PAINFUL BILATERAL AURICULAR SWELLING AND NON-BLANCHING ACRAL PURPURA AFTER SUSPECTED INSECT STINGS IN A TODDLER: A CASE REPORT OF DIAGNOSTIC UNCERTAINTY

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ABSTRACT

Background: *Painful erythematous auricular swelling accompanied by purpuric extremity lesions may suggest infection, arthropod-associated inflammation, or cutaneous small-vessel vasculitis. Overlapping clinical findings can complicate the decision to prescribe systemic antibiotics and corticosteroids.* ***Case presentation:*** *A previously ambulatory boy aged 2 years 11 months (13 kg) presented after suspected insect stings with rapidly evolving bilateral auricular edema, marked erythema, painful non-blanching acral lesions, and transient truncal erythema. He remained afebrile and systemically well. A blood culture collected before antibiotic administration during the index admission showed no growth; leukocytes were 12.94 × 10³/μL, platelets 592 × 10³/μL, erythrocyte sedimentation rate 56 mm/h, and D-dimer 6.38 mg/L FEU. Following a brief initial course of ampicillin–sulbactam, intravenous cloxacillin (15 mg/kg/dose every six hours) and methylprednisolone (1 mg/kg/day in two divided doses) began on 30 September 2026. Edema improved early, although auricular erythema persisted. Gentamicin was added on 2–4 October after otolaryngological assessment for clinically suspected perichondritis (8 mg/kg on day 1; 6 mg/kg once daily on days 2–3). Topical fusidic-acid-containing compounded ointment and saline compresses were also administered. The child was discharged on oral amoxicillin–clavulanate and had no residual edema, pain, purpura, or hyperpigmentation on 8 October.* ***Conclusion:*** *The combination of painful auricular swelling including the lobules and non-blanching acral purpura raised a differential diagnosis of arthropod-triggered inflammation, cellulitis, auricular perichondritis, acute hemorrhagic edema of young children, and drug-associated eruption. Negative blood culture and a favorable response during multidrug treatment do not establish etiology. This report highlights the importance of distribution, systemic assessment, serial photography, and cautious attribution of therapeutic benefit.*

Keywords: *Auricular Swelling, Perichondritis, Insect Sting, Purpura, Acute Hemorrhagic Edema of Infancy, Diagnostic Uncertainty*

How to cite this article: Monica LI, Putri SLW, Ratridewi I., Painful Bilateral Auricular Swelling and Non-Blanching Acral Purpura after Suspected Insect Stings in a Toddler: A Case Report of Diagnostic Uncertainty. Int J Drug Deliv Technol. 2026;16(89s): 2068-2071; DOI: 10.25258/ijddt.16.89s.194

INTRODUCTION

Insect bites and stings commonly produce localized cutaneous inflammation and may mimic bacterial cellulitis, particularly when swelling and erythema are prominent. Auricular erythema with pain additionally prompts assessment for infection involving the cartilaginous pinna. In classical perichondritis, the lobule—lacking cartilage—is relatively spared; lobular swelling therefore broadens the differential rather than excluding infection.[1,2]

Purpuric skin lesions concurrent with edema of the ears and distal extremities suggest additional noninfectious possibilities, including acute hemorrhagic edema of infancy (AHEI), also called acute hemorrhagic edema of young children or Finkelstein disease. This uncommon, usually self-limited small-vessel vasculitis predominantly occurs in younger children and can resemble more serious disorders. We report a toddler with painful bilateral auricular swelling and non-blanching acral lesions after a suspected arthropod exposure, incorporating serial clinical photographs and the diagnostic uncertainty encountered during treatment.[3,4]

CASE PRESENTATION

A. Patient Information and Presenting History

A 2-year-11-month-old boy (weight, 13 kg) presented to a hospital in Malang, Indonesia, on 29 September 2026. According to his caregiver, a suspected sting by a small wasp-like insect occurred on the left foot in the early hours of 27 September. The insect was not captured or identified, and the exposure was based on caregiver report. At an outside emergency department he received topical hydrocortisone. Foot swelling and difficulty walking initially improved, but swelling subsequently involved the left ear, then the right ear and opposite foot. Erythematous lesions appeared across the upper back. Caregivers reported no new eruptions during admission.

He had been hospitalized elsewhere for pneumonia on 12–17 September and treated with ampicillin, with no contemporaneous evidence of antibiotic hypersensitivity. Mild residual respiratory symptoms were present. He had no fever at home or during the index hospitalization. Auricular pain was present even without touch, and the ears and lower-extremity lesions were tender. The purpuric lesions did not blanch with pressure. There was no reported arthralgia or abdominal pain.

