Do you know this syndrome? *

Você conhece esta síndrome?

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CASE REPORT

10-year-old male patient dermatologically monitored from age of 3 on account of skin lesions which appeared soon after birth. No family history of consanguinity or similar skin disease.

The dermatological exam showed wart-like hyperkeratotic plaques on an erythematous base located symmetrically on the cheek, ears, chin, elbows and knees, ankles, and scalp (Figure 1). Patient´s face looked wizened, with deep furrows around the mouth, chin and eyes, as well as partial loss of eyebrows and total loss of eyelashes. Reticulated hyperkeratosis on the hands and feet, but with normal-looking nails. Discrete dental changes (Figure 2A). During dermatologic follow-up erythrokeratodermic plaques on the scalp underwent several episodes of secondary infection, treated with topical and systemic antibiotics.

The skin biopsy performed at age 3 showed acanthosis and hyperkeratosis.

The patient´s psychomotor development is normal, but he has severe speech retardation secondary to profound sensory hearing loss, confirmed by audiometry at 4 years of age. He also has mild ophthalmology keratitis (Figure 2B).

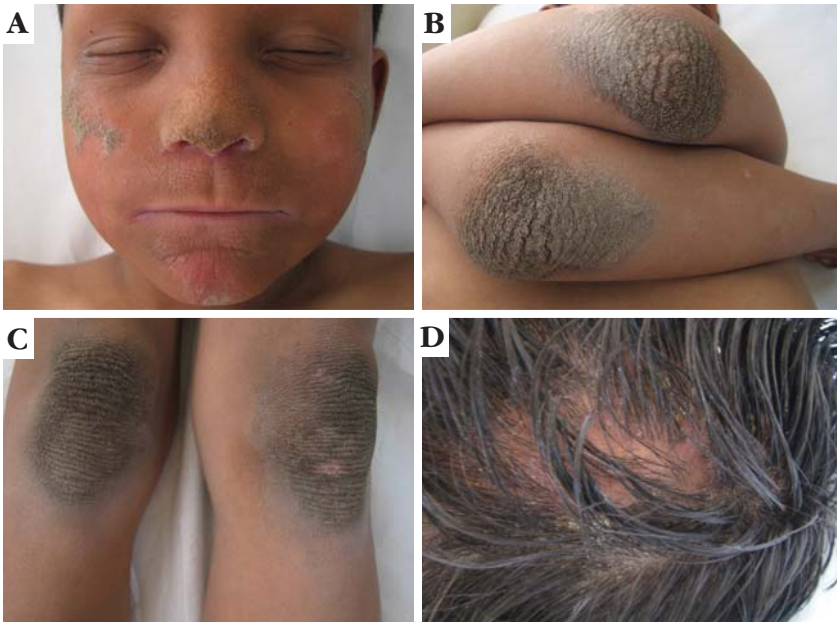

FIGURE 1: A. Hyperkeratotic plaques on the cheek. Skin furrows around the mouth and chin; **B.** Symmetrical hyperkeratotic plaques on the elbows; **C.** Symmetrical hyperkeratotic plaques on the knees; **D.** Scales and diffuse alopecia on the scalp

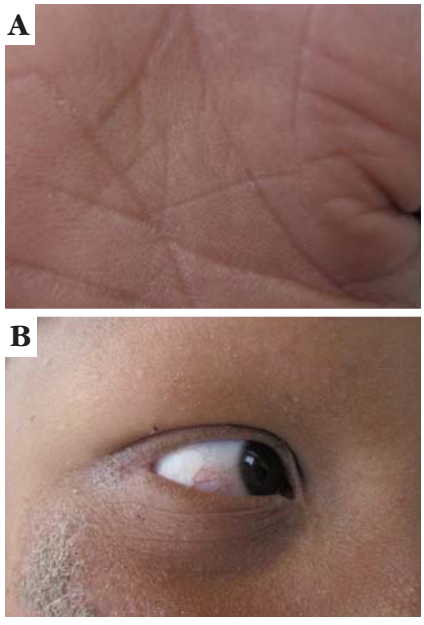

FIGURE 2: A. Characteristic reticulated hyperkeratosis of the palm; **B.** Keratitis and corneal vascularization. Total loss of eyelashes and eyebrows

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DISCUSSION

KID syndrome is an uncommon congenital ectodermal dysplasia affecting the epidermis, corneal epithelium and the inner ear. In 1981 Skinner coined the acronym KID, representing the three markers of the disease: keratitis, ichthyosis and deafness. [1] The syndrome has more recently been classified as an autosomal dominant inherited disease affecting the GJB2/GJB6 genes. [2]

