

Epidermolysis bullosa simplex localisata Associated with Anodontia, Hair and Nail Disorders: a New Syndrome

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Two cases of epidermolysis bullosa simplex localisata associated with anodontia, hair and nail disorders were described. It was proved that the reported cases represented a new syndrome, which had previously not been published. The syndrome was named "Syndroma Kallin" after the surname of the two patients. Two genetic theories were suggested: an autosomal recessive genetic trait or a gonadal mosaicism with an early dominant gene mutation. *Key words: Epidermolysis bullosa simplex localisata; Anodontia; Autosomal recessive; Gonadal mosaicism.* (Received February 9, 1985.)

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Epidermolysis bullosa simplex localisata is an autosomal dominant disorder with a high penetrance and relatively constant expressivity (1, 2). It usually starts in early infancy and occurs mainly, sometimes exclusively, during the warm season (3). Blisters occur on palms and soles, lateral margins of the feet, hands and fingers and sometimes periungual. The clinical picture is remarkably constant. The blisters heal without scarring or other sequelae (4). Whether males are really more severely affected than females or merely subject hands and feet more often vigorously to mechanical stress is not clear. Many cases have only been diagnosed on military service since the low liability to blistering had not posed any problems before (5).

Associated features are rare, but hyperhidrosis and myopia magna have been mentioned together with epidermolysis bullosa simplex localisata.

Moderate to severe enamel defects resembling amelogenesis imperfecta have exclusively been reported in the atrophicans group (7). In the dystrophica group, defective teeth reflecting abnormalities in the cementum and dentin have been observed (8). In the atrophicans and dystrophica groups, nail dystrophy and recurrently onychogryphotic nails are rather usual (9).

In the northernmost counties of Sweden (Norrbotten and Västerbotten) it has previously been shown that epidermolysis bullosa of all types is relatively more often diagnosed than in the rest of Sweden (10, 11). Since multiple genetic disorders of ectodermal structures associated with epidermolysis bullosa simplex localisata have not earlier been published, it was considered of interest to report two clinical cases.

PATIENTS

Two sisters born in 1971 and 1973 with epidermolysis bullosa simplex localisata were in June 1984 admitted to the Department of Dermatology, Central Hospital, Boden. The parents and their family members were healthy without inherited disorders. The mother came from the northernmost county of Sweden and the father from the central regions. There was little to suggest a relationship between these two families as far as the members could be traced backwards. According to the parents neither inbreeding nor consanguineous marriages were found on either side of the families. The pedigree for the family is shown in Fig. 1.

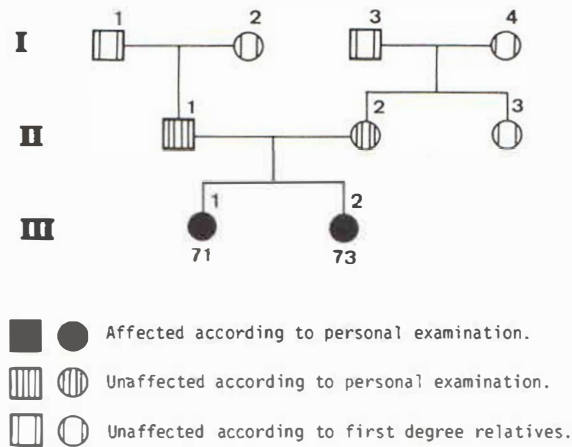


Fig. 1. Pedigree of the family in which two cases of epidermolysis bullosa simplex localisata associated with anodontia, hair and nail disorders were found.

CASE REPORTS

The parents (II:1, II:2). The father was born in 1943. No family history of blisters or hair and nail disorders was reported. Normal skin and hair, male pattern alopecia excepted, could be demonstrated at a clinical investigation performed in 1984. A panoramic radiograph of the jaws showed that the following permanent teeth were missing: 28, 38 and 48. The mother was born in 1944. The same clinical findings were valid for her and the panoramic radiograph of the jaws showed that the following permanent teeth were missing: 18, 28, 38 and 48.

Case 1 (II:1). A 13-year-old girl, who at the age of 1 year developed non-scarring blisters on the plantar surface of the feet, the lateral margins and between the toes was in 1984 admitted to the Department of Dermatology. No blisters occurred on palms and fingers. Blistering appeared every year up to the time of the last examination. In the oral mucosa and on the tongue blisters did never occur. The worst blistering period had been in the spring and the summer from the month of May to the month of September, but exposed to trauma blisters occurred outside this season. Generally, blisters were monolocular with a serous content, but hemorrhagic blisters could be observed from time to time, probably caused by mechanical factors.

At the age of 10 years, the toe nails became thicker and on examination in 1984 a slight onychogryphosis, especially marked on the first toe, could be demonstrated.

