

THE VALUE OF DIGITAL DERMATOSCOPY IN THE DIAGNOSIS AND TREATMENT OF PRECANCEROUS SKIN LESIONS

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ABSTRACT

We propose that through the presented study, to strengthen the value of the pre-excision digital dermatoscopy by emphasizing its accuracy compared to the histopathological examination in the diagnosis and treatment of precancerous lesions of the skin for which the histopathological examination of certainty can only be performed after post-excision.

Keywords: dermatoscopy, precancerous skin lesion, histopatological.

Introduction

As a non-invasive mainly used technique, digital dermatoscopy had considerably improved the accuracy of skin lesion diagnosis; this procedure enables the in vivo observation of the skin with the visualization of the morphological structures in the dermis and papillary dermis, which are not routinely discernible to the unaided eye. Dermatoscopy is a helpful diagnostic tool for the clinical examination of non-melanoma skin cancer and had a notable impact on early diagnosis of melanoma (1,2).

To rule out or confirm a given dermatoscopic diagnosis, it involves the recognition of specific

structures, or their absence; this task can be accomplished using a 'bottom-up' or 'top-down' strategy (3).

Essentially, dermatoscopy is a new procedure of gross, histopathological examination of the skin performed by clinicians, since the structures and colors observed by dermatoscopy have specific correlations on histopathological examination, clinicians must learn the definition and histopathological correlation of dermatoscopic structures and colors (4).

The digital dermatoscope can see the entire width of the lesion horizontally, the structure and the colors observed are generally limited in depth to the papillary dermis and do not allow

the assessment of the lesion at a cellular level, however dermatoscopy has the capability to sequentially monitor the lesions, which in turn they can provide information about the lesion biology and the growth dynamics (5,6).

History

The surface microscopy of the skin began in 1663 when Kolhaus investigated the vessels of the nail matrix with a microscope (7,8). The application of immersion oil in light microscopy was described in 1878 by Abbe, and his principle was transferred by the German dermatologist Unna in 1893 to skin surface microscopy.

Johann Saphier published in 1920 a series of communications using a new diagnostic tool similar to a binocular microscope with a built-in light source and introduced for the first time the term “dermatoscopy” (7,9).

Skin surface microscopy was further developed in the United States by Goldman in the 1950 which published a series of articles on new devices on what he called “Dermoscopy” (7,10).

The advantage of surface microscopy was clearly established for the first time in 1971, by Rona MacKie for improving the differential diagnosis of benign from malignant lesions and the preoperative diagnosis of pigmented skin lesions (7,11).

In 1989 in Hamburg was held the first Conference on Skin Microscopy, and in 2001 in Rome took place the Netmeeting of Dermatoscopy which was the first international meeting of this kind (7,12,13).

Dermatoscopy is today a routine technique, and the digital video dermatoscopy is successfully used in teledermoscopy, through which we can send images from a cabinet to specialized centers (second opinion).

Material and method

In order to confirm the clinical value of digital dermatoscopy in the diagnosis and treatment of precancerous lesions of the skin, we conducted a prospective study on a group of patients with precancerous skin tumors (where the diagnosis was based on clinical signs) to

which we checked the concordances between the diagnosis of digital dermatoscopy and histopathological diagnosis.

The study was spread over a period of 3 years, respectively 01.01.2014-31.12.2016, being represented in cases of patients diagnosed in ambulatory with precancerous conditions and which have benefited of digital dermatoscopy, one day surgical treatment, histopathological examination in paraffin and a small part of them of immunohistochemical examination.

For the establishment of the study group, we have set criteria for inclusion / exclusion from the start in order to be able to obtain scientifically and technically conclusive results.

It should be noted that inclusion in the group was not restrictive, accepting patients of different sexes and ages with various associated diseases, and exclusion criteria did not include noncompliant patients (who did not show post-operative checks in accordance with the indications).

Postoperative controls were performed every 3 months clinically and biannually from dermatoscopic point of view for at least 1 year after surgery.

Results

The group of patients included a total of 29 cases, of both sexes, aged between 20-85 years, from rural and urban areas, with primary, secondary and / or higher education studies.

Also, the classification of the lesions of the patients included in the study regarding the type of precancerous lesions is diverse such as actinic keratosis, lentigo maligna, Recklinghausen neurofibromatosis, Bowen disease.

Surgical excision was performed according to current international standards at a distance of 2-3 mm in the surface in healthy tissue and deeply into fat and / or fascial planes. Closure of the post-excision defect was performed by direct suturing and / or free skin grafting (split-thickness or full- thickness).

The statistical survey of the group showed the following:

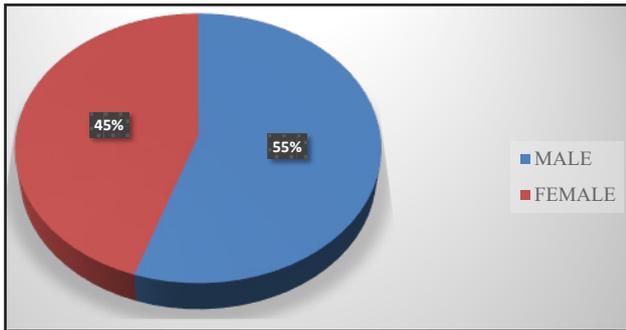


Figure 1. Gender distribution of patients with precancerous lesions

The sex distribution of patients with precancerous lesions included in our study reveals a majority of 55% for male gender and 45% for female gender.

