LIVING BEYOND BREAST CANCER

Insights on Metastatic Breast Cancer

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BRAIN METASTASES:

Treatments, Emotions and Research Directions

BY ROBIN WARSHAW, FOR LBBC

Cathy Spencer

Cathy Spencer, of Calgary in Alberta, Canada, was receiving chemotherapy and trastuzumab (Herceptin) for stage IIIC HER2-positive breast cancer in February 2008 when she began having vision problems and other difficulties. She called her medical oncologist, thinking she might need new eyeglasses.

Her oncologist ordered a CT scan of the brain and results showed a large *brain metastasis*, or brain met, a spread of breast cancer. There were several treatment options, and her oncologist and neurologist spoke about how surgery could help.

"It was quite a blow, hearing that it had spread to my brain," says Cathy, who was 45 at the time and had two children, aged 8 and 12. "I had 100 percent faith in my doctors, but I still went home and cried for days on end."

After the tumor was removed, Cathy had *whole–brain radiation therapy*, WBRT, or radiation of the entire brain. It was given to lower her risk of developing new brain mets. More than 6 years later, the disease is stable, with no further spread of the cancer.

Breast Cancer Brain Mets

If you fear brain mets, you are not alone. It's common to worry about these tumors, or *lesions*, that may affect the brain's ability to control movement, speech and thinking. Plus, brain mets have been considered a sign of a poor medical outlook.

Though brain mets are a serious condition, fears about what will happen to you if cancer spreads to the brain "may be unfounded," says **Musa Mayer, MS, MFA**, a patient and research advocate with AdvancedBC.org and BrainMetsBC.org. "We have seen women who live years beyond a brain mets diagnosis and do very well."

As more effective breast cancer treatments become available, survival rates are increasing, along with the number of people developing brain mets. Most brain mets are found after metastases develop in the lungs, liver or bones, but some are a first sign of disease spread.

Brain mets can form in a person with any breast cancer subtype, but are more likely to arise in those with HER2-positive or triple-negative disease.

Part of the fear caused by the diagnosis is "based on what it was like to get a brain met in the past," Ms. Mayer says.

Today, because breast cancer can be well controlled throughout the body, people who develop brain mets are healthier and stronger and can often benefit from improved approaches.

"We now have some tools we didn't have several years back," says **Carey K. Anders, MD**, a medical oncologist at UNC Lineberger Comprehensive Cancer Center in Chapel Hill. While once there was little research taking place, now there are more clinical trials and more scientists exploring new avenues of study.

"At least half, if not more, of treated brain mets never come back, and patients don't die…because of progression in the brain," says Ms. Mayer. "I think [knowing] that can be reassuring."

As Insight went to press, the American Society of Clinical Oncology, ASCO, issued its first guideline on treating brain mets in metastatic HER2-positive breast cancer. Treatment recommendations include surgery and radiotherapy, or both, depending on size and number of mets, and other criteria. Surgery, WBRT and systemic (whole-body) therapies that have shown activity in the presence of brain mets are advised for some. HER2-targeted systemic treatments, such as trastuzumab, have more difficulty reaching the brain than other areas of the body.

Diagnosis and Treatments

Magnetic resonance imaging, or MRI, a scan that uses a magnetic field and radio waves to show images of the brain, usually confirms the presence of brain mets. Treatment depends on how many tumors are found and their sizes and locations, as well as the person's symptoms, strength and function.

SURGERY

For one or two large brain mets, doctors can perform a surgery known as *craniotomy*.

"Brain surgery sounds terrifying to most people, but it is very safe," says **Ganesh Rao, MD**, a neurosurgeon at The University of Texas MD Anderson Cancer Center in Houston. "If you have a lesion putting pressure on the brain, you take it out. We expect to see relief immediately."

Recent advances in technology pinpoint tumor location and help avoid surgical damage to vital areas of the brain.

For years, surgery was followed by WBRT to reduce the risk of regrowth of the cancer. That happens less often now as studies show radiation of the whole brain may cause long-term cognitive problems.

"There has been a trend away from WBRT," Dr. Rao says. "When we make that decision [to use it], it's not made lightly. Sometimes it has to be done."

Cathy describes her recovery from craniotomy as easy, because the only pain was from a headache and she was hospitalized for just 2 days. Chemotherapy was stopped before surgery, but she continued to take trastuzumab and also had WBRT.

STEREOTACTIC RADIOSURGERY (SRS, GAMMA KNIFE, CYBERKNIFE, OTHERS)

This kind of localized radiation has various names, but the methods of delivery are similar. A same-day procedure, *stereotactic radiosurgery*, or SRS, is used with fewer than four or five small tumors. Despite its name, SRS does not involve surgery or cutting the skin. Instead, in one session beams of high-dose radiation are delivered directly to each tumor.

Brain mets may take several weeks to shrink from radiation. As tumors die off, they can leave *necrotic*, or dead, tissue, which may be decreased with steroids, surgery or other therapies. WBRT may follow SRS, but that is less common now. SRS may be used again if other lesions develop.

