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CME Article

PHOTOAGEING SKIN OF THE ELDERLY

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CASE HISTORY

Mr A is an 80 year old man who presents with several warty skin lesions on his forearms for past 6 months. There was no complaint of pain or itch except occasional irritation when he accidentally rubbed against them. He noticed that these skin lesions had gradually increased in size and number.

Mr A is generally well and healthy with a functional age of 65 years. He does not have any medical problem except for mild hypertension controlled well with atenolol 100mg daily. He used to work as a Chinese opera singer in his younger days and is now retired. Currently he spends his time providing service in church and help to make handicrafts to raise funds for the church and charitable old folk's homes.

Physical examination (Figures 1-3) reveals extensive solar damaged skin on sun exposed areas of both forearms. There are scattered areas of hyperpigmentation (solar lentigo), isolated patches of hypopigmentation (solar hypomelanosis), skin atrophy, presence of wrinkles, telangiectasia and superficial areas of ecchymosis. Several small irregular, crusty, warty type of lesions were seen in this background of solar damaged skin.

Mr A was referred to a dermatologist who performed a skin biopsy. Results came back as positive for squamous cell carcinoma (SCC). He was referred to a radiotherapist and received a full course of 30 fractions of curative doses of radiation. His warty skin lesions completely subsided but 2 years later similar lesions cropped up again at different sites on the forearms.

Figure 1: Side view of both forearms

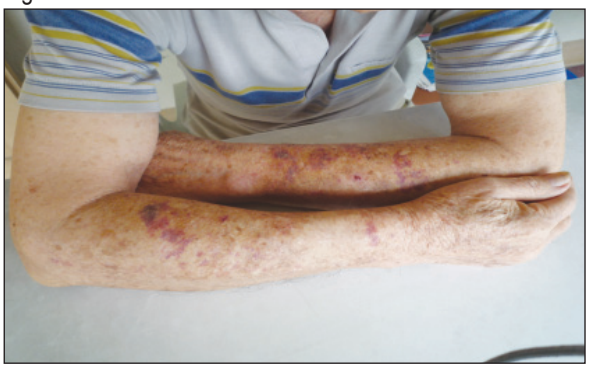


Figure 2: Dorsal view of both forearms

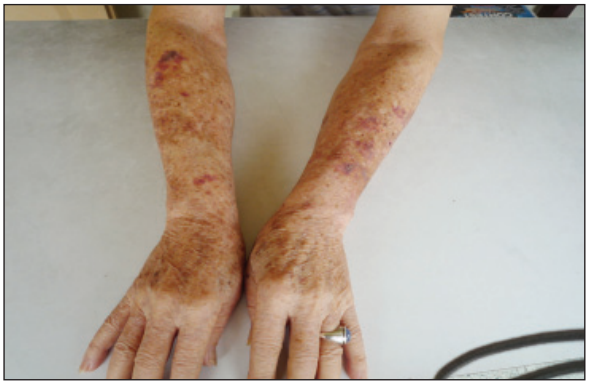
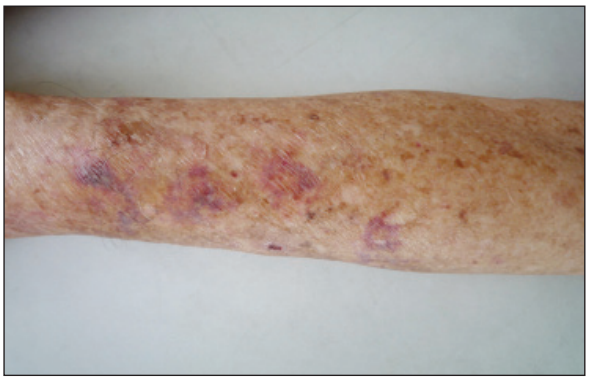


Figure 3: Closer dorsal view of right forearm



Questions

1. What is the clinical term for these warty lesions?
2. Describe the photoageing effects on skins of elderly people.
3. What are the differential diagnoses to consider?
4. List the various management options for such skin lesions.

Answers

1. Actinic or solar keratosis.
2. Photoageing effects on skin of elderly.
3. Differential diagnoses included basal cell carcinoma, squamous cell carcinoma, seborrhoeic keratosis, Bowen's disease, discoid lupus erythematosus, viral warts and simple lentigo (lentigo simplex).
4. No specific investigations are required unless there is suspicion that the lesion may be malignant when biopsy is needed.

