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PROFILE

Shin Egawa. Born 1957 in Shizuoka Prefecture. Professor and Chairman, Department of Urology at Jikei Medical University. After graduating from Iwate Medical University, served as assistant professor in the Department of Urology at the Kitasato University School of Medicine, and as guest professor at Memorial Sloan-Kettering Cancer Center in the U.S., before assuming his current position in April of 2004. Dr. Egawa specializes in urologic oncology, particularly radical laparoscopic surgery and chemotherapy for prostate cancer.

At the Forefront of the Upsurge in Prostate Cancer

Shin Egawa, Professor
Department of Urology, Jikei University School of Medicine

The prostate gland is unique to men. The number of prostate cancer patients has surged over the past twenty years, and as we face an increasingly aged society, that number is expected to grow further. Dr. Shin Egawa, Senior Professor and Chairman of the Department of Urology at Jikei University School of Medicine, who also serves as chairman of the Scientific Committee of the Urological Association of Asia, is an authority on prostate cancer. JQR spoke with him about the issue.

Photos/Satoru Naito Interview/JQR

"Prostate cancer demonstrates no symptoms in its early stages. By the time symptoms appear due to pressure on the urethra, the disease has already advanced. At the same time, it was once commonly assumed that urination becomes more difficult as one ages, since over one-third of men 40 and over suffers from an enlarged prostate. The urethra runs through the middle of the prostate, so when prostatic enlargement puts pressure on the urethra, this can weaken the urine stream. Since this happened even to the grandpa next door, most people didn't think anything of it."

Dr. Egawa specializes in cancer of the prostate. The incidence of prostate cancer began to rise over the past 20 years, and according to statistics, the number of deaths in Japan has gone from around 1,000 people per year in the 1970s, to almost 11,000 in 2010. It is a formidable disease, and the number of those affected will undoubtedly grow as our society ages.

So what kind of treatment should be sought when prostate cancer is discovered?

"If the cancer remains limited to within the prostate, radical treatment will target that area. If it has spread, it becomes a more protracted battle, and

it also becomes difficult to treat if it has spread to the bones. In such cases, the survival rate after five years was once around 20%, but that has improved, and has now been extended another two years."

When asked for the meaning of "radical treatment," Dr. Egawa replied, "One that will enable the patient to live to 100. The operation is not the last we see of the patient. It's the start of a life-long relationship, and we are always planning for the next step. Really, the treatment itself is tailored to the patient. In the old days, surgery was surgery, radiation was radiation, and they were each handled separately, but today, treatment plans are coordinated to include everything from hormone treatments to chemotherapy."

Cancers Have Distinct Intensities and Growth Rates

The actual operation starts with projecting where the cancer lies in the prostate and to what stage it has progressed.

"Not all cancers are alike. There are differences in strength and in the speed with which they spread, and the potential for success varies with each. A strong cancer may make its way

through the outer membrane of the prostate, and escape from there. Leaving even one such cell behind will mean a recurrence of the cancer, though strictly speaking not in every case. We have to expect that some cancer cells have gotten away, and if that likelihood is high, we work around that area with the goal of fully excising the cancer." Incidentally, Dr. Egawa notes that even after the most thorough testing, a different situation may await once the patient is opened up. In the end, it comes down to on-the-spot decisions. "In reality, it is rare that surgery proceeds according to the original plan. While ideally we'd certainly like things to go as expected, we also need to be prepared for the unexpected."

The prostate gland is unique to men. Located at the exit from the bladder, it is primarily responsible for producing seminal fluid. This fluid plays an important role in giving sperm greater motility and increasing the chances of fertilization. The prostate is about the size of a walnut, and damage to the muscles at the tip of the prostate can result in post-surgical urinary incontinence and other problems. The nerves on the outside of the prostate also govern erectile function, making surgery even trickier.

While prostate cancer's mechanism has gradually been revealed, methods for prevention have yet to be found.