Skin lesions may be present from birth, with skin looking red, dry and wrinkled. The lesions often appear in the form of wart-like or hyperkeratotic plaques of erythrokeratodermia, located symmetrically on the scalp, face, and skin folds. [3] The presence of generalized xerosis, keratosis pilaris and hypohidrosis is common. In 79% of cases there may be diffuse alopecia of the scalp as well as atrichia and partial loss of lateral ends of the eyebrows. Reticulated hyperkeratosis is a further characteristic, affecting the dorsal and palmar surfaces of the hands and feet. The nails may be dystrophic and dentition may present anomalies. Inflammatory nodules can also occur, probably arising from ruptured pilosebaceous follicles. [4]

Sufferers from KID syndrome are more susceptible to bacterial and fungal infections of the skin and mucous membranes, mainly candida, which may be due to an intrinsic immunodeficiency, with death sometimes occurring in the first years of life. [5-7]

A less frequent complication, but which can considerably decrease life expectancy of patients is squamous cell carcinoma, which occurs in 29% of cases. [4-9]

A high probablility of extracutaneous involvement exists in KID syndrome. One manifestation is sensorineural deafness, generally with severe, bilateral and progressive evolution due to cochlear saccular dysplasia. Associated eye lesions generally appear after the hearing and skin changes, with symptoms coinciding with the onset of puberty. Keratitis and corneal vascularization can progress to blindness. [10]

The intellectual capacity of patients is normal. Retarded psychomotor development is secondary to the auditory and visual limitations typical of these patients.

KID syndrome is genetically heterogeneous. While the vast majority of the 100 patients described in the literature are sporadic cases, reports however exist of families who have autosomal inheritance, both dominant and recessive. Its cause can be traced to mutation of the GJB2 gene encoding the connexin 26 protein. [2,9] This protein is an essential part of the intercellular channels and the gap junction of the cochlear epithelium and epidermis. In both tissues these channels allow the exchange of ions and molecules responsible for a broad spectrum of cellular activities that are fundamental to their regulation and survival. [11]

Ocular abnormalities are secondary to epithelialization of the cornea and lacrimal gland ducts, with neoformation of vessels occurring as a result of these phenomena. [10]

Prognosis will depend on early diagnosis of infections and skin cancers, but the patient´s quality of life is likely to depend on the severity and management of ocular and auditory changes.

The published cases of deaths are due to severe infections of the skin and mucous membranes which have evolved to septicemia. [8] Uncommon lethal forms of KID syndrome have been reported e.g. a more severe phenotype of the disease can involve G45E mutation in the GJB2 gene. [4,12]

The treatment of the skin lesions is by the use of topical moisturizers and keratolytic agents. [11] In the most severe and disfiguring manifestations of the syndrome systemic retinoids have been indicated to improve the quality of life of patients, but with variable results. [13,14]

Neurosensioral deafness may require the use of hearing aids and speech therapy support. Cases of patients with cochlear implants have recently been published, with encouraging results. [15]

Depending on the severity of the ocular abnormalities, these require the use of lubricants, topical corticosteroids, immunosuppressants and sometimes surgical procedures. Some cases however progress to complete loss of vision.

KID syndrome is a rare disorder. Early diagnosis is essential in order to avoid severe damage to speech development and irreversible eye damage. These patients need lifelong follow-up for early diagnosis of malignant tumors, especially squamous cell carcinomas of the skin and mucosa. ❑

Abstract: Keratitis-ichthyosis-deafness (KID) syndrome is a rare congenital ectodermal dysplasia affecting skin, the corneal epithelium and inner ear. Clinical signs consist of erythrokeratodermal plaques on the face and skin folds, usually present from birth, as well as severe and bilateral sensorineural hearing loss and corneal vascularization associated with slow-progressing keratitis which follows skin and hearing changes at puberty. In view of symptoms of deafness, blindness, skin infections and the risk of malignant degeneration, early diagnosis of the syndrome is essential, together with clinical follow-up and genetic counseling.
Keywords: Keratitis; Ectodermal Dysplasia, Ichthyosis; Deafness