Lori Prashker-Thomas, 42, from Wilkes-Barre, Pennsylvania, is receiving *3D conformal radiation therapy*, which shapes radiation to the tumor to spare healthy tissue, to shrink three brain mets so they can be removed. Diagnosed in 2010 with stage II, hormone- and HER2-positive disease, Lori carries the *BRCA2* gene mutation.

After brain mets were found in late 2013, she began radiation, which was to happen daily for 25 weekdays. She is receiving only three sessions weekly due to skin irritation, burning and pressure. "Right now, I seem to be OK. I'm just tired," she says.

WHOLE–BRAIN RADIATION THERAPY

When there are five or more brain mets, the entire brain is radiated. WBRT treats the mets seen on imaging scans, as well as undetected *micrometastases*, or small cancer cells, that could become larger.

The WBRT dose, which also radiates healthy brain tissue, is less than the SRS dose but is given over a longer period—often as daily weekday sessions for 2 weeks. Short-term side effects include hair loss, nausea and profound fatigue that lasts for about a month.

While WBRT works well at treating brain mets, cognitive difficulties such as memory loss and confusion may appear over time, even years later. This long-term effect has become more evident as people live longer. Recent research shows that taking memantine (Namenda), a medicine for Alzheimer's disease, during WBRT results in less cognitive decline.

WBRT also may produce short-term memory loss. "It gets better at 4 months and continues to improve as time goes on," Dr. Rao says. Researchers are exploring a technique to protect the *hippocampus*, the part of the brain that controls short-term memory, during WBRT.

Laureen Brock was 49 and almost 2 years past a diagnosis of stage I, triple-negative breast cancer when diagnosed with a large brain met. She had surgery and WBRT, a common approach to brain mets at that time.

"I have no [evidence of] cancer now and I've hit the 5-year mark, so I feel pretty good about it," says the Chattanooga, Tennessee, woman. But it has not been an easy road. After surgery, Laureen began having seizures. She suffers from memory loss, depression and vertigo.

Emotional and Social Impact

Brain mets can be challenging, whether you already had metastatic disease or it is your first diagnosis. Lori had added concern: her sister, who also carried the *BRCA2* gene mutation, had breast cancer brain mets and died 11 years ago.

"There are days I don't want to get up," Lori says, "I just want to sit and cry. I allow myself one day a month…Do it and get it over with. There are months I don't use it and I'm grateful."

Lori Prashker-Thomas

Laureen Brock

Brain mets may affect work life. As a self-employed photographer, Lori cancelled some jobs requiring travel but sees local clients. "I have to continue working," she says.

After brain met surgery and radiation therapy, Cathy returned to the dealership where she sold cars, but she switched to part-time office work. "I couldn't trust myself to do calculations and data," says Cathy, who no longer works.

Laureen was a nurse but now lives on Social Security disability. She broke her neck in a car accident last year. Doctors were uncertain if she had a seizure; she doesn't remember the accident at all. "I never found a 'new normal,'" she says.

Brain mets can seem frightening. Yet, many people find support by talking with others who have brain mets or another metastatic diagnosis. Cathy spoke at her local hospital and belongs to a metastatic breast cancer support group. She gives phone support to a woman with advanced disease and advocates for attention to metastatic breast cancer and brain mets.

Lori takes part in I Picture Hope, a network providing free photo sessions to women with breast cancer. She connects online with members of Camp Bravehearts, which offers retreats for women with cancer. (For more information visit facebook.com/iPictureHope and braveheartscamp.org.)

"I get a tremendous amount of support from those ladies," she says. "My husband and daughter are also truly amazing, and my friends."

Research Directions

At the National Cancer Institute, **Patricia S. Steeg, PhD**, and her lab team are exploring how the blood–brain and blood–tumor barriers keep medicines from reaching brain mets. They recently found that a chemotherapy used to treat glioblastoma, a type of brain cancer, worked in mice to prevent human breast cancer brain mets. "That was the biggest shock," Dr. Steeg says. It is not yet known when clinical trials with humans will begin.

Unlike in the past, now some trials accept participants diagnosed with brain mets. Researchers are looking at ways to predict risk and find effective treatments, including how to make existing breast cancer medicines better able to enter the brain.

"There's certainly more work going on now," says **Nancy U. Lin, MD**, clinical director of breast oncology at Dana-Farber Cancer Institute in Boston.

Brain mets trials once included people with several cancer types, but they have shifted. Now there are trials of targeted therapies, chemotherapies and other treatment approaches that enroll only people with breast cancer.

"There's more focus now on breast cancer being distinct and on the disease subtypes," Dr. Lin says. "I think that's a good improvement."

To find out about clinical trials recruiting those diagnosed with brain mets, go to BrainMetsBC.org or clinicaltrials.gov.

