CASE REPORT

Cervical dermatomal zona misdiagnosed as ulnar nerve entrapment

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SUMMARY

Herpes zoster is a secondary reactivation of primary contagious varicella-zoster virus in the dorsal root ganglia. While thoracic zona is common, cervical dermatomal zona is a rare segmental complication of herpes zoster and can be easily misdiagnosed as other diseases. This article describes a patient with initial neuralgia without dermatomal lesions that was treated as ulnar nerve entrapment syndrome until manifestation of herpetic cutaneous lesions appeared. It is important that clinicians should be aware of the possibility of zoster infection when evaluating the onset of neuralgia in a dermatomal distribution in the upper limb, especially without rash.

BACKGROUND

Varicella-zoster virus (VZV) infection manifests as two clinically distinct syndromes. Primary VZV infection (varicella or chickenpox) presents as a highly contagious diffuse vesicular rash on the skin and mucous membranes. Clinical resolution is followed by latent infection in dorsal root ganglia. Reactivation of latent VZV infection in dorsal root ganglia leads to herpes zoster or shingles, a cutaneous vesicular eruption in a dermatomal distribution.¹ Clinical symptoms of primary VZV infection resolve within a few weeks if there is no complication due to bacterial superinfection.² As cellular immunity wanes with age, disease or immunosuppression, the dormant virus reactivates, usually characterised by rash and acute neuritis.³ Before the observational rash, there is a prodrome that consists of itching, tingling, stabbing or burning and atypical pain in one or occasionally in neighbouring dermatomes. Prodromal symptoms may be constant or intermittent for days or weeks and present as acute neuritis.⁴ The rash starts as erythematous papules, grouped vesicles or bullae, and these lesions become more pustular and haemorrhagic for a few days. Some patients may have vesicles located some distance away from the involved dermatome.^{3 5} Vesicles may heal with scarring or pigmentation abnormalities on skin.⁶ Although rare, some clinical data have shown that atypical pain without rash can occur in the same patient, and is so named 'zoster sine herpete'.^{7 8} The most common complication is postherpetic neuralgia, pain persisting beyond 4 months from the initial onset of the rash.⁹ In some cases, a zoster-infected site can cause neuroimmune destabilisation along the affected dermatome, paving the way for the onset of various immunity-related disorders.¹⁰ This condition as well as others, such as

nerve compression, trauma, chronic lymphoedema, autonomic disorders, paraplegia and vaccination, can result in an immunocompromised body site, where an obstacle to the normal passage of immunocompetent cells or disruption of neuropeptide signalling lead to locoregional dysregulation of the immune response.^{10–12} This neuroimmunocutaneous dysregulation can also cause blisters on the dermatomal distribution.^{11 13 14}

CASE PRESENTATION

We present a case of a 60-year-old right-handed woman with known hypertension and migraine, with a history of childhood chicken pox, with a 1-week history of prodromal burning and stabbing followed by pain along the ulnar aspect of the right hand, without any other symptoms or signs. The patient was previously admitted to the orthopaedist with the same symptoms, which were clinically diagnosed as ulnar nerve entrapment, and treated with non-steroidal analgesics. The stabbing and pain persisted and were not relieved with treatment. After 2 weeks, the patient developed a rash and was admitted to our clinic. The vesicular lesions were crusted and distributed on the dermatomal innervation of the ulnar nerve (figure 1). Pain was easily elicited by palpation and examination revealed paraesthesia and hyperaesthesia. Decreased strength in the right hand was expressed by the patient but not objectively quantified. There was no history of trauma. The patient did not give consent for electroneuromyographic (ENMG)

Figure 1 (A and B) Vesicular and crusted lesions distributed on the C8 dermatomal innervation.

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examination, so the diagnosis of herpes zoster was made on clinical grounds alone.³ Antivirals were not prescribed because she presented 3 weeks after the beginning of symptoms.¹⁵ At 3 months' follow-up, the patient showed no abnormalities or scarring skin lesions on examination. No paraesthesia or hyperaesthesia was detected.

DIFFERENTIAL DIAGNOSIS

Differential diagnosis could not be carried out as the patient did not give consent for ENMG examination.³

TREATMENT

Antivirals were not prescribed as the patient presented 3 weeks after the beginning of symptoms.^{11 12}

OUTCOME AND FOLLOW-UP

At 3 months' follow-up, the patient showed no abnormalities or scarring skin lesions on examination. No paraesthesia or hyperaesthesia was detected.

DISCUSSION

Cervical dermatomal zona is a rare and uncommon segmental complication of VZV infection and can be easily misdiagnosed as other diseases. Notwithstanding that the skin rash, suggestive of herpetic viral infection, is frequently seen in thoracic dermatomes and cranial nerves, one should keep in mind that cervical dermatomes can be the target of herpes zoster, as in our case. There are few published cases in the English language involving the ulnar nerve and fewer with radial or median nerve distribution.^{16–20} After the primary VZV infection, reactivation in ganglionic neurons can be caused by decline of cell-mediated immunity due to advanced age, neoplastic disease and immunosuppression leading to development of herpes zoster.²¹ Our patient reported no disease that would cause immunosuppression. Since the rash can occur anywhere on the trunk or extremities, patients are likely to seek medical attention from various medical specialists, as occurred in our case. The possible causes of the rash included infection, trauma and autonomic disorders. The patient had no history of trauma, previous infection or autonomic disorders.¹¹ Herpes zoster should be included in the differential diagnosis of cutaneous lesions in extremities with mild or severe neurological symptoms. The disease is usually diagnosed clinically.¹⁵ Although some patients may have vesicles located some distance away from the involved dermatome, the pain can also spread to neighbouring dermatomes.^{3–5} In these cases, a virological confirmation such as PCR assays or viral culture may be required.²¹ The diagnosis may be challenging when the rash has already disappeared, or in ganglioradiculopathy known as 'zoster sine herpette', when pain occurs without cutaneous lesions.⁸ If the diagnosis of zoster sine herpette is suspected, cerebrospinal fluid and blood should be investigated for VZV DNA, anti-VZV IgG and IgM antibody.²¹ This investigation can be helpful to diagnose a patient with postherpetic neuralgia presenting after a variable asymptomatic period.²¹ MRI studies can also demonstrate abnormalities on affected nerves.²⁰ Zoster-associated mononeuropathies may cause variable electrophysiological findings on ENMG investigation.^{20–22} ENMG can be helpful for the differential diagnosis of entrapment syndrome or radiculopathy. However, our patient did not give consent for ENMG examination. The typical rash that appeared after burning and stabbing sensations on the dermatomal innervation made the diagnosis easier.

Learning points

- ▶ Cervical dermatomal zona is a rare segmental complication of herpes zoster and can be easily misdiagnosed as other diseases.
- ▶ Diagnosis may be challenging when typical pain occurs without rash, which is defined as 'zoster sine herpette'.
- ▶ Notwithstanding that the skin rash suggestive of herpetic viral infection is frequently seen in thoracic dermatomes and cranial nerves, one should keep in mind that cervical dermatomes can be the target of herpes zoster.

Contributors CŞ wrote the case history and discussion. GS and SAG assisted with writing the case history. AE reviewed the manuscript.

Competing interests None declared.

Patient consent Obtained.

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