B. Clinical Findings

At admission, he was alert, nontoxic appearing and well perfused, with temperature 36.7 °C, heart rate 85 beats/min, respiratory rate 24/min, and oxygen saturation 98% in room air. Examination and serial photographs showed prominent bilateral erythematous-to-violaceous auricular swelling involving the lobules, tender acral plaques and purpuric-appearing lesions, and patchy upper-back erythema. No respiratory compromise, hemodynamic instability, or mucosal bleeding was documented. Serial images in Figures 1–5 show the distribution and resolution of the manifestations.

C. Diagnostic Assessment

Initial working diagnoses included insect bite-associated inflammation with possible secondary bacterial cellulitis and clinically suspected bilateral auricular perichondritis. The treating team also considered AHEI/Finkelstein disease, a delayed drug reaction and a vascular purpuric process. The absence of fever or toxicity, involvement of both ears and lobules, and non-blanching distant lesions made a single localized bacterial infection an incomplete explanation. Blood for culture was drawn before the first empirical intravenous antibiotic dose during this admission; final culture results were negative. This pre-treatment collection reduces the potential confounding effect of antibiotics given during the index admission but does not exclude a localized infection. A prior course of ampicillin had ended on 17 September.

Table 1. Laboratory and Ancillary Findings

Investigation	Result	Interpretive context
Leukocytes	12.94 × 10³/μL	Within laboratory reference range; neutrophils 62.7%
Hemoglobin	13.3 g/dL	No anemia
Platelets	592 × 10³/μL	Thrombocytosis
ESR	56 mm/h	Elevated, nonspecific
D-dimer	6.38 mg/L FEU	Elevated, nonspecific
PT / INR / aPTT	10.1 s / 0.97 / 24.2 s	No prolonged clotting times documented
Albumin	4.17 g/dL	Normal
Creatinine	0.28 mg/dL	Within local laboratory range
AST / ALT	27.7 / 31.4 IU/L	Within stated local ranges
Urinalysis	Reported normal	No documented hematuria or proteinuria
Chest radiograph	No acute abnormality reported	Assessment in setting of recent pneumonia
Blood culture	No growth; sample obtained before index-admission antibiotics	Does not exclude localized bacterial infection
CRP	Not performed	Unavailable
Lesional culture / biopsy	Not performed	No microbiological or histological confirmation

Blood culture was collected before the first antibiotic dose at the index admission and yielded no growth, according to the treating clinician. The microbiology report (sampling timestamp, number of bottles and incubation duration) should be checked before submission.

THERAPEUTIC INTERVENTION AND TIMELINE

Intravenous ampicillin–sulbactam was administered initially on 29 September. Because a delayed aminopenicillin-associated eruption was considered in light of the previous ampicillin exposure, treatment was changed on 30 September to cloxacillin 15 mg/kg per dose every six hours (approximately 195 mg/dose). Methylprednisolone 1 mg/kg/day in two divided doses (approximately 13 mg/day total) was commenced concurrently and administered for five days. The route of methylprednisolone was not explicitly confirmed in the available history.

After initiation of cloxacillin and methylprednisolone, edema and lesions began to improve, although redness of the auricles remained. The otolaryngologist diagnosed suspected auricular perichondritis clinically and recommended adding gentamicin, given on 2 October at 8 mg/kg once (104 mg), followed by 6 mg/kg once daily (78 mg) on 3 and 4 October. The clinical record documents a prescribed topical combination containing a fusidic acid product (Fuladic) and clobetasol; the corticosteroid concentration was not available. Saline (0.9% sodium chloride) compresses were applied to the swollen ears. Paracetamol was available as needed for fever, but the child remained afebrile.

Table 2. Clinical Timeline

Date	Therapy / assessment	Course
12–17 Sep	Hospitalized elsewhere for pneumonia; ampicillin exposure	No documented drug reaction during prior admission
27–28 Sep	Suspected insect sting; outside topical hydrocortisone	Foot edema then sequential auricular and foot swelling
29 Sep	Hospital admission; initial ampicillin–sulbactam	Painful bilateral auricular swelling, purpuric feet, back erythema; afebrile
30 Sep	Cloxacillin and methylprednisolone started	Early reduction of swelling and lesions
1 Oct	Continued cloxacillin / methylprednisolone	Edema improving; residual redness; otolaryngology assessment
2 Oct	Gentamicin 8 mg/kg IV once	Persistent auricular erythema prompted broadened regimen
3 Oct	Gentamicin 6 mg/kg IV once	Continued clinical improvement
4 Oct	Gentamicin 6 mg/kg IV once; discharge	Marked/near-complete resolution; oral amoxicillin–clavulanate begun
5–7 Oct	Amoxicillin–clavulanate 30 mg/kg/day, 3 divided doses, for 3 days	No recurrent rash or other adverse drug response reported
8 Oct	Follow-up examination	Complete resolution without residual pain, edema, purpura, or hyperpigmentation

Calendar dates and scheduled doses are based on the treating clinician's clarifications. The exact stop date of cloxacillin and the last methylprednisolone administration should be checked against the medication administration record.

