Case reports

Acquired alopecia, mental retardation, short stature, microcephaly, and optic atrophy

R C M Hennekam, E G C M Renckens-Wennen

Abstract

We report on a female patient who had acquired total alopecia, short stature, microcephaly, optic atrophy, severe myopia, and mental retardation. A survey of published reports failed to show an identical patient, despite various similar cases.

Case report

The proband was the first child of a healthy 26 year old mother and non-consanguineous 37 year old father. The parents had had a total of five miscarriages. The father had two children from a later marriage. The parents and sibs did not wear glasses, had normal heights, and showed no signs of an ectodermal dysplasia.

Pregnancy and delivery were uneventful and at birth no anomalies were seen. At the age of 5 years her hair started to fall out and she was completely bald by the age of 8 years. She had severely retarded psychomotor development. She had had no specific illnesses, particularly no seizures or skin infections. Menarche was at 18 years, and she had regular menses thereafter. Physical examination at 42 years showed a friendly, retarded woman. Height was 150.3 cm (<3rd centile) and head circumference 50.1 cm (<3rd centile). She had fleshy nasal alae, deep nasolabial grooves, full lips, and downturned corners of the mouth (figure). There was no scalp hair, eyebrows, or eyelashes, virtually no pubic hair, but some axillary hair. Her skin, nails, breasts, and sweating pattern were normal. She had a partial dental prosthesis, probably because of former inadequate dental care.

The remaining teeth were normal. She had severe myopia bilaterally (-10 dioptres). Fundoscopy showed atrophic, pale discs. She had narrow hands with long fingers (total hand length 16.3 cm (3rd to 10th centile), middle finger length 7.1 cm (25th centile), and small feet (length 21 cm, 3rd centile).

Chromosome analysis, using GTG banding, showed a normal female 46,XX karyotype. EEG, audiometry, and urinary metabolic screening gave normal results. Radiography of the skull showed no anomalies, especially no unerupted teeth.

Discussion

The present patient is compared with other relevant published cases in the table. Although close similarities can be seen, heterogeneity within this nosological group probably exists.² Our patient resembles most the cases of Mosavy,¹ Pfeiffer and Völklein,² Baraitser *et al*,⁷ and Benke and Hajianpour.⁸ The alopecia was congenital in all these reports. The patients reported by Baraitser *et al*⁷ and Benke and Hajianpour⁸ did not have growth retardation, optic atrophy, or myopia. Schinzel¹³ and Van Gelderen¹⁴ each described a patient with mental retardation, alopecia, myopia, short stature, and microcephaly. Their patients had different facial features, contractures, and numerous skeletal anomalies. Optic atrophy together with growth retardation and acquired alopecia are features of the GAPO syndrome.¹⁵⁻¹⁷ However, patients with this condition are usually not retarded and have in addition pseudoanodontia, prominent scalp veins, and characteristic facial features. We conclude that our case probably has a different condition from the other reports. It represents possibly a distinct neuro-ectodermal disorder of unknown cause.

We thank Dr M Baraitser (London) and Dr R A Pfeiffer (Erlangen) for their help in studying this patient.

Clinical Genetics Centre Utrecht, PO Box 18009, 3501 CA Utrecht, The Netherlands.
R C M Hennekam

Institute for the Mentally Retarded De Sterrenberg, Huis ter Heide, The Netherlands.
E G C M Renckens-Wennen

Correspondence to Dr Hennekam.

Received for publication 13 March 1990.
Accepted for publication 2 April 1990.

1 Mosavy SH. Universal alopecia and microcephaly in 4 siblings. *S Afr Med J* 1975;49:172.

2 Pfeiffer RA, Völklein J. Congenital universal alopecia, mental deficiency, and microcephaly in two sibs. *J Med Genet* 1982;19:388-9.

3 Moyahan EJ. Familial congenital alopecia, epilepsy, mental

The patient at the age of 42 years.

Main differential diagnostic features compared with present patient.

