

Inky Hues: A Case Report of Cydnidae Pigmentation

S GAYATHRI¹, N ASHOK KUMAR², C BALAKUMARAN³, B LAASYAA REDDY⁴



ABSTRACT

Insects can cause a plethora of cutaneous manifestations, ranging from localised contact dermatitis to anaphylaxis. Cydnidae, commonly known as burrowing bugs, are soil-dwelling insects belonging to the order Hemiptera. Cydnidae have gained importance in dermatology because of accidental contact or crushing of insects on human skin which can produce characteristic cutaneous pigmentation. A 55-year-old male, farmer by occupation, presented with multiple hyperpigmented macules over the soles upon walking barefoot during the monsoon season. On examination, multiple red-brown macules were noted on the soles, which were non tender and non itchy. A diagnosis of Cydnidae Pigmentation (CP) was made based on clinical features and seasonal presentation after ruling out other causes of acquired pigmentation and patient was reassured about the self-limiting nature of the condition. The present case highlights the underrecognised nature of CP and its potential to mimic other acquired pigmentary dermatoses. Awareness of this benign condition is essential for general practitioners as there are an increasing number of cases especially during rainy season and to avoid unnecessary investigations and interventions.

Keywords: Burrowing bug, Dermoscopy, Hyperpigmentation, Monsoon

CASE REPORT

A 55-year-old male presented to the Dermatology Outpatient Department with multiple asymptomatic reddish-brown lesions over both soles, noted for two days without progression. The patient reported visiting a Hindu temple where he walked barefoot; within minutes of accidentally crushing insects, the lesions appeared. Attempts to clean the lesions with soap and water were ineffective. There was no history of pain, itching, fever, trauma, drug intake, or occupational exposure to dyes, chemicals, or irritants. The patient had no co-morbidities or prior dermatological conditions.

On examination, multiple scattered, irregularly shaped, non blanchable reddish brown macules of varying sizes (1-10 mm) were observed over the soles [Table/Fig-1a]. Dermoscopy in polarised mode revealed clusters of oval to bizarre-shaped light brown globules, blotchy pigmentation between skin lines and accentuated dark brown pigmentation along dermatoglyphics and around eccrine gland openings [Table/Fig-1b].



[Table/Fig-1]: a) Multiple reddish-brown macules of varying shapes distributed over bilateral soles; b) Multiple brown globules (red arrow) with accentuated pigmentation in furrows (blue arrow) and around the eccrine gland opening (green arrow) on polarised mode. (Dermoscope: DermLite DL4; 10x).

Histopathological examination was not performed, as the diagnosis was primarily clinical, based on the sudden onset of asymptomatic

lesions following barefoot exposure during the insect season, after ruling out other causes of acquired hyperpigmentation. Differential diagnoses such as post-inflammatory hyperpigmentation, petechiae, melanocytic nevus, lentigines and tinea nigra were considered and excluded with dermoscopic findings [Table/Fig-2].

Condition	Distinguishing feature	Dermoscopy
Post-inflammatory hyperpigmentation	History of preceding dermatitis or injury	Diffuse structureless brown-grey pigmentation without pigment network
Melanocytic nevus	History of long-standing pigmentation	Symmetric pattern. Pigment network, globules or dots
Tinea nigra	Unilateral slowly enlarging dark patch on palms or soles. Potassium Hydroxide (KOH) mount shows hyphae.	Brown-black pigmented streaks or filaments
Lentigines	Gradual onset, persistent brown macule unrelated to trauma or exposure	Regular reticular pigment network with sharply demarcated margins
Petechiae	History of preceding fever and other systemic symptoms	Red-purple or violaceous dots without pigment network

[Table/Fig-2]: Differential diagnosis and dermoscopic features of acral hyperpigmented macules [9].

The patient provided informed consent and was reassured regarding the benign, self-limiting nature of the condition. He was subsequently lost to follow-up.

