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SHORT COMMUNICATION

Phacomatosis Melanorosea: A Further Case of an Unusual Skin Disorder

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Phacomatosis pigmentovascularis (PPV) represents an umbrella term for binary skin conditions characterized by the co-occurrence of a widespread telangiectatic naevus (naevus flammeus, naevus roseus (NR) or cutis marmorata telangiectatica congenita) and a pigmentary naevus (blue spot, naevus spilus maculosus or *café-au-lait* patches) (1, 2). The traditional classification was revised by Happle (2) and 3 major types were redefined: phacomatosis cesioflammea (3), phacomatosis spilorosea (4) and phacomatosis cesiomarmorata (5). Phacomatosis melanorosea (PMR) is a relatively novel entity belonging to the broad spectrum of PPV, anecdotally described as the coexistence of NR and one or multiple lateralized *café-au-lait* macules (6–10). NR, the vascular hallmark of PMR, is typically lateralized, tends to be arranged in a chequer-board pattern, and is distinguished from dark-red to purple-coloured naevus flammeus by its light-red or pale-pink colour (11). The former can also be seen as a component of phacomatosis spilorosea, which is distinct from PMR by the presence of macular naevus spilus (4).

We report here a case of an otherwise healthy 3-year-old boy with a constellation of large hypermelanotic patches and telangiectatic macules, mostly consistent with NR. Moreover, blue spots and a lesion reminiscent of segmental lentiginosis were noted. We think that this uncommon manifestation best fits into the tentative diagnosis of PMR, and briefly review the literature.

CASE REPORT

Our patient, now 3 years old, presented at the age of 6 months with a combination of systematized pigmentary and vascular skin lesions that had been noted at birth. He was the only child born from non-consanguineous healthy parents after an uneventful pregnancy. His medical history was unremarkable. On dermatological examination there was a large *café-au-lait* coloured patch with an irregular border on the right half of the trunk, largely respecting the midline. There were pale-pink telangiectatic macules forming irregular margins on the anterior and posterior aspect of the trunk. These pigmentary and vascular naevi were partly intermingled and both arranged in a chequer-board pattern (Figs 1 and 2a). In addition, there were 4 approximately 15 × 10–55 × 30-mm-sized more or less rectangular *café-au-lait* macules on the left arm that were slightly darker than the large pigmented patch on the trunk (Fig. 1a). He also had light-red macules distributed on the right side of his face (Fig. 2b), and macules with a more purplish hue in the nuchal area and on the right side of the neck (Fig. 1b). Two blue spots were noted; a large one located in the gluteal region and another smaller one on the dorsum of the left foot. He also had clustered punctate light-brown macules reminiscent of agminated lentigines on the left lateral aspect of the thorax (Fig. 2c). Ophthalmological and neurological work-up were normal. The patient was in good general health and exhibited normal growth and development. No change or progression was observed in the size and shape of the lesions during 2.5 years of follow-up, except for enlargement proportionate to the body size.

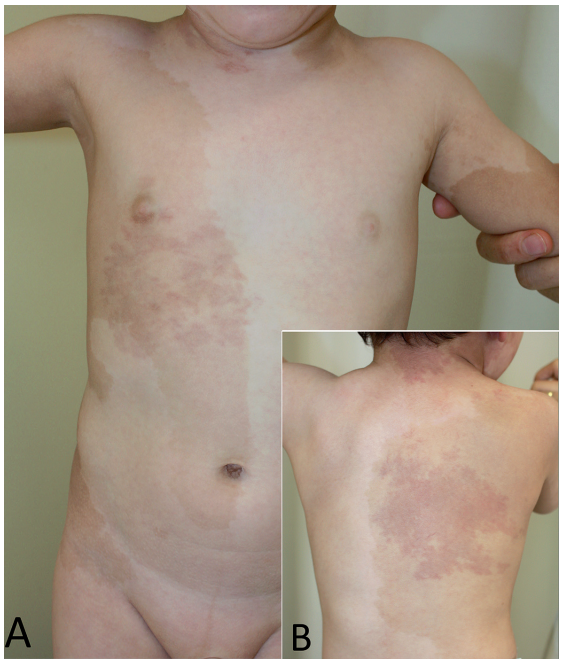

Fig. 1. A 3-year-old boy with phacomatosis melanorosea. (A) A large *café-au-lait* patch with midline demarcation and overlapping pale-pink macules on the trunk, and slightly darker hypermelanotic macules on the neck and left upper arm. (B) A large *café-au-lait* patch on the right side of the back with superimposed pale-pink macules, and macules with a more purplish hue in the nuchal area and on the right side of the neck.

