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Case Series

Acquired Facial Hyperpigmented Macules in Infants – Three New Cases and a Short Review

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ABSTRACT

Facial pigmentations in infants are worrisome for parents and families. A definite diagnosis will allow appropriate consultation and – if necessary – treatment. Acquired facial hyperpigmented macules in infants (AFHM) is an entity first described in 2014, mainly in infants and young children of Chinese or Mediterranean origin. We evaluated infants from Romania with AFHM. We present three new cases of AFHM in Caucasian infants from Romania and performed a narrative literature search on PubMed database. The infants were 6, 14, and 24 months old (medium 14.7 months), a boy and two girls. They presented with irregular macules mainly on the forehead, although some macules were observed on the bridge of the nose, while extrafacial hyperpigmentation was absent. The lesions were brownish and asymptomatic. A short time course with mild topical corticosteroids or emollients had no effect. Follow-up was six months. In the literature research, we identified 261 cases worldwide with a male to female ratio of 1.4. Most case reports came from China followed by the Mediterranean region. There were no reports from Central, Eastern or Northern Europe. More than 90% of Chinese cases show a complete clearance after several years. According to published data the disease seems to be limited to preschoolers. In contrast, AFHM remained persistent in mixed American and European populations for up to 4.5 years. Stringent data on pathogenesis of AFHM are not available. Treatment options may include sun protection, but this has not been validated. Further studies are needed. AFHM seems to be more common in patients with Chinese and Mediterranean background. Among Chinese patients the course of the disease is benign and self-limited, while data from mixed non-Chinese patients suggest a longer persistence.

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1. Introduction

Cutaneous hyperpigmentation is a common condition that can be triggered by various factors. The three leading causes are genetics, sun exposure, and particular medications. Cutaneous pigmentary anomalies in infants and young children – hypo- or hyperpigmentation – are a matter of concern for their families. The perceived color of skin depends on several factors, including the type and amount of melanin (eumelanin and pheomelanin), the size and the depth of pigment deposits (1).

In case of dermal melanin deposits, the skin shows a blue-gray hue that looks bluer as the pigment is deposited deeper. A pronounced yellowing of the skin is common in infants on high carotenoid diet. Red and blue hues are caused by oxyhemoglobin and reduced hemoglobin in capillaries, arteries, and veins in the dermis. Inflammatory disorders may eventually result in hypo- or hyperpigmentation as in post-inflammatory hyperpigmentation. Exogenous pigments may also lead to hyperpigmentation of various colors (2).

Acquired hyperpigmented facial macules were described by Hernández-Martín et al. (2014) as a new entity in 25 infants and young children from Spain, Canada and the US (3). This condition is characterized by the appearance of multiple, asymptomatic, hyperpigmented macular lesions on the forehead and in the temporal region without segmental distribution and without the previous presence of erythema, edema, or desquamation. The mean age at presentation was 12.2 months (range: 2-24 months). The condition affected patients of different races, and there was no history of similar lesions among family members or close contacts.

We present three new cases in infants and young children of Fitzpatrick skin type I and II from Romania.

2. Case Reports

We have seen in consultations during the last months three infants and young children - a boy and two girls - aged 6, 14 and 24 months (medium 14.7 months) addressed to us for skin hyperpigmentation on the face (Figures 1-3). Informed written consent was obtained from the parents for publishing the images and cases.



Figure 1. *Acquired facial hyperpigmented macules in a 6-month-old boy.*



Figure 2. *Acquired facial hyperpigmented macules in a 14-month-old girl.*



Figure 3. *Acquired facial hyperpigmented macules in a 24-month-old girl.*

All patients were in good health. There were no chronic illnesses and no medications. No other skin changes were noted previously or at the time of the examination. Short-time topical steroids and emollients were initially recommended but without improvement.

