Pallister-Killian syndrome with additional manifestations of cleft palate and sacral appendage

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Syndrome de Pallister-Killian associé à des manifestations de la fente palatine et une appendice au niveau sacré

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RÉSUMÉ

But : Rapporter une rare association d'anomalies congénitales.
Observation : Nous rapportons un rare cas de syndrome de Pallisker Killian chez un nouveau-né de 33 semaines d'aménorrhée ayant en plus du phénotype habituellement décrit, des manifestations rarement présentes : une fente palatine, une hernie diaphragmatique congénitale et un appendice au niveau de la région sacrée, le diagnostic a été fait en anténatal par une étude cytogénétique qui a montré une mosaïque 47, XY+i (12p). La présence d'une hernie congénitale du diaphragme assombrit le pronostic, pose le diagnostic différentiel avec le syndrome de Fryns et donc nécessite pour le diagnostic aussi bien une biopsie de peau qu'une culture de fibroblastes.

Mots-clés

Syndrome de Pallisker Killian, Syndrome de Fryns, tétrasomie 12p, hernie diaphragmatique congénitale, iso chromosome 12p en mosaïque, fente palatine, appendice sacrée

SUMMARY

Aim : Reppor of a rare congenital abnormalities.
Observation : We report a rare case of Pallister-Killian syndrome in a 33 weeks gestation infant. In addition to the characteristic phenotype, this patient had a cleft palate, diaphragmatic hernia and sacral appendage. These additional manifestations are not among the Pallister-Killian syndrome's features. The diagnosis was made in antenatal period by cytogenetic studies and showed mosaic 47, XY+i (12p). Presence of diaphragmatic hernia makes this syndrome, prenatally letal, similar to the Fryns syndrome and then requires skin biopsy and fibroblast chromosome examination for cytogenetic diagnosis.

Key-words

Pallister-Killian syndrome, Fryns syndrome, diaphragmatic hernia, isochromosome 12p mosaicism, cleft palate, sacral appendage

Pallister-Killian syndrome (PKS) is a rare multiple congenital anomaly/intellectual deficit syndrome caused by mosaic tissue-limited tetrasomy for chromosome 12p.
Since the first report by Pallister, over 30 cases have been described and the characteristic phenotype defined of a coarse face, flat, broad nasal bridge, hypertelorism, sparse scalp hair, short neck, limb abnormalities, irregular pigmentation, and developmental delay (1,2). Incidence is estimated around 1/25000 (3). Only five cases of Pallister-Killian syndrome with additional manifestations were reports, we report a further case with a diaphragmatic hernia, cleft palate, and a sacral appendage.

CASE REPORTS

The parents of the patient were in good health and unrelated. The mother was aged 34 and the father 39 at the time of delivery. The pregnancy was complicated by polyhydramnios and non seen fetal stomach in antenatally ultrasound.
Fetal caryotype was indicated because of fetal anomalies and showed mosaic 47, XY+i (12p) .
There was no medication taken. Labour was premature and occurred at 33 weeks. Delivery was by cesarean section because of fetal suffering and scarred womb.
The Apgar scores were 2 at one and five minutes and 3 at ten minutes with non response to neonatal rescue methods. The infant was died at 30 minutes of life.
The head circumference (OFC) was 32 cm (50th centile), length 44 cm (75th centile), and weight 2150 g (50th centile). Physical examination showed facial dysmorphim: “coarse” face with flat profile and high forehead, hypertelorism, upslanting palpebral fissures, and a broad, flat nasal bridge. The month was large with downturned corners and thin lips (fig 1). The ears were small and low set (fig 2).

