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Research Article

Warts under the Dermoscope

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Abstract

Although dermoscopy was primarily designed to facilitate in vivo diagnosis of skin tumors, recent advances indicate that it is also useful in the diagnosis of common skin infections and infestations. As such, dermoscopy links the research fields of dermatology and entomology to a field of "entomodermoscopy". In this article, we give an overview of current applications of dermoscopy in the diagnosis of warts.

Introduction

Warts are common benign epidermal proliferations caused by various strains of human papillomavirus [1]. Although their diagnosis is usually based on typical clinical features, clinicians may sometimes be confronted with features that overlap with other lesions. Dermoscopic examination of these lesions may help to distinguish them [2]. Our aim was to describe dermoscopic aspects of the different types of warts: vulgaris, plane, palmoplantar and genital.

Materials and methods

We conducted a prospective study including 250 warts diagnosed between January 2016 and May 2018 in the dermatology department of Hassan II University Hospital in Fez. Dermoscopy (DermLite DL3N) was performed in all patients, gathering the various dermoscopic signs. We classified them according to the clinical pattern in vulgaris, flat, palmo-plantar and genital, in order to make a correlation between the dermoscopic signs and the clinical subtype. The data was saved on Excel and analyzed on the SPSS Statistics version 20 software.

Results

We had 150 patients, the average age was 32.8 years (10-65) and the sex ratio (M/F) was 2.21. There were 99 Verruca Vulgaris (VV), 66 Palmoplantar Warts (PPW), 49 Plane Warts (PW), 34 Genital Warts (GW) and two histologically confirmed Corneiform Warts (CW).

The dermoscopic aspects found in VV were the presence of multiple dense papillae (100%), centered by red loops surrounded by whitish halos (64.4%) and irregularly distributed blackheads giving a so-called frogspawn appearance (64.4%) (Figures 1 and 2). In PPWs, a well-defined yellowish papilliform surface with interrupted plantar lines and multiple punctate haemorrhages (100%) was observed (Figures 3 and 4). Whereas for PW, a light brown background (100%) and red dots with regular distribution (86%) (Figures 5A and 5B). GWs were characterized by glomerular vessels (65%), multiple irregular projections with tapered ends from a common base (45%), a mosaic appearance (40%), hairpin vessels (30%), a finger aspect (30%), and a button aspect (25%) (Figures 6 and 7). Linear and irregular hairpin vessels surrounded by a whitish halo and punctate haemorrhages were objectified in both CWs (Figure 8).

Figure 1: Multiple papillae each centered by a red loop surrounded by a whitish halo, punctate haemorrhages.

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Figure 2: Frogspawn appearance.

Figure 3: Well-defined yellowish papilliform surface with interrupted palmar lines, multiple punctate haemorrhages.

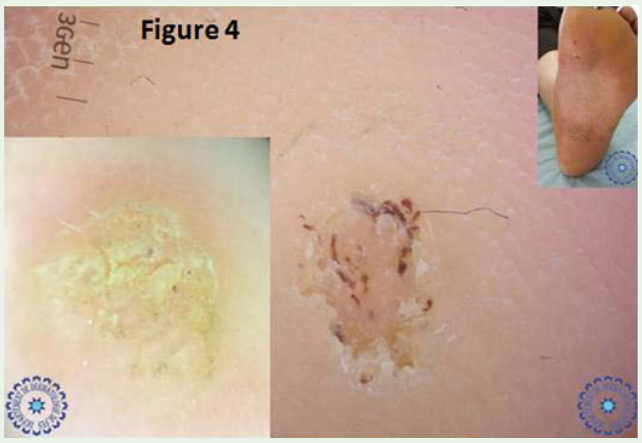

Figure 4: Well-defined yellowish papilliform surface with interrupted palmar lines, multiple punctate haemorrhages.

Discussion

Dermoscopy is a non-invasive technique that has been used for the diagnosis of pigmented and non-pigmented skin tumors because it could improve the diagnostic accuracy in comparison to the naked eye examination [3]. The dermoscope, a modified magnifying lens, makes the stratum corneum translucent and allows the visualization

Figure 5: Light brown background, red dots with regular distribution.

