Received: 20 November 2015 | Accepted: 19 May 2016

DOI: 10.1002/jgf2.20

CASE REPORT

Journal of General and Family Medicine Open Access WILEY

Temporary unilateral abdominal muscle paralysis due to herpes zoster without typical vesicles or pain

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Abstract

A 45-year-old man was evaluated for right abdominal bulging. Computed tomography showed segmental flaccidity of the right abdominal muscle without an abdominal hernia. Although typical vesicles and pain were absent, we diagnosed herpes zoster (HZ) because of the presence of a few eschars on the affected area without a history of diabetes mellitus. Although transient unilateral abdominal muscle paralysis due to HZ without typical skin vesicles or pain is rare, it is imperative to consider the possibility of HZ and seek skin changes such as eschars in such cases.

KEYWORDS

abdominal pseudohernia, diabetic mononeuropathy, herpes zoster, segmental unilateral motor paralysis

1 | INTRODUCTION

Herpes zoster (HZ) can be complicated by various disorders including neurologic, ocular, or visceral problems. Among them, motor paralysis is not only rather common, but can also be particularly troublesome, occurring in 0.5% to 5.0% of patients with HZ.[1] One study reported that only one of 274 patients who were referred for hospitalization had truncal muscle paralysis.[2] Moreover, several reports of zoster sine herpete have described the lack of a typical vesicular rash;[3–5] one of these reports stated that 8% of patients with abdominal muscle paralysis caused by HZ had no typical rash throughout their clinical course.[6] Without a typical rash, it can be difficult to differentiate diabetic truncal neuropathy as a cause of abdominal pseudohernia.[7] Furthermore, pain is present in 60% to 90% of patients with HZ, and the degree of pain can be variable.[8] We herein report a case of abdominal segmental motor paralysis due to HZ without a typical vesicular rash or pain.

A version of this paper was presented as an oral presentation in Japanese at The Japanese Society of Hospital General Medicine 10th meeting in Fukuoka, Japan in February 2015.

2 | CASE REPORT

A 45-year-old man discovered bulging of the right side of his abdomen 10 days before visiting our hospital. He had no pain, eruption, or paresthesia on the trunk or extremities, and he had no digestive symptoms. Although he had a history of HZ in the same area of the bulge 20 years previously, he had noticed no abdominal wall abnormalities since then. He was in good health except for mild hypertension, for which he took a calcium antagonist. He had no history of diabetes mellitus, immunodeficiency disorders, or surgery. He had never traveled abroad and had engaged in no outdoor activities in mountainous areas during the previous few years.

Upon his first visit to our outpatient clinic, the patient was awake and alert. His body temperature was 36.7°C, and his blood pressure was 146/108 mm Hg. A marked bulge was observed on the right side of his abdomen in the area innervated by the 10th to 11th thoracic nerves (Figure 1). The bulge became more pronounced with increased abdominal pressure. Spontaneous pain or tenderness on palpation was absent

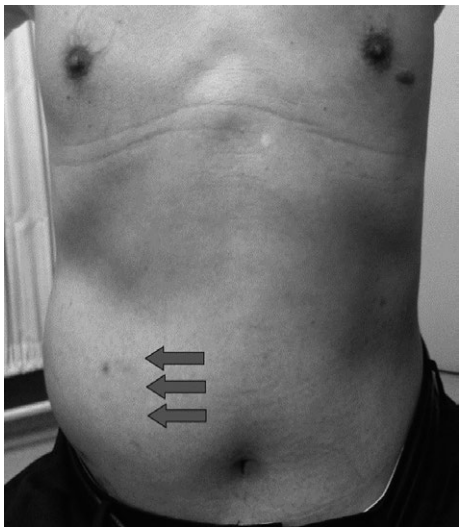

FIGURE 1 Bulging is present in the right abdominal wall innervated by the 10th to 11th thoracic nerves (arrows)

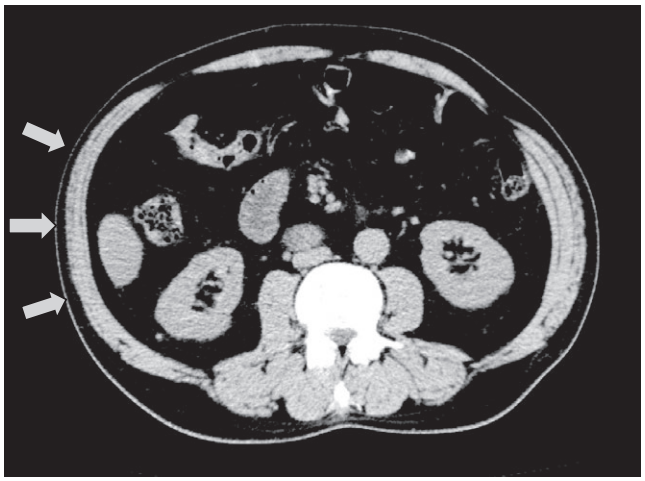

FIGURE 2 Thin external and internal abdominal oblique and transverse muscles are shown by noncontrast computed tomography (arrows)

in the area of the bulge. Although a vesicular rash typical for HZ was not present, there were five eschars on the right abdominal skin of the 11th thoracic dermatome. Neurologic abnormalities other than abdominal muscle weakness, which presented as the above-described bulging, were absent below the 11th thoracic nerve. Additionally, no abnormalities in the cranial nerves or deep tendon reflexes were found, and pathological reflexes and nuchal rigidity were absent. Laboratory examination showed a white blood cell count of 8570/μL, C-reactive protein level of 0.04 mg/dL, creatinine kinase level of 330 IU/L, and blood glucose level of 94 mg/dL. Abdominal computed tomography without contrast enhancement showed right lateral abdominal bulging without prolapse of the intestine or a subcutaneous mass through the abdominal wall. No mass lesion was detected in or around the spinal canal (Figure 2).