The acute onset of the hyperpigmentation was within the last few weeks with neither amelioration nor new lesions described later. Hyperpigmented macules were brownish, uniformly colored, and without inflammatory changes, non-scaling, and completely asymptomatic. Forehead and temples were affected in all cases; isolated macules were found on the bridge of the nose. Extrafacial hyperpigmentation was not observed. The macules were of irregular shape with a diameter up to 5 mm.

A meticulous anamnesis was performed in each case, but no trigger factor could be identified. Investigations for routine clinical laboratory were within normal limits. Skin scrapings to exclude dermatomycosis/ pityriasis versicolor were negative in all cases. Patch tests and skin biopsies were not performed due to the age of the patients.

Close follow-up was performed and skin hyperpigmentation was present in all cases at 6 month-control without aggravation or involvement of non-facial skin. There was no sign of confluence of lesions.

The diagnosis of AFHM is based upon the following criteria:

a) Onset in infancy;
b) Lesions located on the forehead and temporal regions
c) Lesions are generally multiple, with a diameter mostly less than 1 cm;
d) Dermoscopy usually shows pseudoreticular pigmentation, with or without linear vessels (4).

In our cases dermoscopy was not available. The diagnosis of acquired facial hyperpigmented macules in infants and young children (AFHM) was confirmed. We recommended a wait-and-see strategy based on the suggestions in recent literature on this topic.

3. Literature Review

A narrative review on PubMed was performed from January 2014 to June 2026. We considered reviews, original studies, case series and case reports. We employed search terms combined by Boolean operators (AND, OR) and truncated search terms according to the PubMed User Guide. PubMed's Automatic Term Mapping was applied. We used the following MeSH terms: (hyperpigmentation*) AND (facial) OR (acquired*) OR (infant) OR (children).

We identified a total of 261 cases including our own

(Table I) (3-9). Most studies are from China (n=5) (5-9), one study investigated a mixed population (3), and one study included patients from South America and the Mediterranean Region (4). While the original study reported persistent hyperpigmented lesions for up to 4.5 years (3), Chinese patients had a shorter disease duration with more spontaneous remissions (6-9). This discrepancy is not fully understood but different ethnicities and lifestyle factors (sun protection, nutrition etc.) may be of some importance. Our Caucasian cases did not show any regression for 6 months follow-up but were lost for further monitoring.

4. Discussion

AFHM is a relatively new disease. The first report from 2014 included 25 infants and young children without a sex preference and of "many races". Their age ranged from 2 to 24 months (mean 12.2 months). The hyperpigmentation presented abruptly during the year and was distributed on the forehead and/or temples. Histopathologic analysis was consistent with post-inflammatory hyperpigmentation despite no previous clinical signs of inflammation. After a follow-up period up to 4.5 years, the lesions persisted (3).

Dermoscopy is helpful in diagnosis. An investigation used dermoscopy as an adjuvant tool in 16 patients with AFHM. Light brown pseudoreticular pigmentation the most common finding in 93.7% of cases. All patients had erythema and linear/branching vessels (5). Unfortunately, dermoscopy was unavailable in our cases.

A retrospective study was conducted on the clinical and dermoscopic features of 32 infants and young children with AFHM. Light brown pseudoreticular pigment and linear/branching vessels were the two major dermoscopic features. During the follow-up period of 31 months to 67 months the lesions of all patients improved. A complete disappearance of the macules was observed in 96.4% of cases. These authors concluded that AFHM is a self-limited disease characterized by sudden appearance of irregularly shaped pigmented macules on the foreheads and temples in infants and young children. They proposed that ultraviolet radiation may play an important role in the etiology and pathogenesis of AFHM (7).

Another smaller study demonstrated pink fibrillary structures on direct optical microscopy examination of the adhesive tape test possibly originating from textiles with a questionable relationship to pathogenesis (5).