DISCUSSION

PMR was first proposed as a neologism to describe the combination of NR and large *café-au-lait* patches in an 11-year-old girl who also had heterochromia of scalp hair (7). A 2-month-old girl with a similar constellation of skin lesions was reported by Aguayo-Leiva et al. (8). These authors, however, preferred the term "phacomatosis melanovascularis" over PMR, arguing that NR was accompanied by cutis marmorata-like lesions in their case. In both of these cases, the pigmentary and vascular features were arranged in a chequer-board pattern, being in close apposition and partly superimposed. The third case, described as PMR, had a different clini-

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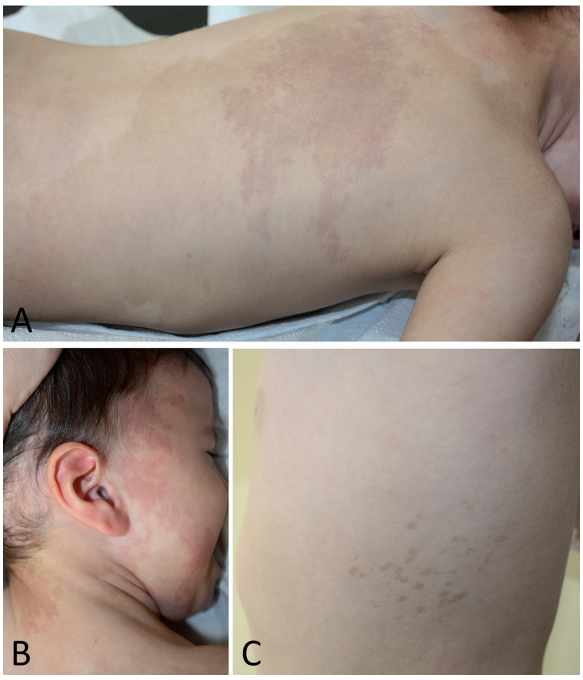

Fig. 2. Uncommon additional cutaneous anomalies. (A) Large pale-pink telangiectatic macule intermingled with a large light-brown patch on the back. (B) Somewhat darker telangiectatic macules on the face. (C) Agminated punctate hypermelanotic macules on a background of normal skin on the left lateral aspect of the chest.

cal presentation, having NR and *café-au-lait* macules on either leg (9). No extracutaneous anomalies were noted in the aforementioned cases, except for a slight hypertrophy of the right arm and leg in the patient reported by Aguayo-Leiva et al. (8). On the other hand, a literature review by Torchia (10) comprised 8 cases with a clinical picture consistent with the definition of PMR, including the first 2 cases mentioned above. Interestingly, vascular malformations of the brain were noted in 3 of the 8 patients in this review, demonstrating an important extracutaneous association. Based on these findings, Torchia confirmed that PMR should be considered among the well-established types of PPV (10).

NR, the vascular component of PMR, is a lateralized telangiectatic naevus with a light-red or pale-pink colour. It differs from naevus flammeus, which also tends to be arranged in a chequer-board pattern but characteristically has a dark-red hue. Furthermore, naevus flammeus is associated with phacomatosis cesioflammea, whereas NR can be seen within the context of both phacomatosis spilorosea and PMR, supporting the view that NR and naevus flammeus are distinct entities. However, NR and naevus flammeus may be indistinguishable early in life, since both may be pink-coloured during infancy, indicating the need for long-term follow-up to make a clear-cut distinction (11).

We consider our case to be most appropriately classified as an example of PMR. The block-like appearance and overlap of the large hypermelanotic patch and smaller erythematous patches in the form of NR on the trunk of our patient resemble the first 2 reports cited above (7, 8). The vascular component of our patient, however, deserves further mention. First, the nuchal lesion (Fig. 1b) has a slightly darker hue, reminiscent of naevus flammeus. Secondly, the colour of the pink patches may darken with time (11), although this is rather unlikely in a 3-year-old child. For the time being, we share the opinion that the predominant vascular component of our patient can, overall, be regarded as NR. Similarly, the blue spots and segmental lentiginosis are less conspicuous than the large *café-au-lait* patch on the trunk, which represents the major pigmented component. Admittedly, the diversity of the lesions hampers a simple and unambiguous classification of our case. However, based on the major findings the designation of PMR seems to be most appropriate.

The different types of PPV, including PMR, had previously been regarded as examples of didymosis, and tentatively explained at the molecular level by the concept of non-allelic twin spotting resulting from post-zygotic recombination (2, 7, 8). However, the theory of twin spotting can no longer be upheld as a plausible mechanism for PPV and a number of other binary genodermatoses (6). The naevus flammeus of phacomatosis cesioflammea appears to originate from a heterozygous *GNAQ* mutation (12), and the naevus cesius (aberrant blue spot) is most likely caused by the same heterozygous mutation that belongs to the group of "dominant dark skin mutants" (13). If so, the theory of early post-zygotic recombination can be excluded. Moreover, recent molecular research revealed that both cutaneous components of phacomatosis pigmentokeratotica, an entity characterized by the coexistence of papular naevus spilus and naevus sebaceus, originate from a common post-zygotic mutation in a heterozygous state, thus excluding the formerly postulated hypothesis of non-allelic didymosis (14). Hence, phacomatosis pigmentokeratotica can be classified as a "pseudodidymosis" (15), and the same holds for the various types of PPV (6).

In conclusion, PMR is a binary skin disorder defined as the coexistence of NR and lateralized *café-au-lait* macules, and can be considered among the well-established types of PPV. This rather novel entity may in fact be more common in clinical practice, since many cases have probably gone unrecognized so far. The molecular basis of PMR is unknown.

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