

Definition

Solar (or actinic) keratoses are lesions of superficial epidermal dysplasia on sun damaged skin, usually in patients over the age of 50. People with very fair skin and people who have lived in tropical or sub-tropical climates in childhood or for prolonged periods may develop solar keratoses at a younger age.

Clinical features & differential diagnosis

They appear as scaly or warty lesions usually on an erythematous base with a slightly irregular margin. They occur most frequently at sites of maximum cumulative sun exposure. The face and dorsa of hands are the most common sites but in both sexes the forearms and sides and 'V' of the neck can also be involved. In men the bald scalp is frequently affected and sometimes the rims of the ears. In women the legs below the knees are sometimes affected.

The risk of a solar keratosis progressing to squamous cell carcinoma is low (of the order of 0.1% per annum) and many small solar keratoses will resolve spontaneously so the vast majority of solar keratoses will never become malignant. The presence of solar keratoses is, however, a marker of significant solar damage and therefore also of an increased risk of all types of skin cancer including melanoma; it is therefore an indication to advise the patient to protect their skin more carefully and to be aware of the need to report any suspicious changing lesions.

The risk of malignant change in solar keratoses and of other skin cancers is much increased in immune-compromised patients (especially patients with transplanted organs on long term drugs to prevent rejection).

Any solar keratosis that becomes protruberant or has infiltration at the base is better treated surgically by excision or curettage and tissue sent for histology.

Patients with suspected squamous cell carcinoma should be referred urgently via the 2-week-wait fast track route.

Please refer to the

http://www.pcids.org.uk/ee/images/uploads/general/AK_guidelines_2014_final_aw2.pdf

for examples.

Clinical grading

GRADE I - Flat, pink maculae without signs of hyperkeratosis and erythema often easier felt than seen. Flat erythematous macules with or without scale and possible pigmentation

GRADE II - Moderately thick hyperkeratosis on background of erythema that are easily felt and seen

GRADE III - Very thick hyperkeratosis, or obvious AK, differential diagnosis cutaneous horn

FIELD DAMAGE - Large areas of multiple AKs on a background of erythema and sun damage

Clinical Management in Primary Care

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Next review:

Small, flat, slightly scaly solar keratoses are of little importance apart from cosmetic and do not have to be treated. More obvious visible keratoses are usually treated because they tend to be more symptomatic (itchy, sore, unsightly).

Until the late 1990s, active treatment options lay between cryotherapy and topical 5FU, but a range of newer treatments have appeared in the last decade or so providing a wider choice. That said, cryotherapy and 5FU are still probably the best initial options.

All patients should be advised to use appropriate sun protection.

Please refer to **Actinic (Solar) Keratoses: 3Ts treatment pathway** for further information on locally available treatment options, in addition to the prescribing information below.

Cryotherapy – (Primary and Secondary Care)

If available this is very useful for treating a limited number of lesions because it is simple and quick. A single, brief freeze of 5-10 seconds usually suffices. Thicker keratotic lesions might need a slightly longer freeze. If there is a lot of compacted overlying keratin then cryotherapy (and most other treatments as well) will not be effective. In this situation the keratin should be softened and removed with water and emollients (if necessary over a few weeks) and then the underlying dysplastic skin treated accordingly. Beware small SCCs obscured by keratin and crust!

5% 5FU cream (Efudix) – TLS Green

Efudix may be used where there are widespread, ill-defined areas of solar damage.

It can be used in a variety of ways, e.g. twice a day for 2-3 weeks or once a day for 4-6 weeks and, when there is a very marked reaction, even less frequently than once a day –e.g. 2 or 3 times a week. Generally speaking the more frequently it is applied the greater the inflammatory reaction but also the shorter the treatment period required. For the majority of patients about once a day for about a month will result in considerable improvement. Patients must be counseled carefully and warned that the skin will become inflamed and sore and possibly weepy and crusted as well; the cream effectively "burns" the keratoses off but importantly has no effect on normal skin. It is therefore very useful for treating more widespread, ill-defined areas of solar damage picking out dysplasia and eradicating it even before it becomes clinically apparent.

Infrequent application or short periods of treatment will avoid inflammation but will also be ineffective ('no pain, no gain'). Severe or persistent inflammation and weeping can be counteracted with mild or moderate topical steroids applied for a week or two.

0.5% 5FU/10% salicylic acid solution (Actikerall) – TLS Green

This is a newer preparation which may be helpful for stubborn, thicker more keratotic lesions.

It is supplied in a 25 ml bottle with a brush for application and the suggested regimen is once daily for up to 12 weeks. It may be used to treat up to 10 lesions at any one time, covering an area of no more than 25cm² (5cmx 5cm).

3% diclofenac gel (Solaraze) – TLS Green

This product was licensed in the UK in 1997 and vigorously marketed such that it is now by far the most widely used topical treatment for solar keratoses in primary care. Evidence for its effectiveness is less persuasive than that for cryotherapy and topical 5FU¹.

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It should be applied twice daily for 8-12 weeks and although less likely to cause inflammation than 5FU it can cause irritation and pruritus. It is probably best reserved for small lesions and mild to moderate solar damage.

5% imiquimod cream (Aldara) – TLS Amber

3.75% imiquimod cream (Zyclara) – non-formulary

Imiquimod 5% cream is licensed for treating genital warts, superficial BCCs and solar keratoses. It is applied 3 times weekly for 4 weeks and rather like Efudix, but via a different mechanism, can produce a marked inflammatory reaction.

Imiquimod cream is also now available at a reduced strength (3.75% applied daily for 2 weeks and repeated after a 2-week rest) for treatment of full face and balding scalp only. Inflammatory reactions are less than those with the 5% preparation, but remain unpredictable because the drug works by activating the innate immune system.

0.015% & 0.05% ingenol mebutate gel (Picato)⁴ – TLS Green

This product derived from the sap of *Euphorbia peplus* is licensed for treating non-hyperkeratotic solar keratoses. It destroys cells with the p53 mutation. Its main advantage is the short treatment time compared to the standard alternatives -3 days for the face and scalp (0.015%) and 2 days for the limbs and torso (0.05%). It is therefore argued that adherence (and therefore outcomes) will be better. As with many of the other treatments there is an inflammatory reaction associated with the treatment but the effects of treatment are said to be confined to the epidermis resulting in better cosmetic outcomes in delicate skin prone to ulceration with other treatments.

Reasons for referral to a skin specialist

The majority of AKs should be managed in primary care (as set out in the NICE guidance⁵) but the following should be referred to a skin specialist:

- if the lesion is suspicious of a squamous cell carcinoma refer to secondary care under the 2 week rule. The following could suggest transformation from an AK into an SCC:
 - recent growth/tenderness/inflammation
 - a nodular lesion
 - bleeding/ulceration and lesions on lips
- diagnostic uncertainty
- patients with more widespread/severe actinic damage
- immunosuppressed patients, in particular post-transplant
- very young patients presenting with AK—consider xeroderma pigmentosum
- AK fails to respond to standard treatments
- Multiple or relapsing AKs represent a management challenge

Remember AKs are an indication of significant sun damage putting the patient at higher risk and thus a full examination of the skin is recommended to exclude other skin cancers

References

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3. PCDS. Actinic (solar) keratosis – Primary Care treatment pathway http://www.pcds.org.uk/ee/images/uploads/general/AK_guidelines_2014_final_aw2.pdf
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