Figure 1 : Facial appearance

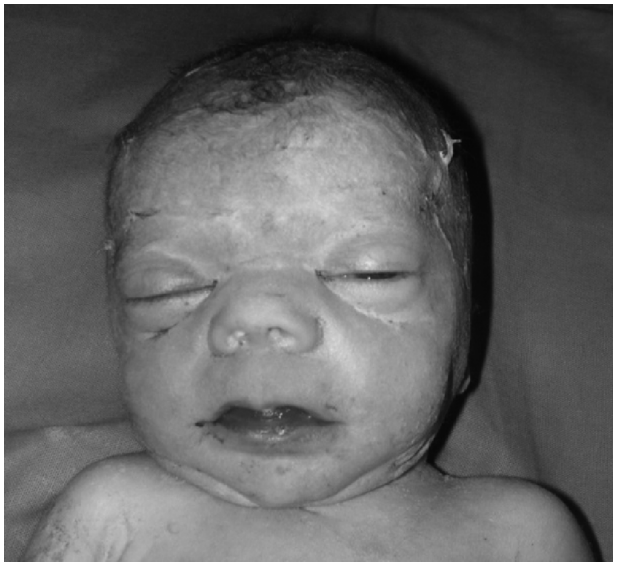
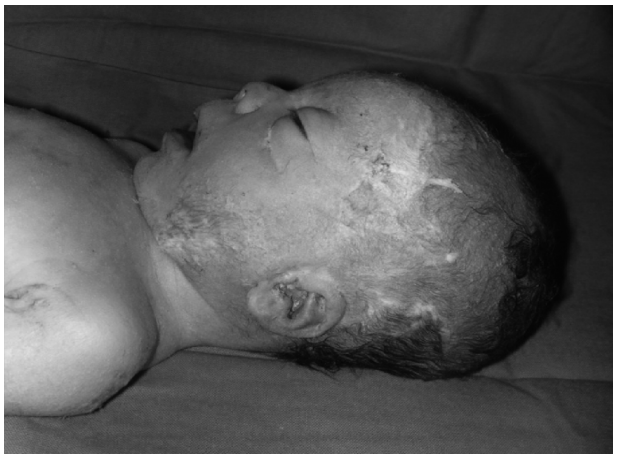
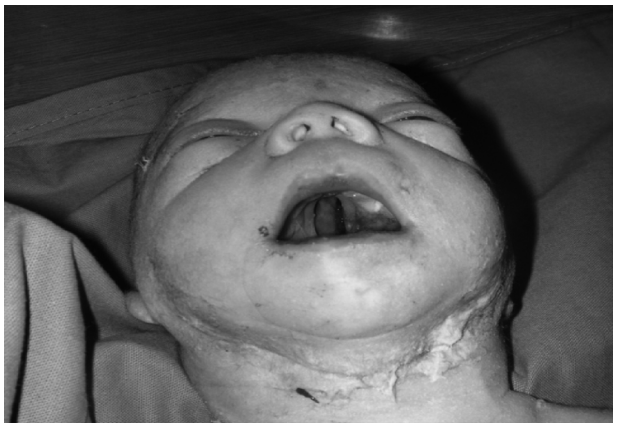


Figure 2 : Low set ears and broad, flat nasal bridge



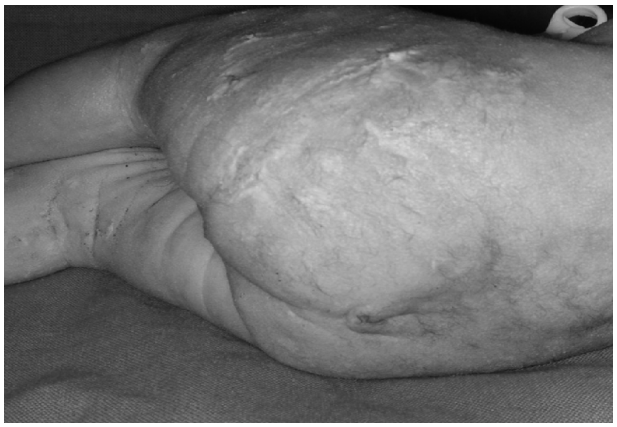
The palate had a small posterior cleft (fig 3). The neck was short with increased posterior neck skin and webbing.

Figure 3 : Posterior cleft palate



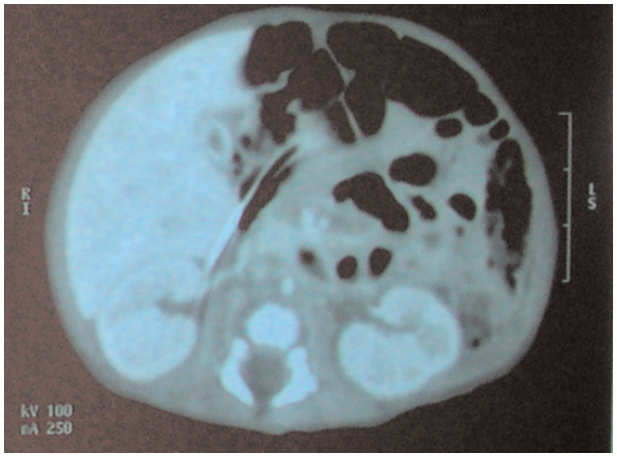
Both nipples were hypoplastic and inverted with a large internipple distance. There was a sacral appendage of 1-5 cm present (fig 4).

Figure 4 : Sacral appendage



A body computed tomography scan showed a left diaphragmatic hernia with bowel in the left of the chest and the heart displaced to the right.(fig 5)

Figure 5 : Left diaphragmatic hernia



DISCUSSION

A number of cases of Pallisker killian syndrome are prenatally diagnosed because of abnormal ultrasonic findings, and abnormal presentation at birth is usual (4,5).

