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Sander M. Van Schaik, MD^{1,2}, Liesbeth Reneman, MD, PhD³,
Marc Engelen, MD, PhD¹, Yvo B. W. E. M. Roos, MD, PhD⁴, and
Bwee Tien Poll-The, MD, PhD¹

Abstract

We report the case of a boy with cutis marmorata telangiectatica congenita, strokelike episodes, and a pinpoint stenosis of the left internal carotid artery. To our knowledge, this is the first report of a stenosis of an intracranial artery in a patient with cutis marmorata telangiectatica congenita.

Keywords

cutis marmorata telangiectatica congenita, transient ischemic attack, carotid stenosis, migraine disorders

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The syndrome of cutis marmorata telangiectatica congenita is a heterogeneous vascular disorder and may be accompanied by neurologic symptoms. First described by the German pediatrician Von Lohuizen in 1922, the disorder is characterized by a fixed reticulated vascular pattern on the skin that resembles physiologic cutis marmorata.¹ Approximately 300 cases have been published thus far.² Cutis marmorata telangiectatica congenita occurs sporadically in most cases. There is much speculation on possible etiology, including environmental factors, autosomal dominant transmission with low or variable penetrance, a multifactorial cause, or a lethal mutation surviving by mosaicism.^{3,4} Recently, Shirley et al⁵ identified a specific somatic mosaic activating mutation in *GNAQ* that is associated with both the Sturge-Weber syndrome and nonsyndromic port-wine stains. It is likely that cutis marmorata telangiectatica congenita, as well as other sporadic cases of capillary malformation syndromes, is caused by a similar somatic mutation.

The skin lesions are characterized by reticulate erythema and telangiectasia, cutaneous atrophy, and ulceration. The diagnosis of cutis marmorata telangiectatica congenita is usually made on clinical grounds. Kienast et al in 2009 suggested diagnostic criteria based on case series reported in literature (Table 1).² Histopathologic examination of biopsy specimens obtained from patients has shown inconsistent results and therefore a skin biopsy is not helpful in confirming the diagnosis.²

The differential diagnosis of cutis marmorata telangiectatica congenita mainly consists of physiological cutis marmorata, which is caused by cold or distress, and disappears after warming. Furthermore, in the first weeks after birth when the skin lesions can appear less reticulated, the condition can resemble a capillary malformation.³ The disorder has been reported as

part of other congenital syndromes such as Down syndrome and de Lange syndrome.⁴

The percentage of cutis marmorata telangiectatica congenita patients with associated anomalies varies widely in the literature from 19% to 70%.² The most common associated anomalies are body asymmetry (usually either hypoplasia or hyperplasia of the affected limb) and other vascular anomalies (mostly capillary malformation), followed by neurologic anomalies, ocular malformations, and syndactyly. Common neurologic disorders are developmental delay and macrocephaly.^{2,3} Clayton-Smith et al⁶ and Moore et al⁷ independently described a subgroup of the disorder, the macrocephaly cutis marmorata telangiectatica congenita syndrome. In macrocephaly cutis marmorata telangiectatica congenita patients, the clinical picture is variable and include developmental delay, severe macrocephaly, cutis marmorata telangiectatica congenita, midface capillary malformation, hemimegalencephaly,

¹ Department of Pediatric Neurology, Academic Medical Center, Amsterdam, the Netherlands

² Department of Neurology, Saint Lucas Andreas Hospital, Amsterdam, the Netherlands

³ Department of Radiology, Academic Medical Center, Amsterdam, the Netherlands

⁴ Department of Neurology, Academic Medical Center, Amsterdam, the Netherlands

Corresponding Author:

Bwee Tien Poll-The, MD, PhD, Academic Medical Center, Emma Children's Hospital, Department of Pediatric Neurology, Meibergdreef 9, PO Box 22660, 1100 DD Amsterdam, the Netherlands.

Email: b.t.pollthe@amc.uva.nl

Table 1. Diagnostic Criteria for Cutis Marmorata Telangiectatica Congenita Suggested by Kienast et al.³

Diagnostic criteria

Major criteria

- Congenital reticulate (marmorated) erythema
- Absence of venectasia
- Unresponsiveness to local warming

Minor criteria

- Fading of erythema within 2 years
- Telangiectasia
- Port-wine stain outside the area affected by CMTC
- Ulceration
- Atrophy

Abbreviation: CMTC, cutis marmorata telangiectatica congenita.

³The presence of 3 major and 2 out of 5 minor criteria would be sufficiently indicative of the disorder.²



Figure 1. The patient's patchy reticular capillary malformation.

ventricular asymmetry, and hydrocephalus.⁸ We report the case of a boy with cutis marmorata telangiectatica congenita who was referred to our outpatient clinic with strokelike episodes.

