

[CASE REPORT]

A Rare Presentation of a Compression Fracture or a Typical Presentation of Lateral Cutaneous Nerve Entrapment Syndrome: A Diagnostic Error?

Takeshi Endo^{1,2} and Takashi Watari¹

Abstract:

A 78-year-old woman complained of severe pain in the left costal region. Her body mass index was 23.1 kg/m². Lateral cutaneous nerve entrapment syndrome (LACNES) was the suspected diagnosis because the affected area was 2×2 cm and positive for pinch sign. Seventeen days later, the patient again presented with complaints of lower back pain accompanied by back pain upon extending the spine. Magnetic resonance imaging of the spine showed a fracture of the vertebral body of T11. We herein discuss our errors in the diagnostic process and critical tactics for avoiding such errors in the future.

Key words: delayed diagnosis, bone compression fracture, LACNES, ACNES

(Intern Med 61: 1453-1455, 2022)

(DOI: 10.2169/internalmedicine.8256-21)

Introduction

Lateral cutaneous nerve entrapment syndrome (LACNES) is a variant of the well-established anterior cutaneous nerve entrapment syndrome (ACNES) and a form of underdiagnosed flank pain as proposed by Maatman et al. (1-3). LACNES is a condition that is expected to improve dramatically with treatment. However, it is not easily diagnosed. We tend to focus on a few well-known and characteristic physical findings that will narrow down our options to a single diagnosis without considering other causes.

We herein discuss our diagnostic process errors and several critical tactics for avoiding such errors in diagnosing cases with LACNES-like symptoms.

Case Report

The patient was a 78-year-old Japanese woman with an unremarkable medical history. Four days before her hospital visit, she experienced a sharp stabbing pain in her left abdomen. Two days before her visit, the pain in her left abdomen became more severe, and she presented to the emergency room of the university hospital, where she underwent blood

sampling, abdominal computed tomography (CT) (Fig. 1), and other tests; no abnormal findings were detected. She was then diagnosed with constipation. However, the pain worsened, and even slight movement of the trunk caused an electric shock-like pain on the left side of the abdomen. She was unable to sleep at night, so she was referred to our department.

On an examination, the patient generally appeared well. Her vital signs were notable for a blood pressure of 132/68 mmHg, pulse rate of 72/min, respiratory rate of 18/min, and oxygen saturation of 98% on room air. She complained of pain in the left costal region and lower left abdomen; however, a physical examination of the abdomen showed no tenderness or rebound pain.

Upon a further examination of the pain, the patient stated that the pain was intermittent and intense (numerical rating scale score, 10/10). Furthermore, bending and rotation of the trunk induced pain on the left side of the abdomen. A thorough repeat physical examination was performed. No skin rashes on the trunk, pain in the spinal column, or tenderness in the spinous processes were noted. However, localized tenderness was observed in the left T11 region of the middle axillary line.

We suspected LACNES because the area was 2×2 cm and

¹General Medicine Center, Shimane University Hospital, Japan and ²Department of General Medicine, Okuizumo Hospital, Japan

Received: July 12, 2021; Accepted: August 30, 2021; Advance Publication by J-STAGE: October 12, 2021

Correspondence to Dr. Takashi Watari, wataritari@gmail.com



Figure 1. A sagittal section of abdominal computed tomography was obtained at the time of admission. The height of the vertebral body of T11 was approximately 20 mm, which was normal.



Figure 2. Magnetic resonance imaging revealed a short-T1 inversion recovery of lumbar pain when the patient returned to the hospital. The vertebral body of T11 had collapsed, showing a high-intensity area, and its height decreased to 11.7 mm.

positive for Carnett's sign and pinch sign. We administered a local injection of 5 mL of 1% xylocaine at the site of pain. Immediately after the injection, the pain transferred to the left lateral border of the rectus abdominis muscle in the T11 region, which the patient had previously described as completely painless. The region of pain measured 2x2 cm. Furthermore, the patient experienced significant hyperalgesia, such that a light touch with an alcohol swab induced pain. Since the patient had positive Carnett's and pinch signs in the area, the doctor judged the symptoms to be indicative of ACNES, which appeared in the same nerve area after LACNES. Thus, the patient was treated as per the finding.

