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A clinical diagnosis quandary: herpes zoster ophthalmicus versus paederus dermatitis

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Abstract

Background: Herpes zoster ophthalmicus (HZO) and *Paederus* dermatitis (PD) may present with overlapping dermatological features, leading to diagnostic challenges.
Case report: A 15-year-old boy presented with a one-week history of right eye pain, swelling, and fever, accompanied by vesicular lesions distributed along the right V1 and V2 dermatomes, respecting the midline. He reported a *Paederus fuscipes* bite in the right cheek two days before symptom onset. Examination revealed conjunctival chemosis, mechanical ptosis, restricted extraocular motility, and a grade 1 relative afferent pupillary defect. Imaging showed preseptal cellulitis with facial extension and lacrimal gland abscess. Treatment comprised oral acyclovir, intravenous ceftriaxone, intravenous metronidazole, and topical chloramphenicol ointment, with gradual improvement in systemic, ocular, and dermatological findings, and restoration of optic nerve function.
Conclusion: The clinical overlap between HZO and PD emphasizes the importance of a thorough clinical assessment—including dermatome pattern recognition, ocular examination, and systemic symptoms—to guide appropriate treatment.

Keywords: Herpes zoster ophthalmicus, orbital cellulitis, Paederus dermatitis

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Kebingungan diagnosis klinikal: herpes zoster ophthalmicus berbanding paederus dermatitis

Abstrak

Latar belakang: Herpes Zoster Oftalmikus (HZO) dan Dermatitis Paederus (PD) boleh memperlihatkan ciri dermatologi yang bertindih, menyebabkan cabaran dalam membuat diagnosis.
Laporan kes: Seorang remaja lelaki berumur 15 tahun hadir dengan sejarah sakit dan bengkak mata kanan selama seminggu, disertai demam dan lesi vesikel yang tersebar sepanjang dermatom V1 dan V2 kanan, tanpa melibatkan garis tengah. Beliau melaporkan gigitan serangga *Paederus fuscipes* (semut Charlie) di pipi kanan yang menjalar ke arah telinga, dua hari sebelum gejala bermula. Pemeriksaan menunjukkan kemosis konjunktiva, ptosis mekanikal, pergerakan mata yang terhad, dan kecacatan anak mata aferen relatif gred 1. Imbasan menunjukkan selulitis praseptal kanan dengan lanjutan ke muka dan abses kelenjar lakrimal. Rawatan terdiri daripada asiklovir oral, ceftriaxone dan metronidazole secara intravena, serta krim kloramfenicol topikal, dengan peningkatan beransur-ansur dari segi gejala sistemik, oftalmik, dermatologi serta pemulihan fungsi saraf optik.
Kesimpulan: Pertindihan klinikal antara HZO dan PD menekankan kepentingan penilaian klinikal yang teliti—termasuk pengecaman corak dermatom, pemeriksaan mata, dan gejala sistemik—bagi menentukan rawatan yang sesuai.

Keywords: Herpes zoster ophthalmicus, selulitis orbital, dermatitis Paederus

Introduction

Herpes zoster ophthalmicus (HZO) is a reactivation of the varicella zoster virus (VZV) within the ophthalmic division of the trigeminal nerve (V1). This reactivation occurs when the dormant VZV within the trigeminal nerve ganglion is triggered, leading to ocular symptoms.[1] Paederus dermatitis (PD) is an acute irritant contact dermatitis caused by the paederine toxin released by *Paederus fuscipes*, commonly known as Charlie ant2 in Malaysia. This condition manifests as a severe skin inflammatory reaction following exposure to toxin. Both conditions have similar dermatological features, which can create a diagnostic dilemma for clinicians who are unfamiliar with the less common PD, potentially resulting in delayed treatment.