FACING STAGE IV TOGETHER:

An Interview With Kiara and Kai

BY PAMELA GROSSMAN, FOR LBBC

Kai and Kiara

What happens when you're diagnosed with stage III breast cancer as a 25-year-old doctoral student—and then with a stage IV recurrence just over 2 years later? **Kiara Kharpertian**, now 29, of Brighton, Massachusetts, decided life would go on.

The tumors that spread to her liver, lungs and bones responded well to treatment and, before long, Kiara began dating someone special. "We met last summer," she says of **Kai Stewart**, 25, a route-setter at a climbing gym in Watertown. "Then when I got clean scans in October, my roommates and I threw a giant party, and Kai came. We were inseparable from there—just 6 weeks after, I learned I had brain mets."

The couple spoke about facing stage IV cancer together—through good communication, laughter, self-care and determined rock climbing.

KIARA

I met Kai when I started climbing at the climbing gym where he was working.

KAI

I hear people complaining a lot about how they can't do a climb for some reason. But Kiara was successfully doing them despite muscle loss from her mastectomy. I was pretty impressed.

PAM

Yours is a new relationship. How has it changed or stayed the same as you've dealt with the issues of cancer?

KIARA

I think the relationship progressed much more quickly than it otherwise would have. Being sick this way makes everything seem more immediate.

KAI

Everything between us is very straightforward. I can say, “This is how I feel” or “This is what I think about things.” She’s very easy to date! [*laughs*]

KIARA

This is an unusual situation, and it can be hard. I can only help Kai manage it if I know how he’s honestly doing. So I listen to him and think about what I can do to help him based on what he needs, not on how I would react.

KAI

If something’s bothering her or she doesn’t feel well, I expect her to tell me. I don’t want her to say she’s feeling OK just to make me feel good. I’d hold it against her if she didn’t tell me the truth!

> *“I think it’s important to stay grounded in things we like to do—having things in our lives that are not related to cancer.”*

KIARA

He’s really good about that, which is great because I can never hide anything anyway!

When we’d been dating for 2 weeks, Kai looked at me very seriously and said, “I don’t know if I can do this.” But then immediately he said, “But I want to—can you tell me how?” And I said, “OK, yeah! I think this will work!” [*laughs*] It makes things much easier if you have someone you can admit your fears to. They become a lot less scary and more manageable.

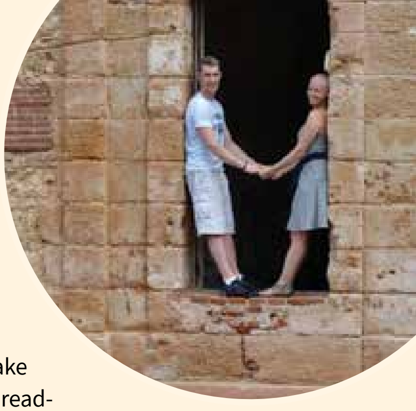
I’m figuring it all out as I go. There’s no handbook that says “Here’s how you can have stage IV cancer with grace and poise.”

KAI

She could probably write that book, actually.

PAM

Kai, how do you balance your needs against the situation Kiara’s in? She’s the one receiving treatment, but you’re still allowed to be human.



KAI

Sure. [*pause*] Kiara’s really good at asking me if I need time or space. I really like the outdoors, climbing and working out in general—it’s rewarding, fun and very meditative. So I try to make sure I fit in time for that. Or—I like reading about physics. I’ll take 20 minutes before we go to bed to surf the Internet and look at things I’m interested in but she isn’t. I take time here and there to do things just for me.

KIARA

And it’s important to me he does. If he’s not feeling stable and like he’s getting his needs met, then he’s no use to me!

PAM

Kiara, can you speak about any desire to protect Kai or others? You don’t want to hide anything, but sometimes we keep the people closest to us in the dark because we don’t want to worry them.

KIARA

I feel very protective of Kai. I get nervous sometimes that whatever is coming next will be too hard and too much for him. I want to keep him from having to deal with it, but that never lasts for very long. Emotionally, I want to protect him, but intellectually I know that’s not how it works.

Also, I think it’s important to stay grounded in things we like to do—having things in our lives that are not related to cancer. It’s not protecting ourselves, but creating a buffer between us and cancer. That helps a lot.

PAM

Continuing to be who you are—a human being with a real life and interests.

KIARA

Right. Cancer is a disease. It’s not me as a person.

PAM

And how do you make room for lightness or normalcy amid ongoing treatment? I know you climb together.

KIARA

I have a hard time staying serious for long. I grew up in a household where we thought that life’s too hard to be serious about it. This is too frightening when we look it straight in the eye all the time, so we joke about everything.

I think it’s really important to approach cancer with a good, healthy, obnoxiously relentless sense of humor. Cancer’s scary and overwhelming, something no one should ever have to deal with. But if it’s gonna be there, we might as well laugh.

Would you like to be interviewed for Insight*? Email editor@lbbc.org to find out how.*