Pain Examination and Diagnosis

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KEYWORDS

• Pain • Complex regional pain syndrome • Neuropathic pain • Neuroma • Examination • Diagnosis

KEY POINTS

- Pain that is persistent is often of neuropathic origin.
- Patient descriptors of their pain can suggest pain of a neuropathic quality.
- Careful examination can help localize nerves that are pain generators.
- Diagnostic blocks are a critical step to confirming the location of pain generators.

INTRODUCTION

Pain management is an important component of the treatment of hand disorders. Pain limits patients' abilities to participate in therapy and can ruin a technically perfect procedure. Recognizing when pain has moved beyond the expected healthy response to a pathologic process allows clinicians to aggressively treat pain as its own separate disorder. This persistent pain is often neuropathic in origin and thus may require different treatment approaches.[1] This article reviews physical examination and additional diagnostic tests to identify when pain is pathologic and where likely pain generators reside.

First it is necessary to review some pain-related terminology.

Musculoskeletal Pain

Musculoskeletal pain is pain generated from injured tissue. Patients complain of a throb, ache, tenderness to palpation, which is often the expected pain after injury.

Neuropathic Pain

Neuropathic pain is defined by the International Association for the Study of Pain (IASP) as "pain caused by a lesion or disease of the somatosensory nervous system."[2]

Neuropathic pain is the focus of this issue because this is the pain that can persist long after the tissue has healed.

Allodynia

Allodynia is pain caused by a stimulus that does not normally provoke pain.[2] This type is the pain that occurs when the skin is lightly touched.

Dysesthesia

According to the IASP Web site, dysesthesia is "an unpleasant abnormal sensation, whether spontaneous or evoked."

Complex Regional Pain Syndrome

Complex regional pain syndrome (CRPS) is a chronic pain condition with pain out of proportion to the injury, and shows skin or vasomotor changes in the affected extremity.[3] This is a clinical diagnosis and patients must have pain out of proportion to the injury. They must also report at least 1 symptom in 3 of the 4 categories shown in **Box 1**.

This work was supported by an RR&D pilot grant RX000487 from the US Department of Veterans Affairs Rehabilitation and Research and Development Service.

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Hand Clin 32 (2016) 21–26
http://dx.doi.org/10.1016/j.hcl.2015.08.006
0749-0712/16/$ – see front matter Published by Elsevier Inc.

Box 1
Diagnostic criteria for CRPS

Must report at least 1 symptom in 3 of the following categories:

1. Sensory: hyperalgesia and/or allodynia
2. Vasomotor: temperature asymmetry, and/or skin color changes, and/or skin asymmetry
3. Sudomotor/edema: edema, and/or sweating changes, and/or sweating asymmetry
4. Motor/trophic: decreased range of motion, and/or motor dysfunction (weakness, tremor, dystonia), and/or trophic changes (hair, nail, skin)

Must show at least 1 sign[a] at time of evaluation in at least 2 of the following categories:

1. Sensory: evidence of hyperalgesia (to pinprick), and/or allodynia (to light touch, and/or deep somatic pressure, and/or joint movement)
2. Vasomotor: evidence of temperature asymmetry and/or skin color changes, and/or asymmetry
3. Sudomotor/edema: evidence of edema, and/or sweating changes, and/or sweating asymmetry
4. Motor/trophic: evidence of decreased range of motion, and/or motor dysfunction (weakness, tremor, dystonia), and/or trophic changes (hair, nail, skin)

[a] A sign is counted only if it is observed at the time of diagnosis.

From Harden RN, Oaklander AL, Burton AW, et al. Complex regional pain syndrome: practical diagnostic and treatment guidelines, 4th edition. Pain Med 2013;14(2):184; with permission.

HISTORY

The history is the first step to understanding the pain process and can alert the clinician to the possibility of a neuropathic pain component that is separate from the soft tissue injury.

Pain Quality

The descriptors of pain that patients provide can be very informative. Neuropathic pain is often described as a shooting or burning pain. Patients complain of dysesthesias. They may describe their pain as the skin feeling like it is raw, bugs are crawling on it, or a vice sensation. These types of descriptions should alert providers to the potential of a neuropathic pain generator.

Pain Severity

Pain that is more severe than is explained by the trauma should be a red flag that the patient is at risk for prolonged pain (this is true both preoperatively and postoperatively). Severe preoperative pain is one of the strongest risk factors for transitioning to chronic pain.[4]

Pain Duration

Duration of pain is an important clue to whether pain is becoming a maladaptive process. If pain is a healthy protective response, it should ease and eventually resolve when the tissue injury has healed. Pain that continues after the tissue has healed becomes a disorder of its own. Multiple studies of postsurgical pain have found that about 20% of patients have persistent postsurgical pain.[5] However, when does the transition to persistent pain happen? The time to pain resolution likely varies depending on the severity of the inciting trauma. We studied minor hand surgeries (open carpal tunnel release and trigger release) to try to understand the pain trajectory after minor hand surgery. After surgery, the patients were called daily to ask whether they still had surgical pain (**Fig. 1**). Median time to pain resolution was 16 days. Patients who still had pain after 1 month had different pain trajectories, with high risk of pain continuing for weeks or months. For hand surgeons, the message from this study was that, for minor hand surgery, if a patient still has pain 1 month after a procedure, then the patient is entering the pathologic pain category; these are the patients who require increased pain-reducing interventions: therapy, medications, and so forth.

Pain Catastrophizing

This is a psychological maladaptive behavior to pain. Research is increasingly showing the importance of pain catastrophizing as a risk for prolonged pain and poor recovery after trauma. There are measures for this, including the Pain Catastrophizing Scale, but these may be difficult to implement in a busy clinical practice.[6] Patient statements such as "I feel this pain is going to ruin my life" or "I don't think I can go on with this pain" should alert the provider that pain catastrophizing may be a component affecting the patient's recovery. If the patient seems to be ruminating on the pain or having catastrophic thoughts in relation to the pain, the clinician should consider the possibility of a psychological behavior that is contributing to the pain experience.