Case presentation

A 15-year-old boy presented with a one-week history of right eye pain and swelling, accompanied by vesicular eruptions distributed along the right V1 and V2 trigeminal dermatomes, respecting the vertical midline (Fig. 1). Systemic symptoms included fever, chills, anorexia, vomiting, and headache. He had a history of childhood VZV infection and reported a recent *Paederus fuscipes* bite in the right cheek extending toward the ear, two days prior to symptom onset. Ocular examination revealed conjunctival chemosis, mechanical ptosis, limited ocular motility, and a grade 1 relative afferent pupillary defect, which was attributed to severe ocular inflammation and the presence of a lacrimal gland abscess. There was no corneal involvement, keratouveitis, or Hutchinson's sign (Fig. 2). The restricted ocular motility and ptosis were attributed to mechanical effects from significant periorbital oedema and conjunctival chemosis, rather than cranial nerve palsy. Contrasted computed tomography (CT) showed right preseptal cellulitis with facial extension and a lacrimal gland abscess, without evidence of orbital abscess (Fig. 3). Based on the clinical and radiological findings, the diagnosis HZO with lacrimal gland abscess was made, although PD remained a differential consideration. The patient received oral acyclovir (800 mg 5 times daily for 7 days), intravenous ceftriaxone (2 g daily for 5 days), followed by oral co-amoxiclav (625 mg 3 times daily for 5 days). He was also prescribed topical chloramphenicol ointment for skin lesions and preservative-free lubricants for ocular surface protection. Clinical improvement was observed by day 5, with resolution of fever, skin lesions, improvement in extraocular motility, and restoration of optic nerve function.

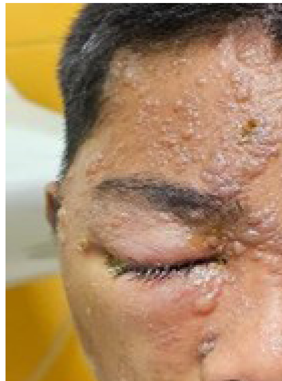

Fig. 1. Vesicular lesions along the V1 and V2 trigeminal dermatomes, respecting the vertical midline.

Fig. 2. Ocular examination revealed severe conjunctival chemosis with periocular vesicular lesions.

Fig. 3. Right lacrimal gland abscess (red arrow) with preseptal cellulitis.

Discussion

The diagnostic dilemma between HZO and PD arises from their similar clinical presentations, particularly the appearance of vesicular lesions, which can cause confusion for clinicians. In contrast, PD is caused by contact with the *Paederus* beetle toxin[2] often resulting in linear, vesicular lesions that evolve through stages of erythema, vesiculation, and squamous desquamation. The lesions typically appear within 24 to 48 hours of toxin exposure and are commonly localized to the face, neck, and arms, with occasional ocular involvement.[3] PD is characterized by linear skin lesions, often without a clear dermatome distribution, which can closely resemble the lesions seen in HZO. While most PD cases are mild, severe instances can involve systemic symptoms such as fever and joint pain.

Both conditions share overlapping clinical features, particularly the vesicular skin lesions. However, the key difference lies in the aetiology: HZO is viral, while PD is toxin-induced. In one case series, PD lesions were noted to resemble HZO but did not follow the dermatome distribution typical of HZO, which highlights the difficulty in distinguishing between the 2 conditions without a careful clinical assessment.[3] A skin biopsy in such cases can confirm the diagnosis, but this is rarely necessary when clinical presentation is characteristic.[4,5]

HZO management involves antiviral therapy, typically started within 72 hours of onset to reduce complications, whereas PD is treated as irritant contact dermatitis with measures such as cold compresses, antihistamines, and topical steroids.[1] The use of systemic corticosteroids is reserved for severe PD cases. Given the clinical overlap, it is crucial for clinicians to consider both conditions in the differential diagnosis of vesicular linear lesions,[2] especially when dermatome involvement is unclear or atypical.

Conclusion

This case underscores the importance of considering the lesion distribution and associated ocular or systemic findings when differentiating HZO from PD. While the patient had a recent *Paederus fuscipes* bite in the region of the affected dermatomes, the distribution of vesicular lesions strictly followed the right V1 and V2 dermatomes without crossing the midline, and was accompanied by ocular and systemic involvement, which are not typical in PD. The absence of Hutchinson's sign and keratouveitis does not exclude HZO but may suggest a milder ocular involvement. Ultimately, the classical dermatomal rash, coupled with optic nerve dysfunction and imaging findings of preseptal cellulitis with lacrimal gland abscess, favoured the diagnosis of HZO over PD.

Declarations

Informed consent for publication

Written informed consent was obtained from the patient and their guardian for publication of the details of their medical case and any accompanying images.

Competing interests

None to declare.

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