From the age of 3 years to the age of 11 years the hair became thinner and brittle and a non-scarring alopecia developed. Regrowth of the hair took place in the succeeding years and at the last examination it was found quite normal. Hearing was normal in both ears, but a slight myopia of 2 dioptries had appeared. At the age of 7 years disorders of the mineralisation were observed in the

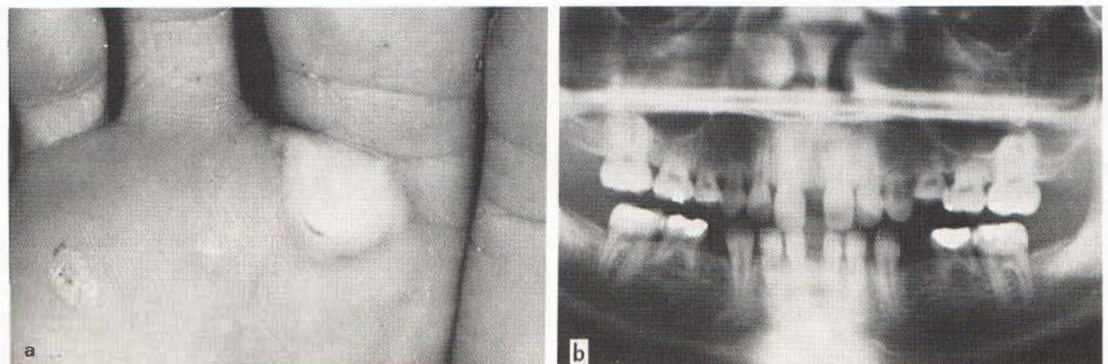


Fig. 2. (a) Blisters on the plantar surface of the right foot; (b) Panoramic radiograph of the jaws.