"Cutting away the nerves that control male functioning results in impotence. The nerves are located on both sides of the prostate, so we do our best to preserve 100% of one of the two nerves, even if it means leaving only one intact. This is because the ability to achieve an erection is so important to men, and a source of confidence."

Actually operating while leaving the nerves in place is not as simple as Dr. Egawa describes. He notes that the nerves, which are far narrower than a blood vessel, are entangled and stretched like an amoeba among the surrounding blood vessels. "Since the nerves are invisible to the eye, the surgeon will work to leave behind the blood vessels. The problem is that he doesn't know how the nerves are worked into the area, and that is where assumptions come into play. He will look at the cancer's strength and how it has spread, and estimate the possibility of



surgery will likely remain an option, great strides will be made by combining surgery with medication. Still, coming up with a way to prevent prostate cancer remains difficult.

Giving Patients Hope by Shining a Light on What Lies Ahead

"Today, one in three people is affected by an illness, and as we age, the chances of falling ill increase. It's like waiting for your number to be called. I once received some words of appreciation from the family of a patient who had passed away. He was in the Kansai region when his cancer was discovered, and came to me after being told there was nothing that could be done. I laid out for him what treatments were possible, explaining everything we could do at each step in the progression of his disease. And sure enough, he recovered from his terminal condition and went on to live another three years. It all comes down to milestones. Having been shown what lay ahead, I think perhaps a light came on in his heart, even if only for a short time. And I think that, as medical professionals, it is very important that we do not close off any possible pathways, that even faced with ultimate limitations, we let patients know that certain methods are available, that if we try one thing it can lead to other possibilities."



it being found in a particular location. Since the individual cells are invisible, it becomes a matter of probability. An MRI will only reveal objects at the five-millimeter level. Cells are mere microns in size, so there's no way to see them. Surgery proceeds on such assumptions. I suppose you could call it instinct, but this is an area that requires repeated experience."

Westernized Diets Bring Western-sized Cancers

Westernized diets are behind the increase in prostate cancer in Japan. Dr. Egawa also points out that as the use of PSA (prostate-specific antigen, a tumor marker) has made testing easier, cancer has become easier to detect.

"Stomach cancers and other cancers that are discovered upon autopsy of someone who has died of another disease are called 'latent cancers,' of which prostate cancer represents a high proportion. Latent cancers are said to occur in 30 percent of both Japanese and Americans 50 and older, and today that proportion hasn't changed. However, at Jikei University, when we examined latent cancers from 20 years ago and today, we found that they have doubled in size. While the reasons for this are not clear, it is said that perhaps the Westernization of our diets, with improved nutrition, have helped cancers to grow as well. This means that going forward, there is little doubt that the incidence of cancer will continue to grow in Southeast Asia and China."

So does this mean we can expect dramatic changes in the treatment of prostate cancer going forward?

"Robots have recently been used in some surgery, but for the prostate, there is still very little that only robotic surgery is able to do. That said, I think we will probably see more and more new robotic surgery procedures come to the fore in the future. For example, if robots become able to identify nerves that are invisible to the naked eye, we will be able to more accurately target and excise the affected area. This involves working at the micron level, and more specifically, we may see surgery in which we identify nerves not by looking with a microscope, but by lighting up each individual nerve."

Are there any effective ways to avoid

prostate cancer?

"Research has gradually shed light on how prostate cancer forms. It occurs not through spontaneous genetic mutation, but when genes combine, a process called fusion. The problem is that we don't know why this fusion occurs. Genes, however, generate proteins, which have a variety of functions. Then one gene fuses with another. In other words, when two genes get together that aren't supposed to, they create all kinds of weird proteins that go on to wreak a variety of mischief in the body. I think in the future, we'll see a variety of antibodies against these proteins, as well as drugs to neutralize them; in fact, we see them already in the field of leukemia. Once that happens, I think medical care itself will change. While