Ehlers–Danlos Syndrome Type IV (Vascular): Dermatological Features

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Liam Zakko, Justin Finch, Marti J. Rothe, and Jane M. Grant-Kels

Clinical signs and features include:

- In general, Ehlers–Danlos syndrome is characterized by skin hyperextensibility (see Fig. 30.1), joint hypermobility, and wound healing abnormalities (see Fig. 30.2)
- Type IV (vascular) Ehlers-Danlos is the type most commonly associated with gastrointestinal (GI) pathology
- Type IV has less skin hyperextensibility. The major cutaneous finding is very translucent skin with easily visible veins particularly on the chest, abdomen, and extremities. The most common, and often the first sign of the disease, is pronounced bruising [1].
- Series of patients show that 7–25% of patients experience the first major complication by age 20 years and more than 75% by age 40 years [1, 2].

Pathogenesis of this disease involves a genetic mutation [3]:

- Autosomal dominant disease with mutation in *COL3A1* gene, which codes for type III procollagen
- Patients have quantitative and/or qualitative defects in type III collagen

Histopathological features include:

- Reticular dermal thickness decreased by one half to three quarters of normal thickness
- Reticular dermis with loosely organized thin collagen and a relative increase in elastic fibers that are shortened and fragmented
- Collagen bundles in subcutaneous septae are thin and decreased
- In areas of trauma where pseudotumor formation is noted clinically there can be evidence of fibrosis, with increased but finer (decreased in diameter) elastic fibers, numerous capillaries, and occasional foreign body giant cells
- Markedly decreased factor XIIIa dermal dendrocytes in the reticular dermis
- Ultrastructural anomalies of blood vessels have been described including replication of the lamina densa, altered dermal arteriolar wall morphology, and dissociation of vascular smooth muscle cells
- Fibroblasts have dilated endoplasmic reticulum

The diagnosis is made using a combination of [4, 5]:

- Family history of type IV Ehlers–Danlos
- Four main clinical findings:
  1. Rupture of blood vessels or internal organs (arterial rupture, intestinal rupture, uterine rupture during pregnancy)
  2. Striking facial appearance (thin lips/philtrum, small chin, thin nose, large eyes, lobeless ears)
  3. Easy bruising
  4. Translucent skin
- Also see: acrogeria (extreme wrinkling and thinness of skin of the dorsal hands and feet), hypermobility of small joints, early-onset varicose veins, tendon/muscle rupture, arteriovenous carotid/cavernous sinus fistula, pneumothorax, chronic joint dislocations, congenital dislocation of the hips, talipes equinovarum, gingival recession
- Cultures of fibroblasts show abnormal type III collagen production
- Genetic testing can reveal *COL3A1* mutation

The differential diagnosis should include:

- Marfan syndrome

L. Zakko (✉)
Yale Department of Internal Medicine, Yale New Haven Hospital,
20 Yale street New Haven, CT 06510, USA
e-mail: liam.zakko@yale.edu

J. Finch • M.J. Rothe • J.M. Grant-Kels
Department of Dermatology,
University of Connecticut Health Center,
21 South Road, Farmington, CT 06030, USA
e-mail: finch@uchc.edu; rothe@uchc.edu; grant@uchc.edu

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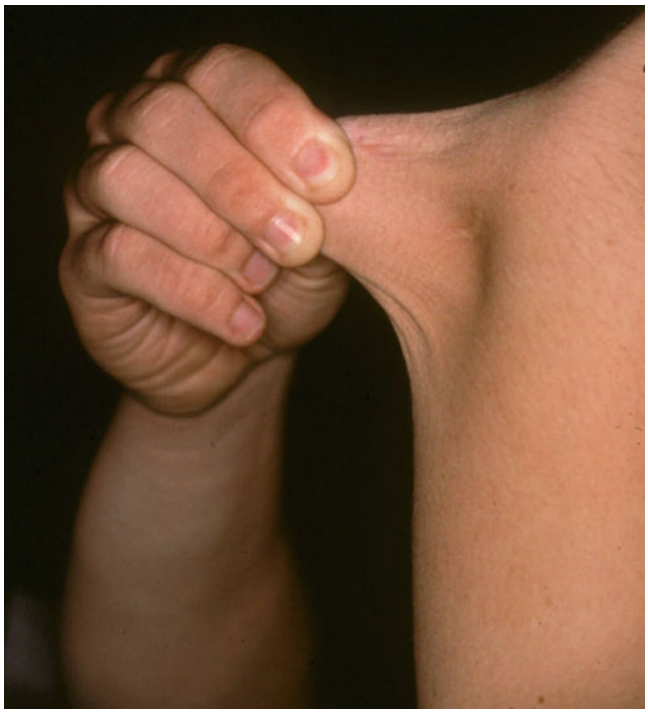

Fig. 30.1 Ehlers–Danlos syndrome. Hyperplastic skin

- Loeys–Dietz syndrome
- Cutis laxa syndromes
- Other types of Ehlers–Danlos

Treatment options include:

- No specific treatment for cutaneous manifestations but preventive measures should be taken including avoidance of trauma, contact sports, and heavy exercise; wearing protective padding; supplementation with oral vitamin C and desamino-D-arginine-vasopressin, which may help to decrease bruising [6].

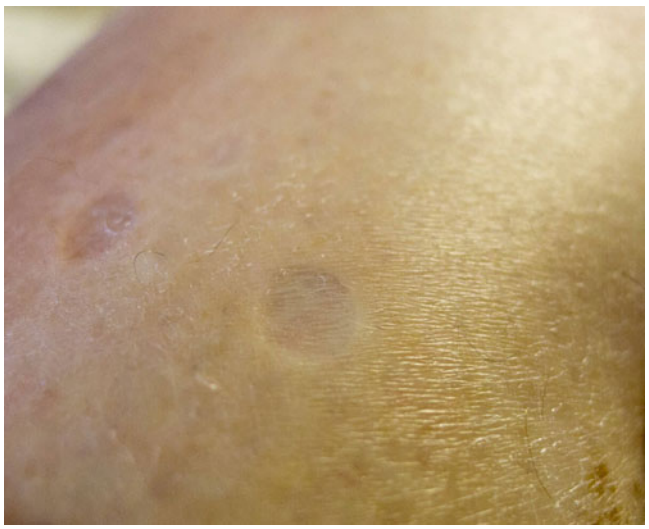

Fig. 30.2 Ehlers–Danlos syndrome. Atrophic scars

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