

## CASE REPORT

# Superior cluneal nerve entrapment syndrome: a common but often overlooked cause of low back pain

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**Abstract**

An 81-year-old woman complained of low back pain (LBP) on her regular check-up. Physical examination revealed tenderness at the middle point of the posterior iliac crest and burning dysesthesias around the tenderness point, without any other neurological findings. An injection of local anesthetics diminished the pain. The diagnosis of superior cluneal nerve entrapment syndrome (SCNES) was made. SCNES is relatively common, as high as 14% in patients with LBP, but frequently overlooked. Primary care physicians should be aware of the typical findings of SCNES for correct diagnosis and treatment.

**KEYWORDS**

back pain, family medicine, pain, physical examination, superior cluneal nerve entrapment syndrome

## 1 | INTRODUCTION

Low back pain (LBP) is undoubtedly one of the most common medical conditions in primary care settings and may impose a serious burden on patients' lives.<sup>1</sup> It is traditionally said that about 90% of LBP seen in primary care is nonspecific, or unable to make a specific pathoanatomic diagnosis, and conservative support without any imaging test is recommended unless any red flag sign, including fever, an episode of falling down, weight loss, and neurologic abnormality, is seen.<sup>1</sup> However, this indication does not mean that primary care physicians do not need to make an effort to make a concise diagnosis about LBP. Herein, we report a case of superior cluneal nerve entrapment syndrome (SCNES), which was revealed by a precise physical examination and successfully treated by simple local anesthesia.

## 2 | CASE DESCRIPTION

An 81-year-old Japanese woman complained of LBP on her regular check-up for well-controlled hypertension. The patient had lifted luggage all day 1 week prior and developed LBP the following day. The pain did not wax or wane and there was no exacerbating or

alleviating factor. The patient did not complain of gait disturbance, disturbance on urination and defecation, fever, or losing weight.

Physical examination revealed tenderness at the middle point of the posterior iliac crest (about 7 cm distant from the midline of the back) (Figure 1). The patient reported burning dysesthesias around the tenderness point. There were no other neurological findings, such as abnormal deep tendon reflexes, muscle weakness, or abnormal Babinski's reflex. Tenderness over the vertebrae or the costovertebral angle area was not seen. SCNES was suspected, and injection of 1% lidocaine (5 ml) at the tenderness point diminished the pain. At 1-month follow-up, the patient remained free from pain. Considering a typical trigger point over the posterior iliac crest, a symptom consistent with peripheral nerve entrapment (dysesthesia over the adjacent area), and complete resolution of LBP by injection of local anesthetic, the definitive diagnosis of SCNES was made.

## 3 | DISCUSSION

The superior cluneal nerves consist of the cutaneous branches of the posterior rami of the T11–L5 nerve roots.<sup>2</sup> They run from superior-medially to inferior-laterally and cross the iliac crest via

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**FIGURE 1** The lower back and buttock of the patient in a prone position. The posterior iliac crest is marked. The X-mark shows the tenderness point

a tunnel formed by the thoracolumbar fascia and the superior rim of the iliac crest. When the nerves, especially the medial branch (most commonly, penetrating the fascia 7–8 cm from the midline), are entrapped at the tunnel, pain may occur over the lower back and upper buttock. A computed tomography scan or a magnetic resonance imaging scan cannot detect superior cluneal nerves.<sup>3</sup> Although the entrapped nerve can be visualized by ultrasound,<sup>4</sup> a diagnosis is typically made based on the physical finding and a good therapeutic response to local anesthetics. The proposed diagnostic criteria include LBP involving the iliac crest and buttock, a trigger point over the posterior iliac crest 7 cm from the midline, and numbness and radiating pain in the region related to superior cluneal nerves, or reproduction of patients' chief complaints, during compression of the trigger point.<sup>2,5</sup> The nerves are purely sensory and their entrapment does not usually cause muscle weakness.

Superior cluneal nerve entrapment syndrome is often overlooked and misdiagnosed.<sup>3,6</sup> However, it can develop into more severe pain over time.<sup>2</sup> The pain can be relieved by peripheral block and less-invasive surgery.<sup>3,7</sup> The incidence of SCNES in patients with LBP is reported to be as high as 14%,<sup>3,5</sup> and primary care physicians should know this disease. SCNES may develop leg symptoms and mimic radiculopathy due to lumbar disorder.<sup>3</sup> When SCNES is suspected in patients with LBP in a primary care setting, the detection of the typical trigger point and pain disappearance upon nerve blockage may lead to a correct diagnosis without costly imaging tests; if physical findings are not typical or peripheral blockage do not achieve a sufficient treatment outcome, primary care physician should then consider an expert consultation to check lumbar disorders.

In conclusion, SCNES is a relatively common but often misdiagnosed disease to cause LBP. A tenderness point over the middle point of the posterior iliac crest and a good therapeutic response to local anesthetics are important in the diagnosis. Primary care physicians should be aware of this condition because correct diagnosis and treatment can improve patient outcomes.

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#### CONFLICT OF INTEREST

The authors have stated explicitly that there are no conflicts of interest in connection with this article.

#### PATIENT CONSENT

Written consent was obtained from the patient for the publication of case details.

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