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S401. TCM Classics

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Pain

The pain is essential sense in human body. If we do not feel any pain, we cannot recognize our body alarming of danger of life. Pain protects our health and life. However, pain is uncomfortable. We avoid to have pain feeling and try to get rid of it by medication. Medical development is all for pain management.

What is the pain? The pain mechanism is explained to four categories in Western Medicine:

- <u>1. Nociceptive pain</u> (physical damage, sports injury, a dental procedure etc) the pain pathway is through to brain or spinal cord. There are two kind of pain nerve fibers to brain, $A\delta$ and C-fibers. $A\delta$ -fibers are short-lasting-pricking type of pain sensation. C-fibers is poor localization and dull pain sensation. (12)
- <u>2. Inflammatory pain</u> (postoperative pain, trauma etc) The damaged cells release chemicals including histamine, bradykinin, and prostaglandins etc.
- 3. Neuropathic pain (damage or disease affecting the somatosensory nervous system, Peripheral nerve neuropathy: Postherpetic neuralgia, diabetic neuropathy, caused by anticancer drugs, etc. Nerve or spinal cord neuropathy: post-stroke pain, pain after spinal cord injury, disc herniation, Trigeminal neuralgia etc.
- 4. Psychogenic pain (caused by psychological factors of emotion or stress, depression, anxiety etc) (2).

These pains occur alone or overlap in the body. Simply said, there are physical pain, tissue inflammation chemical response pain, nerve pain and mental pain. For finding the pain causes, we are asked, what kinds of pain, where is pain, how long, when feel pain, how degree of the pain. These questions give us the hints of the causes of pain. All this category of pains has pathways to brain, except mental pain.

How about in Traditional Chinese Medicine (TCM)? TCM Classic, Haun Di Neijing Suwen explains the pain.

"When the qi and blood flowing continuously through the body within the channels are attacked by a cold pathogen, they stagnate. If the cold pathogen attacks outside the channels in the periphery, it will simply decrease the blood flow. When it attacks within the channels, it actually blocks the qi flow and creates pain." (4) Additional, Giovanni Maciocia who is a world-renowned expert in Chinese medicine and acupuncture, wrote in his book of Diagnosis in Chinese Medicine: The pain has Full or Empty character of the condition. The pathogenic factors are exterior pathogenic factor, interior cold and heat, stagnation of Qi, stasis of blood, dampness, phlegm, retention of food. All these pathogenic factors obstruct the circulation of Qi or Blood, or both, and therefore cause pain. "Obstruction causes pain: if there is no obstruction there is no pain" (Bu tang ze tong, tong ze bu tong) (13)

The channels in TCM were discovered by the ancient Chinese physician Hua Tuo. TCM believe Qi permeates every part and every aspect of the body, it tends to collect and travel along pathways called "jing luo." These are the so-called "meridians" or "channels". The channel system connects all aspects of

the body together into one network of energetic communication. Channels are not real anatomical structures. The scientists have found no evidence that supports their existence. However, this idea was believed for over 2000 years until now and used for treating people in acupuncture.

When we study the channels of Acupuncture, we can find some pathways are matched or very close to nerve paths, blood stream paths, muscle fibers flow, etc.

There is pain condition of Osteoarthritis (OA). OA is the most common form of arthritis, affecting over 30 million people in the Unites States, 1 in every 10 people dealing with the painful effects of OA. It occurs when the protective cartilage that cushions the ends of your bones wears down over time. Although OA can damage any joint, the disorder most commonly affects joints in your hands, knees, hips and spine. (1)(2) OA is a progressive disease, and there is no cure. In worst cases, OA treatment may be surgery to replace the joint. However, there are many ways to manage OA effectively. (3)

OA is diagnosed by physical exam (to check the joint for tenderness, swelling), X-rays (cartilage loss, narrowing of the bone space), Magnetic resonance imaging (MRI), blood tests and joint fluid analysis for inflammatory chemical substances. (6) X-ray examination is the most common in clinic for OA diagnosis.

Mark L Friedman MD FACEP FACP is the Chief Medical Officer at First Stop Health said "In my years in medicine, I have seen people with X-rays that show NO EVIDENCE of joint damage and their blood tests show virtually no evidence of inflammatory disease, but their clinical symptoms are quintessentially those of arthralgias, immobility, even body-wide pain. I have seen other patients with knee X-rays showing joint damage so severe that they shouldn't be able to walk, but instead continue to play sports or dance without any significant pain or impairment. "(5)

Gregory Middleton, MD, US San Diego school of medicine said, "Numerous studies have shown that we cannot predict pain based on the severity of arthritis." "people can have mild damage and not be able to walk, or horrible damage and walking 5 miles a day." (14)

As a most known supplements for OA are glucosamine, chondroitin. Both of supplements are most researched in study of science and medicines, over 5000 reports. In 2014 the world bought over 29,000 tons. They were proved just a placebo by Dr. J Y Reginster (2001) and Dr. Hughes (2002). Placebo works very well for joint pain. Or glucosamine was no more effective than placebo. (11) (15) (16)

OA condition shows physical pain and phycological pain or both, it does not depend on any images of medical examinations.