Case Report

The patient is the first child of a nonconsanguineous couple, born at term after an uncomplicated pregnancy and delivery. The perinatal history was unremarkable and his developmental milestones were achieved at appropriate ages. He was able to walk independently at 12 months of age.

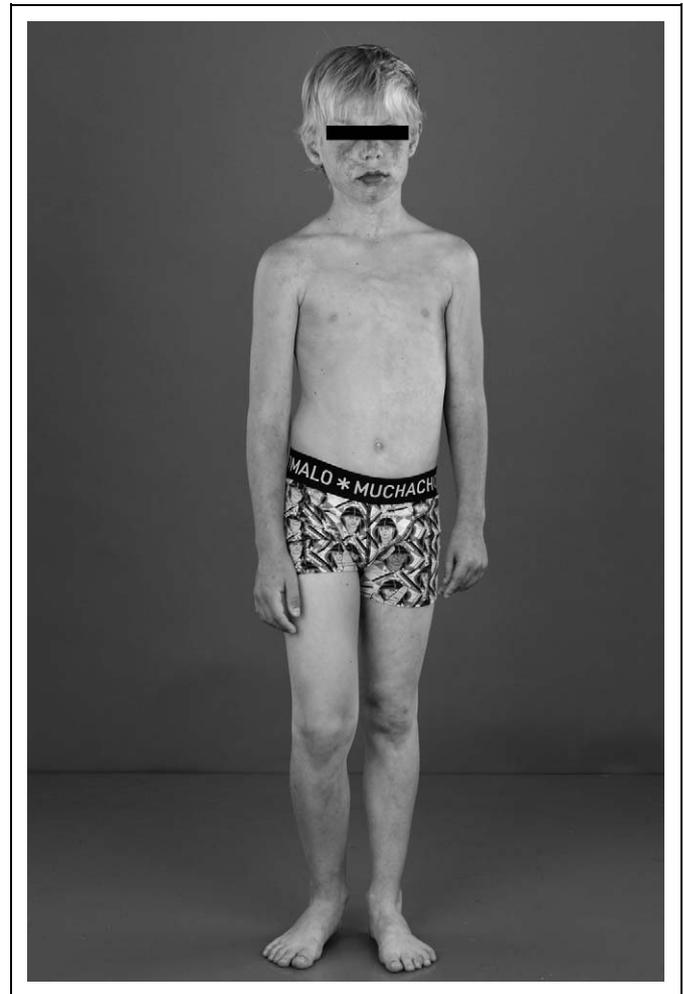


Figure 2. The patient's body asymmetry, with hyperplasia of the right arm and leg.

During the first years of his life, he visited the pediatric outpatient clinic because of extensive cutaneous vascular lesions on a considerable part of his body surface, especially his face, including the eyelids, his limbs, and the left side of his trunk (Figure 1), and a marked body asymmetry with a hyperplasia of his right arm and leg (Figure 2). By 1 year, bilateral glaucoma was found. At 5 years of age, the diagnosis cutis marmorata telangiectatica congenita was made on clinical grounds. At all visits, his head circumference was within the normal range.

At 5 years of age he was admitted to our pediatric neurology department because of an ischemic stroke in the right putamen, which was preceded by a varicella zoster infection (Figure 3). A treatment with aspirin was started. Except for a mild left-sided hemiparesis, he recovered without sequelae. During his admission he also had hypertension (180/100 mmHg) secondary to a stenosis of his left renal artery (Figure 4). This was treated by percutaneous transluminal dilatation of the renal artery and with antihypertensive drugs.

Between 5 and 7 years of age, he had recurrent strokelike episodes, characterized by a right-sided hemiparesis and difficulty

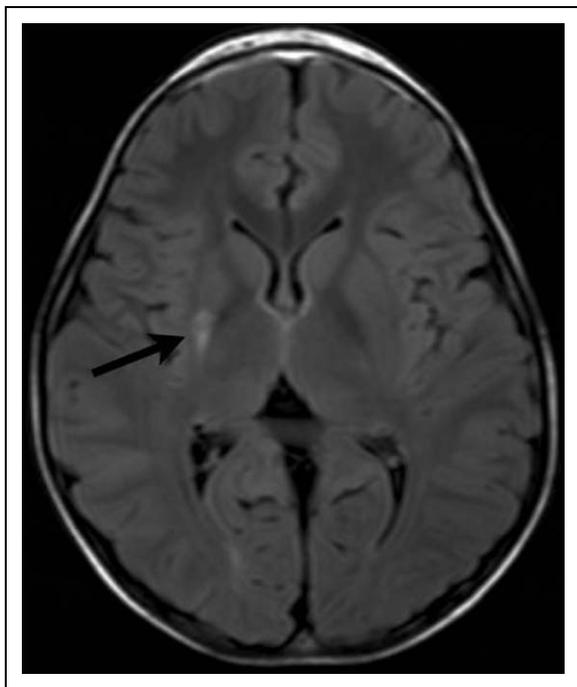


Figure 3. Magnetic resonance imaging (MRI, axial fluid-attenuated inversion recovery image) at the age of 5 years showing an ischemic stroke in the right putamen (arrow), presumably caused by a post-varicella angiopathy.



