

The adrenaline-releasing sympathetic nervous system somehow links injured pain nerves with non-injured ones. Stimulation of this nervous system, such as temperature change, also seems to trigger the pain.

Undamaged nerves not only become active, but also respond to adrenaline. They may also become sensitive to stimuli such as pressure.

This condition was first described by S. Weir Mitchell, M.D., a 19th century neurologist, in his 1872 book,

"Injuries of Nerves and Their Consequences,"

which documented cases of Civil War veterans who had sustained injuries which resulted in "the most terrible of all the tortures which a nerve wound may inflict." Mitchell called the condition causalgia.

He described it thus:

"Under such torments, the temper changes, the most amiable grow irritable, the soldier becomes a coward, and the strongest man is scarcely less nervous than the most hysterical girl." One of his patients described the burning pain as a "red-hot file rasping the skin."

In many, pain was associated with a strange glossiness in the skin.

"The burning comes first, the visible skin-change afterwards,"

Mitchell reported.

"Of the special cause which provokes it, we know nothing, except that it has sometimes followed the transfer of pathological changes from a wounded nerve to unwounded nerves, and has then been felt in their distribution, so that we do not need a direct wound to bring it about."

Mitchell noted that

"The part itself is not alone subject to an intense burning sensation, but becomes exquisitely hyperaesthetic, so that a touch or a tap of the finger increases the pain."

Patients took obsessive lengths to avoid exposing the area to the air, Mitchell wrote.

"Most of the bad cases keep the hand constantly wet, finding relief in the moisture rather than in the coolness of the application."

Mitchell remarked on the way in which the pain took its toll.

"As the pain increases, the general sympathy becomes more marked. The temper changes and grows irritable, the face becomes anxious, and has a look of weariness and suffering.

The sleep is restless, and the constitutional condition, reacting on the wounded limb, exasperates the hyperaesthetic state, so that the rattling of a newspaper, a breath of air...the vibrations caused by a military band, or the shock of the feet in walking, gives rise to increase of pain.

At last...the patient walks carefully, carries the limb with the sound hand, is tremulous, nervous, and has all kinds of expedients for lessening his pain."