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INTRODUCTION

Ageing is accelerated in those areas exposed to sunlight due to damaging effects of ultraviolet B (UVB with short wavelengths) to the epidermis, ultraviolet A (UVA with longer wavelengths) to the dermis and infrared radiation to the deeper dermis and subcutaneous tissue. This process is termed as photoageing.[1]

Actinic keratoses (AK), also known as solar keratoses, are abnormal skin cell development due to exposure to ultraviolet radiation. They appear as multiple flat or thickened, scaly or warty, skin coloured or reddened lesions and may sometimes develop into a cutaneous horn. More than 80% of AK occurs on areas of the skin with the most sun exposure such as the backs of the hands and forearms, on the neck and face, especially the nose, cheeks, upper lips, temples and foreheads.[2] UV radiation is thought to be the major aetiological factor, with age, immunosuppression and human papillomavirus being important contributing factors.

It is estimated that 60% of predisposed persons older than 40 years have at least one AK.[3] Prevalence of the disease among white people ranges from less than 10% in persons 20 to 29 years of age to 75% in those 80 to 89 years of age.[4]

The main concern is that solar keratoses can give rise to SCC of the skin. The risk of SCC occurring in a patient with more than 10 solar keratoses is about 10% to 15%.[2,3] Although most AK do not progress to cancer, and as many as 26% regress spontaneously,[5] up to 60% of cutaneous SCC arise from AK.[6] After progression to SCC has occurred, the risk of metastasis is estimated to be 0.5% to 3.3%.[7]

PHOTOAGEING EFFECTS ON SKIN OF ELDERLY

Ultraviolet exposure causes thickening and thinning of skin textures, changes in skin pigments, loss of elasticity and thinning of walls of blood vessels. Table 1 summarizes the clinical skin effects of UV radiation.

Table 1: Photoageing effects of sun exposure[1,2]

Manifestations	Description of skin lesions
Sunburn	Redness and tenderness of the skin after 12 to 24 hours of sun exposure.
Idiopathic guttate hypomelanosis	Hypopigmented macules.
Solar / senile lentigines	Dark hyperpigmented macules described as sun induced freckles.
Seborrhoeic keratoses	Warty lesions that appear like flattened raisins pressed onto the skin.
Actinic or solar keratoses	Small rough, scaly or warty areas of skin.
Actinic cheilitis (“farmer’s lip” or “sailor’s lip”)	Persistent dryness and cracking of the lips.
Nevus (mole)	Benign hyperpigmented skin lesion, made up of pigment producing cells (melanocytes).
Cutis rhomboidalis nuchae	“Leather-like” skin folds and creases on the neck.
Poikiloderma of Civatte	Specific pattern of colour changes, typically occurs on the neck in a V-shaped distribution on the upper chest that includes hypopigmentation, redness and a thin “chicken-skin” appearance.
Telangiectases	Linear streaks of dilated small blood vessel.
Cherry angiomas	Conglomerates of dilated blood vessels appearing as bright red raised “cherries”.
Bruises, ecchymoses	Weakened blood vessels easily breaks with resultant bleeding into the skin.
Fine lines and wrinkles	Loss of elasticity and thinning of epidermis makes the skin feels dry, easily blisters, tears and grazes.
Elastosis or heliosis	Yellow thickened bumps due to tangled masses of damaged elastin protein in the dermis.
Solar comedones	Blackheads and whiteheads due to plugging of hair follicles with dead skin and broken down cellular proteins.
Colloid milia	Shiny brown gel-filled bump. Similar cause as comedones.
Melanoma	Most deadly skin cancer that metastasizes more readily than the other skin cancers.
Basal cell carcinoma	Most common skin cancer that tends to spread locally but not metastasize.
Squamous cell carcinoma	Second most common skin cancer, and it can metastasize although not as commonly as melanoma.

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DIFFERENTIAL DIAGNOSES[8]

The following differential diagnoses should be considered:

- ***Basal cell carcinoma and squamous cell carcinoma (SCC).*** These are indurated nodular lesions reflecting more rapid growth and tend to be eroded or ulcerated on the surface.
- ***Seborrhoeic keratosis.*** These skin lesions appear as greasy, brown crusts with a sharply demarcated borders and a non-erythematous base. They give the impression of flattened raisins pressed on to the skin and may occur in areas that are not exposed to sun. They are not premalignant.
- ***Bowen's disease.*** This "in-situ squamous cell carcinoma" presents as multiple red slowly-growing crusted patches, most often on the lower legs. They tend to appear as a large plaque with a sharp well defined outline.
- ***Discoid lupus erythematosus.*** These skin lesions show abnormal pigmentation, dilated follicles and atrophy.
- Viral warts. Simple benign viral warts can appear anywhere on the body, not necessarily on sun exposed areas. Surrounding skins are normal in appearance.
- ***Simple lentigo (lentigo simplex).*** These are not related to sun exposure.

