Digital Dermoscopy –
New Diagnostics Method
of Analysis on Skin
Melanoma Changes

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SUMMARY
Regardless of method used, dermoscopy improves diagnostic procedures for the pigmentation skin changes, but only for the experienced examiners. That is why the adequate training is of outmost importance. Dermoscopy is excellent method for detecting melanomas at the earliest stage. This technique is not used to monitor nerves, but to detect melanomas at early stage. Follow-up is not an indication for one suspicious lesion. That kind of lesions should be removed. In case of patient with many typical lesions, excision of this entire lesion is not feasible. Instead of that, we use follow-up with clinical imaging, as well as digital dermoscope imaging, which once again depend on patient’s priority, as well as doctors estimate and patient consent.

Key words: dermoscopy method, melanomas.

1. INTRODUCTION
Association for dermatoscopy of the Association of dermatologists of Bosnia and Herzegovina organized the first school of dermoscopy in Sarajevo on 12th and 13th of November 2007. The president of this school was Professor Harald Kittler (Vienna, Austria) and Ass. Professor Faruk Alendar MD (Sarajevo, Bosnia and Herzegovina). The school is organized with the cooperation of medical faculties in Sarajevo and Vienna. There were 70 participants in total from different parts of Bosnia and Herzegovina.

This school made knowledge of dermatologists up to date with the contemporary achievements in dermatoscopy and dermoscopy analysis. The course started with the demonstration of hand held dermatoscopes and digital devices. Afterwards a comprehensive analytic method based on grid analysis was demonstrated. This method enables specific diagnosis for all types of melanocit and non melanocit skin lesions. Controversial aspects, such as diagnostic algorithms, were also presented in short. Participants were able to have interactive discussion about different cases and to make their own diagnoses. Also they could participate in the quiz, which incorporated 50 different dermoscopy cases. The winner of the quiz, Ružica Jurakić-Tončić MD from Croatia, wins a hand held dermoscope. Second place belongs to Hana Helppikangas MD (Dermatology Clinic of the Clinical Center in Sarajevo), and the third to Irdina Drlijević MD (Dermatology Clinic of the Clinical Center in Sarajevo). They win a CD-ROM „derm101.com“. Also, there was promotion of the book „Schools of dermoscopy with examples“ (1).

2. WHAT IS DERMATOSCOPY?
Dermoscopy or dermoscopy, epiluminescent microscopy (EPM) are simple non-invasive techniques for skin lesions examinations. Previous observation by bare eye or magnifying glass is replaced with the dermoscopy, which enables analysis of the deeper located structures of epidermis, dermoeipidermal border and top skin layer. There are four scoring systems which evaluate dermoscopic structures, and those are: ABCD rule according to Stolz, 7-point checklist according to Argenzian, Menzies patterns analysis methods and 3-point checklist according to Iris Zalaudek. All these algorithms have certain structural features and differently describe criteria's of symmetry and. This is in vivo, non-invasive technique which discovered a new dimension of the clinical morphology features of skin changes, by using the magnification system by light and with immersion in oil during the contact skin-microscope. The purpose of this method is to make visible many morphology features which are invisible to the bare eye, and which improves the clinical diagnosis in case of almost all pigmentation skin changes. These morphology features, according to ELM testing, have specific, quite well defined, same histopathology features. By knowing the histopathology model of such structures, the researches are able to improve the precision level for the diagnosis of melanocit, and non melanocit, pigmentation skin changes, and especially benign, and malignant changes. Recently there is a real flood of the research activities in this area, and dealing with various aspects and new frontiers in this technique. Primarily, they try with the continuous clarification of the dermoscopy terminology; special attention was given to the diagnostic application at the particular anatomic parts and development of different dermoscopy algorithms in order to simplify diagnosis of melanomas, even for the less experienced practitioners. One more interest point, which was researched recently, refers to the possible role of dermoscopy in evaluation of melanomas depth before surgery. And finally, recently is noted a promising data about the role of digital equipment in follow up of the
melanocit skin changes as well as automated diagnostic procedures of the pigmentation skin changes. So dermatoscopy represent a new seminology in dealing with pigmentation skin changes, which have a wide application starting with formal academic studies of the researches up to the everyday dermatologists practice. By practicing, dermatologist should learn this technique and apply it with care, until they gain sufficient experience (2,3,4,5,6). ELM can be performed with the binocular stereo microscopes, with equipped hand microscope and digital technology, which is applied in ELM (D-ELM). D-ELM is new technology which can improve clinical visualization and enable future exploration of the thin upper skin layers and superficial dermal structure of the pigmentation changes (7,8,9). By enabling the high quality visualization, documenting and measurement of the suptile ELM diagnostic features, development of standards for ELM differential diagnosis and system of management for the skin pigmentation changes, can be more easy (7).

