

Cancer Association of South Africa (CANSA)



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Fact Sheet on Solar Elastosis

Introduction

Solar elastosis (also known as Actinic Elastosis) is an accumulation of abnormal elastin (elastic tissue) in the dermis of the skin, and in the conjunctiva of the eye, which occurs as a result of the cumulative effects of prolonged and excessive sun exposure, a process known as *photoaging*. It's most commonly found on your face, lips, ears, back of your hands, forearms, scalp or neck.
(Mayo clinic; Wikipedia).



[Picture Credit: Solar Elastosis]

Solar Elastosis

Solar elastosis is a medical condition in which the skin modifies its colour (often times it is yellow) and it becomes thicker, as a direct result of sun damage. This condition is also known as *actinic elastosis* or *photoaging* and it is especially encountered in people with fair complexions. The skin normally is constituted of collagen and elastin.

In the case of elastosis, the collagen layer is damaged and the elastic layer overcompensates by accumulating excessively. The accumulation of abnormal elastin is not only noticed on the skin but also on the eye conjunctiva. It seems that prolonged and excessive exposure to the sun is the main culprit behind solar elastosis.
(Medical Point).

Incidence of Solar Elastosis in South Africa

The National Cancer Registry (2013) does not furnish any information regarding the incidence of Solar Elastosis.

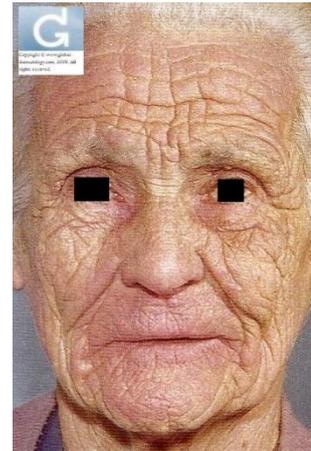
Pathophysiology of Solar Elastosis

Cells within Solar Elastosis show characteristic UV-induced gene mutations.

[Picture Credit: Solar Elastosis 2]

Histologically Solar Elastosis share features with squamous cell carcinoma (SCC). It is an epidermal lesion characterised by:

- Collections of atypical, pleomorphic keratinocytes in the basal layer which can extend to the upper granular and cornified layers.
- The epidermis being abnormal in architecture, with acanthosis, parakeratosis, and dyskeratoses. Cellular atypia is present with keratinocytes varying in size and shape.
- Mitotic figures being present.



It has features of Bowen's disease or carcinoma *in situ*:

- They can be distinguished more by the degree of cellular change and the extent of the lesions rather than differences in the features of individual cells.
- Often, marked hyperkeratosis and areas of parakeratosis with loss of the granular layer are present.
- A dense inflammatory infiltrate is usually present.
- AK is considered by some to be the earliest manifestation of SCC and should be regarded as such rather than as a precancerous lesion.

(Patient.co.uk).

Causes of Solar Elastosis

Solar elastosis affects people who have had long term sun exposure and is a feature of photoageing. It affects individuals of all skin types but its yellow hue is more obvious in fair skin individuals.

Smoking - Solar elastosis is also a manifestation of premature skin ageing caused by smoking.

Tobacco smoke affects the production of collagen and increases the production of tropoelastin and matrix metalloproteinases (MMP). These degrade matrix proteins and produce abnormal elastosis material in the dermis. The elastic fibre changes in smokers extend deep into the reticular dermis where as in sun damage these changes tend to be restricted to the more superficial papillary dermis.

(DermNet NZ).

Treatment of Solar Elastosis

The best treatment of solar elastosis is prevention. One can prevent sunburn and the related skin conditions by protecting One's skin whenever outdoors by wearing a hat, protective clothing, and sunscreen with SPF of at least 30. However, if one sees signs of solar elastosis, there are antiaging skin care products and treatment available.

These include:

Dermal fillers and Neurotoxin Injectables –There is a wide variety of wrinkle-reducing dermal fillers (such as Restylane, Juvederm, and Perlane) and neurotoxin injectables (such as Botox and Dysport). Each has its own benefits and limitations. The main differences between products come from the product's primary active ingredient. Of course, the best thing to do if one is considering a dermal filler or neurotoxin injectable treatment is to schedule a consultation with a knowledgeable physician.

Ablative Laser Skin Resurfacing - Sometimes called a 'laser peel', ablative laser skin resurfacing can be very effective in minimising or sometimes even erasing fine lines and wrinkles. The procedure essentially vaporises (ablates) targeted areas of the skin's top layer, or epidermis. The new skin that forms in its place appears tighter, smoother, and more even in both tone and texture. Some ablative lasers also work in deeper layers of the skin to stimulate the production of new collagen. Two basic types of lasers are used for skin resurfacing: CO₂ lasers and erbium lasers.

Carbon dioxide (CO₂) lasers have been around for many years for the treatment of deep wrinkles and other cosmetic skin problems. They deliver short bursts of very targeted high-energy laser light. Erbium lasers are designed to treat superficial and moderately deep lines and wrinkles. Side effects are often less than with CO₂ lasers, and recovery time also tends to be slightly shorter.

Radiofrequency Rejuvenation - The main goal of radiofrequency skin rejuvenation is to stimulate collagen production deep within the skin (the dermis and cutaneous layers) while leaving the skin's surface (the epidermis) relatively untouched. This can be especially useful for skin tightening.

Anti-Wrinkle Creams - Many of the anti-wrinkle creams and lotions reduce the appearance of facial lines and wrinkles very marginally and often do not results in the wrinkle reduction patients expect. This is because they don't contain the kinds and/or the amounts of active ingredients that can truly have an effect on sagging skin. Some of these products can, however, help remove dead cells from your skin (exfoliation). This will often result in brighter, slightly younger-looking skin due to the removals of dead cells and debris from the surface of skin.

The only ingredients recognised by the U.S. Food and Drug Administration (FDA) as having potential to reduce wrinkling are derivatives of vitamin A known as retinoid. The most commonly used retinoid is tretinoin. There are some other products, available only through physicians (but not requiring a prescription), with active ingredients strong enough to penetrate the skin and perhaps change its physiology such as AHA. Ask your physician about these medical skin care products (moisturizers, toners, ex-foliant, antioxidants, and sunscreens).

(PatientsGuide).

Conclusion: Solar elastosis had a strong association with higher site-specific UVE dose, older age, and fewer nevi. Impact: Solar elastosis could be a useful biomarker of lifetime site-specific UV. Future research is needed to explore whether age represents more than simple accumulation of sun exposure and to determine why people with more nevi may be less prone to solar elastosis.

(NCAR/UCAR Opensky).

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Solar Elastosis

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