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Postaxial acrofacial dysostosis (Miller) syndrome

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Genée, in 1969,[1] reported a male infant with postaxial limb deficiency, cup shaped ears, and malar hypoplasia and noted the similarity of the facial features to those seen in Treacher-Collins syndrome. Miller *et al*[2] presented details of three similar unrelated patients (one previously reported[3]) and reviewed two other cases[4 5] as well as Genée's case. An affected sib of one of the cases of Miller *et al*[2] was briefly reported by Fineman.[6] This review is based on these seven published cases and three personally observed, previously unreported cases (table). A further case not included in the analysis for this review is illustrated by Wiedemann *et al.*[7]

Clinical features

CRANIOFACIAL

Malar hypoplasia and lower lid ectropion have been found in all patients. Gross ectropion was present in the case of Smith and Jones[3] and this case has been used to illustrate the syndrome in several texts. However, in other published cases and in our three cases the ectropion has been subtle, especially in early infancy (fig 1) but has tended to become more obvious with age (fig 2). Micrognathia is the rule and this tends to improve with age. Cleft palate has been present in nine of 10 cases and feeding problems are frequently encountered. Cleft lip is uncommon, present in only two cases; other cases appear to have a long philtrum. The ears are remarkably similar in reported cases, being small, simple, and cupped (figs 3 and 4). Hearing problems have been reported in only two cases but several of the other children were too young for formal audiological testing at the time of the report.

UPPER LIMBS

Seven of 10 cases had bilateral absence of the fifth digit including the fifth metacarpal (fig 5), the others having unilateral aplasia or hypoplasia of the fifth digit. Most children have shortened forearms and radiological evidence of ulnar hypoplasia (fig 6). Abnormalities of the other digits are reported and include absent fourth digits and various degrees of syndactyly and clenched or hypoplastic thumbs.

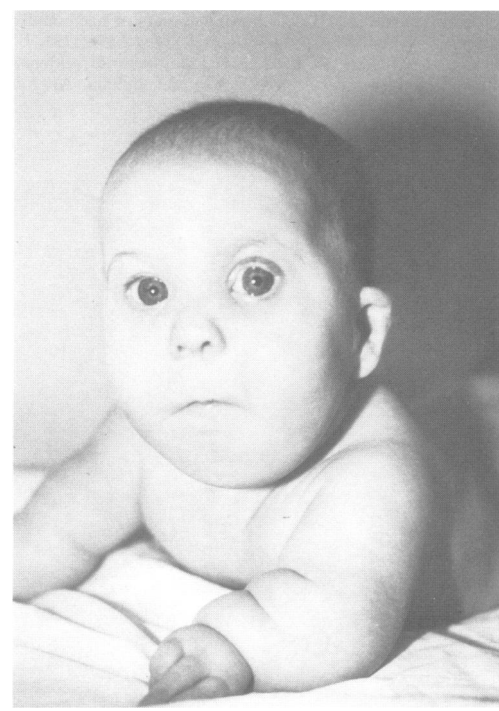

FIG 1 *Case 1 at five months; note mild lower lid ectropion, long philtrum, and short forearms.*

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TABLE *Features of Miller syndrome.*

	Published cases[1-6]							*This report*		
	Ref 1	*Ref 3*	*Ref 4*	*Ref 5*	*Ref 2 (case 1)*	*Ref 2 (case 2)*	*Ref 6 (sib of ref 2, case 2)*	*Case 1*	*Case 2*	*Case 3*
Sex	M	M	M	M	M	F	M	F	M	F
Age	7/12	4 y	5 y	11/12	10/12	17/12	Newborn	1 y	2/12	2/12
Malar hypoplasia	+	+	+	+	+	+	+	+	+	+
Lower lid ectropion	++	+++	+	+	+	++	+	+	+	+
Cleft lip	–	+	–	+	–	–	–	–	–	–
Cleft palate	+	+	+	+	–	+	+	+	+	+
Micrognathia	+	+	+	+	+	+	+	+	+	+
Cupped ears	+	+	+	+	+	+	+	+	–	+
Hearing deficit	–	+	+	–	–	–	–	–	–	–
Extra nipples	–	+	+	–	+	+	–	+	–	–
Ulnar ray deficiency	+	+	+	+	+	+	+	+	+	+
Absent 5th toes	+	+	+	+	+	+	+	+	+	+
Other	Cervical ribs	Inguinal hernia, small thumb	CHD, severe syndactyly	Crypt-orchidism	Upper lid coloboma	CHD, absent segmentation of sternum	CHD, pectus excavatum			Radioulnar synostosis

FIG 2 *Case 3 at eight months; note ectropion of lower lids.*

FIG 3 *Case 1 at one year; ectropion is more obvious than in fig 1. Note also micrognathia and cupped ear.*

