Solar Elastosis
Senescent changes in areas of the skin not regularly exposed to sunlight manifest themselves clinically only in thinning of the epidermis and hypopigmentation. In the face, the skin shows wrinkling, furrowing, and thinning. In addition, there may be an irregular distribution of pigment.
In skin not regularly exposed to sunlight, there is a progressive loss of elastic tissue in the papillary dermis with associated abnormalities of epidermis and dermis. 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 occurs.
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exposed skin, staining with hematoxylin-eosin reveals, in the degeneration, the bundles of eosinophilic collagen have been replaced by amorphous basophilic granular material.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 thin amorphous fibrils and in some instances may appear as an amorphous basophilic material. This material consists of aggregates of thin amorphous fibrils that may be seen in the upper dermis and may extend into the lower portions of the dermis rather than being confined to the upper dermis.
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 though the amount of elastic fibers may greatly increase over the number and size of elastic fibers found in normal or aged skin, the amount of amorphous material is also greatly increased.
can be seen around the elastotic fibers and also among the collagen fibrils. Collagen fibrils are diminished in number, ... electron density, a diminished contrast in cross striation, and a splitting up into filaments at their ends (8).

Elastotic material is not regarded as a degeneration product of preexisting elastic fibers. Most current findings ...
The elastotic material that histochemically stains like elastic tissue resembles elastic tissue in its chemical character. Of the two, the elastotic material resembles that of elastin and differs significantly from that of collagen. In particular, the elastotic material, like elastic tissue, has a much lower content of hydroxyproline than collagen (10). Moreover, the basophilia of the elastotic material, however, 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 (PXE), 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, 32).
Elastotic nodules are most often seen on the anterior crus of the antihelix (15, 16, 18) and occasionally on the helix of the ear.
**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 comedonal openings. The histopathology shows dilated pilosebaceous openings and large, round, cystlike spaces 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 cribiform 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.
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 an atrophic epidermis are conspicuous ... fibers. The nodular collections and thickened elastic fibers stain positively with Verhoeff-van Gieson elastic stain (4).
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 (26,28), and keratoelastoidosis marginalis (27). This acquired, slowly progressive condition is usually seen in elderly males and consists of groups of linear and degenerative collagenous plaques, which are often distributed by the 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 collagenous fibers. In some areas, there are focal deposits of calcium hydroxyapatite, often forming "blebs" or "nodules" in the upper dermis. These nodules can be demonstrated to contain degenerating elastic fibers and calcium.