

Idiopathic eruptive macular pigmentation: A case from Indonesia

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Abstract Idiopathic eruptive macular pigmentation (IEMP) is an acquired dermal hyperpigmentary disorder characterized by an eruption of asymptomatic, hyperpigmented macules and plaques without preceding inflammation or erythema. We report a 16-year-old boy with asymptomatic hyperpigmented macules and patches on the face, neck, trunk, and upper extremities, which were gradually increased from last 2 years. Histological examination showed papillomatosis and irregular acanthosis, hyperpigmentation of the basal layer of the epidermis and dermal melanophages on the papilla dermis, supporting the diagnosis of IEMP. As the nature of the disease is of spontaneous resolution, patient did not receive any treatment, but was given explanation of his disease. The hyperpigmented lesions of IEMP usually undergo spontaneous resolutions within months to years.

Key words

Idiopathic eruptive macular pigmentation, rare case.

Introduction

Idiopathic eruptive macular pigmentation (IEMP) is a rare pigmentation disorder which is categorized as the acquired dermal hyperpigmentary disorders.¹ It is usually found in children and adolescents.^{2,3} Diagnosis of IEMP is established based on characteristic clinical and histological features. Clinically, IEMP is characterized by an eruption of asymptomatic, well-demarcated, brownish-black macules and plaques without preceding inflammation or erythema. Histologically, IEMP is mainly identified by hyperpigmentation in the basal epidermis, presence of melanophages in the dermis without visible basal layer change or

lichenoid inflammation. Etiology of this uncommon disease is still unclear, but prognosis is good where the hyperpigmentation usually achieves spontaneous resolution in months to years.³

Case report

A 16-year-old boy was presented to our clinic with chief complain of asymptomatic hyperpigmented macules and patches on the face, neck, trunk, and upper extremities. The hyperpigmented macules and patches were firstly seen on the face at about two years ago, which gradually increased in number and distribution. History of erythema preceding the hyperpigmentation was denied, as well as consumption of any drugs or food supplements. None of the family members had similar complains. The patient was otherwise healthy. On physical examination, there were velvety hyperpigmented plaques over the face and neck. On the abdomen, waist, and volar forearms, there were well-demarcated, discrete, brownish-

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Figure 1 (A) Velvety hyperpigmented plaques on the neck;
(B) Hyperpigmented macules and patches on the trunk and waist.

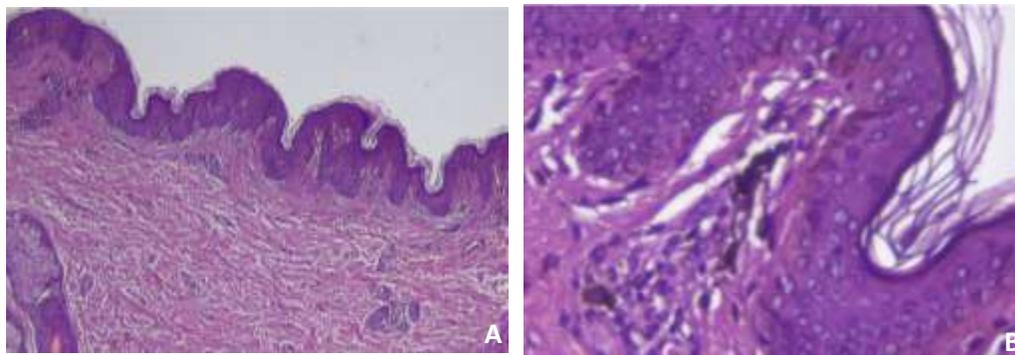


Figure 2 (A) Histological examination showed epidermis with orthokeratosis, papillomatosis, and irregular acanthosis (hematoxylin-eosin staining, 100x); (B) Hyperpigmentation of the basal layer of the epidermis and dermal melanophages in the papilla dermis (400x).

black hyperpigmented macules and patches with varying size from 1 to 3 cm (**Figure 1A** and **1B**). Complete blood count and blood glucose level were within normal limits. Histological examination using hematoxylin-eosin staining showed papillomatosis and irregular acanthosis, hyperpigmentation at the basal layer of the epidermis and presence of dermal melanophages on the papilla dermis (**Figure 2A** and **2B**). The histological examination supported the diagnosis of IEMP.

Differential diagnosis of this case includes erythema dyschromicum perstans and lichen planus pigmentosus.

The patient was educated that the disease was not harmful, and as the nature of the disease is of spontaneous resolution, he did not receive any

treatment. The hyperpigmentation was expected to achieve spontaneous resolution within several months to a few years.

