Dermatoscopy – an Investigative Method and Valuable Tool

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SUMMARY
Introduction: dermatoscopy is a non-invasive technique which allows us to explore and evaluate the structures of the epidermis, the dermo-epidermal junction and the papillary dermal layer in vivo. Cognition of the specific diagnostic patterns lead to a right clue and proper diagnosis suggestion. Dermatoscopy depends on the timely correct recognizing of dermatoscopic findings and features and is therefore terminated and limited by time input and by experience of a physician. Dermatoscopy gained a great role in general dermatology with its importance in early diagnostics of a malignant melanoma and has become a valuable tool for the diagnosis of a various infectious and inflammatory diseases, nail pigmentation, hair abnormalities and scalp disorders including ectoparasitic infestations, cutaneous/mucosal infections, psoriasis. Patients and methods: investigations are provided by dermatoscopy equipment – Dermoscope MoleMax II. Our study included 791 patients (490 women and 301 men), in which we recorded a total of 1670 lesions in the period from May 9, to May 13, 2011. Results: from the total number of lesions analyzed there were 944 melanocytic and 726 nonmelanocytic lesions. Within melanocytic lesions, histopathology confirmed 9 malignant melanomas. From nonmelanocytic lesions present were: seborrheic keratosis 307, actinic keratoses (precancerosis) 118, hemangiomas 77 and bacocelular skin cancer BCC 68. Discussion: dermatoscopy is a method of epiluminescence microscopy that in the analysis of tumor skin changes has completely replaced the standard magnifying glass. Credibility of dermatoscopy is going from 70-90% and the dermatoscopy became an indispensable diagnostic tool in the analysis of tumor changes on the skin. Conclusion: the dermatoscopy is valuable tool in diagnostics of variety of skin disorders in the field of general dermatology.

Key words: dermatoscopy, melanoma detection, lesions, valuable tool, investigative method.

1. INTRODUCTION
Dermatoscopy involves an evaluation of the skin surface and significantly improves the sensitivity for melanoma detection compared to naked-eye examination (1, 2, 3, 4). The epidermis structures, the dermo-epidermal junction and the papillary dermal layer are the structures that are explored via dermatoscopy in vivo. These structures are specifically correlated to specific histologic features. The target point in dermatoscopy of the pigmented lesions is the melanin pigmentation, namely the pigment network, of the epidermal basal cell layers (5, 6). During the conduction of dermatoscopy, the skin lesion is covered with a liquid (oil or alcohol) and examined with a dermatoscope (7, 8, 9, 10).

Structures that have been seen are to be described and determined within the ABCD rules and can be analytically balanced by the pattern analysis. The dermatoscope is, basically, an optical system which includes monocular observation, magnification and the use of an illumination system (halogen lamp). The addition to the dermatoscope is nowadays the digital epiluminescence microscope that has together with a dermatoscope developed a new section with the advantages of computerized technology. At the moment, we are in bloomy continuance of mobile teledermatology and teledermoscopy.

The ABCD criteria, asymmetry in shape, border irregularity, colour variegation and diameter larger than a 6mm, have been all used to differentiate the melanoma from benign nevi, but the features could be difficult to differentiate unless the melanoma is already relatively large in size.

The prime dermatoscopic criteria are elements like lines, pseudopods, circles, clods, dots that may form structured or structureless network, with numerous variations in form and shape of the elements within the network and the tremendous distribution of the colours within the network/lesion. The pigmentated skin lesions have different distribution of pigmentation depending on the location of melanin in different layers of the skin and benignancy or malignancy of the lesion. Colours like black, dark/light brown are signs for melanin dense/sparse in the epidermis; gray shows sparse melanin in the papillary epidermis, blue: dense melanin in the papillary dermis, melanin in the reticular dermis, red and purple are sure signs for blood, white and yellow: absence of melanin, hyperkeratosis. Always important is not to
disregard the sudden combination of two or more colours, asymmetry or any smallest change in a shape or colour.

There are also some more criteria like vessels, hypot or hyperpigmentations, comedolike openings, milialike cysts, terminal hairs, that also lead us to a right clue. Hairpin vessels with yellow, brown and/or orange clods and some white dots/clods are clues for seborheic keratosis. Central white structureless zone is clue for dermatofibroma. Blue clods varying in size and shape, blue and gray dots, branched vessels, white structureless zone are clues for basal cell carcinoma. Multiple vessels as circles and spirals are clue for superficial squamous-cell carcinoma, blue and brown clods, equal in size and shape, symmetric are clues for congenital nevus. And all possible variants of colours, white, blue, gray, black, pink, red with various forms like dots, clods, lines radial lines reticular asymmetrically arranged are significant clues for melanoma (9, 10, 11, 12, 13).