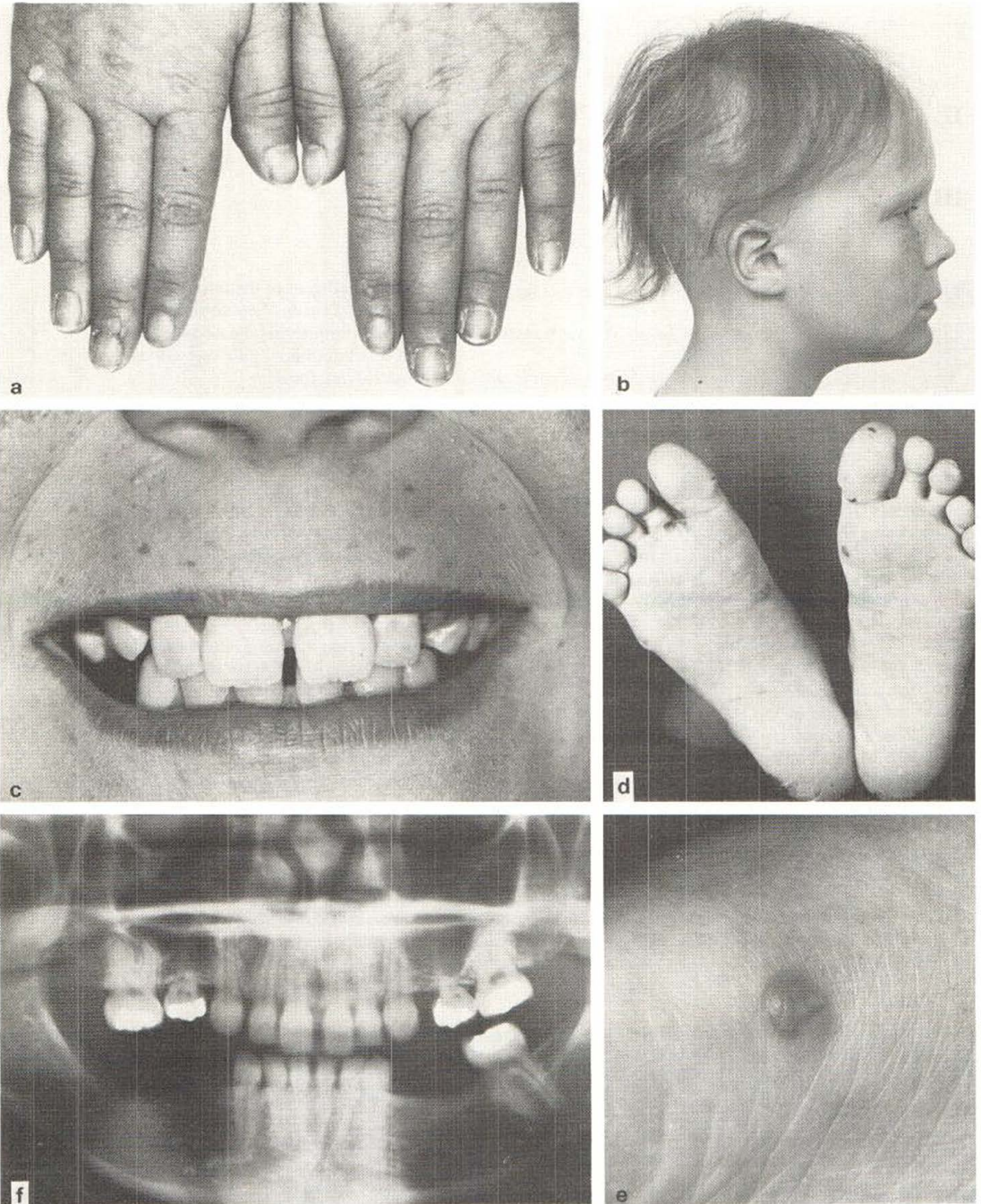


Fig. 3. (a) Curved finger nails; (b) diffuse alopecia; (c) disorders of the mineralisation; (d) multiple blisters on the soles and lateral margins of the feet; (e) hemorrhagic blister on the lateral margin of the right foot; (f) panoramic radiograph of the jaws.

deciduous teeth. Panoramic radiograph of the jaws, performed in 1984 showed that the following permanent teeth were missing: 17, 15, 14, 13, 23, 24, 25, 27, 37, 35, 34, 44, 45 and 47, and that the following permanent teeth had erupted: 16, 12, 11, 21, 22, 26, 36, 33, 32, 31, 41, 42, 43 and 46. The following deciduous teeth persisted in the jaws: 55, 54, 53, 63, 64, 65, 75 and 85 (Fig. 2 *a, b*).

Light microscopic examination in H&E stained punch biopsies from blisters on the feet showed a subcorneal cleavage.

Case 2 (III:2). An 11-year-old girl, the younger sister of case 1, with allergic rhinitis and with non-scarring blisters on hands and feet appearing at the age of 3 months was admitted to the Department of Dermatology in 1984. The blisters were smaller than those found on the feet of her elder sister. Localization and seasonal appearing were the same as described in the first case.

Nails on the hands and feet were peculiarly curved, but no sign of onychogryphosis could be demonstrated. At the age of 3–4 months the scalp hair became sparse, dry and fine, but no scarring was seen. In the light microscopy the structure of the hair shaft was abnormal, possessing an irregular exterior limitation. Total loss of hearing in the left ear was discovered at the age of 5 years. Myopia corresponding to 5–6 dioptres was present at the last examination.

No changes in the pigmentation of the skin and a normal perspiration could be shown. Disorders of the mineralisation were observed in the deciduous teeth.

Panoramic radiograph of the jaws showed, that in the upper jaw the following permanent teeth and rudiments were missing: 18, 17, 15, 14, 25, 24, 27 and 28, and in the lower jaw: 38, 36, 35, 34, 44, 45, 46, 47 and 48. The following permanent teeth persisted: 16, 13, 12, 11, 21, 22, 23, 26, 37, 33, 43, 55 and 65. No conical configuration of the crowns of the upper lateral incisor teeth was seen at the examination (Fig. 3 *a, b, c, d, e, f*).

Light microscopic examination of H&E stained punch biopsies from blisters showed a cleavage in midepidermis associated with dyskeratosis, differing from the first case, probably because biopsies were taken from fresh blisters (12).

COMMENTS

Two siblings suffering from epidermolysis bullosa associated with different ectodermal disorders were described. The clinical and histopathological picture of epidermolysis bullosa in these two cases were classified as the dominant simplex type, first reported by Weber and Cockayne. Hair disorders, different nail anomalies and total or partial anodontia are generally considered to possess a dominant mode of inheritance. According to personal examination, the parents were unaffected and the rest of the family members were reported to be healthy.

As it could be proved that epidermolysis bullosa simplex localisata associated with anodontia, hair and nail disorders never has been described before, it was decided to present these two cases as a new syndrome named "Syndroma Kallin".

Regarding the pedigree, shown in Fig. 1, an autosomal recessive genetic trait obviously is the most reliable genetic interpretation of this syndrome, but some factors may be inconsistent with that version. Those ectodermal disorders, which constitute the syndrome, are generally considered to be dominant and therefore difficult to range into a recessive mode of inheritance. A gonadal mosaicism with an early dominant gene mutation should, therefore, be taken into consideration. Only more cases suffering from this syndrome or the next generation of this family can clarify the genetic issue.

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With permission of the parents the syndrome was named "Syndroma Kallin" after the surname of the two patients.

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