Wang et al. (2026) reported on 15 cases with AFHM. Histopathology demonstrated a sparse perivascular lymphocytic infiltration, scattered dermal melanophages, and dilated, proliferating capillaries that stained positively for CD31, CD34, and vascular endothelial growth factor. Therefore, these authors recommended the term acquired facial telangiectatic hyperpigmented macular dermatosis instead of AFHM. AFHM, however, has been the established and widely accepted term based on clinical features. Histopathology is not a necessity in diagnostics. After a follow-up of one year the lesions cleared spontaneously in 11 patients, faded in one child and remained stable in another one (8).

The largest series included 160 infants and young children. Dermoscopic investigations demonstrated two major dermoscopic patterns: (a) non-infiltrating pattern, i.e. pseudoreticular -like brown pigmentation with linear or punctate telangiectasia, and (b) infiltrating pattern, i.e. pseudoreticular -like brown pigmentation without vascular changes. A complete regression of the facial hyperpigmentation was noted in 93.6% of cases at a mean age of (2.8 ± 0.7) years (9).

A review on published case series is provided in Table I (3-9). Our literature research identified 261 cases worldwide, mainly from China and the Mediterranean region, none from Central, Northern or Eastern Europe.

Table I. *Published cases of AFHM.*

Author(s)	n	Male to female ratio	Age range	Ethnicity	Follow-up
Hernández-Martín et al. (2014)	25	13:12	2–24 months (*mean 6 months*)	"Many" ethnicities, but mostly Mediterranean	3–54 months
Giacaman et al. (2016)	3	0:3	1–3 years (*mean 2 years*)	South American, Mediterranean	up to 12 months
Lai et al. (2024)	16	12:4	1–18 months (*mean 6.1 months*)	Chinese	Data unavailable
Zhang et al. (2024)	7	2:5	9-24 months (*mean 2.6 months*)	Chinese	24 months
Chen et al. (2026)	32	17:15	5–24 months (*mean 12.5 months*)	Chinese	31–67 months
Wang et al. (2026)	15	10:5	7–40 months (*mean 16 months*)	Chinese	12 months
Sun & Zhang (2026)	160	95:65	<0.6–16 months (*mean 7.9 months*)	Chinese	up to 72 months
Current study	3	1:2	6-24 months	Caucasian	6 months
Total	**261**	**1.4:1**	**<0.6 month –72 months**	**–**	**3 months - 72 months**

Treatment recommendations are rare and seem to be unnecessary based on Chinese experience. Chen et al. recommended sun protection (7). In our experience, both short-term topical corticosteroids and emollients did not result in a marked improvement. Wait-and-see is the most recommended method among Chinese patients (9).

In contrast, AFHM in non-Chinese infants and children seems to persist for years, which may lead to stigmatization when children attend primary school (3). Therefore, treatment would be justified. However, none of the more specific modalities for hyperpigmentation have yet been studied in AFHM, like topical retinoids, hydroquinone, azelaic acid, niacinamide, thiamidol, tranexamic acid and oral *Polypodium leucotomos* extract, which might be able to shorten disease duration and avoid stigmatization for those patients without spontaneous remission (10-13).

There are several differential diagnoses to be considered (Table II). A careful clinical examination and medical history including family history are sufficient in most cases. Histopathology is rarely needed. Genetic investigations may be considered in syndromic cases of macular facial hyperpigmentation.

