Progressive Neurologic Abnormalities in a Woman with Phakomatosis Pigmentovascularis Type V

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CASE REPORT

A 28-year-old woman with extensive skin lesions since birth presented with the acute onset three months previously of slurred speech, difficulty swallowing, numbness of her left face, and right-sided weakness. She had been quite well during the elementary school years, but in her early teens, she began stumbling and falling and her walking slowed. At the age of 21, she lost the vision in her left eye because of glaucoma. She denied a history of muscle pain, headache, dizziness, tinnitus, hearing impairment, seizures, or trauma. The family history was unremarkable.

On physical examination, she had large gray-blue macules on the forehead, cheeks, left sclera, and back. There were extensive erythematous patches involving both sides of the face, mandible, neck, and abdomen (Fig. 1A, 1B). A large area of reticulated, mottled erythema was present on her trunk and limbs consistent with cutis marmorata telangiectatica congenital (CMTC) (Fig. 1C). A nevus anemicus was present on her abdomen (Fig. 1B). There was a vascular anomaly on her right buttock, the right leg was hypertrophied, and there was a foot deformity.

A skin biopsy specimen from her left cheek demonstrated dermal dendritic melanocytic proliferation and dilated capillaries throughout the dermis (Fig. 2), diagnosed as concurrent nevus of Ota and nevus flammeus, consistent with Phakomatosis pigmentovascularis (PPV). A nerve conduction study, awake electroencephalography, electromyography, and x-rays of the chest and legs were all normal. Magnetic resonance imaging (MRI) and MR angiography of the brain revealed no leptomeningeal angioma or other abnormality.

DISCUSSION

PPV is a syndrome combining capillary malformations, melanocytic lesions, and nevus anemicus. We report a patient with mongolian spot, nevus flammeus and cutis marmorata telangiectatica congenita, who had stroke-like neurologic symptoms in her third decade. This case is remarkable for the late-onset progressive neurologic deficits in the
absence of any obvious abnormality on brain imaging. It seems most likely that these findings are due to a microvasculopathy related to her extensive cutaneous disease. PPV was classified in four types based on associated pigmentary lesions, such as Mongolian spots, nevus spilus, or nevus of Ota. Each type is further subdivided based on the presence or absence of systemic involvement. The most common is type II, consisting of nevus flammeus and dermal melanocytosis. A new type V has been proposed that includes Mongolian spot and CMTC instead of nevus flammeus. A new classification of PPV proposed by Happle in 2005 includes phakomatosis cesioflammea (PPV type II), phakomatosis spilorosea (PPV type III) phakomatosis cesiomarmorata (PPV type V) and unclassifiable (PPV type IV). Our patient’s syndrome of nevus of Ota, nevus flammeus, mongolian spots, and CMTC is difficult to categorize, as it combines features of types II and V. With regards to the new classification, it would likely fit as an overlap of cesioflammea and cesiomarmorata. Systemic involvement is common in type II but has not been reported in type V, although this may be because there are so few cases of the latter. The most common systemic disorders associated with PPV producing neurologic manifestation are Sturge-Weber syndrome. Sturge-Weber syndrome is a neurocutaneous disorder characterized by facial and leptomeningeal angiomas. It may present with glaucoma, seizures, stroke, paralysis, spasticity, or weakness. Typical brain MRI or CT findings in Sturge-Weber syndrome include leptomeningeal enhancement, superficial cerebral calcification, and atrophy, but our patient had none of these. In a recent case series on phacomatosis pigmentovascularis by Fernandez-Guarino et al., their review of published neurologic associations with phakomatosis cesioflammea includes idiopathic facial paralysis, delay in psychomotor

**Fig. 1**
(A) Gray-blue macules (nevus of Ota) on the forehead, cheeks with diffuse erythematous patches (nevus flammeus) in the same area.
(B) Nevus flammeus on the abdomen with a nevus anemicus.
(C) Blue patches (Mongolian spots) on the upper back and reticulated, mottled erythema (cutis marmorata telangiectatica congenita) over the whole back.

**Fig. 2**
(A) Dilated capillaries in the upper and middle dermis. (H&E, original magnification, x40)
(B) High magnification demonstrate dilated capillaries and scattered dendritic melanocytes. (H&E, original magnification, x400)
development and mentions that neurologic anomalies develop in the first month of life. Her spasticity and increased deep tendon reflexes on the right and the left central facial palsy implied bilateral supranuclear deficits, presumably secondary to multiple vascular anomalies. The lack of neurologic deficits in infancy, the patient’s intact mentation, and the late onset of the neurologic abnormalities suggested a progressive central nervous system process. This is more compatible with brain injury secondary to vasculopathy than with a structural malformation.

CMTC may be associated with epilepsy, stroke-like episodes, and mental and psychomotor retardation. However, these deficits usually appear in early childhood. Our patient’s late-onset, progressive neurologic complications without imaging abnormalities do not resemble what has been reported with CMTC.

Although we have not definitively determined the etiology of our patient’s neurologic deficits, the most likely explanation seems to be a microscopic vasculopathy. When oculodermal melanocytosis and nevus flammeus are present, there is strong disposition for congenital glaucoma and elevated intraocular pressure may develop later in life. Based on this experience, we recommend regular ophthalmologic and neurologic examinations in patients with extensive PPV. The absence of neurologic symptoms in childhood is apparently not a guarantee that such a patient will remain neurologically intact.

REFERENCES