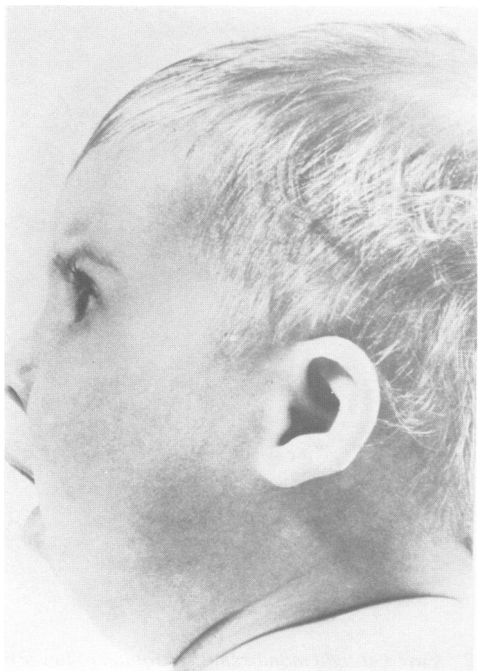

FIG 4 *Case 3 at eight months; note micrognathia and cupped ear.*

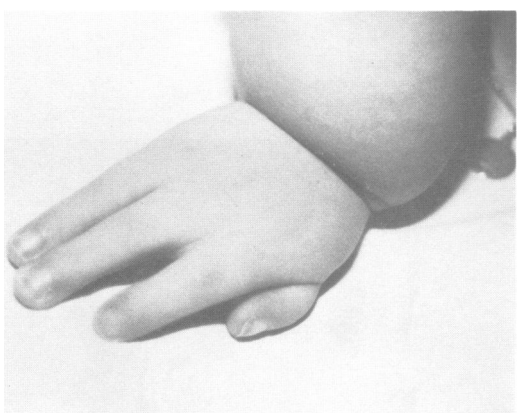

FIG 5 *Hand of case 1 to show absent fifth digit and proximal placement of thumb.*

LOWER LIMBS

Absence of toes from the lateral border of the feet is reported and observed in all cases, always the fifth toe and occasionally the third and fourth. Syndactyly and malposition of the toes is also reported in many cases (fig 7).

FIG 6 *X ray of upper limb of case 1 to show hypoplastic ulna, bowed radius, and absent fifth metacarpal and digit.*

OTHER SKELETAL ANOMALIES

Radioulnar synostosis, cervical ribs, pectus excavatum and lack of segmentation of the sternum, and absent fibulae have each been reported in one or two patients.

OTHER ANOMALIES

Accessory nipples have been observed in five cases and so may be regarded as part of the syndrome. Congenital heart disease was reported in three cases (VSD in two) and cryptorchidism in two cases. Upper eyelid coloboma was noted in two cases.

Natural history and treatment

Intelligence appears normal. Early correction of cleft palate and encouragement of sucking is indicated to minimise feeding problems and to develop the lower jaw. Full audiological testing should be performed at an appropriate age. Plastic surgery may be necessary for the ectropion and for improvement of limb function.

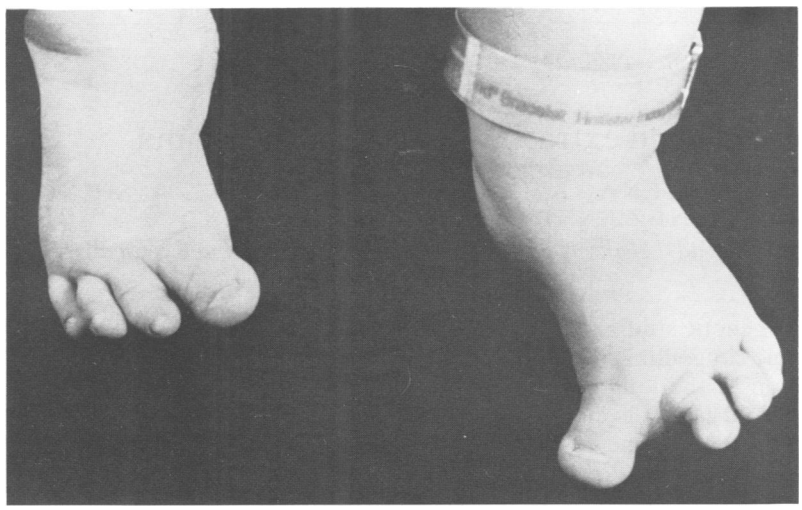

FIG 7 *Feet of case 3; note absent fifth toes bilaterally and malposition of other toes.*

Inheritance

This remains uncertain for this very rare condition with only 10 cases reviewed, seven from published reports and three newly reported here. Autosomal recessive inheritance has been suggested on the basis of one affected sib pair.[6] Of the remaining eight cases, five had no reported sibs and our three cases had one normal sib each. The parents of one single case were said to be distantly related.[5]

Differential diagnosis

Treacher-Collins and Nager syndromes have similar facial features but the former has no limb anomalies and the latter has radial ray defects. De Lange, Weyers oligodactyly, femur-fibular-ulnar, and Schinzel syndromes have ulnar ray defects but differ in facial appearance and other clinical features.

References

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