DISCUSSION

Chilocoris assmuthi, also known as the burrowing bug, belongs to the Cydnidae family, to the Hemiptera order and to the Heteroptera suborder and is the main causative agent for CP in reported cases [1]. They burrow in soil or sand and feed on roots or other underground parts of plants and are not routinely accessible. They have a hemimetabolous life cycle with incomplete metamorphosis consisting of egg, nymph and adult stages. Eggs are laid in soil and hatch in about 10-14 days and the emerging nymphs resemble adults but lack wings and reproductive organs. Then pass through five nymphal instars over a span of 20-40 days. The adults are dark brown to black, 2-20 mm in size and are adapted for digging

and live for 1-3 months. The females lay eggs in the soil and the cycle repeats [2]. The burrowing bugs have special glands located in the thorax (in adults) and abdomen (in nymphs) which secrete hydrocarbons, an odorous substance that functions as a repellent and chemoattractant [3].

The CP is an under-recognised dermatosis, reported mostly in tropical and subtropical regions. It is a rare condition with only 30 reported cases in the literature until now [4]. The monsoon season and agricultural landscapes create ideal proliferation conditions for the bug. It is usually sporadic but may occur in clusters or mini outbreaks in shared accommodations. It is common among individuals walking barefoot, travellers, students living in hostels and homeless individuals. When insects get crushed the pigment gets accumulated in the skin furrows [4]. With time, pigmentation intensifies for the first few days and then gradually fades on its own over a period of one to two weeks without any residual effect.

Patients usually present with sudden appearance of dark brown to black macules or patches, commonly distributed over the exposed sites like palms, soles and less commonly over the neck and face. The lesions are usually asymptomatic, non-pruritic and non tender. The borders appear irregular. The pigmentation is superficial, non scaly and shows splattered ink pattern [5]. The pigmentation gradually fades spontaneously over weeks without scarring or associated systemic symptoms.

Dermoscopy is a useful bedside investigation tool. The CP characteristically shows homogenous dark brown to black areas. It also shows a cluster of oval to bizarre-shaped brown and shiny globules and clods with a superficial "stuck-on" appearance [6]. Importantly it lacks features of melanocytic proliferation like pigment network, streaks, regression structures, vascular structures, pseudopods or blue-white veil helping to distinguish from melanoma, lentigo or melanocytic nevi.

Dhiman A et al., reported the uncommon involvement of face and palms and streaky pigmentation was observed with dermoscopy showing brown blotchy pigmentation along with micropigmentation in the surrounding areas [7]. In contrast, Amrani A and Das A described the involvement of atypical sites like abdomen and back and dermoscopy showed dark brown linear and criss-cross structures and minute hyperpigmented dots [8].

The differential diagnosis of CP includes both endogenous and exogenous causes of acquired hyperpigmentation. It must be clinically and dermoscopically distinguished from other condition [9].

It is primarily a clinical diagnosis characterised by sudden onset of asymptomatic hyperpigmented macules or patches on exposed skin with a history of accidental contact or crushing of an insect; characteristic morphology and distribution; history of travel, hostel stay, rural residence to elicit the possibility of insect exposure. Dermoscopic findings can aid the diagnosis.

Management is conservative. Reassurance about the benign and self-limiting nature of the condition is the cornerstone of patient management. Mild corticosteroids like hydrocortisone 1% cream may be useful if irritation or burning sensation is present [10]. Generally, it can be rubbed off with acetone but not with soap and water [1]. Lesions typically fade spontaneously over days to weeks.

The present case underscores the potential of CP to mimic other melanocytic lesions. Future diagnostic approaches may incorporate dermoscopic and clinico-epidemiological to differentiate it from other causes of acquired pigmentation. From a therapeutic perspective, recognition of this benign and self-limiting condition can prevent unwarranted therapeutic interventions. Appropriate patient counselling about avoiding handling or crushing of insects on the skin and washing the exposed skin with soap and water after outdoor activities involving soil and vegetation, use of protective clothing and footwear while working outdoors and appropriate insect control measures.

CONCLUSION(S)

The CP is a tropical benign condition caused by bug secretions presenting as abrupt onset of asymptomatic dark macules over exposed areas, occurring during monsoons usually in localised clusters and has spontaneous resolution. It is crucial to recognise this harmless self-limiting condition by careful history, examination and dermoscopy to prevent misdiagnosis, so unnecessary investigations and interventions can be avoided.