Figure 4. Digital subtraction angiography at the age of 5 showing a stenosis of the left renal artery (arrow).

finding words. These paroxysmal neurologic symptoms lasted approximately 10 minutes and occurred at random without any relationship with posture or exercise. Magnetic resonance angiography revealed a stenosis of the left internal carotid artery. The stenosis persisted on contrast-enhanced

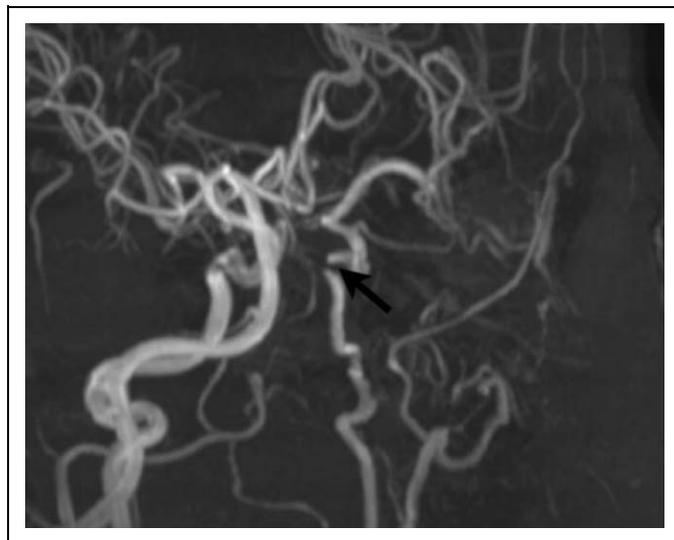


Figure 5. Magnetic resonance angiography at the age of 9 years showing a pinpoint stenosis arrow of the left internal carotid artery.

magnetic resonance angiography and the postgadolinium images showed no additional abnormalities. Findings associated with the macrocephaly cutis marmorata telangiectatica congenita syndrome, such as hemimegalencephaly or Chiari malformation, were not found. An electroencephalograph (EEG) revealed no epileptiform abnormalities. The final diagnosis was therefore recurrent transient ischemic attacks (TIAs) with carotid stenosis and he was treated with aspirin 80 mg a day.

At 9 years of age, he was seen in our emergency department, this time with complaints of a pins-and-needles sensation in his right arm, which had spread to his right leg in minutes. These symptoms were followed by a right-sided hemiparesis, difficulty finding words, and eventually by a severe headache with nausea. At the time of presentation the neurologic examination was only notable for the known left-sided hemiparesis. A cranial magnetic resonance imaging (MRI) scan revealed the old ischemic lesion in the right putamen. No new diffusion-weighted imaging lesions were found. The pinpoint stenosis of the left internal carotid artery was unchanged on MR angiography (Figure 5). At that time our patient attended special education because of learning difficulties.

Discussion

There are few reports on large vessel disease in patients with cutis marmorata telangiectatica congenita, as found in our patient. There is 1 case-report of a 13-year-old boy who had a stenosis of the deep femoral artery.⁹ A second case-report described an 8-year-old boy who presented with symptomatic claudication and diminished distal pulses. Imaging showed severe stenosis of the right common iliac artery.¹⁰ Although there are few case reports of patients with cutis marmorata telangiectatica congenita and stroke, to our knowledge this is the first report of a patient with the disorder and a stenosis of an intracranial artery.^{11,12} Besides the stenosis of the left internal carotid artery, our patient also suffered from hypertension secondary to a stenosis of the left renal artery.

In addition to the vascular anomalies, bilateral glaucoma was found in our patient, which is a common finding in the disorder.