Reference	No of patients	Mental retardation	Alopecia*	Short stature	Microcephaly	Epilepsy	Optic atrophy	Other features	Inheritance
1 2	6	+	C	+	+	—	—		AR
3 4	4	+	C,R	+/-	—	+	—	Deafness, stubby fingers, coarse features	AR
5 6	14	+	C	—	—	+	—	Periodontal disease	
7 8	6	+	C	—	+	—	—		AR
9	4	+	C	+	+	+	—		AD?
10	2	+	C	—	+	—	—	Papular lesions	AR
11	10	+	TN	+	+	—	—	Decreased fertility, nail abnormalities, sulphur deficient hair	AR
12	3	+	C	+	+	+	—	Spastic quadriplegia	AR
13 14	2	+	A?	+	+	—	—	Turriccephaly, dysmorphic face, contractures, myopia	AR?
15 16	10	-†	A	+	±	—	+	Pseudoanodontia, prominent scalp veins, dysmorphic face, umbilical hernia	AR
Present case	1	+	A	+	+	—	+	Myopia, typical face	?

*C=congenital or in first weeks of life, R=regrowing in infancy, TN=trichorrhexis nodosa, A=acquired.

†One case reported with borderline intelligence.¹⁷

- retardation with unusual electroencephalograms. *Proc R Soc Med* 1962;55:11-2.
- Perniola T, Krajewska G, Carnevale F, Lospalluti M. Congenital alopecia, psychomotor retardation, and convulsions in two sibs of a consanguineous marriage. *J Inher Metab Dis* 1980;3:49-53.
 - Shokeir MHK. Universal permanent alopecia, psychomotor epilepsy, pyorrhoia and mental subnormality. *Clin Genet* 1977;11:13-7.
 - Richieri-Costa A, Frota-Pessoa O. Atrichia, abnormal EEG, epilepsy, and mental retardation in two sisters. *Hum Hered* 1979;29:293-7.
 - Baraitser M, Carter CO, Brett EM. A new alopecia/mental retardation syndrome. *J Med Genet* 1983;20:64-75.
 - Benke PJ, Hajianpour MJ. Alopecia universalis—mental retardation is an autosomal recessive syndrome disorder. *Am J Hum Genet* 1985;37:44A.
 - Hurst JA, Van Haeringen A, Baraitser M. A dominantly inherited syndrome of microcephaly, sparse hair, mental retardation, and seizures. *J Med Genet* 1989;26:597A.
 - Del Castillo V, Ruiz-Maldonado R, Carnevale A. Atrichia with papular lesions and mental retardation in two sisters. *Int J Dermatol* 1974;13:261-5.
 - King MD, Gummer CL, Stephenson JBP. Trichothiodystrophy-neurotrichocutaneous syndrome of Pollitt: a report of two unrelated cases. *J Med Genet* 1984;21:286-9.
 - Wessel HB, Barmada MA, Hashida J. Congenital alopecia, seizures and psychomotor retardation in three siblings. *Pediatr Neurol* 1987;3:101-7.
 - Schinz A. A case of multiple skeletal anomalies, ectodermal dysplasia and severe growth and mental retardation. *Helv Paediatr Acta* 1980;35:243-51.
 - Van Gelderen HH. Syndrome of total alopecia, multiple skeletal anomalies, shortness of stature and mental deficiency. *Am J Med Genet* 1982;13:383-7.
 - Tipton RE, Gorlin RJ. Growth retardation, alopecia, pseudoanodontia and optic atrophy—the GAPO syndrome: report of a patient and review of the literature. *Am J Med Genet* 1984;19:209-16.
 - Manouvrier-Hanu S, Largillière C, Farriaux JP. Le syndrome G.A.P.O. A propos d'un nouveau cas. *J Genet Hum* 1988;36:373-8.
 - Shapira J, Yatziv S, Deckelbaum R. Growth retardation, alopecia, pseudoanodontia and optic atrophy. *Syndrome Ident* 1985;8:14-6.