The patient was treated with famciclovir for 1 week without steroid therapy. Although the abdominal muscle paralysis showed no signs of improvement for about 3 weeks, it completely resolved 3 months after its onset.

3 | DISCUSSION

In the present case, an abdominal wall hernia was naturally suspected upon observation of the right abdominal bulge. When an abdominal wall hernia is suspected, various conditions causing anterior abdominal wall bulging must be differentiated, such as a tumor or cancer of the abdominal wall, intra-abdominal diseases, and gynecological diseases, all of which are usually detected by imaging studies.[9] Among these diseases, paralysis or atrophy of the abdominal muscles is termed a pseudohernia of the abdominal wall. Paralysis of the abdominal wall can be caused by various conditions affecting the peripheral nerves that innervate the abdominal muscles, including HZ and diabetic mononeuropathy; diseases that affect the spinal cord or roots such as lumbar disk hernia, syringomyelia, and spinal tumors; and infectious diseases.[4] In this case, these diseases were rather easily ruled out by imaging studies and a normal data of blood glucose level; additionally the HbA1c 5 months later was 5.4%. With careful inspection, we found several eschars on his trunk; therefore, we diagnosed the patient with abdominal muscle paralysis due to HZ.

Typical HZ associated with pain or eruptions produces motor paralysis in 0.5% to 31% of cases.[9] HZ can cause paralysis of muscles innervated by various cranial nerves. Furthermore, of the patients hospitalized due to HZ or its complications in one study, 25% reportedly had paralysis of muscles innervated by cranial nerves, 5.0% had limb paralysis, 0.75% had visceral paralysis, and 0.40% had paralysis of truncal muscles.[10] Our patient exhibited a rather rare complication involving paralysis of the abdominal muscles, which are a part of the truncal muscles.

The past episode of HZ was helpful for diagnosis in this case. The risk of recurrence of HZ reportedly ranges from 1% to 6%, and some long-term follow-up studies have shown a higher risk of 5% to 6%.[11] In 45% of the reported cases, the recurrences developed in a body region different than the site of the first episode.[12]

Vesicular eruptions are considered to be a hallmark of HZ. However, zoster sine herpete has also been reported.[3–5] Zoster sine herpete should be considered as a possible diagnosis when a patient shows pain and neuropathy distributed in the area innervated by one cranial nerve or spinal root without typical vesicular eruptions. However, the precise incidence of zoster sine herpete is difficult to show because of the elusive nature of this condition.[5] In one study, 8% of patients with HZ-associated abdominal muscle paralysis reportedly had no eruptions.[6] Another salient characteristic of this condition is the lack of pain and sensation abnormalities. Approximately 60% to 90% of patients with HZ reportedly have pain or sensation abnormalities;[8] thus, not all patients with HZ show such complaints. Establishing a diagnosis in the present case was challenging because of the combination of rather rare conditions, lack of typical vesicular eruptions, and lack of sensation abnormalities, including pain.

Achieving a diagnosis of HZ based only on its typical characteristic signs and symptoms, such as a segmental distribution of vesicular

eruptions and pain, is usually easy.[8] However, establishing a diagnosis of HZ can be extremely challenging when these typical characteristics are lacking, as in the present case. In such cases, real-time polymerase chain reaction (PCR) assay on specimens from skin eruptions or spinal fluids is a rapid and sensitive diagnostic technique.[13,14] Paired measurement of IgG antibody against HZ virus with enzyme immunoassay allows for a definitive diagnosis. However, real-time PCR assays and second measurements of serum antibody titers are not covered by health insurance in Japan, making these methods difficult to use in many hospitals. Additionally, paired antibody measurements take at least several weeks to perform. In the present case, we diagnosed HZ based on the presence of several eschars on the patient's abdominal skin and exclusion of other diseases according to his history and laboratory and imaging findings; this made it possible for us to avoid performing invasive procedure or expensive examinations that are not covered by health insurance.[6]

Two-thirds of patients with motor paralysis caused by HZ reportedly recover almost completely, while one-sixth remains in permanent paralysis.[2,10] In one study, 79.3% of patients with abdominal paresis recovered completely within a year, and the mean recovery time was about 4.9 months. Unfortunately, 20.7% of these patients only partially recovered or remained paralyzed.[6] Although our patient exhibited complete abdominal muscle paralysis until at least 21 days after his first visit to our hospital, the paralysis had completely resolved by 90 days after starting treatment.

4 | CONCLUSION

It is imperative to consider HZ as a possible cause of unilateral segmental paralysis of the abdominal muscles, which resembles an abdominal wall hernia, and to carefully examine such patients for the presence of skin lesions. We have herein reported a case of painless abdominal segmental motor paralysis with eschars due to HZ which differs from zoster sine herpete.

CONFLICT OF INTEREST

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

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How to cite this article: Eguchi H, Furukawa N, Tago M, et al. Temporary unilateral abdominal muscle paralysis due to herpes zoster without typical vesicles or pain. *J Gen Fam Med*. 2017;18:35–37. https://doi.org/10.1002/jgf2.20