What my patients taught me about pain.

"Life is difficult" These words were stated by a famous psychiatrist and writer named Dr. M. Scott Peck who wrote a book called "The Road Less Traveled". But for some people who are suffering from pain, life is even more difficult. What is this elusive term called "pain"? You may say that of all people I should know better, since I have been a pain specialist for over twenty years, and have seen many patients coping with various pain problems. Over the years, my patients have taught me a lot about how they deal with pain. This reminds me of the popular song in the sixties by Crosby, Stills and Nash about parents to teach their children well, but I would like to change these verses to "patients teach your doctors well so that your lives may go well." One of the great unannounced truths in medicine is we doctors learn more from our patients than our textbooks or peers. All the stories that I will be presenting are true except the names and places have been changed. Some people deal with pain very well and others don't. Let me tell you some of their stories.

I once had a ten year old boy referred to me for a special nerve study to rule out nerve injury to his arm. His mother related to me the story of his injury. Jimmy was happily riding his bike when he lost control of it and fell on his out stretched right arm. He noticed pain right away and could not move his wrist or fingers. He quickly rode his bike with one good hand on the handlebar to the emergency room of a hospital nearby and calmly reported to the triage nurse that he might have broken his arm. He was asked by the nurse where his mother was and simply answered that he brought himself to this place to be checked out. He was found to have a serious fractures of the wrist bones. He was asked by the doctor whether he was experiencing any severe pain and he bravely answered, "No, sir. I was more worried about my mom finding out." Fortunately, the test did not reveal any nerve injury and he was in a cast for eight weeks. Today, Jimmy continues to ride his bike happily without any pain, but slightly more cautiously with both hands on the handlebar.

Another story is a 26 year old construction worker named Johnny Gigolo who injured his back while lifting a 10 pound bag. Despite all his diagnostic tests revealing no serious injury and every available non surgical treatment given to him, he continues to be debilitated with chronic pain. He is living on pain killing pills. He hardly sleeps at night and walks very slowly with two canes on his sides. He had to be referred for multidisciplinary pain management involving different specialties such as medical doctors, clinical psychologists, physical and occupational therapies and nurse practitioners. The major emphasis is not focusing on his level of pain, but what he is able to do with the pain and improve on his sleep and daily activities.

Why is it that some people can heroically cope with pain with flying colors and others don't? What about this man who fractured several bones in his arm and leg but yet saved his two daughters and wife from the fire of his wrecked vehicle? When asked how he was able to save them and whether he was experiencing any pain, he simply replied, "I had to save them. I didn't know my arm and leg were broken until much later." It seems that people can sometimes control their level of pain and their perception of pain is

altered by their brains depending on various circumstances. More scientifically described, the brain can alter the perception of pain by ignoring the pain signals and sending signals to the body to block the pain. Isn't that amazing? Humans are endowed by our creator with this amazing system of checks and balances in our brains to control pain. But sometimes this system can go wrong and the pain perception is altered to cause debilitating chronic pain symptoms just like my patient named Johnny.

What is pain? Dorland Medical Dictionary defines pain as "a feeling of distress, suffering, or agony, caused by stimulation of specialized nerve endings." There are many different types of pain. Sometimes pain symptoms can be described as sharp, tingling, arching, boring, dull, throbbing or burning. But I like to categorize pain as either acute or chronic. Acute pain is any pain occurring from an injury or damage to the body tissues lasting for a short period of time. Any pain lasting more than six months is called chronic pain. For instance, our young friend Jimmy had a broken wrist and was in acute pain preventing him from using his wrist to ride his bicycle but after eight weeks in a cast, he was able to use his hand again without pain. But, in contrast, our poor Johnny, who had injured his back at work even after more than six months of treatment, is debilitated by his chronic pain.