Two days later, the tenderness in the left lateral border of the rectus abdominis muscle flared up again, and 5 mL of 1% xylocaine was administered to the rectus abdominis sheath by echo guidance. After the injection, abdominal tenderness disappeared.

However, seven days after the patient's hospital visit, the pain recurred in the same area, with an intensity of 3/10 on the numerical rating scale. Thus, the patient returned to our clinic. Because of the characteristic symptoms of ACNES and LACNES and the fact that the pain was clearly reduced by a local anesthetic injection in both cases, we determined her to have had ACNES followed by LACNES. Seventeen days later, the patient presented to our hospital with complaints of lower back pain accompanied by solid back pain upon extension of the back. The CT findings at the time of the first visit showed that the vertebral body height of T11 was approximately 20 mm. However, magnetic resonance imaging of the spine later revealed a fracture of the vertebral body of T11 (reduced to 11.7 mm) (Fig. 2). This indicated that we had missed a compression fracture diagnosis, which is a crucial differential factor for LACNES and ACNES.

Following the diagnosis of vertebral compression fracture,

the patient visited the orthopedic department for two months and continued conservative treatment.

Discussion

The pathophysiology of this case indicated that a spinal deformity had induced LACNES and ACNES-like neuropathy. There are two points that must be considered when reviewing this misdiagnosed case. The first point is why the compression fracture was missed. The signs of a compression fracture, which is a necessary component of the differential diagnosis for nerve strangulation disorders, such as ACNES and LACNES, should have been investigated (1-4). However, the patient had no history of injury. The pain was described as a sharp and instantaneous electric shock pain, which is rare. The area of her pain was from the front to the side of the trunk, which is a relatively rare area for spine fractures to cause pain (5). A previous study has shown that most spinal compression fractures are asymptomatic (6). The absence of a striking pain is relatively common; thus, the absence of pain and symptoms does not rule out a compression fracture. CT with a sagittal section of the spine should have been performed; however, it is challenging to diagnose early-stage fractures with imaging, and 11% of fractures may be missed on CT (4). In addition, magnetic resonance imaging is more useful for detecting not only vertebral fractures but also nerve radiculopathy than CT (7, 8).

The second point is the ambiguity of the diagnostic criteria for LACNES and ACNES. The diagnostic criteria for LACNES include the following: (i) more than three months' history of locoregional flank pain, (ii) a fingertip-sized area of constant tenderness in the flank along the midaxillary line, with pressure eliciting high-intensity pain, (iii) altered skin sensations, such as hypoesthesia, hyperesthesia, or altered cold perception in the surrounding area, and (iv) nega-

tive pinch test results surrounding the tender spot (3). However, literature on LACNES remains scarce, and the sensitivity and specificity of these somatic symptoms for LACNES are uncertain.

In addition, more than 60% of patients with ACNES were reported to have impaired T11 and T10 (2). The diagnostic criteria for LACNES and information on the preferred sites of ACNES have been conveniently used to diagnose ACNES and LACNES (1-3). Since both the pinch sign and Carnett's sign were positive, which have been reported to be present in about 80% of patients with ACNES, the availability and confirmation biases strongly influenced the cognitive bias when forming the diagnosis in the present patient (2, 9).

To avoid such diagnostic errors, we should consider the ambiguity of the diagnostic criteria for LACNES. The positive pinch sign strongly suggested that the pain was superficial, located on the body surface, and was likely neuropathic. However, we should have at least performed an analytical diagnosis of the anatomical abnormalities that caused these findings. For example, a checklist should be used to consider the differential diagnosis fully, and tactics should be established for exclusion purposes using appropriate imaging studies before the diagnosis of LACNES is made (9, 10).

The authors state that they have no Conflict of Interest (COI).

Acknowledgement

We thank the team members, Dr. Yoshihiko Shiraishi, Dr. Ichiro Kato, Dr. Seiji Odagawa, and Dr. Nobuyuki Ueno, from Shimane University Hospital, General Medicine Center, for sharing their wisdom with us during this research. In addition, we thank the Neural GP Network of Shimane Prefecture for their

kind assistance.

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