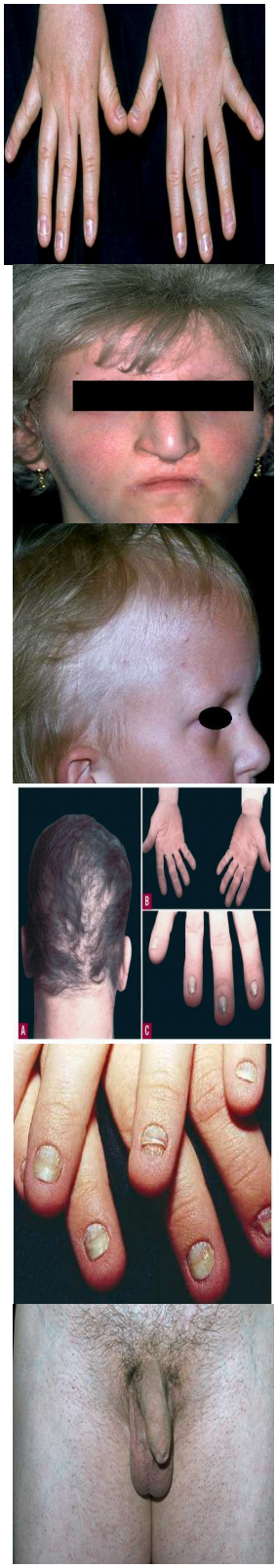

HIDROTIC

ECTODERMAL

DYSPLASIA

Epidemiology

Hidrotic ED was first described in a French-Canadian kindred. It has been reported in other ethnic groups, but the majority of affected individuals can trace their ancestry back to an original French-Canadian settler.

Box 143-1 Differential Diagnosis of Some Diagnostic Features of Ectodermal Dysplasias

- Collodion membrane
- Lamellar exfoliation of the newborn
- Neutral lipid storage disease

- Non-bullous congenital ichthyosiform erythroderma
- Lamellar ichthyosis
- Trichothiodystrophy
- Storage diseases (e.g., Gaucher)
- Chondrodysplasia punctata

- Ankyloblepharon filiforme adnatum (AFA)
- Lethal popliteal pterygium syndrome
- Popliteal pterygium syndrome
- Isolated AFA
- AFA and cleft palate

- Hypodontia
- Isolated hypodontia
- Incontinentia pigmenti

- Skin fragility/erosions
- Epidermolysis bullosa disorders
- Incontinentia pigmenti
- Acrodermatitis enteropathica
- Plakophilin/ectodermal dysplasia
- Congenital erythropoietic porphyria
- LOGIC (laryngeal and ocular granulation tissue in children from the Indian subcontinent)

- Atrophic streaks
- Incontinentia pigmenti—stage 4
- MIDAS (microphthalmia, dermal aplasia, and sclerocornea)
- Focal dermal hypoplasia

Etiology, Pathogenesis, and Genetics

The disorder is caused by mutations in a connexin gene, GJB6 or connexin-30.[17] Different mutations in the same gene are responsible for a form of
nonsyndromic
autosomal
dominant deafness and at least one patient with

keratitis-ichthyosis-deafness
(KID syndrome) (see Chap. 47). Other
connexin
genes show similar variability in mutation: disease correlations [e.g., mutations in connexin-31 (GJB3)] can cause either
erythrokeratodermia
variabilis
(see Chap. 47) or late-onset
autosomal
deafness. The pathway by which allelic mutations result in such different diseases is not yet known.

Hidrotic ED is autosomal dominant with variable expression (the degree of severity can vary within and between families). Males and females are affected in equal numbers and to equal degree. The gene maps to the centromeric region of the long arm of chromosome 13.

Clinical Manifestations

The scalp hair is wiry, brittle, and pale, and there is often patchy alopecia . This progresses in adult life and may lead to total alopecia. Body and facial hair are affected. The nails may be milky white in infancy and early childhood, gradually thickening and becoming dystrophic. The nail
plates in adults are thick, short, slow-growing, separate distally from the nail bed , and may cause pain.
Anonychia
has been reported. Not all the nails are necessarily affected to the same degree. Progressive palmar
/plantar hyperkeratosis is common . In contrast to HED, sweating is normal, as are the teeth.
Oral
leukoplakia
has been reported. Conjunctivitis and
blepharitis
, possibly due to poor function of sparse eyelashes, are common.

Histopathology

The thickened palms and soles show orthohyperkeratosis with a normal granular layer. On electron microscopy, an increase in the number of
desmosomes
in the cells of the stratum
corneum
is found. The hair shows non-specific changes.

Diagnosis and Differential Diagnosis

The diagnosis is straightforward. The involvement of nails and hair and palmar/plantar thickening, in the absence of other signs of ED, are reasonably specific. Other
palmar
/plantar
hyperkeratoses
do not have similar hair changes.
Orofacial
clefting
differentiates other forms of
autosomal
dominant
hidrotic
ED, such as
ankyloblepharon
filiforme
adnatum
(AFA)-ED-cleft palate (AEC) syndrome or Rapp-Hodgkin syndrome. Although the nail changes are similar to those of
pachyonychia
congenita
, the hair changes are distinctive.

Treatment

Occasionally, ablation of the nail matrix is necessary for relief of pain. Wigs may provide

cosmetic benefit. Treatment of the thickened palms and soles is not specific and minimally successful.