SHORT COMMUNICATION

The macula-ephelis miniature

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ABSTRACT

A cutaneous blemish known as an ephelis is a small, benign brown or tan blemish that occurs on sun-exposed skin. The onset of ephelis is influenced by the incriminated individual's genetic makeup and cutaneous subtype. Ephelis is generally spherical, although it has a localised region of hyperpigmentation that varies depending on the amount of sun exposure. Hyperpigmentation of basal keratinocytes and extension of rete ridges are seen in superimposed stratified squamous epithelium, while measurable melanocytes are unaffected. Café-au-lait macules, junctional nevus, solar lentigo, melano-acanthoma, melanosis, moles, sun spots, liver spots, and malignant epithelial neoplasms all require segregation. Although sun protection is suggested, the harmless ephelis does not require treatment.

Key Words: *Miniature; Ephelis; Cutaneous blemish; Genetic*

INTRODUCTION

An ephelis is a small, benign blemish that occurs on sun-exposed cutaneous surfaces and is light brown or tan in colour. The condition is frequently linked to pale skin and red hair. An ephelis can also be referred to as a freckle, and several lesions can be referred to as ephelides. There are a plethora of lesions that can develop on sun-exposed skin.

Ephelis appears as a distinct, genetic condition, and avoiding the lesion is difficult [1]. However, appropriate sun protection, especially during the summer, might help to reduce the deepening of lesions. Ephelis-infected cutaneous surfaces appear to be photosensitive. As a result, proper skin protection and prevention of actinic-induced cutaneous damage are required. Individuals with fair skin who have ephelis or cutaneous burns are at a higher risk of developing cutaneous cancer. As a result, it is suggested that sun exposure be avoided. Ephelis can be correctly identified with a thorough clinical examination. For definitive disease evaluation, however, accurate tissue collection of a pigmented lesion is ideal and required [1,2]. Disease Characteristics: Ephelis appears to be dependent on the incriminated individual's genetic makeup and cutaneous subtype. Individuals who are genetically predisposed to lesions may develop them often, especially when exposed to sunshine. Ephelis is very frequent among Celtic children with pale complexion. There are no congenital lesions. Fitzpatrick cutaneous categorization with phototype1 distinguishes red hair and countless ephelides in fair-skinned Caucasians with no tanning. Ephelis can occur as a distinctive, hereditary feature on cutaneous surfaces. Indicated individuals have one or more copies of the variant Melanocortin 1 Receptor (MC1R) gene, a genetic transcript that causes red hair. Ephelis in non-Caucasians is made up of a variety of Melanocortin 1 Receptor (MC1R) gene variants. Genetic variants in the MC1R gene are linked to variations in melanin synthesis within an individual. The kind of melanin generated by the body is influenced by genetic predisposition. Pheomelanin and eumelanin are often found in sun-exposed cutaneous surfaces, with eumelanin protecting against UV radiation and pheo-melanin appearing to be non-contributory. Melanocytes are thought to produce an excess of melanin pigment in the epidermis, which accumulates as melanosomes and is dispersed among circumscribing keratinocytes [3].

Keratinocytes build excessive melanin as a defence against actinic caused cellular harm, resulting in the formation of ephelis. The incidence of new ephelis lesions may be reduced if the skin is protected from the sun. Existing lesions, on the other hand, may not be changed. Ephelis appears to be substantially amplified after exposure to UV radiation caused by sunshine. In addition, the lesions

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are more visible in the summer and diminish in the winter. Lesions on a large cutaneous surface may appear and reappear or darken over the summer season. Ephelis can be reduced in the winter or by replacing denatured keratinocytes with nascent cells. Ephelis usually appears in early childhood, and lesions tend to go away in adults [4-6].

