



## Kindler Syndrome

### Alternative Names

Poikiloderma, Hereditary Acrokeratotic  
Bullous Acrokeratotic Poikiloderma of Kindler and  
Weary  
Poikiloderma, Congenital, with Bullae, Weary Type  
Poikiloderma of Kindler

### Record Category

Disease phenotype

### WHO-ICD

Congenital malformations, deformations and  
chromosomal abnormalities > Other congenital  
malformations

### Incidence per 100,000 Live Births

0-1

### OMIM Number

173650

### Mode of Inheritance

Autosomal recessive

### Gene Map Locus

20p13

### Description

Kindler Syndrome is a rare autosomal recessive genodermatosis, which presents itself in infancy. The disease is characterized by neonatal blistering, photosensitivity, progressive poikiloderma, diffuse cutaneous atrophy, abnormal pigmentation, and skin fragility. Ultrastructurally, marked basement membrane reduplications and cleavages at the dermal-epidermal junctions can be visualized. As age advances, the blistering and sun sensitivity tends to improve, although the abnormal pigmentation and basement thinning may worsen. In addition to these main features, occasionally, palmoplantar keratoderma, nail abnormalities, gingival fragility, poor dentition, and finger webbing may also be seen.

Further rare complications of Kindler Syndrome include a tendency towards squamous cell carcinoma of the hard palate, lip, and urinary bladder.

Ever since its first report in 1954, more than 100 cases of this disease have been reported in literature. The most significant of these is a cluster of 26 patients in a tribe from Panama. Differential diagnoses to be considered while considering this condition include congenital bullous diseases like epidermolysis bullosa, congenital poikilodermas and photosensitivity disorders like the Rothmund-Thompson Syndrome, and other photosensitivity disorders related to defective DNA repair like Xeroderma Pigmentosum and Cockayne Syndrome. Management of the disease is symptomatic and preventive. Protecting the skin from the sun is important. Since blister formation is encouraged by trauma, it is advised to avoid any kind of trauma. Infected bullous lesions may require antibiotics.

### Molecular Genetics

Kindler Syndrome is caused due to defects in the *KIND1* gene on chromosome 20. This gene expresses itself in basal keratinocytes, where it encodes a protein, called Kindlin-1, which plays an important role in attaching the actin cytoskeleton inside the cell to the extracellular matrix. Many nonsense and frameshift mutations have been identified within this gene in patients with Kindler Syndrome.

### Epidemiology in the Arab World

#### Alegria

Jobard et al. (2003) described three Algerian families with patients affected with Kindler Syndrome. The first family had three affected children (2 females, 1 male) born to consanguineous, though healthy parents. The clinical features noticed were acral blistering at birth, photosensitivity, progressive poikiloderma with dyschromatic macules, telangiectases, cutaneous atrophy, sclerodermiform



fingers, and leucokeratotic plaques on the oral mucosa. Four other siblings were normal. The second family had a 9-year-old affected daughter born to consanguineous parents, who presented with a similar phenotype and also suffered from aortic insufficiency. Two other siblings and both parents were normal. The third family had a 13-year-old affected boy and a 6-year-old affected girl. These patients were also born to healthy parents, who were second-cousins. The boy presented with poikiloderma with photosensitivity, blisters on the arms, legs and oral mucosa, diffuse ichthyosis and reticular hyperpigmentation on the trunk, thin and dry hair, nail dystrophy, webbing of the fingers, and phimosis, along with chronic diarrhea. His skin biopsy revealed hyperkeratosis, mild fibrosis of the upper dermis, free melanin, and melanophages. His sister's features were similar, but milder [See also > Tunisia > Jobard et al., 2003].

### **Iraq**

Hacham-Zadeh and Garfunkel (1985) described two Kurdish Jewish families, related to each other through a common great-grandfather, with members affected with Kindler Syndrome. The first family had a 19-year old daughter, born to consanguineous parents. Both parents and five other siblings were normal. This patient presented with atrophic scars left by healing of bullae on pressure areas of the skin, marked atrophy of the skin of the palms and soles, wrinkled skin on the dorsa of feet and hands, photosensitivity, and poikiloderma; all present since birth. The second family had three affected children, born to healthy consanguineous parents, with similar symptoms.

### **Saudi Arabia**

Al About et al. (2002) reported a large consanguineous Saudi Arabian family, in which 11 individuals in two sibships were affected with Kindler Syndrome. Only eight of these patients were alive at the time of reporting. They presented with photosensitivity, generalized poikiloderma, webbed fingers, dermatoglyphic loss, and nail dystrophy. Additionally, many of the patients had oral involvement, with gum bleeding. Some also had pseudoainhum of the toes, and sclerotic bands on the wrists. One year later, Al-About et al. (2003) went on to describe some additional clinical features noticed in one of these patients, a 28-year old man, during follow-up. These features included patches of normal appearing skin, not involved by telangiectases on the neck, and dorsum of both feet. Al-About et al. (2003) hypothesized a case of revertant mosaicism

giving rise to these normal patches of skin. In addition, a 4 cm circular patch of skin on the medial aspect of the left palm resembled the skin on the dorsum of the hand. Skin biopsy of this area revealed normal skin structure with hair follicles. Al-About and colleagues (2003) were unable to explain this occurrence, but presumed that this was due to a disruption in the development of proper orientation during morphogenesis.

### **Tunisia**

Jobard et al. (2003) included a Tunisian family in their study of Kindler Syndrome. This consanguineous family had two affected children (a boy and a girl) in two sibships. Both patients presented with spontaneous blisters on the arms and legs, marked atrophic, wrinkled skin on the dorsa of the feet and hands, dyschromic patches with reticulated erythema and telangiectases, dysphagia, and esophageal stenosis. Epidermal atrophy and fibrosis of the papillary dermis were revealed in the skin biopsy, although the collagen and elastic fibers were found to be normal [See also > Algeria > Jobard et al., 2003].

### **References**

- Al-About K, Al-Hawsawi K, Al-About D, Al Githami A. Kindler syndrome in a Saudi kindred. *Clin Exp Dermatol.* 2002; 27(8):673-6. PMID: 12472544
- Al-About K, Al-Hawsawi K, Ramesh V. Kindler syndrome: two additional features. *Dermatol Online J.* 2003; 9(3):20. PMID: 12952767
- Hacham-Zadeh S, Garfunkel AA. Kindler syndrome in two related Kurdish families. *Am J Med Genet.* 1985; 20(1):43-8. PMID: 3970073
- Jobard F, Bouadjar B, Caux F, Hadj-Rabia S, Has C, Matsuda F, Weissenbach J, Lathrop M, Prud'homme JF, Fischer J. Identification of mutations in a new gene encoding a FERM family protein with a pleckstrin homology domain in Kindler syndrome. *Hum Mol Genet.* 2003; 12(8):925-35. PMID: 12668616

### **Related CTGA Records**

Kindlin 1

### **External Links**

- <http://www.emedicine.com/derm/topic943.htm>
- [http://www.gfmer.ch/genetic\\_diseases\\_v2/genedis\\_det\\_ail\\_list.php?cat3=674](http://www.gfmer.ch/genetic_diseases_v2/genedis_det_ail_list.php?cat3=674)
- <http://www.medscape.com/viewarticle/462798>
- [http://www.orpha.net/consor/cgi-bin/OC\\_Exp.php?Lng=GB&Expert=2908](http://www.orpha.net/consor/cgi-bin/OC_Exp.php?Lng=GB&Expert=2908)



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