Resumo: A síndrome de KID é uma displasia ectodérmica congênita rara que afeta a pele, o epitélio da córnea e o ouvido interno. Clinicamente, observam-se placas de eritroqueratodermia na face e pregas, geralmente presentes desde o nascimento, a surdez neurossensorial severa e bilateral, e a vascularização córnea associado à queratite de evolução progressiva à qual surge após as alterações cutâneas e auditivas na puberdade. Face ao quadro surdez, às infecções cutâneas, ao risco de cegueira e à degeneração maligna, o diagnóstico precoce da síndrome é fundamental, bem como o seguimento clínico periódico e o aconselhamento genético.
Palavras-chave: Ceratite; Displasia Ectodérmica; Ictiose; Surdez

REFERENCES

1. Skinner BA, Greist MC, Norias AL. The keratitis, ichtyosis, and deafness (KID) syndrome. Arch Dermatol. 1981;117:285-9.
2. Oji V, Tadini G, Akiyama M, Blanchet Bardon C, Bodemer C, Bourrat E, et al. Revised nomenclature and classification of inherited ichthyoses: Results of the First Ichthyosis Consensus Conference in Sorèze 2009. J Am Acad Dermatol. 2010;63:607-41.
3. Caceres-Rios H, Tamayo-Sanchez L, Duran-Mckinster C, de la Luz Orozco M, Ruiz-Maldonado R. Keratitis, ictiosis and deafness (KID Syndrome): Review of the literatura and proposal of a new terminology. Pediatr Dermatol. 1996;13:105-13.
4. Mazereeuw-Hautier J, Bitoun E, Chevrant-Breton J, Man SY, Bodemer C, Prins C, et al. Keratitis-ichtyiosis-deafness syndrome: disease expression and spectrum of conexin 26 (GJB2) mutations in 14 patients. Br J Dermatol. 2007;156:1015-9.
5. Harms M, Gilardi S, Levy PM, Saurat. KID syndrome (keratitis, ichtyiosis and deafness) and chronic mucocutaneous candidiasis: case report and review of the literatura. Pediatr Dermatol. 1984;2:1-7.
6. Hazen PG, Walter AE, Stewart JJ, Carney JF, Ángstrom CW, Turgeon KL. Keratitis, ichthyosis and deafness (KID) syndrome: management with chronic oral ketoconazole therapy. Int J Dermatol. 1992;31:58-9.
7. Gilliam A, Williams ML. Fatal septicemia in an infant with keratitis, ichthyosis, and deafness (KID) syndrome. Pediatr Dermatol. 2002;19:232-6.
8. Grob JJ, Breton A, Bonafe JL, Sauvan-Ferdani M, Bonerandi JJ. Keratitis, ichthyosis and deafness (KID) syndrome: vertical transmission and death from multiple squamous cell carcinomas. Arch Dermatol. 1987;123:777-82.
9. Richard G, Rouan F, Willoughby CE, Brown N, Chung P, Ryynänen M, et al. Missense mutations in GJB2 encoding connexin-26 cause the ectodermal dysplasia keratitis-ichthyosis-deafness syndrome. Am J Hum Genet. 2002;70:1341-8.
10. Gomez-Faiña P, Ruiz-Viñals AT, Buil-Calvo JA, España-Albelda A, Pazos López M, Castilla-Céspedes M. Paciente con enfermedad corneal severa en el contexto del syndrome de KID. Arch Soc Esp Oftalmol. 2006;81:225-8.
11. Terrinoni A, Codispoti A, Serra V, Bruno E, Didona B, Paradisi M, et al. Conexin 26 (GJB2) mutations as a cause of the KID síndrome with hearing loss. Biochem Biophys Res Commun. 2010;395:25-30.
12. Sbidian E, Feldmann D, Bengoa J, Fraitag S, Abadie V, de Prost Y, et al. Germline mosaicism in keratitis- ictiosis-deafness síndrome:pre-natal diagnosis in a familial lethal form. Clin Genet. 2010;77:587-92.
13. Abdollahi A, Hallaji Z, Esmaili N, Valikhani M, Barzegari M, Akhyani M, et al. KID syndrome. Dermatol Online J. 2007;13:11.
14. Nazzaro V, Blanchet-Bardon C, Lorette G, Civatte J. Familial occurrence of KID (keratitis, ichthyosis, deafness) syndrome. Case reports of a mother and daughter. J Am Acad Dermatol. 1990;23:385-8.
15. Arndt S, Aschendorff A, Schild C, Beck R, Maier W, Laszig R, et al. A novel dominant and a de novo mutation in the GJB2 gene (connexin-26) cause keratitis-ichthyosis-deafness syndrome: implication for cochlear implantation. Otol Neurotol. 2010;31:210-5.

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