ORIGINAL RESEARCH PAPER
Volume - 15 | Issue - 03 | March - 2026 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

CARBON BABY SYNDROME - A RARE PRESENTATION OF GENERALIZED HYPERPIGMENTATION IN INFANCY

Dermatology

Dr Callista Juneja Final Year Post Graduate

Dr Suresh Kumar K Professor & HOD

Dr Rajashekar T S Professor

Dr Madhukiran C Assistant Professor

ABSTRACT

-"Carbon Baby Syndrome" or " Universal acquired melanosis", is a rare condition marked by progressive generalized hyperpigmentation in infancy. Infants with diffuse greyish hyperpigmentation without maternal drug intake or systemic involvement are extremely rare, with fewer than 20 cases reported globally. Such presentations pose a diagnostic challenge and emphasize the need to expand the clinical spectrum of the condition. A 9-month-old term female infant, born to non-consanguineous parents, presented with progressive skin darkening since 6 months of age. Pigmentation began on the face and gradually spread to involve the trunk and extremities, sparing flexures, palms, and soles. There were no associated developmental delays or systemic illness. Birth and maternal histories, including drug intake during pregnancy or lactation, were unremarkable. Family history was negative. Systemic, neurological, ophthalmological exams and laboratory investigations were normal. No treatment was initiated, and pigmentation persisted over 3 months. On examination: Diffuse greyish to black hyperpigmentation of face, abdomen, bilateral arms, forearms, buttocks, bilateral thighs and legs with greyish pigmentation of scalp hair. Pigmentation is sparing in intertriginous and flexural areas. Histopathology was not performed due to ethical concerns. Dermoscopy showed accentuated reticular network with diffuse gray areas.This case highlights a rare, non-toxic cutaneous hyperpigmentation in infancy. Early recognition, parental counseling, and reassurance are crucial to avoid misdiagnosis such as diffuse dermal melanocytosis, Addison's disease or drug-induced pigmentation and further to avoid unnecessary investigations. Long term follow-up is essential to understand its progression and establish it as a distinct clinical entity.

KEYWORDS

Carbon Baby Syndrome, Universal Acquired Melanosis; Infantile Hyperpigmentation; Generalized Hyperpigmentation; Dermoscopy

INTRODUCTION

Carbon Baby Syndrome is an extremely rare disorder characterized by progressive, generalized hyperpigmentation of the skin and mucosa in infants without systemic or drug-related causes. Fewer than 20 cases have been reported worldwide, posing a diagnostic challenge and highlighting the condition's clinical significance[1].The etiology is unknown. The disorder is distinct from other causes of infantile pigmentation due to its diffuse presentation and absence of underlying systemic illness.

Case Study

A 9-month-old female infant born at term to non-consanguineous parents was brought with complaints of generalized darkening of the skin from the age of 6 months. The skin darkening was first observed over face. Subsequently, it progressed asymptomatically to involve trunk, and extremities with sparing of the flexural areas, palms, and soles. The child did not exhibit any developmental abnormalities or systemic illness. There was no history of prior infection, photosensitivity, urine discoloration, or any drug intake. Birth history was unremarkable, and there was no familial history of similar complaints or history of drug intake during pregnancy/lactation. Systemic examination and laboratory investigations (complete blood count, liver and renal function, thyroid profile) were normal. Ophthalmological and neurological evaluations revealed no abnormalities. No treatment initiated since last 3 months and pigmentation is still persisting.

On Examination

Diffuse greyish to black hyperpigmentation over the face, abdomen, bilateral arms, forearms, buttocks, bilateral thighs and lower limbs with greyish hair over the scalp. Flexural/intertriginous areas were spared. Histopathological examination is not done because of ethical issues.

Dermoscopy Examination: Dermoscopy revealed accentuation of the reticular network with a diffuse grayish black structureless areas. These findings are consistent with those noted in previous case reports.