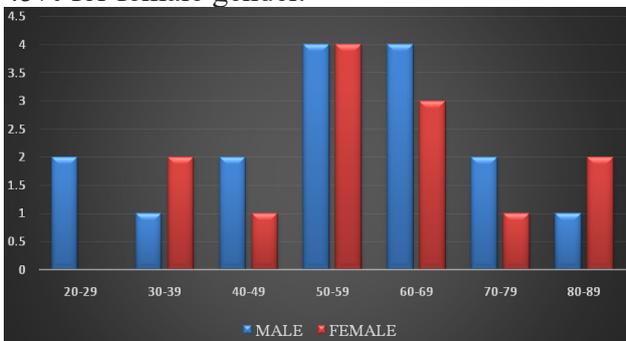


Figure 2. The repartition of patients with precancerous lesions over decades of age

The distribution of cases with precancerous skin lesions included in the study over decades of age revealed a higher incidence of cases in the 6th decade to both sexes, followed by the 7th decade with the mention that in the 4th and 9th decade the majority of cases were female cases, and for the 5th, 7th and 8th decade there were predominant cases of males.

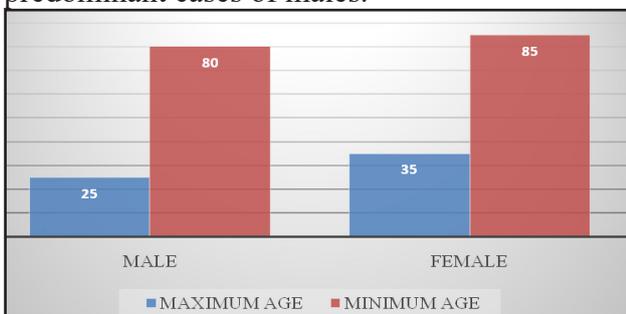


Figure 3. Distribution of patients with precancerous lesions by age group depending on gender

Presentation to a specialist and therapeutic indication is relatively similar in both sexes by age group.

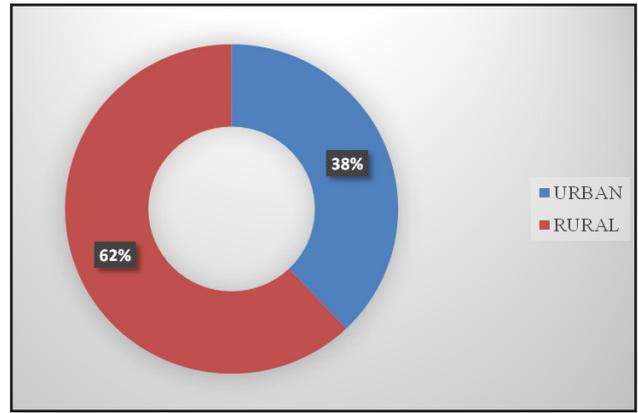


Figure 4. Distribution of patients with precancerous lesions according to their home environment

It can be seen a net predominance of those from the rural area, representing 62% of the total studied cases.

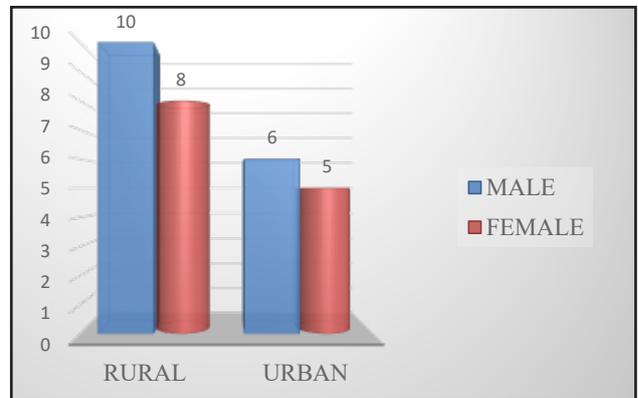


Figure 5. Distribution of patients with precancerous lesions by area of origin and gender

The patients with precancerous lesions included in the study, according to area of origin related on the gender, shows that men are more affected in both rural and urban area.

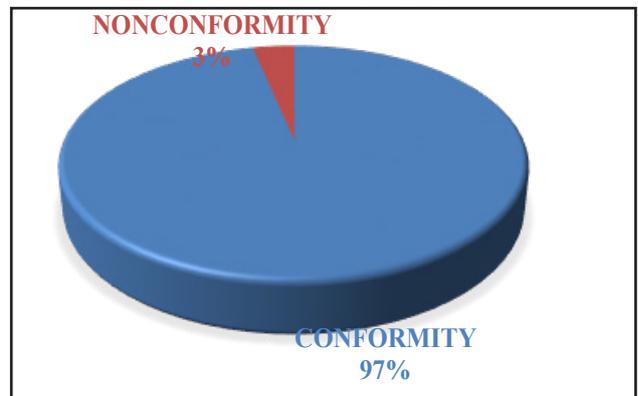


Figure 6. Conformity / Nonconformity - Dermatoscopic Exam → Histopathological Exam

We note that the overlap between dermatoscopic and histopathological results was

97%;The result confirms the value of digital dermatoscopy proper diagnosis of precancerous skin lesions.

