

Understanding Back Pain

Referred Pain of Visceral Origin

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Referred pain is a term used to describe the phenomenon of pain perceived at a site adjacent to or distant from the origin of the pain. One of the most common sources of referred pain is that which arises from a bodily organ. This type of pain is referred to as visceral referred pain. It represents a subtype of nociceptive pain. Visceral referred pain tends to be paroxysmal and poorly localized, as opposed to musculoskeletal (somatic) pain, which is generally more constant and well localized. Undiagnosed referred pain to the back can result in inappropriate treatment and progression of an undiagnosed internal disorder.

Visceral pain can arise when an internal organ become inflamed or damaged. It can also develop when there is a tumor or lack of blood flow to an organ (ischemia). There are specialized nerve endings and receptors within internal organs that can become activated in the presence of certain stimuli. They respond to changes in temperature and to the presence of chemicals associated with inflammation and tissue damage. The distribution and type of specialized nerve endings and receptors varies between organ systems. Hollow organs such as the stomach, intestines, gallbladder, bladder, ureters and uterus contain mechanically sensitive nerve (sensory) receptors that respond to distension or overstretching of tissues. Mechanoreceptors, which may otherwise silent, can become recruited and more responsive to organ distension in the presence of inflammation.

Internal organs (viscera) are not equally sensitive to pain. Some organs can become extensively damaged without a distinct pattern of pain. For example, many disorders of the liver, the lungs or the kidneys may be painless with the only symptoms resulting from abnormal function of the organs. On the other hand, relatively minor lesions in viscera such as the stomach, the gallbladder, bladder or the ureters can produce excruciating pain.

Women commonly report pelvic referred pain associated with their menstrual cycle. Pelvic referred can also be attributed to organic pelvic disease, as well as from pregnancy, endometriosis or postmenopausal changes. Visceral pain, which arises from the pelvis often refers pain to the low back causing muscle spasms or stiffness.

Visceral pain is often perceived in regions distant from the location of the affected organ. In some cases, the referred pain is greater in intensity and distribution than the pain arising directly from the involved organ. The location of referred pain can help attending healthcare professionals diagnose disorders affecting internal organs. It is common for visceral pain to be referred to the neck or back. It often mimics the pain or discomfort associated with a spine disorder. For example, a lack of blood flow to heart muscle may refer pain to the mid back, anterior neck and/or left arm, a condition called angina pectoris. Referred pain can be experienced in the pelvic region and/or low back as result of pathologies involving the prostate gland, the intestines, the kidneys, bladder as well as other internal organs.

Many theories have been proposed in an attempt to explain the underlying reason for visceral referred pain. The mechanisms leading to referred pain are fairly complex representing different contributing factors. It is widely accepted that there are numerous pathways within the central nervous system (brain and spinal cord) that converge and carry (transmit) pain messages from the organs, skin and underlying musculoskeletal tissues such as tendons and muscles. This leads to a sort of "cross talk" between the various systems within the central nervous system. Subsequently, the brain may interpret pain arising from an area other than the actual source. Sometimes pain associated with a spine disorder and an internal disorder will coexist and overlap. For example, an individual may experience mid back pain secondary to spinal arthritis and degenerative disc disease while also experiencing referred pain to the mid-back secondary to underlying heart disease. Neck or back pain with a complicated origin may require an integrated multi-specialty diagnostic workup.