Why is it that Jimmy had gotten better so quickly and Johnny did not? In order to answer this question, I will have to probe further into the mechanism of pain generation and how the brain perceives this sensation of pain. As stated above, pain is a feeling perceived by the structures in the brain caused by stimulation of specialized nerve endings. What are these specialized nerve endings? A human body has these specialized nerve endings called "nociceptors" ready to send signals to the central nervous system such as the spinal cord and to the brain. These specialized nerve endings are categorized into two major types. The first one is called "A-delta" fiber and it is a very fast conducting fiber sending signals to the brain instantly and the other which is called "C" type sends signal very slowly and persistently. When a certain part of the body is injured or damaged, these specialized nerve types are activated and send signals to the brain and we then perceive the sensation of pain. Researchers have shown that even after weeks or months after the injury, these specialized nerve endings, especially the "C" types continue to send a signal to the brain. So, should we experience pain most of the time then? No, and this brings us to the discussion of the most complex and mysterious system of our body and that is our brain.

Our human brain is the most complex and mysterious system of the body. Some make the analogy of our human brain to a computer. In fact some scientists predict that we will have a computer that will have the same capacity of an average human brain in 2035, and it will surpass all human brain intelligence in 2045. Is it possible? How can you program a computer to perceive pain? Our human brain can be divided into three parts called the New, Middle or Old. The Old Brain oversees such functions as self preservation, circulation of the blood, breathing and reflex systems. The Middle Brain is the part of the brain that "feels". It processes emotions and feelings and also shares its findings with the other two parts of the brain. The New Brain "thinks". It processes the data and shares its information with other parts of the brain.

Once the pain signal arrives to the brain, it is sent to various structures for processing. The complete pain experience involves the interaction of various brain areas. There is also a network of brain systems called the "opiate" centers that send signals to other parts of the brain, to the spinal cord and to the specialized nerve endings to block or alleviate pain. These opiate centers are sometimes called the pleasure centers. These areas release special chemicals called "endorphins". Neurosurgeons have noticed that when they accidentally stimulated this part of the brain, the patients felt instant and intense pleasures. In fact, researchers have found that by stimulating part of the middle brain in mice it gave intense pleasures, and they implanted stimulating electrodes so that the mice can push buttons to stimulate them. All the mice wanted to do is keep on stimulating this part of the brain. Some mice in fact died of starvation because they would rather stimulate this pleasure center of the brain than eat. But, when the neurosurgeons stimulated another part of the midbrain, the patient experienced intense pain and felt even depressed.

In our friend named Jimmy when he broke his wrist, immediately the specialized pain sensitive fibers sent a signal to the spinal cord, then crossed over to the opposite side of the cord and up to the various brain structures which then Jimmy perceived his injury as acute pain. Then the opiate centers of his brain sent signals to block or alleviate the pain. When his wrist fractured healed, he did not feel any further pain. But, sometimes the pain induced by tissue damage can become even more sensitive, and can become what we called "hyperalgesia." Some of my chronic pain sufferers may have these hyper sensitized nerve endings and continue to experience chronic pain. Sometimes, in some chronic pain sufferers, the pain centers of the Middle Brain continue to perceive pain even though the tissue damage may have healed completely. Even those who have their arm or leg amputated report pain in the limb that is no longer there. This phenomenon is called "phantom pain" and this will be discussed in my next patient.

Mr. Arnold White is a 74 year old veteran, who had his leg amputated in the war, came to me for pain he has been experiencing in his missing leg for years. He described the pain as a knife stabbing pain in his missing big toe and sometimes burning sensation around his stump. He was describing a phenomenon called "phantom" pain. The brain perceives signals from the amputated leg. Through various pain treatments, his level of pain was well controlled. His treatments consisted of proper wrapping of his stump, using his below knee prosthesis frequently and the used of TENS unit. TENS is short for "Transcutaneous Electrical Nerve Stimulation" that works on the principle of interrupting the pain signals from the body to the brain via the spinal cord. TENS unit sends high frequency and low intensity signals to the spinal cord to block the noxious stimulus from going to the brain. The new treatment now introduced is the mirror therapy whereby a patient with phantom pain is given a mirror to observe the opposite limb tricking the brain that it is observing the real limb in his amputated leg.

