

STSM REPORT

STSM Application number: COST-STSM-BM1205-24417

STSM Grantee: Marija Buljan, MD, PhD

Home Institution: Department of Dermatology and Venereology, University Hospital Centre "Sestre milosrdnice", Zagreb, Croatia

Host Institution: Division of Dermatology, University of Graz, Austria

STSM period: 6th-22nd February, 2015

STSM purpose: continuing the collaboration between Host and Home institutions, practice the use of Reflectance Confocal Microscopy in the evaluation of various skin lesions, participate in two case studies within the field of Dermoscopy and Confocal Reflectance Microscopy

Background:

Over the last decade, dermoscopy has become widely used technique in dermatology. It has been proven that in hands of trained user, it significantly improves diagnostic accuracy. Dermoscopy (synonyms: 'epiluminescence microscopy' and 'dermatoscopy') refers to the examination of the skin using skin surface microscopy. Dermoscopy requires a high quality magnifying lens and a powerful lighting system. This allows examination of skin structures and various patterns. In addition to its well-documented value in improving the diagnosis of skin tumours, dermoscopy has been shown to facilitate the clinical recognition of several inflammatory and infectious diseases, as well as their discrimination from skin tumours.

Reflectance Confocal Microscopy- RCM (synonym: Confocal Scanning Laser Microscopy) is an emerging noninvasive diagnostic imaging tool that permits the real-time examination of the skin at a resolution approaching histologic resolution. Confocal images closely match the resolution of conventional histology taken in the horizontal plane provided the presence of adequate contrast in the tissue under study. The commercially available confocal microscope employs a low power (<30 mW) near-infrared 830 nm diode laser and a 30x0.9-numerical aperture water immersion objective lens that provides a lateral resolution of 1-2 μm and axial resolution of 3-5 μm . The maximum penetration depth of the confocal microscope is about 150-350 μm , allowing imaging from the surface of the skin to the papillary or upper reticular dermis. RCM, as a

non-invasive technology, may serve in the routine practice guiding the clinician towards an accurate diagnosis of tumoral, inflammatory and infectious skin lesions. However, RCM is a technique which requires a lot of training and experience.

Dermoscopic structures and global dermoscopic patterns can be precisely correlated with confocal images. It has been shown that combining two methods (dermoscopy and RCM) improves the diagnostic accuracy in the analysis of various skin lesions, including skin cancer detection.

Description of the work carried out during the STSM:

This STSM is planned as a continuation of our collaboration established during the first visit to Division of Dermatology, University of Graz in April 2014.

During this Short Term Scientific Mission, the applicant (Dr. Marija Buljan) joined the experts from the Division of Dermatology, University of Graz - Professor Iris Zalaudek and her co-workers during their everyday clinical practice and participated in the evaluation of skin lesions implementing dermoscopy and RCM. Applicant and the Host prepared two joint conference poster presentations for the IDS (International Dermoscopy Society) World Congress of Dermoscopy which will be held in April 2015 in Vienna, Austria.

We also prepared the manuscript regarding the dermoscopy and RCM of cutaneous leishmaniasis and submitted for the review in the acknowledged dermatologic journals. Additionally, we analyzed the dermoscopic features in cases of Sister Mary Joseph Nodule and in endometriosis and this manuscript will soon be submitted.

Description of the main results obtained:

We analyzed the clinical, dermoscopic, confocal and histopathologic features of cutaneous leishmaniasis on the face of a young woman. Leishmaniasis is an intracellular parasitic infection, which can present in two major forms, visceral and cutaneous. Cutaneous leishmaniasis (CL) usually presents as a reddish asymptomatic mostly ulcerated papule, often located on the face. The diagnosis is confirmed by histopathology and immunohistochemistry. The observed dermoscopic and RCM features are described in the poster presentation for the IDS Congress and in detail in the manuscript submitted for the review. However, besides the RCM previously described in only one previously published work on RCM of cutaneous leishmaniasis, we observed some new features and described them in our work. In summary, RCM as a non-invasive technique, may be useful in diagnosing infectious skin lesions such as

cutaneous leishmaniasis, therefore helpful in avoiding surgical procedures, especially when the lesions are located in sensitive areas like face and neck.

We also analyzed the **dermoscopic features of Sister Mary Joseph nodule** (SMJN) in a woman who was suffering from gastric adenocarcinoma. Even though dermoscopy became a widely used diagnostic tool in skin cancer detection, there are only few studies regarding the use of dermoscopy in detecting skin metastases from visceral malignancies. SMJN refers to a palpable nodule bulging into the umbilicus as a result of metastasis of a malignant cancer in the pelvis or abdomen. Proposed mechanisms for the spread of cancer cells to the umbilicus include direct transperitoneal spread, via the lymphatics which run alongside the obliterated umbilical vein, hematogenous spread, or via remnant structures such as a remnant of the vitelline duct. SMJN is usually associated with multiple peritoneal metastases and a poor prognosis. Our dermoscopic examination (described in the poster presentation) of the nodule revealed somewhat different finding than the ones previously described, and to our knowledge, only two cases of dermoscopy of SMJN have been published until now.

Mutual benefits for the Home and Host institutions:

This scientific visit is aimed at fostering collaboration and sharing research ideas. During the time of STSM many ideas for future joint clinical research within the field of dermatooncology and dermoscopy and RCM were discussed. The work carried out in collaboration of the host and grantee already resulted in preparation of two joint conference presentations and two joint publications- one already submitted in “Journal of American Academy of Dermatology” and the other soon to be finished and submitted for the review in “Dermatology”.

Future collaboration with the Host institution:

Future collaboration between both institutions is expected to continue, especially in the field of Dermato-oncology, dermoscopy and confocal microscopy.

Foreseen journal publications or conference presentations expected to result from the STSM (if applicable):

Two joint poster presentations in the field of dermoscopy and RCM are finalized and accepted for the participation at the World IDS Congress which will be held in Vienna in April 2015.

STSM outcome form

STSM application number	Home institution & country	Host institution & country	BM1205 WG	Objective of the collaboration	Results of the collaboration
COST-STSM-BM1205-24417	Department of Dermatology and venereology, University Hospital Centre "Sestre milosrdnice", Zagreb, Croatia	Division of Dermatology, University of Graz, Austria	WG 4	Use of Confocal Reflectance Microscopy in the evaluation of skin lesions (Cutaneous leishmaniasis, Sister Mary Joseph Nodule, Endometriosis)	Planned research publication Preparation of two joined congress poster presentations for the World IDS Congress (April 2015, Vienna, Austria)

Confirmation by the host institution of the successful execution of the STSM:

I acknowledge that the described Short Term Scientific Mission was successfully carried out in the conditions here specified. We established good collaboration with the applicant and I believe that in future this will lead to joint work/publishing.

Graz, Austria, March 10th, 2015

Iris Zalaudek

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Prof. Iris Zalaudek
 Division of Dermatology
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Other Comments

I would like to thank the COST Action BM1205 for the support in this STSM and, I would also like to thank the Division of Dermatology, University of Graz, especially to my host professor Iris Zalaudek, for this exceptional and useful practical and scientific experience.

Bibliography:

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