The broad spectrum of additional findings in cutis marmorata telangiectatica congenita is a source of problems with nomenclature. To complicate things even more, Wright et al reported in 2009 that the appearance of the vascular malformation of their patients with macrocephaly cutis marmorata telangiectatica congenita, together with previously reported cases, were not cutis marmorata telangiectatica congenita but rather capillary malformations.¹³ To address problems with nomenclature and diagnostic criteria, Oduber et al in 2011 proposed a new classification for entities combining vascular malformations and deregulated growth. In this new classification, our patient, as well as the described subgroup with macrocephaly, fall within the newly formed group of Reticular Capillary Malformation, subtype VI.¹⁴

Overall, the course of the disorder is most often benign. The lesions show a marked improvement over time, with the main improvement occurring in the first years of life. Approximately half of the patients experience slight clearing of skin lesions, most probably because of normal thickening and maturation of the skin.^{3,4}

At the time of the last visit to our emergency department the symptoms in our patient were less suggestive for a TIA because they were not maximal at onset. A positive family history for migraine, the march of his symptoms, and the absence of new diffusion-weighted imaging lesions were more compatible with a diagnosis of migraine attacks with aura. In retrospect, we believe that the previous stroke-like episodes, with exception of the stroke in the right putamen caused by a postvaricella vasculopathy, were caused by migraine as well. Long-term prognosis in our patient might depend on the pinpoint stenosis of the internal carotid artery, possibly increasing his risk of future stroke. However, a good collateral blood supply secondary to the pre-existing stenosis makes hemodynamic complications in our patient unlikely.

In conclusion, we describe a patient with a pinpoint stenosis of the left internal carotid artery, secondary to cutis marmorata telangiectatica congenita. This is the first report of a patient with cutis marmorata telangiectatica congenita and a stenosis of an intracranial artery. To our knowledge, there is no link between migraine and cutis marmorata telangiectatica congenita or between migraine and carotid stenosis. In this light, it is important to keep in mind that common neurologic diseases can coexist in patients with rare medical disorders.

Author Contributions

SMVS developed the concept of this case report, wrote the first draft, and contributed to all revisions. LR, ME, YBWEMR, and BTP-T reviewed the initial draft and discussed and reviewed subsequent drafts. All 5 authors critically reviewed the entire case report.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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References

1. Van Lohuizen C. Über eine seltene angeborene Hautanomalie (cutis marmorata telangiectatica). *Acta Derm Venereol.* 1922; 3:202-211.
2. Kienast AK, Hoeger PH. Cutis marmorata telangiectatica congenita: a prospective study of 27 cases and review of the literature with proposal of diagnostic criteria. *Clin Exp Dermatol.* 2009; 34:319-323.
3. Devillers AC, de Waard-van der Spek FB, Oranje AP. Cutis marmorata telangiectatica congenita: clinical features in 35 cases. *Arch Dermatol.* 1999;135:34-38.
4. Gerritsen MJ, Steijlen PM, Brunner HG, Rieu P. Cutis marmorata telangiectatica congenita: report of 18 cases. *Br J Dermatol.* 2000; 142:366-369.
5. Shirley MD, Tang H, Gallione CJ, et al. Sturge-Weber syndrome and port-wine stains caused by somatic mutation in GNAQ. *N Engl J Med.* 2013;368:1971-1979.
6. Clayton-Smith J, Kerr B, Brunner H, et al. Macrocephaly with cutis marmorata, haemangioma and syndactyly—a distinctive overgrowth syndrome. *Clin Dysmorphol.* 1997;6:291-302.
7. Moore CA, Toriello HV, Abuelo DN, et al. Macrocephaly-cutis marmorata telangiectatica congenita: a distinct disorder with developmental delay and connective tissue abnormalities. *Am J Med Genet.* 1997;70:67-73.
8. Giuliano F, David A, Edery P, et al. Macrocephaly-cutis marmorata telangiectatica congenita: seven cases including two with unusual cerebral manifestations. *Am J Med Genet.* 2004;126A: 99-103.
9. Skaria AM, Hauser C. Arterieller Verschluss bei cutis marmorata telangiectatica congenita. *Hautarzt.* 1995;46:35-38.
10. Vogel AM, Paltiel HJ, Kozakewich HPW, Burrows PE, Mulliken JB, Fishman SJ. Iliac artery stenosis in a child with cutis marmorata telangiectatica congenita. *J Pediatr Surg.* 2005;40: e9-e12.
11. Gruppo RA, DeGrauw TJ, Palasis S, Kalinyak KA, Bofinger MK. Strokes, cutis marmorata telangiectatica congenita, and factor V Leiden. *Pediatr Neurol.* 1998;18:342-345.
12. Baxter P, Gardner-Medwin D, Green SH, Moss C. Congenital livedo reticularis and recurrent stroke-like episodes. *Dev Med Child Neurol.* 1993;35:917-921.
13. Wright DR, Frieden IJ, Orlow SJ, et al. The misnomer “macrocephaly-cutis marmorata telangiectatica congenita syndrome”: report of 12 new cases and support for revising the name to macrocephaly-capillary malformations. *Arch Dermatol.* 2009; 145:287-293.
14. Oduber CEU, van der Horst CMAM, Sillevius Smitt JH, et al. A proposal for classification of entities combining vascular malformations and deregulated growth. *Eur J Med Genet.* 2011;54: 262-271.