Sometimes I am puzzled why the same treatment given for a certain pain condition will help some patients and not others. Let me explain in the following patients. Mrs. Vivian Schultz is a 74 year old widower, who lost her husband 5 years ago through cancer, came

to me for her low back and leg pain. The only joy in life is her dancing. One day while dancing, her partner twisted her slightly too vigorously and she immediately experienced sharp pain in her left side of the low back and pain into the left leg. She was describing pain symptoms called sciatica. MRI or Magnetic Resonance Imaging study was performed revealing the reasons of her pain. She had a herniated disc between the fifth lumbar and first sacral vertebra going to the left side and causing interruption of the fifth nerve root. She had concerning left ankle and foot weakness controlled by the fifth lumbar nerve. I immediately performed a specialized procedure called left transforaminal fifth lumbar and first sacral epidural steroid injection under X- ray guidance. Immediately after the injection, Mrs. Schultz was not experiencing any leg or back pain. On the follow up visit, she had no back pain but slight numbness in the leg and continued weakness in the foot to the point that she could not dance. She said, "I will do anything if I could dance again." A second injection was given and as soon as I successful placed the medication just adjacent to the nerve root sheath, she had normal function of the leg. In the recovery room, she was able to walk without foot drop. Then I bravely asked her, "Shall we dance?" It was quite a sight. She did the "jitterbug" so beautifully and I not so well. But the nurses were clapping at the accomplishment.

Unlike Mrs. Schultz, my next patient with similar back and leg pain did not do as well even though she was given the same treatment. She is a 24 year old lady who was referred to me by a surgeon to manage the pain in the low back and left leg. She was found to have a herniated disc between the fifth lumbar and first sacral vertebra causing slight interruption of the nerve root. She was not a surgical candidate because of her body size. She said she injured her back when she was bending over to pick up her handbag. I scheduled the same injection of left transforaminal lumbosacral epidural steroid injection under X-ray guidance and this was done by me, but to my surprise this did not help her pain in the back or the leg. I have tried this injection two more times but didn't get any relief of her pain. Presently, she is receiving acupuncture treatment, and it is helping her pain condition.

So what is this treatment called acupuncture that I mentioned above? Acupuncture has been around for thousands of years in China. In the United States, it was popularized in the early seventies when former President Nixon visited China. Today, it is estimated over 15 million Americans have tried acupuncture and they are being helped by it. Acupuncture is defined as the treatment technique using fine needles inserted into the skin at precise points. Acupuncture is based on the classical Chinese theory that an essential life energy called "qi" flows through the body along the invisible channels called meridians. When the flow of "qi" is blocked or out of balanced, illness and pain result. According to this traditional Chinese idea, the stimulation of specific points along the meridians can correct the flow of "qi".

Let me now tell you how I got involved in pain medicine and acupuncture. My father was a physician and he got me interested in medicine ever since I was a small boy growing up in the remote part of a town in the country called Malaysia. My father was from South Korea and he was recruited by the Malaysian government to serve as a rural medical doctor in a clinic for patients with tuberculosis. One day as I was waiting for my

father to be done in his clinic, I saw two men being brought in stretchers. They were involved in a serious automobile accident. They were screaming because of their pains. Then I saw my dad giving them injections that made them calm down. I realized then the power of medicine and how immediately it had stopped their sufferings. From then on, I wanted to become a doctor just like my dad helping people with pain. The specialty I chose to fulfill my childhood dream is called Physical Medicine and Rehabilitation, which is a specialty involved in diagnosing and treating patients with various pain problems non- surgically and improving their functions in their everyday activities. In my early days of practice, I became disappointed with the conventional medical treatment options for a few of my chronic pain sufferers. Then I heard of Dr. Joseph Helms who is a world renowned family practitioner using acupuncture to treat his patients for various pain problems. I then pursued my interest and training of acupuncture under his tutorage for several years.