Ephelis can be found in a variety of ethnic groups with dark brown or black hair. The majority of people with dark hair, dark irises, and dark skin generate eumelanin and have a lower proportional emergence of ephelis. Blondes or fair-skinned people with red or light brown hair and light eyes have more pheomelanin and have more ephelis. Ephelis most commonly affects sun-exposed cutaneous areas such as the face, neck, thoracic region, upper limbs, dorsum of trunk, nose, and cheeks. Furthermore, the lesion may appear as a single melanotic macule on the lower lip. Ephelis is most commonly found in the oral cavity of females and can occur in association with Peutz-Jeghers syndrome. Ephelis is linked to an increased risk of malignant transformation or a variety of cutaneous carcinomas. Clinical Elucidation: Ephelis can show as red, brown, or tan lesions, which are caused by subcutaneous melanin amalgamation. Ephelis can take the form of flattened, light brown to dark brown, insufficiently delimited macules that can clump together to form bigger patches. Ephelis is characterised by a localised region of hyperpigmentation that varies in intensity depending on the amount of sun exposure [6]. Ephelis has a spherical shape but may take on a variety of shapes, ranging in size from 3 millimetres to 10 millimetres. Actinic caused skin damage can result in larger lesions known as lentigines, age-related changes, or malignant transformation of the cutis and concomitant adnexa in fair skinned people with ephelis. With the onset of alterations such as pruritus, haemorrhage, enlargement, asymmetry, or changed external appearance with varied contours, ephelis, age spots, or moles require further investigation. Parameters including lesion perimeter, colour, diameter, and evolution must also be evaluated since they might suggest malignant transformation or prognostic consequences. Elucidation of Histology On morphological examination, enhanced melanin pigment is found inside the normal cutis, which is linked to a lack of measurable melanocyte enhancement. Furthermore, although melanocyte-induced melanin synthesis is focally elevated, measurable cutaneous melanocytes look normal. The stratified squamous epithelium has a typical architecture when seen under a microscope. Elongation of rete ridges is linked to hyperpigmentation of basal keratinocytes.

Melanocytes that can be measured are unaffected. In most cases, ephelis is not associated with cutaneous malignant metamorphosis, however it is conceivable.

Differential diagnosis

Ephelis must be separated from situations such as:

- Café-au-lait macules, which show basal hyperpigmentation of the epidermal layer, lack of deep buried pigmentation, increased pigment inside melanocytes, and a high frequency of melanophages. Increased pigmentation is absent in the adnexal epithelium.
- Junctional nevus has a junctional component made up of uniformly dispersed nests of nevus cells on the inferior segment of the rete ridges. A lentiginous pattern of melanocyte dispersion is occasionally seen. However, there is no evidence of pagetoid cellular dispersion or cellular or nuclear atypicality with age, lesions become more asymmetrical.
- Solar lentigo is characterised by elongation of rete ridges and increased, uneven pigmentation along the rete ridge borders. Solar elastosis, telangiectasia, and a varied, dermal inflammatory infiltration of chronic inflammatory cells are some of the characteristics that might be seen.
- Melanocytes and keratinocytes coexist in Melano-acanthoma. An acanthotic superficial epidermal layer of small cuboidal keratinocytes interspersed with many brightly pigmented, dendritic melanocytes endowed with copious melanin granules is superimposed over the lesions. Melanin transmission into neighbouring keratinocytes is limited.

S100 protein, Human Melanoma Black (HMB45) antigen, and Melan A are immune reactive indicators of melanocytic development in dendritic melanocytes. The overlying epithelium frequently develops compact eosinophilic parakeratosis. Atypia cytologically is frequently absent. Melanosis is a pigmented patch disorder that affects the hard palate and gingiva. Furthermore, ephelis might look like moles, sun spots, age spots, or liver spots, as well as malignant neoplasms of the stratified squamous epithelium or cutaneous adnexa, and must be distinguished. Moles might be present at birth or develop during infancy or adolescence. Moles are often flattened, raised, and dark-tinged. Sun exposure is the primary cause of ephelis and age spots. In contrast to ephelis, age spots are often larger and develop in older people with varying skin colour and tones. The presence of morphological changes in ephelis necessitates a thorough examination.

THERAPEUTIC OPTIONS

Typically, ephelis presents as a benign lesion that does not necessitate treatment. Sun protection for the incriminated zones is, nevertheless, required and suggested. The use of a water-resistant sunscreen with a sun protection factor of 30 that protects against Ultraviolet A (UVA) and Ultraviolet B (UVB) radiation may be able to prevent cutaneous actinic caused damage. Traditional attire is also available. Long sleeves, hats, sunglasses, inside habitation between 10 a.m. and 2 p.m., reapplication of sunscreen every 2 hours after sweating or outdoor activity such as swimming, and ban of tanning beds may all be advantageous [1,2,7]. To conceal the lesions, a variety of cosmetic manoeuvres might be used. Cosmetic issues, on the other hand, may require therapeutic intervention with particular medications. Trichloroacetic Acid (TCA) and phenol can be used in a variety of topical creams and spot or chemical skin peels, which appear to be effective in eradicating lesions. Alpha hydroxy acids, azelaic acid, and other chemical substances are also used. Cysteine, retinoids, and vitamin C have all been shown to be helpful. Lemon juice, which contains vitamin C, honey, which has antioxidants, and aloe vera, which contains salicylic acid and aloin, are examples of home treatments that may be used to reduce pigmentation. To avoid allergic reactions, a patch test for home-based therapies is advised. It is possible to use laser treatment. Although temporary, pigment reduction laser treatment can be used to reduce lesion pigmentation [8]. However, the aforementioned treatment techniques may have side effects such as cutaneous scarring.

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