I have a hypothesis. TCM channels cover all pain pathways, including mental, phycological pain in my experiences of OA. I was diagnosed when I was 30 years old. The medical doctor ordered my knees examinations of X-ray and MRI. The finding was knee joint degeneration, OA. It shows the early stage, however the pain was severe, not able to go downstair without holding something. Ther doctor recommended to take pain control medicines daily for preventing swollen and glucosamine, chondroitin supplements, also recommended to lose weight. Until I met the Acupuncture treatment, it had taken these medications. During activities, my knee was injured, it was meniscus partial tear. The X-ray showed same OA condition and some flipped meniscus tear. At this time, I had acupuncture treatments for knee injury. Since then, my knee became well. Now I do not take any medications or supplements. I recognize my OA pain was mostly phycological pain. This was supported previous paragraphs and studies

The both theories of Western medical and TCM, pain are "disorder or blockage, damage of signs through pathway". However, the mechanism is complicated and still unknown. OA was found in fossils of dinosaurs. Since human being exist, OA is there. According to my experiences and the researches, physical damages are not always the causes of pain. Unknown pain pathway is existing, but we cannot see. This is the similar idea as channel of acupuncture.

- (1) Osteoarthritis Symptoms and causes Mayo Clinic, <a href="https://www.mayoclinic.org/diseases-conditions/osteoarthritis/symptoms-causes/syc-20351925#:~:text=Osteoarthritis%20is%20the%20most%20common,%2C%20knees%2C%20hips%20and%20spine. Feb 22, 2020
- (2) Osteoarthritis Fact Sheet OA Information From ANRF

 https://curearthritis.org/osteoarthritis/?gclid=CjwKCAiA_Kz-
 BRAJEiwAhJNY7zkteZy0iRKo3oFL24ZXR5oc0ZRit4QgRjtDeMwK1WKCI3UQcGPttRoCv6kQAvD_BwE
- (3) The Stages of Osteoarthritis Progression

Chris Iliades, MD, Medically Reviewed by Niya Jones, MD, MPH, November 11, 2011 https://www.everydayhealth.com/osteoarthritis/stages-of-progression.aspx

- (4) The Yellow Emperor's Classic of Medicine, : A New Translation of the Neijing Suwen with Commentary, Book by Maoshing Ni, CH39
- (5) The problem with using X-rays to diagnose arthritis, MARK L. FRIEDMAN, MD, FACEP, FACP https://www.fshealth.com/blog/problem-x-rays-diagnose-arthritis
- (6) Osteoarthritis Diagnosis and treatment Mayo Clinic, Feb 22, 2020

https://www.mayoclinic.org/diseases-conditions/osteoarthritis/diagnosis-treatment/drc-20351930

- (7) History of OA https://www.arthrolink.com/en/osteoarthritis-folders/all-folders/osteoarthritis-and-history
- (8) placebo https://www.nytimes.com/2017/01/26/well/live/placebo-beats-supplements-for-arthritis-pain.html#:~:text=Many%20people%20take%20glucosamine%20and,study%2C%20the%20placebo%20worked%20better.
- (9) Placebo Beats Supplements for Arthritis Pain, By Nicholas Bakalar, Jan. 26, 2017 https://www.nytimes.com/2017/01/26/well/live/placebo-beats-supplements-for-arthritis-pain.html#:~:text=Many%20people%20take%20glucosamine%20and,study%2C%20the%20placebo%20worked%20better.
- (11) Does glucosamine really help joint pain?, 21 September 2016 https://www.bbc.com/news/magazine-37429050
- (12) Yam, Mun Fei et al. "General Pathways of Pain Sensation and the Major Neurotransmitters Involved in Pain Regulation." International journal of molecular sciences vol. 19,8 2164. 24 Jul. 2018, doi:10.3390/ijms19082164

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6121522/#:~:text=A%CE%B4%2Dfibers%20are%20activated%20under,localization%20and%20dull%20pain%20sensation.

- (13) Diagnosis in Chinese Medicine: A Comprehensive Guide, Jan. 16 2004, Giovanni Maciocia CAc, Chapter 29 Pain, page 253 to 255
- (14) Arthritis Pain is Complicated, Oct 3, 2017, Gregory Middleton, MD, Arthritis Pain is Complicated
- (15) Lancet, 2001 Jan 27;357(9252):251-6. doi: 10.1016/S0140-6736(00)03610-2. Long-term effects of glucosamine sulphate on osteoarthritis progression: a randomised, placebo-controlled clinical trial, J Y Reginster 1, R Deroisy, L C Rovati, R L Lee, E Lejeune, O Bruyere, G Giacovelli, Y Henrotin, J E Dacre, C Gossett, https://pubmed.ncbi.nlm.nih.gov/11214126/
- (16) Rheumatology (Oxford) 2002 Mar;41(3):279-84. doi: 10.1093/rheumatology/41.3.279. A randomized, double-blind, placebo-controlled trial of glucosamine sulphate as an analgesic in osteoarthritis of the knee, R Hughes 1, A Carr