FOLLOW-UP AND OUTCOME

The clinical course was steadily favorable; new lesions were not observed and the patient remained afebrile. At follow-up on 8 October 2026, auricular appearance had returned to baseline, and the lower-extremity purpura, swelling and tenderness had resolved, with no residual hyperpigmentation. Three days of oral amoxicillin–clavulanate at 30 mg/kg/day divided into three doses were tolerated without recurrence, which reduced suspicion of ongoing clinically significant aminopenicillin hypersensitivity but did not constitute formal drug-allergy testing.

DISCUSSION

A. Interpreting the Auricular Findings

Auricular perichondritis is a clinically important diagnosis because delayed management can be associated with cartilage injury. Painful, warm, erythematous swelling of the cartilaginous pinna may favor perichondritis; however, the

lobule is traditionally relatively spared. Here, both auricles including their lobules were markedly swollen, and concurrent lesions arose at distant acral and truncal sites. Thus, the clinical diagnosis of perichondritis by an otolaryngologist was relevant for management but did not fully account for the systemic distribution of the eruption. Although a blood culture collected before the initial antibiotic dose during this admission yielded no growth, blood culture has limited sensitivity for localized soft-tissue infection and cannot exclude auricular bacterial involvement. Without culture of the involved tissue or an abscess specimen, the infectious component remains presumptive. The negative culture must not be presented as proof of sterile vasculitis.[1,2]

B. Inflammatory Mimics and AHEI

Large local reactions after arthropod exposure can cause rapid edema and erythema and are well-recognized mimics of cellulitis. AHEI is another important alternative: its characteristic presentation includes conspicuous edema, non-blanching purpuric/ecchymotic lesions on ears and distal limbs, and an often-well-appearing child. The current case shares several of these features and had a preceding respiratory illness, but it was not morphologically or histologically confirmed as AHEI. His age at nearly 35 months is somewhat older than the typical 6–24-month range reported in many series, although atypical ages occur. No skin biopsy was performed; accordingly, leukocytoclastic vasculitis cannot be established. The painful local swelling does not by itself resolve the distinction between infection and inflammatory disease. IgA vasculitis was considered because of purpura, but urinalysis was reportedly normal and no abdominal pain or arthritis was reported. These findings reduce concern for contemporaneous systemic involvement but do not amount to a definitive exclusion of evolving vasculitis.[1,3,4]

C. Drug Reaction and Antimicrobial Decisions

A delayed aminopenicillin-associated reaction was initially considered given ampicillin exposure during the admission for pneumonia roughly two weeks beforehand. No reaction was documented at that time and, after discharge from the index admission, the child tolerated amoxicillin–clavulanate. Serum sickness-like reactions in children commonly feature rash and joint symptoms, and infection-associated eruptions can be difficult to distinguish from drug reactions. The absence of joint complaints, the distribution of lesions, and subsequent tolerance of amoxicillin–clavulanate made this explanation less persuasive here. A subsequent tolerated course is reassuring but is not a supervised allergy challenge and cannot retrospectively prove that earlier symptoms were unrelated to ampicillin.[5]

Cloxacillin and methylprednisolone were initiated simultaneously on 30 September and early improvement followed. The favorable response therefore cannot isolate the contribution of either drug, nor can it prove a dual infectious–inflammatory mechanism. Gentamicin was added on 2 October for persistent auricular erythema based on specialty advice, when swelling had already begun to decline. The ensuing complete recovery also cannot establish a Gram-negative pathogen or gentamicin efficacy. In addition, short-term corticosteroid use in a suspected infection entails clinical judgment and careful observation. We report the exact regimen rather than presenting it as a recommended empiric strategy for uncomplicated auricular perichondritis. Where bacterial perichondritis is suspected, culture opportunities, pathogen epidemiology, and agents with reliable appropriate coverage should guide treatment decisions.

D. Other Laboratory Findings and Limitations

Thrombocytosis, raised erythrocyte sedimentation rate and elevated D-dimer demonstrate an inflammatory or hemostatic response but are not specific for infection, immune vasculitis, or thrombosis. The normal reported urinalysis and reassuring hemodynamic course support the lack of documented acute extracutaneous involvement. Important limitations include lack of CRP, unavailable complete blood-culture laboratory metadata, no tissue culture, no lesional histology or direct immunofluorescence, uncertainty over topical clobetasol concentration, and the simultaneous use of multiple therapies. Nevertheless, contemporaneously dated photography across several anatomical sites, detailed treatment chronology, and documented clinical resolution strengthen the descriptive quality of the report. No claim of treatment causality can be made from this single case.

