods
- Organ meats
- Beans – lentils, navy beans, kidney beans, chick peas, lima beans
- Green leafy vegetables – spinach, Romaine lettuce, broccoli, brussel sprouts
- Beets
- Green peas

4. High **vitamin B12** foods
- Organ meats, beef, lamb, pork
- Eggs (yolks)
- Milk and milk products

Sample menu
Fish, chicken, tofu or beans
Baked potato or whole grain bread
Broccoli and a spinach salad with red pepper slices
Glass of milk or yogurt
Fresh or dried fruit

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What type of tumour do I have?
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Once the type of tumour has been established, the pathologist attempts to **grade** the tumour, which is a way of predicting how aggressively it will behave. There are different grading schemes used for different types of cancer, but for brain tumours, the most commonly used grading scheme is the one devised by the **World Health Organization (WHO)**. In this system, brain tumours are graded from 1 to 4, although the Roman numerals I, II, III and IV are usually used.

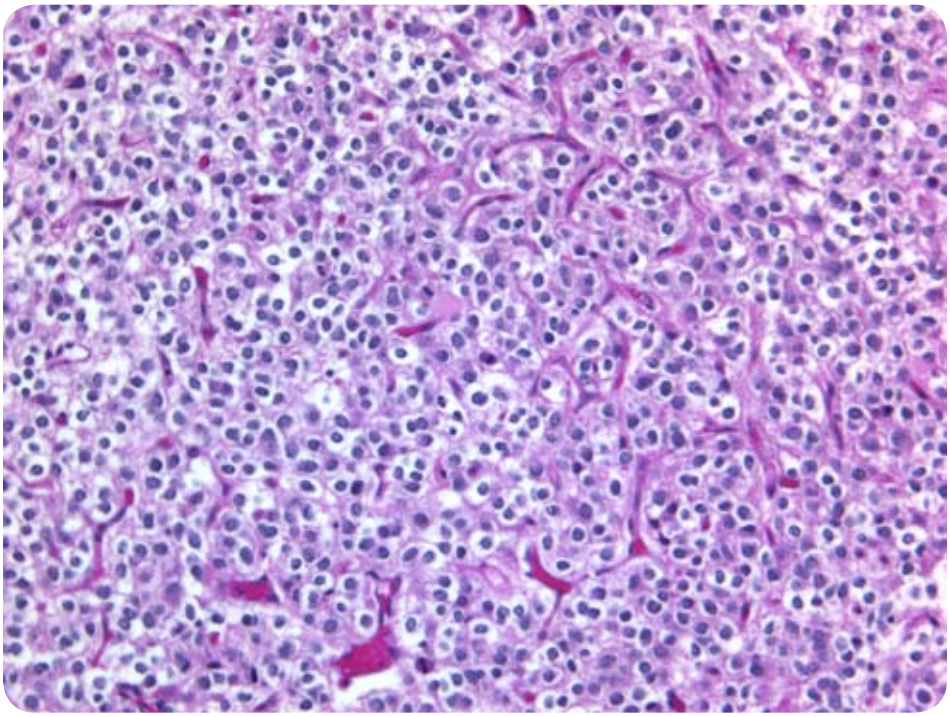
Grade I tumours have clear borders, so that it may be possible for a surgeon to remove them completely. These tumours are considered benign, although this word doesn't really apply to brain tumours, since even grade I tumours can cause disability or even death if they are in a location that is inaccessible to a surgeon's knife. Meningioma and pilocytic astrocytomas are examples of tumours that may be grade I. Grade II, III and IV tumours are "diffusely infiltrating" and can never be completely removed, because a surgeon cannot see or resect the scatter of miscroscopic tumour cells sprinkled within the brain. **Grade II tumours, also called low grade**, are recognized by having more cells present than normal brain (hypercellularity) and having unusually shaped and varied nuclei within the cell (nuclear pleomorphism). In addition to hypercellularity and nuclear pleomorphism, **grade III or anaplastic tumours** demonstrate easily detectable signs of cell proliferation (mitotic activity), meaning the cells are rapidly dividing. Finally, **grade IV tumours** have the features of grade II and III tumors, but because they are so rapidly dividing and in need of increased blood supply, they show new blood vessel growth (microvascular proliferation) and cell death or necrosis (when the cells outgrow their ability to grow new blood vessels). Most pathologists use the grade IV tumour classification interchangeably with the term **glioblastoma multiforme (GBM)**, the most aggressive type of brain tumour. In general, grade II and III tumours become more aggressive over time and ascend to a higher tumour grade.

