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Dermoscopic Findings of Photo-ageing in Egyptian Patients

Radwa Magdy, Ahmed Sadek.

Cairo Hospital for Dermatology & Venereology (AlHaud AlMarsoud)

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Corresponding author: Radwa Magdy

E-mail: drradwamagdy1@gmail.com

Abstract

Dermoscopy is a noninvasive optical surface microscopy useful for diagnosis of photoageing. Dermoscopic findings of photoageing include telangiectasia, vascular changes, pigmentation changes, seborrheic keratosis, actinic keratosis, periorbital comedones and cysts and superficial-deep- criss-cross wrinkles creating a dermoscopic photoageing scale (DPAS). Thirty two patients were examined and DPAS was recorded. It was proved that dermoscopy is a good objective analytical method for cutaneous photoageing.

Introduction

Dermoscopy is a noninvasive optical surface microscopy useful for the diagnosis of photoageing [1].

Skin ageing is a complex process that is composed of chronologic (intrinsic) aging associated with genetics and (extrinsic) aging associated with ultraviolet (UV) exposure, alcohol, smoking, malnutrition and adverse environmental conditions [2].

The first trial to classify skin photoageing was carried on by Glogau in 1996 and classified the skin into four categories as shown in **table1** [3]. The aim of such classification was to provide objective basis for the choice of antiageing skin care regimens and procedures.

Group	Classification	Typical Age	Description	Skin Characteristics
I	Mild	28-35	No wrinkles	Early Photoageing: mild pigment changes, no keratosis, minimal wrinkles, minimal or no makeup
II	Moderate	35-50	Wrinkles in motion	Early to Moderate Photoageing: Early brown spots visible, keratosis palpable but not visible, parallel smile lines begin to appear, wears some foundation
III	Advanced	50-65	Wrinkles at rest	Advanced Photoageing: Obvious discolorations, visible capillaries (telangiectasias), visible keratosis, wears heavier foundation always
IV	Severe.	60-75	Only wrinkles	Severe Photoageing: Yellow-gray skin color, prior skin malignancies, wrinkles throughout - no normal skin, cannot wear makeup because it cakes and cracks

Table (1): Glogau Classification of photoageing [3]

Recent developments in the field of skin surface microscopy and the availability of various dermoscopy techniques and options helped the development of DPAS which is an objective method for analysis of facial skin photoageing. The DPAS is calculated by counting the specific dermoscopic findings (**table 2**) in four anatomical facial regions namely, the forehead, the chin and both cheeks creating a total score of 44 [1].

DPAS evaluation criteria	Clinical description	Dermoscopic description
Yellowish discoloration (solar elastosis) and yellow papules.	Abnormal, yellowish, nonfunctional elastotic material accumulation in the upper dermis, coarsening of the skin.	More pronounced yellow pigmentation and yellow dots seen with dermoscopy than with naked eye.
White linear areas of scarring (skin atrophy).	Irregular healing of easily torn, fragile skin.	White, clear, irregular extensions
Ephelides/lentigo	Well-circumscribed, brown macules and patches.	Light-brown, intertwined, tight, pigment network
Hypopigmented-hyperpigmented macules	Persistent pigmentation in the form of mottled hypo-hyperpigmentation.	Irregular pigmentation in the form of hypopigmented macules between hyperpigmented patches.
Telangiectases	Ectatic vessels with atrophic walls.	Red lines showing different configurations.
Actinic keratosis	Cutaneous proliferation of keratinocytes with atypical cytology.	Perifollicular, red psödonetwork, prominent follicular openings surrounded by a white halo, pigmented ostia, brown-gray dots and globules.
Senile comedones	Periorbital, localized, non-inflamed, open and closed comedones.	Follicle openings with brown-black keratin plug in the middle, on periorbital region.
Deep wrinkles	Wrinkles not improved by stretching.	More obvious deep wrinkles seen with dermoscopy than naked eye.
Superficial wrinkles	Fine wrinkles improved by stretching.	More pronounced superficial wrinkles seen with dermoscopy than naked eye.
Criss-cross wrinkles	Deep, crossing lines.	More obvious criss-cross wrinkles seen with dermoscopy than naked eye.

Table (2): Dermoscopic photoaging scale (DPAS) evaluation criteria (1).

Patients and Methods

Thirty two individuals were evaluated for photoageing by clinical, dermoscopic examination and digital imaging of their facial sun exposed areas as forehead, right cheek, left cheek and chin to detect the prevalence of different dermoscopic findings in their lesions using the polarized contact dermlite II HR dermoscope (3Gen, Inc., San Juan Capistrano, California, USA.) and 10X optical zoom by Samsung S4 Zoom camera (Samsung Electronics Co., Ltd., Yeongtong-Gu Suwon-Shi, South Korea) and scored by the help of DPAS.

Results

Thirty two individuals were examined, 7 individuals were grade 2 Glogau, 19 individuals were grade 3 Glogau and 6 patients were grade 4 Glogau.

The grade 2 Glogau individuals were examined and scored a mean DPAS of 10.28, grade 3 Glogau individuals scored mean DPAS of 12 while the grade 4 Glogau individuals scored a mean DPAS of 18.33.

Regarding DPAS of facial anatomic regions, the cheeks scored the highest (mean = 4.15 each), followed by the forehead scoring 2.8 as its mean score, while the chin scored lowest with 1.68 as its mean score.