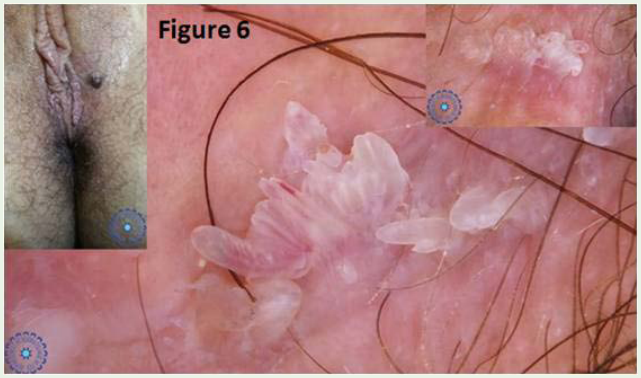

Figure 6: Multiple irregular projections with tapered ends from a common base, hairpin and glomerular vessels.

Figure 7: Fingers and buttons pattern.

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Figure 8: Linear and irregular hairpin vessels surrounded by a whitish halo, punctate haemorrhages.

of sub-macroscopic structures located in the epidermis and upper dermis [4]. The new devices use polarized light and, unlike traditional dermoscopy, no longer require direct physical contact between the optical lens and the skin [5]. Thus, they can be used without risk of transinfection, which is very important in its use for skin infections and infestations, even if this risk was considered low in traditional dermoscopy [6-8]. This could explain why dermoscopy, besides its classic application for the diagnosis of cutaneous tumors, is recently used for the in vivo diagnosis of infectious skin diseases [9]. Dermoscopy has been demonstrated to be a valuable tool in human papillomavirus infections both for diagnosis and treatment monitoring [10-12]. According to their anatomic location, warts are commonly classified as verruca vulgaris, palmoplantar warts, plane warts and anogenital warts. Although their diagnosis is usually based on typical clinical features, clinicians may sometimes be faced with features that overlap with other skin lesions or that make it difficult to accurately diagnose based on clinical criteria only. Verruca vulgaris dermoscopically display multiple densely packed papillae, each containing a central red dot or loop, which is surrounded by a whitish halo. Hemorrhages represent a possible additional feature, appearing as irregularly distributed, small, red to black, tiny dots or streaks [10,13,14]. Dermoscopy of palmoplantar warts typically reveals multiple prominent hemorrhages within a well-defined, yellowish papilliform surface in which skin lines are interrupted. This pattern is particularly useful for their discrimination from callus, which lacks blood spots, but instead displays central reddish to bluish structureless pigmentation [11,12,15]. Dermoscopy of plane warts typically reveals regularly distributed, tiny red dots on a light brown to yellow background. These findings allow differentiation from acne or folliculitis, which display a central white to yellow pore corresponding with the comedo or pus within the hair follicle opening [10]. The dermoscopic pattern of genital warts was initially described as a mosaic pattern consisting of a white reticular network surrounding central small islands of unaffected mucosal skin [10]. More recently, a study including a large number of patients identified 4 different dermoscopic patterns that may also coexist in a single wart: unspecific, fingerlike, mosaic, and knoblike patterns [16]. Glomerular, hairpin/dotted, and glomerular/dotted vessel morphologies were detected. The investigators suggested a time-related alteration of dermoscopic characteristics, with early and clinically flat lesions showing a mosaic pattern dermoscopically, whereas more advanced and raised or papillomatous warts frequently had a fingerlike or knoblike pattern. In summary, dermoscopy might help to differentiate early genital warts from other clinically similar diseases, such as Vestibular Papillae (VP) and Pearly Penile Papules (PPP) [16-18]. VP dermoscopically display multiple transparent and cylindrical projections, containing irregular vascular structures, whose bases, however, remain separate [17]. PPP appears as whitish pink cobblestone or grape-like structures in a few rows with central dotted or comma-like vessels in each papule [18].

Conclusion

The diagnosis of viral warts is usually made clinically, but dermoscopy can be of aid when the diagnosis is uncertain or in differentiation from e.g. seborrheic keratoses, dermal nevi or comedones in acne. Dermoscopy can also be of great help in genital lesions to differentiate genital warts from physiological situations and thus prevent excessive and inappropriate treatment.

Ethics approval and consent to participate

The study has been approved by the ethics committee of faculty of medicine of fez.

An informed consent to participate in the study was obtained from the patient.

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