Over the years, I have incorporated acupuncture practice with Western traditional medical treatments, and have found significant improvement in pain control in a lot of my patients I have used the acupuncture for conditions ranging from migraine headaches to fibromyalgia. I often use electrical impulses during the acupuncture treatments. Researchers have now proven that acupuncture does work on certain pain conditions in humans and even in animals. Certain opiate chemicals called “endorphins” are released in the body after the acupuncture treatment to reduce pain. Furthermore, acupuncture treatments have long been relieving effects by modulating the descending and ascending pain signals in the spinal cord and the brain systems as discussed earlier.

Donna Sterling is one of my patients who had been helped by the acupuncture treatment. She is a 54 year old lady who developed severe and continuous pain in her right knee after her work related injury. She had undergone right knee endoscopic surgery for medial meniscus tear. She initially felt better after her surgery, but a few weeks later her leg swelled up and she was in severe pain again. Further diagnostic study revealed a condition called “complex regional pain syndrome”. Complex regional pain syndrome is thought to occur on some patients after various types of trauma and surgeries. Even a minor trauma can induce this pain syndrome. The exact mechanism of pain generation is unknown, but it is thought most likely related to a chemical imbalance of the pain generating fibers in the central nervous system, and the over and continuous firing of sympathetic pain fibers. One of the treatment options is what is called lumbar sympathetic bock. This procedure is done under X-ray guidance and medication of anesthesia is injected to the sympathetic stellate ganglia blocking the firing from these noxious pain fibers. Several injections were given, but did not relieve her symptoms. She could not tolerate any physical therapy, therefore acupuncture was tried and she is being help from this type of treatment. I continue to treat her on a weekly basis because she finds this is the only treatment that is helping her pain. Her level of pain is down to a minimum.

Some patients, despite all odds, deal with pain with such courage and human spirit that sometimes amaze me. Mrs. Shirley Whitney is one of these patients. She is a 66 year old lady who was sent to me by a surgeon for further pain management in her back. She had

multiple back surgeries that did not help her back pain and later developed what is called "failed back syndrome". She could not move or get out of bed without pain. When I initially saw her, her level of pain was a nine out of ten. Her back pain was also complicated by her breast cancer diagnosed several years go. A few years ago she was found to have possible metastatic lesion to the shoulder. I have tried various non surgical treatments on her, but the treatment that she finds most helpful is acupuncture. Her level of pain is down to 3-4 with her acupuncture and her daily activities have improved. Sometimes when she comes to my clinic for treatments, she is concerned that her cancer may have spread to her back. Fortunately so far, this has not happened. She is a hopeful and cheerful person despite her condition and problems. She is quite happy and hopeful that acupuncture will further relieve her pain and improve her daily functions at home.

I have come a long way from a young boy growing up in a small town seeing my dad treat patients with upmost care. I have always dreamed to be just like him someday. I guess it was in my bones for me to be a doctor. Now, it has been over twenty years since I have been a Physical Medicine and Rehabilitation physician, and I have loved every minute seeing my patients and knowing them up close and personal, and trying to rid them of their pain. Pain is a complex problem that many patients are troubled with. Some handle it very well and some are debilitated by it. Some are able to laugh about their pain, and some become courageous. Even with similar pain conditions and same type of treatments given, some do get well but others do not. I will cherish their stories. I thank God for this opportunity to know and treat them. I pray almost every day in clinic for me to be the instrument for their healing. One of my patients asked me, "Is my pain a good or bad thing?" I do not think pain is neither bad nor good. Through the stories of their suffering and coping with their pain, doctors like me have better understanding of pain and how to properly treat them. We will thrive to find new and better treatment options in the future. In conclusion, I like to tell my patients and readers who are suffering from pain that their pains are never useless, and there is always hope for new and better treatment options out there.

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