Diagnosis of posterior cutaneous nerve entrapment syndrome through history and physical examination

Takashi Watari,^{1,2} Nami Yoshimura,³ Ashwin Gupta^{4,5}

¹General Medicine Center, Shimane University Hospital, Izumo, Shimane, Japan

²Division of Hospital Medicine, University of Michigan Medical School, Ann Arbor, Michigan, USA

³Department of General Medicine, Shimane Prefectural Central Hospital, Izumo, Shimane, Japan

⁴Department of Medicine, University of Michigan Medical School, Ann Arbor, Michigan, USA

⁵Medicine Service, VA Ann Arbor Healthcare System, Ann Arbor, Michigan, USA

Correspondence to

Dr Takashi Watari;
watari.t@gmail.com

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DESCRIPTION

Posterior cutaneous nerve entrapment syndrome (POCNES) has recently been proposed as a cause of back pain that can neither be diagnosed through imaging nor blood tests.^{1,2} POCNES appears to be an intercostal nerve root disorder related to anterior CNES (ACNES) and lateral CNES (LACNES).¹⁻⁴ There is both a limited awareness of and a lack of gold standard for diagnosing POCNES; hence, we present a case video demonstrating how to diagnose this disorder.

A woman in her 40s was referred from orthopaedic surgery to general medicine clinic for evaluation of severe left back pain of unspecified aetiology. Her pain began 12 days prior to her visit as a sharp pain in her left back and left chest, for which she had previously undergone unremarkable X-ray and ultrasound imaging. Based on the nature of the pain, she was treated with NSAIDs for suspected rib fracture. Four days prior to general medicine presentation, the patient noted worsening pain with physical activity and inability to turn over in bed. On visual examination of the back, no abnormalities were identified; however, the patient reported severe tenderness (2 cm×2 cm) to palpation left of thoracic vertebra 11 (Th11). The patient reported strong localised hypersensitivity to light touch, severe pain on light pinching (ie, positive pinch sign)³ and decreased cold sensitivity (figure 1). At rest, the patient's pain was persistent and numb (numerical rating scale, NRS = 5/10). With rotation and flexion-extension of the trunk, the patient experienced intense, electric pain (NRS = 9/10). Consistent with the treatment of ACNES and LACNES, a local injection of 5 mL of 1% xylocaine was

Video 1 Presentation and diagnosis of POCNES.

administered at the site of the pain. Ten minutes after the injection, her back pain and hypersensitivity resolved entirely; therefore, a superficial entrapment was deemed highly likely. She was thus diagnosed with POCNES (video 1). After the initial treatment, she had return of mild (NRS 2-3/10) but persistent pain, and after 2 months of visits to pain clinic her POCNES resolved without surgical intervention.

Pathologically, POCNES involved compression, entrapment or physical disturbance of the posterior cutaneous branches of the intercostal nerves, resulting in a characteristic pain. Diagnosis of POCNES is made through careful history taking and elicitation of the characteristic pain on physical examination. Laboratory testing and imaging are typically unhelpful in the diagnosis of POCNES, though may be useful in excluding alternative and potentially more concerning aetiologies of a patients presenting complaint. A differential diagnosis to be considered in a patient presenting with possible POCNES is presented in box 1.

A previous study of POCNES (n = 14) indicated that thoracic vertebral levels 8–10 are most commonly affected. The time to diagnosis (TTD, mean 22 months, range 5–48 months) is relatively long because proper diagnosis depends on the physician's knowledge and experience with POCNES.^{2,5} This patient's presentation is generally consistent with prior studies, though with shorter TTD owing to physician familiarity with the diagnosis.

We believe diagnosis of POCNES requires three things. First, the pain should be consistent with neuropathic pain (eg, shooting, burning, tingling, numbness) and must be differentiated from rib fracture and other musculoskeletal back pain. Second, proper physical examination is crucial and should reveal a highly reproducible and localised tender point. The accuracy

Figure 1 Tenderness and hyperalgesia at the level of Th11 while being examined by the pinch sign.

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Box 1 Differential diagnosis of POCNES**POCNES-like pain**

- ▶ Thoracic wall abnormality (haematoma, endometriosis, tumour and tear)
- ▶ Radiculopathy (traumatic, diabetic)
- ▶ Slipping rib syndrome
- ▶ Scar tissue
- ▶ Myofascial pain syndrome
- ▶ Rib abnormalities
- ▶ Postherpetic neuralgia
- ▶ Neurofibroma/Schwannoma
- ▶ Herniated disc
- ▶ Epidemic pleurodynia (Bornholm disease)

Patient's perspective

It would be nice if more medical professionals would recognise the disease I have been experiencing. I hope that this case will contribute to patients worldwide who are suffering in the same way.

Learning points

- ▶ Posterior cutaneous nerve entrapment syndrome is thought to be caused by entrapment of the posterior cutaneous branch of the intercostal nerves. Cases are likely to go undiagnosed given lack of familiarity with the diagnosis.
- ▶ Timely diagnosis requires three things: (1) a careful history suggestive of neuropathic aetiology of pain, (2) abnormal physical examination with a localised, reproducible tender point as well as abnormal sensation or a positive pinch sign and (3) responsiveness to local analgesic injection.

of the diagnosis is greatly improved by lightly pinching the skin in that area and searching for skin somatosensory abnormalities with swabs or ice. Third, trigger injections are highly effective. Almost all patients showed a reduction in pain at the first treatment (as seen in ACNES/LACNES).^{2 5} In the case of back pain of unclear aetiology, keeping in mind these diagnostic pearls may lead to an accurate and timely diagnosis of POCNES.

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Case reports provide a valuable learning resource for the scientific community and can indicate areas of interest for future research. They should not be used in isolation to guide treatment choices or public health policy.

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