Discussion

Idiopathic eruptive macular pigmentation is a rare pigmentation disorder characterized by an eruption of asymptomatic, well-demarcated, brownish-black macules and plaques without preceding inflammation or erythema or a history of drug consumption. It is usually found in children and adolescents with mostly reported in the Asian and Hispanic populations. No gender difference has been reported in the literature.^{2,3} This disease is rarely reported with only 48 cases reported in the literature until 2015.⁴ In our clinic, the IEMP cases have not been reported before. The alleged rarity of IEMP may be

because of medical unfamiliarity with this entity.⁵

The etiology of IEMP is unknown.²⁻⁴ The absence of family history excludes the hereditary factors while the absence of photosensitivity excludes sunlight as causative factors. Hormonal factors may be involved in the pathogenesis of IEMP because most of the patients were children or young adults.⁵

The clinical feature of IEMP is characterized by an eruption of asymptomatic, well-demarcated, brownish-black hyperpigmented macules and plaques involving the face, neck, trunk, and proximal extremities. A subset of patients exhibits thickened velvety plaques that resemble acanthosis nigricans.²⁻⁴ The triggering factors of acanthosis nigricans are obesity, underlying malignancy, and endocrine disturbance particularly peripheral insulin resistance, while the triggering factors in IEMP are not known. Joshi *et al.* proposed to classify IEMP as an eruptive form of acanthosis nigricans because both entities are indistinguishable clinically and histologically.⁶ The clinical manifestations found in our case were brownish-black hyperpigmented macules and patches over the abdomen, waist, and forearm with velvety hyperpigmented plaques over the face and neck, which were appropriate with clinical characteristics of IEMP.

Histological examination of IEMP shows increased melanin in the basal epidermis and melanophages in the dermis, without basal layer change or lichenoid inflammation.^{4,7} A subset of patients with velvety plaques will show epidermal papillomatosis in the histological examination.^{3,6} The diagnosis criteria of IEMP are: (1) eruption of brownish-black, asymptomatic macules involving the face, neck, trunk, and proximal extremities, (2) predominantly involves children and

adolescents, (3) no preceding inflammation or erythema, (4) no history of drug exposure, (5) histology is characterized by hyperpigmentation at the basal layer of the epidermis and dermal melanophages without visible basal layer damage or lichenoid inflammatory infiltrate.^{1,4} Our case fulfills all of the criteria above so the diagnosis of IEMP could be established.

Idiopathic eruptive macular pigmentation has to be differentiated from other acquired macular pigmentation of unknown etiology, such as erythema dyschromium perstans (EDP) and lichen planus pigmentosus (LPP).^{1,2,7,8} Erythema dyschromium perstans also known as ashy dermatosis, dermatosis cinicienta, and erythema chromium figuratum melanodermicum.² The disease is mainly observed in the Asian and Latino female population at the second and third decade of life, with the skin phototypes of II to IV. The etiology of EDP is unknown. Lesion of EDP are present with widespread asymptomatic well-demarcated, blue-gray macules, with an erythematous border at the edge of the lesion in the acute stages.^{3,9} The erythematous border may evolve into a hypopigmented border that accentuated the hyperpigmentation.² The lesion of EDP is most commonly seen on photoprotected sides and is generally larger than IEMP lesions with diameter more than 5 cm. Histologically, early lesions reveal dermal edema and lichenoid inflammation, basal layer vacuolization, and colloid bodies with a perivascular infiltrate. At a later stage, melanin incontinence is noted in the deep dermis along with melanophages.^{2,3,9} This differential diagnosis could be excluded because neither erythematous border was noted in our case nor those of histological features.

The other differential diagnosis is LPP, which is considered as a variant of lichen planus. This disease entity is mainly observed in the third to fourth decade of life in the skin phototypes of IV

to V, such as the Southeast Asians, South Asians, and the Arabic populations. To date, the exact etiology of LPP is unknown. It has clinical features of poorly demarcated, symmetrical brownish-black hyperpigmented macules and patches in photoexposed sites such as the head and neck. Lesion also may be seen in skin folds such as axillae, known as lichen planus pigmentosus inversus. The lesion occasionally becomes mildly pruritic. The mucous membrane lesion is rarely found.^{8,10} Histological examination of LPP exhibits epidermal atrophy, basal layer vacuolation, lichenoid lymphocytic infiltrate, and melanophages in the superficial dermis.¹¹ In our case, the diagnosis of LPP could be excluded due to asymptomatic nature and different histological features. Urticaria pigmentosa, fixed drug eruption and post inflammatory hyperpigmentation could be other differential diagnoses.

Various treatment modalities, such as hydroquinone, topical tretinoin 0.05%, topical corticosteroid, oral tranexamic acid, *neodymium-yttrium-aluminium-garnet* (Nd:YAG) laser 1064 nm, and Q-switched ruby laser, have been reported to be ineffective for IEMP.¹² Fortunately, IEMP lesions are described to undergo spontaneous resolution with duration varying from several months to a few years. A better understanding of this uncommon entity is important to make a precise diagnosis of IEMP and to avoid unnecessary treatments.⁵

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