A whole of 128 areas were examined and the most frequent sign seen was the solar lentigens (79 areas), followed by the hypo/hyper pigmentation seen in 76 ones, then the telangiectasias in 56 and the least was the actinic keratosis seen only in 2 areas. Senile comedones, deep and criss-cross wrinkles were not seen in Glogau II individuals and the solar lentigens were the most prevalent finding in Glogau II & III individuals, however Yellow discoloration was the most common in Glogau IV individuals.

The incidence of telangiectasias and deep wrinkles was much higher in skin phototype III than IV individuals, while was almost the same for pigmentary disorders, also actinic keratosis were only seen in III individuals.



Fig 1: 55-yr-old female, Glogau 3, DPAS 14, (10X, contact, polarized).

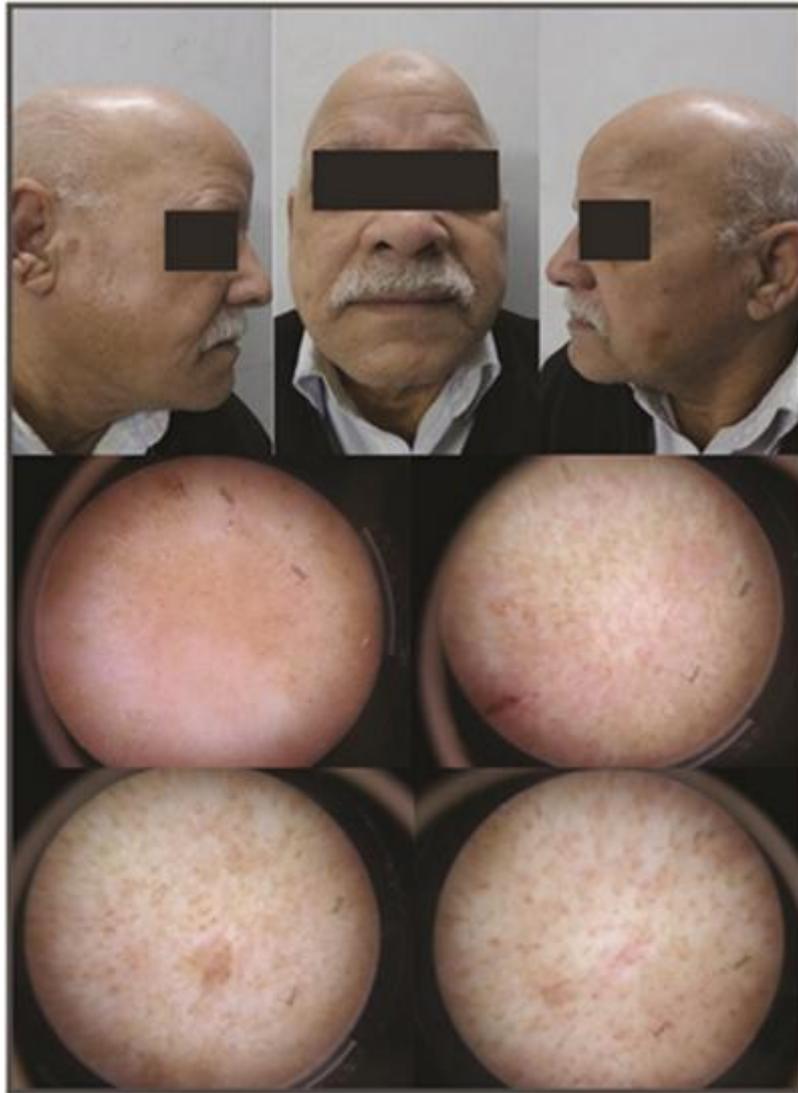


Fig 2 :64-year-old male, Glogau 3, DPAS 16 (10X, contact, polarized)

Discussion

Facial skin photoageing is a major research area of concern mainly in the fair skinned populations; the first trial for classification was on basis of clinical assessment in 1996 by Glogau [3]. It was not before 2013, thanks to the development of dermoscopy that Isik and colleagues [1] examined a total of 441 participants between the ages of 20-88 (mean 48.4 ± 17.7). The validity of their proposed DPAS was assessed by the evaluation of both the axillar and the gluteal regions, which were not sun exposed and photoaged. The scale was found to be highly reliable. Skin aging of patients from every decade was compared clinically with Glogou photoageing scale and Monheit-Fulton photoageing index and significant correlation was calculated as 0.773 and 0.774, respectively. An increase in the photoageing scores from young people toward elders according to their ages was observed and the same linear difference between their mean values was detected. In their study the most prevalent finding was telangiectasia [1]. In our study, Glogau 4 individuals achieved the highest prevalence DPAS score which was higher than Glogau 2 and 3. In addition to that the cheeks scored higher mean DPAS than forehead and chin denoting that the photoageing in

this facial anatomical region was more severe than the other sites, which may be explained by high prevalence of veiled females (partially covered) among Egyptian females. The most prevalent finding in our study was solar lentigens and this difference than the study performed by Isik and colleagues [1] may be attributed to the different prevalent skin phototypes in the two countries.

Conclusion

Dermoscopic photoageing scale is reliable in assessing photoaging in Egyptian patients of skin phototype III & IV.

References

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