2. METHOD OF RESEARCH

In Sarajevo, from May 9, 2011 to May 13, 2011 at the Department of Dermatovenerology of the Clinical Center of Sarajevo University were conducted preventative activities in order that trough dermatoscopy reviews identify and remove skin lesions that are suspect for melanoma. During this activity was viewed total of 791 patients. Investigations are provided by dermatoscopy equipment – Dermatoscope MoleMax II.

3. RESULTS OF OWN RESEARCH

At the Clinic for dermatology and venerology of the Clinical Center of Sarajevo University were conducted preventive activities in order that trough dermatoscopy reviews identify and remove skin lesions that are suspect for melanoma. In our investigation was included total of 791 patients from which 195 aged 18-35 years, 133 patients aged 36-50 years, 238 patients aged 51-65 years and 225 patients aged over 65 years. There were 490 women and 301 men. Among 791 patients from which 195 of them were included to the study of melanomas. In our investigation was included total of 791 patients from which 195 of them were included to the study of melanomas.

4. DISCUSSION

Malignant melanoma has a lethal outcome if not detected at early stage. The only diagnostic method that can at an early stage detect the pre-melanoma lesions is dermatoscopy. Thanks to this method, the number of developing malignant melanoma (newly discovered cases) is increased, but mortality from malignant melanoma is reduced.

Our study included 791 patients (490 women and 301 men), in which we recorded a total of 1670 lesions in the period from May 9, to May 13, 2011. From the total number of lesions analyzed there were 944 melanocytic and 726 nonmelanocytic lesions. Within melanocytic lesions, histopathology confirmed 9 malignant melanomas. From nonmelanocytic lesions present were: seborheic keratosis BCC – 307, actinic keratoses – 118, precancerosis hemangiomas – 77 and bacocelular skin cancer BCC - 68. Dermatoscopy is a method of epiluminiscent microscopy that in the analysis of tumor skin changes has completely replaced a standard magnifying glass. Credibility of dermatoscopy goes from 70-90% and it became an indispensable diagnostic tool in the analysis of tumor changes on the skin. This method significantly shortened the time from suspicion on skin malignomas to the histopathological diagnosis and completes healing, thus avoiding expensive and complicated surgical procedures, postoperative treatment and avoids the formation of scars and keloids, which are particularly sensitive to UV rays from the solar spectrum and the change itself is major therapeutic problem.

The primary goal of melanoma detection via dermatoscopy is early tumor recognition and proximate surgical treatment. Certain melanomas do not display classical clinical or dermatoscopic features and can be easily missed during routine examinations, especially in patients with multiple nevi (5). Digital monitoring of patients with multiple atypical nevi decreases the number of unnecessary excisions. According some authors, melanomas that failed dermatoscopic detection belong to the three following categories: melanomas showing criteria of melanocytic nevi, melanomas ex-

Graph 1. Relationship of nonmelanocytic and melanocytic lesions in the tested sample

Graph 2. The structure of melanocytic lesions in the tested sample

Graph 3. Structure of nonmelanocytic lesions in the tested sample
hibiting criteria of nonmelanocytic lesions, and melanomas lacking specific criteria of a melanocytic or nonmelanocytic lesion (hypomelanotic/amelanotic melanoma) (6). The knowledge and experience of the individual investigator determines the selection of lesions to be monitored and the assessment of changes that prompt a lesion to be excised (11, 12).

5. CONCLUSION

According to the guidelines of the International Dermoscopy Society (IDS), in the presence of multiple atypical melanocytic lesions, dermatoscopic monitoring can be planned at 3 to 6 month intervals, where any change suggests surgical excision.

The dermatoscopy is valuable tool in diagnostics of variety of skin disorders in the field of general dermatology. The “jet with contrail sign” is the pathognomonic feature of scabies.

Pediculosis, phthiriasis, tungiasis, tinea nigra and molluscum contagiosum can be easily identified with the aid of a dermatoscope.

The “red dots” pattern in psoriasis and the “whitish striae” pattern in lichen planus are examples of the application of dermoscopy in inflammatory skin diseases.

The newest application is trichoscopy, an helpful application of dermoscopy for the diagnosis of hair and scalp diseases.

Dermatoscopy is supremely estimated implement which constantly exhibits its own significance by having such marvellous prospects.

REFERENCES