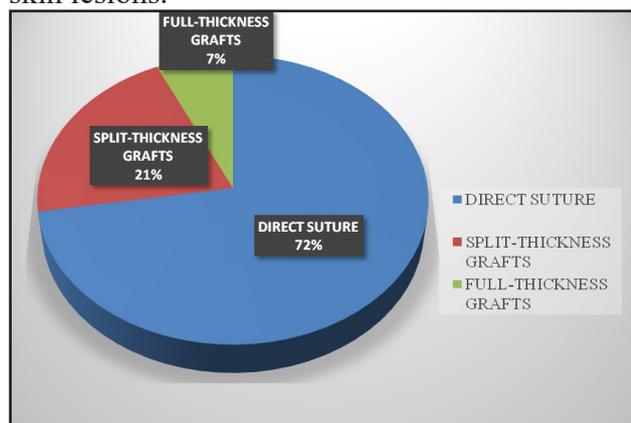


Figure 7. Distribution methods of closing the post-excision defect

Regarding the method of closing the post-excision defect, the most used was the direct suturing technique with 72% , followed by split-thickness grafts with 21% respectively, by full-thickness grafts with 7%.

Illustrative clinical cases.

CASE I.

Before surgery-19-09-2015



Clinical appearance Dermatoscopic appearance

Dermatoscopic diagnosis: Lentigo maligna (white-blue wave, asymmetric follicular pigmentation, marginal rhomboid structures).

Differential diagnosis with:

1. Superficial malignant melanoma on lentigo maligna;
2. Solar Lentigo.

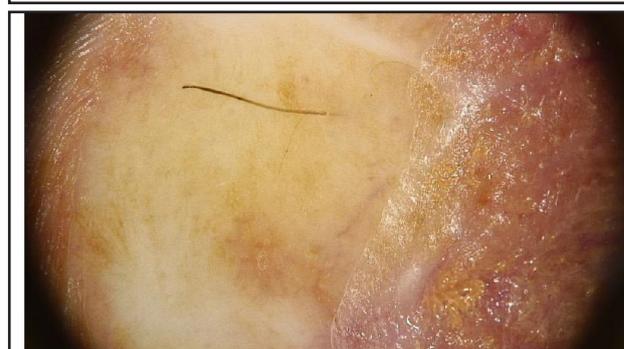
Recommendations: Surgical excision with side edges 0.5 cm

The result of the histopathological examination was in conformity with the examination of digital dermatoscopy (superficial

melanoma on lentigo maligna).

The post-excision defect was covered by auto-transplantation of full-thickness grafts.

Postoperatively (2 years) – 03-07-2017



Clinical appearance Dermatoscopic appearance
Status after surgery.No elements of local recurrence.

CASE II.

Before surgery-04-08-2016



Clinical appearance Dermatoscopic appearance

Dermatoscopic diagnosis: In observation pigmentary actinic keratosis (rosette sign + diffuse pigmentation).

Differential diagnosis with: Lentigo maligna;

Recommendations: For preventive considerations, surgical excision with side edges 3-4 mm from the apparent margin and in depth to the cartilaginous plane, with the direct closure of the post-excisional defect.

The result of the histopathological examination was in conformity with the digital dermatoscopy exam.

Postoperatively (1 year) –12-10-2017



Clinical appearance Dermatoscopic appearance

Status after surgery.No elements of local recurrence.

Discussion

The data obtained in this study come to confirm the value of digital dermatoscopy in the diagnosis, treatment and postoperative follow-up of precancerous skin lesions .

From the literature that we have studied, results conclusions and percentages that practically overlap with ours, although

the experience of the clinic in which the study was conducted is modest in terms of the implementation of digital dermatoscopy.

The value of digital dermatoscopy is particularly useful in preoperative diagnosis, as it removes the “surprises” that can occur after a surgical excision performed only by clinical criteria (the lateral and deep edges) and which can often require re-excitement (completing the excision), thus exposing the patient to undesirable risks.

Conclusions

Dermatoscopy is a valuable non-invasive technique both in the diagnosis, treatment, and in the proper tracking of precancerous skin lesions.

The value of digital dermatoscopy is underlined by the 97% compliance of the in vivo diagnosis by dermatoscopy with histopathological diagnosis.

Digital dermatoscopy has become a current examination today and we appreciate that in the future it should become mandatory (according to a diagnosis / treatment protocol) in the treatment of pre-cancerous lesions.

In addition to surgical treatment, we consider that non-surgical treatments (cryotherapy, radiotherapy, laser therapy, photodynamic therapy, topical drugs, chemotherapy) in precancerous tumors of the skin due to the in vivo histopathological diagnosis by digital dermatoscopy will be required in the future.

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