CONCLUSION

Painful bilateral auricular inflammation involving the lobules, together with non-blanching purpuric acral lesions in an otherwise well toddler, presents diagnostic overlap between local infection and noninfectious inflammatory disorders. A negative blood culture does not establish the absence of localized infection; similarly, recovery during combined antibacterial and corticosteroid treatment does not establish causation. Distribution-focused examination, assessment for systemic involvement, careful documentation and serial follow-up are essential for transparent reporting and safe care.

DECLARATIONS

Consent for publication: Written informed consent for publication of the clinical information and accompanying clinical photographs was obtained from the patient's parent/legal guardian.

Ethics approval: Ethical approval was not required for this single-patient case report in accordance with institutional policies. Written informed consent for publication was obtained from the patient's parent/legal guardian.

Competing interests: The authors declare that they have no competing interests.

Funding: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Data availability: All relevant de-identified clinical data supporting this case report are included in the manuscript. Additional patient-level data are not publicly available due to patient confidentiality and privacy considerations.

Author contributions: LIM: Conceptualization, clinical management, diagnostic assessment, supervision, manuscript review and editing. **SLW:** Data collection, clinical documentation, literature review, and writing of the original draft. **IR:** Clinical data

interpretation, literature review, and manuscript review and editing. All authors read and approved the final version of the manuscript.

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CLINICAL PHOTOGRAPHIC DOCUMENTATION

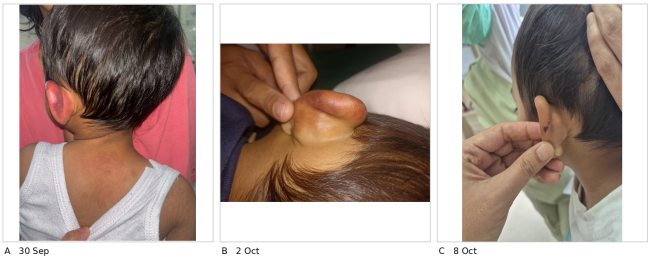


Figure 1: Serial posterior/right auricular views on 30 September (A), 2 October (B), and 8 October 2026 (C), showing reduction of swelling and erythema.

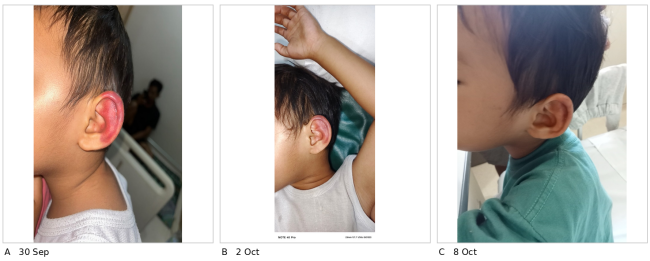


Figure 2: Serial left auricle views on 30 September (A), 2 October (B), and 8 October (C). Edema and erythema visibly regress.



Figure 3: Upper-back erythema on 30 September (A), 2 October (B), and 8 October (C).

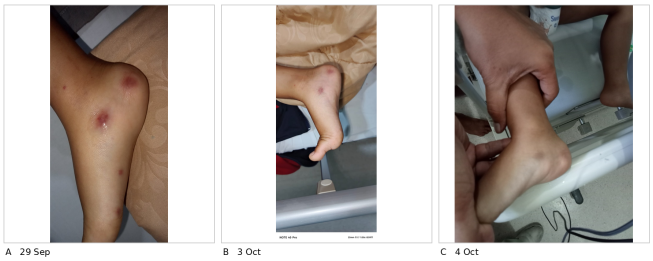


Figure 4: Left foot and ankle findings on 29 September (A), 3 October (B), and 4 October (C).

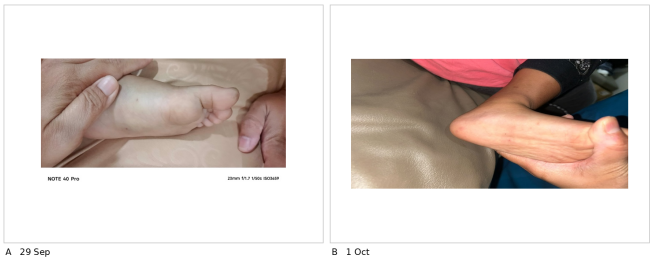


Figure 5: Plantar aspect and suspected wasp sting of the left foot on 29 September (A) and 1 October (B).