Table II. *Differential diagnoses.*

Diagnosis	Remarks	Reference
Pityriasis versicolor	Hypo- or hyperpigmented macules with scaly desquamation, commonly affects the face in children and adolescents; mycology positive for *Malassezia* spp.	(14)
Benign cephalic histiocytosis	A rare, self-limiting non-Langerhans cell histiocytosis that primarily presents in infancy, typical within the first year of life; erythematous to yellow-brownish macules and papules; histology: infiltrate of non-Langerhans cell histiocytes in the papillary dermis.	(15)
Urticaria pigmentosa	Most common form of cutaneous mastocytosis in children; brownish, itchy lesions present a positive Darier sign; histology: increased number of mast cells in the dermis.	(16)
Idiopathic eruptive macular pigmentation	A rare disease characterized by asymptomatic, pigmented brown macules involving the neck, trunk, and proximal extremities; spontaneous resolution; histology: pigmentation of the basal layer, pigmentary incontinence, melanophages, and mild perivascular lymphohistiocytic infiltrate in the papillary dermis.	(17)
Ashy dermatosis *(Erythema dyschromicum perstans)*	A disorder of pigmentation characterized by gray or blue-brown macules or patches in individuals with Fitzpatrick skin types III-V; lesions are usually distributed symmetrically on both sun- and non-sun-exposed areas including the trunk, limbs, neck, and face; the course is chronic progressive.	(18)
Naegeli–Franceschetti–Jadassohn syndrome *(NFJS)*	Caused by heterozygous nonsense or frameshift mutations in the *KRT14* gene; most consistent characteristic clinical features are the absence of dermatoglyphics and hypohidrosis, but also hyper- and hypopigmentation of skin – not restricted to the face.	(19)
Dermatopathia pigmentosa reticularis	Allelic to NFJS caused by distinct mutations in *KRT14*; a triad of reticulate hyperpigmentation, nonscarring alopecia, and nail dystrophy.	(20)
Reticulate acropigmentosa of Kitamura	A rare autosomal dominant genodermatosis; typically begins in the first or second decade of life; a mixture of pigmented and depigmented macules on the extremities; pigmented palmar pits; facial lesions are uncommon, and atrophy of the early lesions is a defining feature.	(21)
Fibrous dysplasia/ McCune-Albright syndrome	Early embryonic postzygotic somatic activating pathogenic variant in *GNAS* (encoding the cAMP pathway-associated G protein Gαs [Gs alpha subunit]); hyperpigmented cutaneous macules are common and are usually the first manifestation of the disease, apparent at or shortly after birth; further characterized by involvement of the skeleton and certain endocrine organs.	(22)
Dyschromatosis universalis hereditaria	Skin lesions usually appear in infancy or early childhood and cease to progress beyond adolescence; multiple irregular hyperpigmented macules interspersed with hypopigmented macules in a mottled pattern over the trunk and extremities; facial involvement in 50% of individuals.	(23)
Laurence-Moon-Bardet-Biedl syndrome	A rare autosomal recessive defect, mostly occurs in children born from consanguineous marriages; major features are cone-rod dystrophy, polydactyly, obesity, learning disabilities, hypogonadism in males, renal anomalies, nystagmus, speech disorders, developmental delay, polyuria, polydipsia, ataxia, and poor coordination/clumsiness; multiple non-itchy hyperpigmented macules on face and back.	(24)
Noonan syndrome with multiple lentigines	A rare disorder with mutations of *PTPN11*, *BRAF* and *RAF1* genes; brownish lentigines; ocular hypertelorism, hypertrophic cardiomyopathy, pulmonic stenosis, genital abnormalities, growth delay, deafness, facial anomalies.	(25)

5. Conclusions

AFHM is a benign acquired macular hyperpigmented disorder of early childhood (commonly within the first year of life). We report herein three European cases from Romania on Fitzpatrick skin types I and II, while most cases worldwide have been reported from China. A minority of patients came from South America, Canada, US, and Spain.

The lesions are irregular, with a diameter usually ≤ 1 cm, in our series with up to 0.5 cm. In most cases the macules are brown. Brownish-red lesions are seen in less than 20% (9). The lesions do not itch and there is no scaling. The forehead and the temporal region are mainly involved, while extrafacial hyperpigmentation is absent. Boys are slightly more often affected than girls (male to female ratio 1.4) (Table I). The disease shows a benign course with complete regression within 4 years in over 90% of children of Chinese descent but has been reported to be persistent for at least 4.5 years from a mixed non-Chinese population. This discrepancy might be due to ethnic and lifestyle factors but needs additional investigations. Further research is warranted related to the pathogenesis of AFHM and possible treatments to shorten the course of the disease.

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