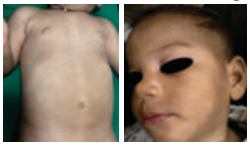

Figure 1 & 2 Shows: Diffuse greyish to black hyperpigmentation over the abdomen and face

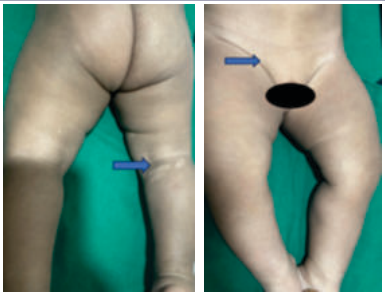

Figure 3 & 4 Shows: Diffuse greyish to black hyperpigmentation over bilateral lower limbs and buttocks with sparing of flexural areas and palms (blue arrow).

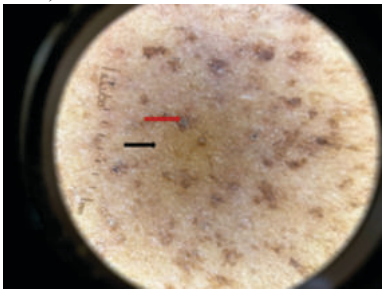

Figure 5 shows: Revealed revealed accentuation of the reticular network (black arrow) along with diffuse grayish black structureless areas.(red arrow)

DISCUSSION

Carbon Baby Syndrome is a diagnosis of exclusion.[2] Generalized hyperpigmentation in infancy is rare and can result from Diffuse dermal melanocytosis (nevus of Ota, Ito, Mongolian spots), post-inflammatory hyperpigmentation, Endocrinopathies (such as Addison's disease), metabolic disorders, drug reactions, genetic syndromes, and nutritional deficiencies, Cushing disease and hemochromatosis.[3]

However, Carbon Baby Syndrome is distinguished by its exclusive cutaneous manifestations without associated systemic symptoms or

laboratory abnormalities. Sparing of the palms, soles, and mucosa is characteristic. In familial progressive hyperpigmentation, patches of hyperpigmentation appear at birth that gradually increase with age, so it was also excluded.[4]

Being a rare entity, the exact etiopathogenesis of CBS is unestablished due to a lack of genetic studies. Proposed hypotheses include altered melanocyte activity, defective melanin metabolism, or genetic susceptibility leading to increased melanin deposition in dermis and epidermis.[5]

Histopathology in previously reported cases reveals increased melanin within the basal and suprabasal epidermal layers, often with pigment incontinence and normal or minimally increased melanocyte counts.

CONCLUSIONS

This case highlights a unique, benign, cutaneous variant of generalized hyperpigmentation, manifesting as Carbon Baby Syndrome. Early recognition and awareness are important to prevent misdiagnosis with syndromes like diffuse dermal melanocytosis or endocrinopathies and to avoid unnecessary investigations and psychosocial distress for families. Early onset pigmentation can have profound psychosocial effects on parents and affected children, necessitating proper counselling and reassurance. Long-term monitoring is advised, given the rarity and unknown prognosis.

REFERENCES

[1] Bindagi AP, Srinivas SM. Carbon baby syndrome: An unusual cause of progressive generalized melanosis. Indian J Paediatr Dermatol 2023;24:157-60.
[2] Kaviarasan P K, Prasad P, Joe J M, Nandana N, Viswanathan P. Universal acquired melanosis (Carbon baby). Indian J Dermatol Venereol Leprol 2008;74:38-40
[3] Kumari, Sandhya; Verma, G. K.; Gulati, Anchana[1]; Negi, Ajeet[1]. Carbon Baby Syndrome: A Case Report with Review of Literature. Indian Journal of Paediatric Dermatology 25(1):p 37-39, Jan–Mar 2024.
[4] Ghosh SK, Ghoshal L, Bhunia D, Ghoshal AM. Acquired universal melanosis (carbon baby syndrome). Pediatr Dermatol. 2014 Sep-Oct;31(5):620-2
[5] Malik, P., Pathania, M., & Rathaur, V. K. A Case of a 4-Year-Old Carbon Baby: Acquired Universal Melanosis and Literature Review: Carbon baby. International Journal of Innovative Research in Medical Science, 2020;5:92-94
[6] Gaurav V, Tyagi M, Grover C, Sharma S. Acquired Universal Melanosis: A Case Report and Review of Literature. Indian Dermatol Online J. 2025 Feb 10;16:319-322