3. NEED FOR THE LANGUAGE OF METAPHORS
In dermatoscopy usually used is the metaphoric language which can confuse and lead to unnecessary difficulties. Harald Kittler use simple description for the analysis of basic lesion elements. Actually he uses the method which is accessible so everyone can understand. We should use the language and terminology which is not confusing and which is understandable by everyone. For example why lacunas are not globules? (Because they are red?) Why the blue ovoid cnests are not blue globules? (Because they are larger?) H.Kittler also demonstrated that all metaphoric terms in use can be translated by use of simple and understandable language for everyone.

4. DERMATOSCOPY METHOD BASED ON ANALYSIS OF PIGMENTATION GRIDS
Every grid in dermatoscopy is made of one or up to five basic elements: line, pseudopodia, circles, ball and point. If none of these is present than we speak bout grid without structure. Grid made of lines can be: reticular, branched, bended, parallel and radial. Variation of the reticular one can be more and less dense. Variations of the parallel grid on a smooth skin can be seams and ridges. Radial grid can be situated on periphery as circumferential or segmental or can be central and multifocal. Pigmented skin lesions can have one or multiple grids. If multiple grids are present they can be symmetric or asymmetrical. Also there can be variation of two grids. Similar to these pigmented lesions can have one or multiple colors. In dermatoscopy we define ten colors: black, dark brown, light brown, yellow, orange, grey, blue, red, purple and white. Distribution of two or multiple colors in a reticular lesion can be central, sporadic or eccentric. To make specific diagnosis the only rule we need is: grid, color and guide. According to colors and grid each type of the pigmented skin lesion can show specific guides which enable us to reach specific diagnosis. H. Kittler divided melanocit nevus: on: congenital (blue nevus – ordinary and cellular, combined and congenital nevus with the component of the blue nevus), congenital nevus, Unna and Misher nevus. And on acquired nevus where belongs: Spitz, Reed and Clark nevus. Harald Kittler also explained guides for the specific diagnoses by use of specific algorithms but according to his opinion everyone should make their own algorithms.

5. DIGITAL DERMATOSCOPY
Only advanced melanomas which persists for years can be diagnosed with the „bare” eye and use of clinical „ABCD” rules (asymmetry, edge irregularity, multiple colors and diameter greater than 6mm). Early stage melanomas are much harder to diagnose, especially when their size is less than 6mm in diameter. That is the reason why the clinical ABCD rules are not the instrument for early stage diagnosis. ABCD rules are used only in cases when the melanoma is larger than 6mm. Melanoma starts as unnoticeable, one measure, pigmented small macula which is difficult to distinguish from the nevus and very rarely starts from the nevus. After while criteria’s that can be seen with dermatoscopy occurs, and later, usually after couple of years, develops criteria’s noticeable with the eye. The only criterion that is always present regardless of stage is „Change!” The only lack in this is that the change cannot be determined in the certain moment in time; we need at least two examinations to recognize it. Digital dermatoscopy is a link between dermatoscopy and computer technology and in that manner make easier to memorize, administrate and search for the stored information’s and images, which makes this technique suitable for follow up of the melanocit skin lesions. Sequential images can be compared directly on a computer screen and the changes of the lesion can be easy recognized. Early melanomas without dermatoscopic features will be detected with the presence of change in the lesion. According to doctor H.Kittler – this technique is of outmost importance for the patients with multiple nevus. These patients have increased risk of melanomas development and presence of large number of lesions they represent diagnostic challenge which cannot be solved by simple removal of all lesions. This type of patients especially needs digital follow up and body mapping. In case of these patients it is difficult to say which of the lesions only melanocit nevus is and which lesion is melanoma, if there are any. That kind of patients we follow every 3 to 6 months and detect which lesion changed and which not. Follow-up enables diagnostic documenting for the detection of melanomas at earliest stage. Small new occurred lesion must be monitored because the melanoma usually occurs from this small flat melanocit lesions. Melanoma in situ and lentigo malig-
nant as well as acral lentigos melanoma never occurs from already existing nevus.

REFERENCES


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