MANAGEMENT OPTIONS

No specific investigations are required unless there is suspicion that the lesion may be malignant when biopsy is needed. These signs includes:[8]

- Lesions with pronounced hyperkeratosis, increased erythema, or induration.
- Lesions that recur.
- Lesions which are unresponsive to treatment.
- Large confluent lesions.
- Lesions in transplant recipients.
- Lesions in patients with a history of SCC.

With a substantial proportion of solar keratoses remitting spontaneously, plus the low rate of malignant transformation and the low potential for metastasis to occur from SCC arising in a solar keratosis, treatment is not universally required on the basis of preventing progression into SCC.[9] However, others feel that prevention of SCC is the main reason for therapy.[10] Decision to treat is made on related clinical factors such as history of persistence, age of patient, discomfort, extent of coexisting photodamage, tolerance for morbidity of therapy and history of skin cancer.[11]

Treatment options are listed in Table 2.

Table 2: Treatment options[2,8,12]

Treatments	Effectiveness
No treatment or topical emollient	Reasonable for mild actinic keratoses.
Topical Treatments:	
1. Sun block	Applied twice daily for 7 months may protect against development of AKs.
2. 5-fluorouracil cream	Twice a day for 6 weeks is effective up to 12 months in clearance of the majority of AKs.
3. Diclofenac gel	Has moderate efficacy with low morbidity in mild AKs.
4. Imiquimod 5% cream	An immune response modifier in a cream base. It is applied to areas affected by AK two or three times weekly for four to sixteen weeks. It causes an inflammatory reaction, which is maximal at about three weeks and then gradually settles down with continued use. The results are variable, but generally excellent.
Other treatments:	
1. Cryosurgery	Effective for up to 75% of lesions in trials. It may be superior for thicker lesions, but may leave scars.
2. Photodynamic therapy	Effective in up to 91% of AKs in trials, with consistently good cosmetic result. It may be particularly good for superficial, numerous and confluent AKs or for AKs located at sites of poor healing such as the lower leg. More expensive than most other therapies.
3. Curettage or excisional surgery	Both are of value in determining the exact histological nature of proliferative or atypical AKs unresponsive to other therapies, where invasive squamous cell carcinoma is suspected. There are no studies of value as treatment.

PRACTICE TIPS FOR GENERAL PRACTITIONERS[8]

AKs are a biological marker of sun damage and hence patients with AKs are at a greater risk of skin cancer than those with no AKs. It is important to educate patients that AKs can be reduced or delayed by use of sunscreens but most important, by reducing sun exposure.

- Ensure that the patient is provided with information about AKs and sun damage.
- Patients should limit all sun exposure whether recreational or work related.
- It is particularly important to avoid sun in tropical areas.
- It is best to seek shade particularly when the sun is high between 11 am and 3 pm.
- For patients who are unable to avoid sun exposure, apply sunscreen (sun protection factor [SPF] 30 or more) or wear protective daily clothing (hats, long sleeves for example).
- Patients with AKs need to be educated on self-monitoring and the need to seek a medical opinion if they detect new lesions or changes in old lesions on their skin.
- Ensure that as general practitioners, we know how to evaluate and manage AKs when they develop.
- Patients with multiple and confluent AKs are likely to be at higher risk of non-melanoma skin cancer, particularly patients with organ transplants. Lesions in such patients of an actinic nature or unclear diagnosis should be promptly referred.

ACKNOWLEDGEMENT

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Women in Penang have poor knowledge on breast cancer risk factors

Abdul Hadi M, Hassali MA, Shafie AA, Awaisu A. Knowledge and perception of breast cancer among women of various ethnic groups in the state of Penang: A cross-sectional survey. *Med Princ Pract.* 2010;19(1):61-7.

This is a questionnaire survey conducted in Penang in 2008. The 22-item knowledge questions revealed a knowledge score of 59.1%. Low education, lower income, older age, and Indian ethnicity are factors that may be associated with low knowledge.