The features of Pallisker killian rarely involved cleft palate and anorectal anomalies (2). This patient had cleft palate and a sacral appendage as additional manifestations of isochromosome 12p mosaicism and substantiates the association with diaphragmatic hernia. There were only five published cases of Pallisker Killian similar to our case (6-7). Diaphragmatic hernia was present in all cases, anorectal anomalies and cleft palate in two cases (7,8). Sacral appendage was present in only one case in addition to the present case (8). The finding of a percentage of cells in the blood with isochromosome 12p found in 3/5 cases is common with diaphragmatic hernia and rare if diaphragmatic hernia is not present (9). The usual approach to neonates with lethal multiple congenital malformations is to take blood and skin for karyotyping. If the lymphocyte karyotype is normal then an additional fibroblast karyotype is rarely done. It is therefore possible that the cases with isochromosome 12p only in fibroblasts would be missed. The differential diagnosis is made with Fryns syndrome. T

he major features of Fryns syndrome are diaphragmatic hernia, coarse face with a broad, flat nasal bridge, cleft lip/palate, hirsutism, and distal limb abnormalities. Less frequent features include short neck, corneal clouding, narrow thorax, hypoplastic nipples, excess neck skin, genital abnormalities, cystic renal dysplasia, and central nervous system malformations (10). The features which may distinguish the two conditions are corneal clouding in Fryns syndrome and sparse scalp hair in Pallister-Killian syndrome. As neither of these features is invariably present, McLeod and al suggest that infants with diaphragmatic hernia and other malformations should have skin fibroblast karyotype analysis to avoid confusion with Fryns syndrome(8). This is important in counselling, as the recurrence risk for Pallister-Killian is negligible but for Fryns syndrome it is 25%.

CONCLUSION

Pallisker killian syndrome with diaphragmatic hernia including Fryns syndrome as differential diagnoses. Diagnosing tetrasomy 12p mosaicism is important so that family members can be informed that there is no increased risk of recurrence different to the Fryns syndrome.

The clinical recognition of congenital malformation patterns both pre - and postnatally may lead to the selection of the appropriate tissue type for chromosome analysis. Associated diaphragmatic hernia makes poor prognosis and leads to perinatally death.

Références

1. Pallister PD, Meisner LF, Elejalde BR, et al. The Pallister mosaic syndrome. In: Bergsma D, Lowry RB. eds. New syndromes.New York: Alan R Liss, for the National Foundation-March of Dimes. Birth Defects 1977;XHII (3B): 103-10.
2. Killian W, Zonana J, Schroer RJ. Abnormal hair, craniofacial dysmorphism, and severe mental retardation-a new syndrome? J Clin Dysmorphol 1983;1:6-13.
3. Cormier-Daire V, Le Merrer M, Gigarel N, Morichon N, Prieur M, Lyonnet S, Vekemans M, Munnich A. Prezygotic origin of the isochromosome 12pin Pallister-Killian syndrome. Am. J. Med. Genet. 1997 ; 69 : 166-168.
4. Paladini D, Borghese A, Arienzo M, Teodoro A, Martinelli P, Nappi C. Prospective ultrasound diagnosis of Pallister-Killian syndrome in the second trimester of pregnancy: the importance of the fetal facial profile. Prenat Diagn. 2000 ; 20 : 996-8.
5. Lopes V, Mak E, Wyatt PR. Prenatal diagnosis of tetrasomy 21.Prenat Diagn 1985;5:233-5.
6. Warburton D, Anyane-Yeboa K, Francke U. Mosaic tetrasomy l2p: four new cases and confirmation of the chromosomal origin of the supernumerary chromosome in one of the original Pallister-mosaic syndrome cases. Am J Med Genet 1987; 27:275-83.
7. Pauli RM, Zeier RA, Sekhon GS. Mosaic isochromosome 12p.Am J Med Genet 1987; 27:291-4.
8. D Ross McLeod, Linda R Wesselman, David I Hoar Pallister-Killian syndrome: additional manifestations of cleft palate and sacral appendage I Med Genet 1991; 28: 541-543
9. Hunter AGW, Clifford B, Cox DM. The characteristic physiognomy and tissue specific karyotype distribution in the Pallister-Kilian syndrome. Clin Genet 1985;28:47-53.
10. Moerman P, Fryns JP, Vandenberghe K, Devlieger H, Lauweryns JM. The syndrome of diaphragmatic hernia, abnormal face and distal limb anomalies (Fryns syndrome): report of two sibs with further delineation of this multiple congenital anomaly (MCA) syndrome. Am J Med Genet 1988; 31:805-14.