Solar or Senile Elastosis

Solar Elastosis
Senescent changes in areas of the skin not regularly exposed to sunlight manifest themselves clinically only in thinning...
In skin not regularly exposed to sunlight, there is a progressive loss of elastic tissue in the papillary dermis with time. Elastic fibers in the reticular dermis also undergo changes due to intrinsic aging, becoming fragmented and porous (2).
In the skin of the face exposed to the sun, especially in persons with fair complexions, hyperplasia of the elastic fibers of the reticular dermis is increased in number, and they are thicker, curled, and tangled.
In patients with clinically evident solar elastosis of the exposed skin, staining with hematoxylin-eosin reveals, in the... degeneration, the bundles of eosinophilic collagen have been replaced by amorphous basophilic granular material.

With elastic tissue stains, the areas of basophilic degeneration stain like elastic tissue and therefore are referred to as elastotic material. The elastotic material usually consists of aggregates of...
On staining with silver nitrate, the distribution of melanin in the basal cell layer may appear irregular in that areas of hyperpigmentation alternate with areas of hypopigmentation (5).

*Histogenesis.* Electron microscopic examination of areas of solar elastosis shows elastotic material as the main component (EM 13). Even at this level, however, there is an extensive increase in elastin. This is reflected in both the size and number of the elastic fibers. The fibers have a greater diameter, are uniformly thick, and are more closely packed than in normal or aged skin.
Elastotic material is not regarded as a degeneration product of preexisting elastic fibers. Most current findings suggest that it may be secondary to a disruption of the balance between synthesis and degradation of elastin in photodamaged skin.
The elastotic material that histochemically stains like elastic tissue resembles elastic tissue in its chemical features. The elastotic material, like elastic tissue, has a much lower content of hydroxyproline than collagen (10). Moreover, the basophilia of the elastotic material is not affected by incubation with hyaluronidase (13).
The irregular distribution of melanin in the epidermis observed in some patients with solar degeneration, 


**Differential Diagnosis.** For a discussion of differentiation of solar elastosis from pseudoxanthoma elasticum, see Chapter 3 and 6.

**Localized Expressions of Solar Elastosis**
Several clinically distinct forms of localized solar elastosis have been described. In the nuchal region, the skin, after many years of exposure to the sun, may appear thickened and furrowed. This is referred to as cutis rhomboidalis nuchae. Elastotic nodules of the ears are localized papular and nodular forms of solar elastosis that usually occur on the antihelix (15, 16, 17, 18). Severe solar elastosis may also occur as yellowish plaques associated with small cysts and comedones. Favre-Racouchot syndrome (nodular elastosis with cysts and comedones) is an example occurring on facial skin lateral to the eyes (19, 20). A similar condition occurring on the arms has been termed actinic comedonal plaques (21, 22, 23). Two other types of circumscribed solar elastosis occurring on the upper extremities are solar elastotic bands of the forearm (4, 24) and collagenous and elastotic marginal plaques of the hands (25, 26, 27, 28, 29, 30, 31, 32).
Elastotic nodules are most often seen on the anterior crus of the antihelix (15,16, 18) and occasionally on the helix.
Histopathology. Irregular elastotic fibers and clumps of elastotic material are seen in the background of marked dermal solar elastosis (Fig. 15-2A). The fibers and clumps can be highlighted with a Verhoeff-van Gieson elastic stain (17) (Fig. 15-2B).

Favre-Racouchot Syndrome (Nodular Elastosis with Cysts and Comedones)
Favre-Racouchot syndrome is characterized by yellow plaques with multiple open and cystically dilated comedones. Smoking may also be a contributing factor in its development.

**Histopathology.** Dilated pilosebaceous openings and large, round, cystlike spaces are lined by a flattened epithelium.
represent greatly distended hair follicles. Both the dilated pilosebaceous openings and the cystlike spaces
Actinic Comedonal Plaques
In actinic comedonal plaques, solitary nodular plaques with a cribriform appearance and comedone-like...
Histopathology. Dilated corneocyte-filled follicular lumina are present within areas of elastotic, amorphous material. The overlying epidermis is usually dyskeratotic and atrophic. The histologic findings are quite similar to those seen in Favre-Racouchot syndrome.
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Solar Elastotic Bands of the Forearm

Solar elastotic bands of the forearm consist of soft cordlike plaques across the flexor surface of the forearm.
Histopathology. Nodular collections of basophilic homogenous amorphous material underlying a...
Collagenous and Elastic Marginal Plaques the Hands
Collagenous and elastotic marginal plaques of the hands have been described by several names: elasto-collagenous plaques of the hands, degenerative collagenous plaques of the hands, and keratoelastoidosis marginalis. This acquired, slowly progressive condition is usually seen in elderly males and consists of groups of linear, often diamond-shaped, yellow plaques located on the dorsum of the hands and radial aspect of the index finger. The condition closely resembles the genodermatosis, acrokeratoelastoidosis. However, there is no familial predisposition or involvement of the plantar surfaces. Actinic damage and chronic repetitive pressure or trauma has been implicated in its pathogenesis.
**Histopathology.** The reticular dermis displays an acellular zone of haphazardly arranged collagen bundles running perpendicular to the epidermis. In addition, there are well-demarcated, cellular masses in the upper dermis. These masses can be demonstrated to contain degenerating elastic fibers and calcium deposits.
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