REFERENCES

- [1] Malhotra AK, Lis JA, Ramam M. Cydnidae (Burrowing Bug) pigmentation. *JAMA Dermatol.* 2015;151(2):232 Doi: 10.1001/jamadermatol.2014.2715.
- [2] Aigner BL, Crossley MS, Abney MR. Biology and management of peanut burrower bug (Hemiptera: Cydnidae) in southeast U.S. peanut. *J Integr Pest Manag.* 2021;12(1):01-09. Doi: <https://doi.org/10.1093/jipm/pmab024>.
- [3] Lis JA, Hohol-Kilinkiewicz A. Adult dorso-abdominal scent glands in the burrower bugs (Hemiptera: Heteroptera: Cydnidae). *Pol J Entomol.* 2002;71:359-95.
- [4] Bhusal M, Dhungana S, Baniya R, Neupane D, Shah S. Cydnidae pigmentation in an adult during monsoon: A case report and review of the literature. *Ann Med Surg (Lond).* 2025;87(10):6812-15 Doi: 10.1097/MS9.0000000000003766.
- [5] Pol D, Kumar A, Singh S, Malik N. Cydnidae pigmentation on palms resembling black-ink stains. *Cureus.* 2024;16(6):e62578 Doi: 10.7759/cureus.62578.
- [6] Sonthalia S. Dermoscopy of cydnidae pigmentation: A novel disorder of pigmentation. *Dermatol Pract Concept.* 2019;9(3):228-29. Doi: 10.5826/dpc.0903a15. PMID: 31384503; PMCID: PMC6659609.
- [7] Dhiman A, Chauhan P, Daroach M. Cydnidae bug pigmentation mimicking dermatitis artefacta. *Indian J Dermatol Venereol Leprol.* 2023;90:136. Doi: 10.25259/JDVL_623_2023.
- [8] Amrani A, Das A. Cydnidae pigmentation: Unusual location on the abdomen and back. *Br J Dermatol.* 2021;184(4):e125. Doi: 10.1111/bjd.19606. Epub 2020 Nov 2. PMID: 33140425.
- [9] Marghoob AA, Malvey J, Braun RP, editors. *Dermoscopy*. 3rd ed. CRC Press; 2021 Doi: <https://doi.org/10.1201/9780429487873>.
- [10] Jayaraj R, Walton SF, Holt DC, Sardana K. Insect bite infestations. In: Sardana K, editor. *Diagnosis and management of skin disorders: An evidence-based approach*. 1st ed. New Delhi: Lippincott Williams & Wilkins; 2012. p. 500-24.

PARTICULARS OF CONTRIBUTORS:

1. Senior Resident, Department of Dermatology, Venereology and Leprosy, Sree Balaji Medical College and Hospital, Chennai, Tamil Nadu, India.
2. Professor, Department of Dermatology, Venereology and Leprosy, Sree Balaji Medical College and Hospital, Chennai, Tamil Nadu, India.
3. Assistant Professor, Department of Dermatology, Venereology and Leprosy, Sree Balaji Medical College and Hospital, Chennai, Tamil Nadu, India.
4. Junior Resident, Department of Dermatology, Venereology and Leprosy, Sree Balaji Medical College and Hospital, Chennai, Tamil Nadu, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. C Balakumaran,
Assistant Professor, Department of Dermatology, Venereology and Leprosy,
Sree Balaji Medical College and Hospital, 7, CLC Works Road, Chromepet,
Chennai-600044, Tamil Nadu, India.
E-mail: drbaladerm@gmail.com

AUTHOR DECLARATION:

- Financial or Other Competing Interests: None
- Was informed consent obtained from the subjects involved in the study? Yes
- For any images presented appropriate consent has been obtained from the subjects. Yes

PLAGIARISM CHECKING METHODS: [Jain H et al.]

- Plagiarism X-checker: Apr 09, 2026
- Manual Googling: Jun 17, 2026
- iThenticate Software: Jun 20, 2026 (11%)

ETYMOLOGY: Author Origin

EMENDATIONS: 7

Date of Submission: **Mar 19, 2026**

Date of Peer Review: **May 06, 2026**

Date of Acceptance: **Jun 23, 2026**

Date of Publishing: **Oct 01, 2026**