Reflectance confocal microscopy to aid in the detection of lentigo maligna recurrence after treatment

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Introduction

Clinical and dermoscopic diagnosis of lentigo maligna (LM) is usually challenging. Prior therapeutic interventions further difficult the diagnosis of recurrent LM due to postinflammatory pigmentation and scarring. We aimed to evaluate the utility of reflectance confocal microscopy (RCM) in this clinical setting.

Methods

We included 10 consecutive lesions that showed pigmentation in areas previously treated for LM. We evaluated already described RCM features for LM diagnosis[1] and performed a 4 mm punch biopsy of imaged area. Correlation between RCM findings and histopathology/immunohistochemistry was performed.

Results

We studied 10 lesions from 9 patients (**Table 1**). Previous treatment included radiotherapy (5), surgery (2), cryotherapy (2), CO2 laser (1). Median time since last treatment was 3years years (range: 6months-6 years). Three patients had received sequential treatment for multiple recurrences. After RCM examination recurrence was suspected in 8 cases (**Fig. 1 and Fig. 2**) and excluded in 2 cases (**Fig. 3**). In 3 RCM positive cases histological correlation could not demonstrate any recurrence (**Fig. 4**). These cases exhibited widespread dendritic and some round intraepidermal cells mimicking pagetoid infiltration. In the remaining 7 cases the RCM diagnosis was histologically confirmed.

Table 1. Clinical data, dermoscopic and confocal features

Case	Sex	Age	Location	Previous tx	Years since last tx	Main dermoscopic features	Main confocal features	Confocal diagnosis	Histological diagnosis
1	F	65	lower eyelid	RDT	0,5	Blue-gray granules and globules	Bright plump cells at upper dermis	Dermal melanophages	Incontinentia pigmenti
2	F	88	cheek	RDT	0,5	Annular-granular pattern	Bright plump cells at upper dermis	Dermal melanophages	Incontinentia pigmenti
3	F	84	lower eyelid	RDT	4	Light brown pigmentation, gray granules	Round and dendritic pag cells	Recurrence LM	Solar lentigo
4	F	74	malar area	RDT, surg	6	Light brown pigmentation	Dendritic pag cells, atypical junct cells	Recurrence LM	Solar lentigo
5a	M	84	nose	Cry	2	Pigmented network, target-like pattern	Round pag cells, atypical junct cells	Recurrence LM	LM
5b	M	84	nose	RDT	0,5	Annular-granular pattern, pigmented network	Dendritic pag cells, atypical junct cells	Recurrence LM	LM
6	F	65	cheek	Cry	1	Pigmented rhomboidal struct	Round and dendritic pag cells, perifollicular cells	Recurrence LM	LM
7	F	92	forehead	Surg	5	Blue-gray granules, fingerprint-like struct	Epithelial cords, round and dendritic pag cells	Recurrence LM	Solar lentigo
8	M	80	scalp	Surg	4	Annular-granular pattern	Round pag cells, atypical junct cells, nucleated dermal cells	Recurrence LM	LMM
9	F	90	cheek	CO2 laser	6	Annular-granular pattern, pigmented rhomboidal struct	Round pag cells, atypical junct cells, perifollicular cells	Recurrence LM	LM

Tx: treatment
RDT: radiotherapy
Cry: cryotherapy
Surg: surgery
Struct:structures
Pag: pagetoid
Junct: junctional
LM: lentigo maligna
LMM: lentigo maligna melanoma

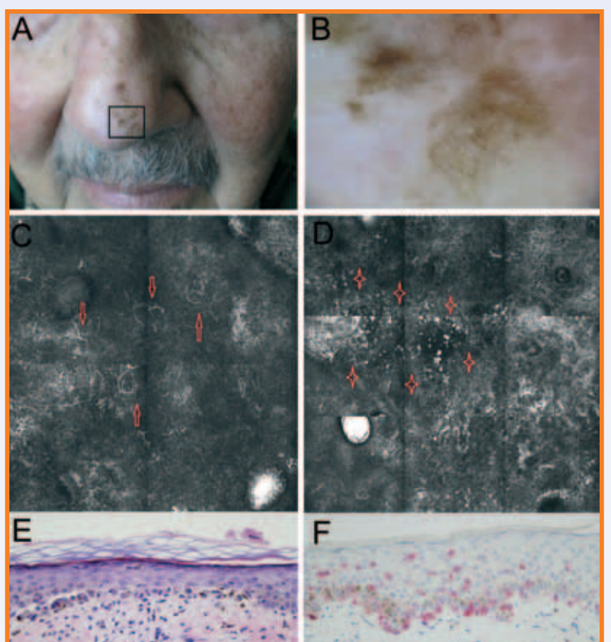

Fig. 1: Case 5b. **A**, Clinical image showing irregular pigmentation on the tip of the nose 6 months after radiotherapy of a LM. The frame indicates the studied area. **B**, Dermoscopic image demonstrates annular-granular pattern and pigmented network. **C**, RCM mosaic 1x1 mm at upper epidermal layer, shows widespread atypical dendritic cells (red arrows). **D**, RCM mosaic 1x1 mm at lower epidermal layer reveals atypical round (red stars) and dendritic cells. **E** (H&E) and **F** (Melan A) 200x, histology confirming de diagnosis of LM.

