

MY PROSTATE CANCER RETURNS

When I was diagnosed with prostate cancer in July, 2016, I had an MRI scan that showed the cancer contained within the prostate. That was good news, or so it seemed. Just to be sure, however, I received proton radiation to the lymph nodes of the pelvis.

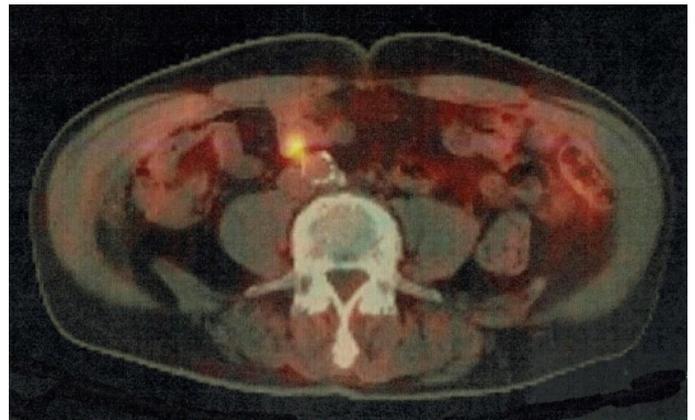
Before my proton therapy, my PSA was 16. Just afterwards, it was 1.46 and continued to decline over three years to 0.3. Then it began to go back up. By July, 2021, it was 2.3. Two full points above the PSA nadir is the threshold for BCR, biochemical recurrence. Time to do something.

Again I had a bone scan (negative) and an MRI (inconclusive). I was considering getting cryotherapy in which the prostate gland is obliterated through freezing. But then I received a scan approved by the FDA only weeks before, a prostate specific membrane antigen (PSMA) scan. More about that shortly. It was in no way inconclusive. It clearly showed prostate cancer in the abdomen lymph nodes a few inches above the previously treated area.

So, the original treatment for prostate cancer was successful with no recurrence. Had it recurred, more radiation would not have been recommended due to excessive toxicity. However, the cancer was in a new area and qualified for proton therapy. I returned to Knoxville, TN, for a full treatment in September and October, 2021. I was just as impressed as I was the first time.

PSMA . . . A GAME CHANGER

PSMA scans are going to change the way we diagnose, stage, and treat prostate cancer. My first attempt was to get into a PSMA clinical trial. After much effort, nothing worked out. Then I tried to contact the University of California in Los Angeles and San Francisco, as their PSMA scan was approved in December, 2020. They never answered. Next, I was informed that Oregon Health and Science University in Portland had been approved, but they were slow in scheduling me. In all these cases, the scan would have cost me more than five thousand dollars.



Finally I heard from Provision in Knoxville that they had been approved to offer the PSMA scan. I was there within two weeks. I was injected with a radioactive isotope that specifically seeks out prostate cancer and then given a PET scan. Above is my actual result. Can you see the location of the prostate cancer? Quite amazing. It changed everything. Within two more weeks I was in Knoxville for proton therapy treatment.

HOW PSMA SCANS WORK

The acronym stands for **P**rostate **S**pecific **M**embrane **A**ntigen. It is a transmembrane protein attached to the cell membrane of prostate cancer epithelial cells. Prostate cancer over-expresses this enzyme, at which point it is considered to be an antigen (foreign substance).

A chemical specifically drawn to the prostate antigen is joined with a radioisotope, an unstable element with additional neutrons in its nucleus (making it radioactive). This is detected by a PET scan, thereby locating any prostate cancer. My PSMA scan utilized the isotope piflufolastat F-18 also known as ¹⁸F-DCF¹⁸PyL or PyL (brand name: Pylarify), which was approved by the FDA on May 26, 2021.

The Pylarify website gives this description: “A fluorinated small molecule PSMA-targeted PET imaging agent that enables visualization of lymph nodes, bone and soft tissue metastases to determine the presence or absence of recurrent and/or metastatic prostate cancer.” Ah, lymph nodes, just what I needed. The PSMA scan can detect lesions as small as 4 mm. MRI scans rarely detect anything smaller than 8 mm, even though nodal metastases smaller than that comprise 80% of all cases.

Developed at Johns Hopkins, PyL was studied in three main trials with the names CONDOR, ASPREY, and PROPSMA. The participants in the CONDOR study had no visible cancer in standard imaging, yet a PSMA scan detected cancer with 85% accuracy. Some say it is even higher. It also located prostate cancer at lower PSA levels. All of this is great news for men facing prostate cancer.

In 66% of the cases, the result of the PSMA scan changed the intended management of the cancer. My intended cryoablation of the prostate would have been a horrible mistake and would have missed the cancer. Whew!

RELATED MATTERS

One decision for my treatment was whether or not to take hormones, the side effects of which can be quite severe. The oncologist I visited said that my rising PSA likely meant the cancer had gotten in the bloodstream and may have spread anywhere in the body. Only a systemic treatment like hormones would protect me.

But I knew hormones only work for a few years and then the body becomes resistant, leading to even harsher drugs. Pointing to my PSMA scan, I argued that the cancer never entered the bloodstream, it only went to the next higher node in the lymph system. So I refused hormones. Saved by the precision of PSMA.

A technology developing from PSMA scans is called theranostics. Rather than just attaching a radioisotope to the targeting drug to locate the cancer, it attaches a substance such as lutetium-177 that delivers a lethal dose of radiation to the cancer, all in a single treatment.

More than 40 years ago a biomarker was discovered called ribonucleic acid (mRNA). This held such promise for the development of vaccines that a company was founded to research the possibilities, calling itself **Moderna** (note mRNA in the name). This tiny molecule sends specialized instructions to our bodies. In the case of COVID-19 the body is told to make the spike protein that surrounds the coronavirus. Our immune system trains itself against these harmless spike proteins so that later, if confronted by the real coronavirus, our bodies are primed to destroy it. Hence, a vaccine. Nothing sinister. Its effectiveness can be verified by a blood test that shows the presence of protecting antibodies. I'm fully vaccinated and boosted. I hope you are, too.

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