

REFERRED PAIN

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INFORMATION****ABSTRACT:****ARTICLE HISTORY:***Received: 22.05.2026**Revised: 23.05.2026**Accepted: 24.05.2026***KEYWORDS:***referred pain, pain
mechanism, nervous
system,
pathophysiology,
diagnosis, differential
diagnosis, clinical signs,
internal organ diseases,
pain syndrome, medical
practice.*

This article comprehensively discusses the phenomenon of referred pain, including its physiological and pathophysiological foundations. The mechanisms of pain origin, its transmission through the nervous system, and its manifestation in different parts of the body are scientifically analyzed. In addition, the relationship between referred pain and various diseases, particularly internal organ pathologies, is examined along with their clinical features. The article highlights the diagnostic importance of referred pain, modern methods used to identify it, and its role in differential diagnosis. Furthermore, it emphasizes that proper evaluation of referred pain is crucial for physicians, as misinterpretation may lead to diagnostic errors. The findings of this study are important for improving effective diagnostic and treatment strategies in clinical practice.

Pain is one of the most important protective responses of the human body and serves as a primary signal of various pathological processes. In medical practice, different types of pain are observed, one of which is referred pain. In this condition, there is no direct correspondence between the source of pain and the area where it is felt, which creates certain difficulties in diagnosis. The phenomenon of referred pain is mainly associated with the complex structure

of the nervous system and the processing of afferent impulses in the central nervous system. Signals from internal organs may be perceived as pain in specific areas on the body surface. Therefore, identifying the true source of pain is of great importance for physicians.

Referred pain is a complex neurophysiological phenomenon in which pain is perceived in a region different from its actual source. This is explained by the interaction between the central and peripheral nervous systems, the processing of afferent impulses, and neuronal activity in spinal cord segments.

One of the main theories explaining referred pain is the convergence-projection theory. According to this theory, afferent nerve fibers from internal organs (visceral) and from the body surface (somatic) converge onto the same neurons in the spinal cord. As a result, the central nervous system cannot distinguish between these signals and often “projects” the pain to a somatic region. For example, in ischemic heart disease, particularly angina pectoris, pain may be felt not only in the chest but also in the left arm, shoulder, neck, or even the lower jaw. Similarly, irritation of the diaphragm (e.g., in liver or gallbladder diseases) may cause pain in the right shoulder due to phrenic nerve involvement.

Central sensitization also plays an important role in the pathogenesis of referred pain. In this process, the excitability of neurons increases, causing even weak stimuli to be perceived as strong pain. Chronic inflammation, trauma, or long-term diseases may enhance this condition.

Clinically, referred pain is an important diagnostic sign in various diseases:

- Cardiovascular diseases: pain radiates to the left arm and shoulder
- Liver and biliary diseases: pain in the right shoulder and scapula
- Kidney diseases: pain spreads to the lower abdomen or inner thigh
- Gastrointestinal diseases: pain may radiate to the back

Referred pain is a complex phenomenon with significant diagnostic importance in clinical practice. Its uniqueness lies in the lack of direct correlation between the source of pain and its perceived location, which may complicate diagnosis. Therefore, physicians must have a deep understanding of its mechanisms.

Proper evaluation of referred pain is essential for early disease detection, prevention of misdiagnosis, and effective treatment planning. Further research in this area will contribute to the advancement of medical practice.

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