Previously, the grade and pathological diagnosis of a brain tumour were the extent of the diagnosis. In recent times, we've learned that this is insufficient. For example, we now know that there are at least two types of glioblastoma, and that the pathways leading to them, as well as their prognoses, are different. There are a number of important new diagnostic tests that help oncologists to anticipate a tumour's behaviour and determine the best treatment for it. For example, a large study of glioblastoma tumours found that a particular protein, which is also a DNA repair enzyme, was critical to the tumour's ability to escape destruction by chemotherapy.

We all have many DNA repair enzymes, and they play an important role in correcting damage that naturally occurs within our cells over time, and has the potential to cause cancerous mutations. However, one DNA repair gene, **methylguanine methyltransferase (MGMT)**, was found to repair the damage done by chemotherapy to a glioblastoma's DNA. Many brain tumour centers are now testing for MGMT activity in glioblastoma tumours. This discovery also points the way to promising new avenues of treatment, because if we learn how to "silence" MGMT, our chemotherapies may be more effective in this disease.

In patients with oligodendrogliomal tumours, we now routinely perform a genetic analysis of tumour and blood samples. When the tumour demonstrates a rearrangement of chromosomes (the DNA-containing structures within our cells) involving loss of significant parts of chromosome 1 and chromosome 19, the patient is likely to respond well to any treatment, and also to do well for a long time. Most pure oligodendrogliomas, as well as many mixed tumours, are characterized by this abnormality, termed a **1p/19q loss of heterozygosity (1p/19q LOH)**. The reverse is called **retention of heterozygosity or 1p/19q ROH**. Some, but not all of these patients respond well to treatment too.

We are entering an exciting new time in brain tumour diagnosis, as efforts are underway to better characterize these tumours and develop more personalized and effective treatments.



Oligodendroglioma tumour as it appears under a microscope. Note the round dark nuclei, surrounded by "perinuclear halos" of cytoplasm. Pathologists have remarked that this tumour looks like a honeycomb, or fried eggs. Courtesy of Dr. John Maguire, Vancouver General Hospital, Department of Pathology

FREE Caregiver Education Series with a Palliative Care focus

My loved one has a serious illness. How do I cope?

Join with others who are caring for a family member or friend with a life-limiting diagnosis. Getting information, answers and support from professionals in the field will help combat the isolation you feel and give you a chance to network with people in a similar situation.

Three Monday evening sessions held at
Pacific Spirit Community Health Centre 2110 West 43rd Avenue Vancouver BC

Temporary caregiver relief may be available for caregivers wishing to attend the sessions but are unable to leave the person they are caring for home alone (or unattended).

Monday, June 22nd, 2009 6:30–8:30 pm
Legal and Health Care Decisions

Monday, June 29th, 2009 6:30–8:30 pm
Community Resources
A brief overview: The Medical Picture
Have all your questions answered by a palliative care doctor and home care nurse.

Monday, July 6th, 2009 6:30–8:30 pm
Loss and Grief
Managing your stress
Taking care of yourSELF

For Information and Registration: Call Will Tessier at 604 688 5161 or email: willtessier@gmail.com

Note: These three sessions will focus specifically on palliative care issues.
If you are interested in a more extensive six-week caregiver series, call 604 263 7377

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If you would like to submit an article, ask a question, or serve on our patient and family advisory board, please contact Rosemary Cashman at rcashman@bccancer.bc.ca or 604 877 6072 (phone) 604 877 6215 (fax).