Fig. 3: Case 2. **A**, Clinical aspect of the pigmentation after 6 months radiotherapy on a LM on the left cheek. The frame indicates the studied area. **B**, Dermoscopic image revealing blue gray areas with some annular granular pattern. **C**, RCM mosaic 2,5x2,5 mm at basal layer-upper dermis with aggregates of bright cells (red frame). **D**, Detail of the framed area showing bright cells with ill-defined borders at upper dermis (plump cells) suggestive of melanopaghes. **E** (H&E) and **F** (MelanA) 200x demonstrates incontinentia pigmenti and absence of LM.

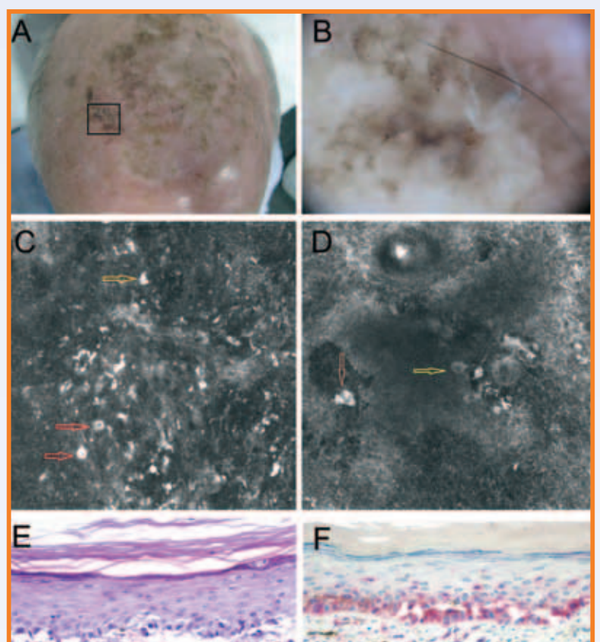

Fig. 2: Case 8. **A**, Clinical picture shows ill-defined pigmentation on the scalp near skin graft of previously excised LM. The frame indicates the studied area. **B**, Dermoscopic image demonstrates annular-granular pattern. **C**, RCM image 0,5x0,5 mm at epidermal layer showing disarranged pattern with bright round cells (red arrow). **D**, RCM image 0,5x0,5 mm at dermal epidermal junction shows atypical cells (yellow arrow) and cells in papillary dermis (orange arrow). **E**, H&E, 400x, atypical proliferation of melanocytes at basal layer.
F, MelanA, 400x shows positive basal cells and isolated dermal cells. The final diagnosis was LMM melanoma Breslow 0,3 mm.

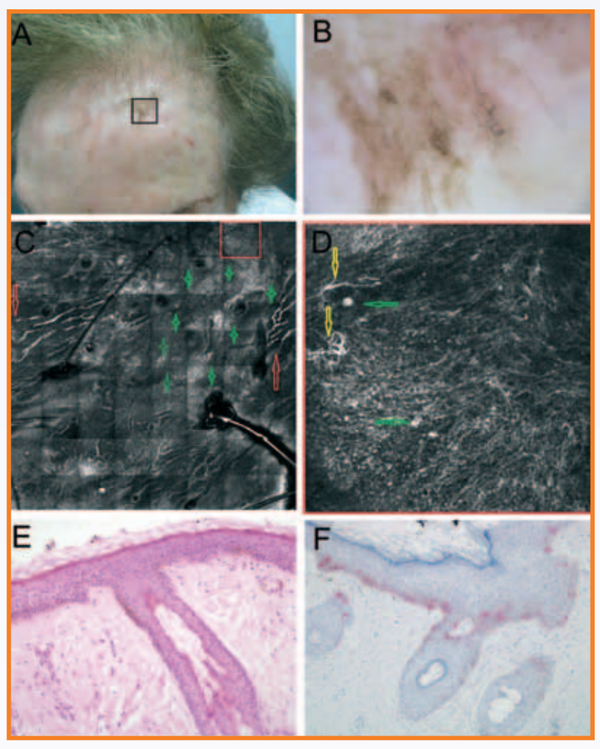

Fig. 4: Case 7. **A**, Pigmentation on the forehead next to the scar of a previously excided LM. The frame indicates the studied area.
B, Dermoscopic image shows blue-gray granules and fingerprint-like structures. **C**, RCM mosaic 2,5x2,5 mm at upper epidermal layer showing areas with bright epithelial cords corresponding to fingerprint-like structures(red arrows) and some areas with epidermal disarrangement and bright cells (green stars). **D**, RCM image 0,5x0,5 mm of the framed area at epidermal layer showing disarrangement and the presence of round cells (green arrows) and dendritic cells (yellow arrows). **E** (H&E) and **F** (MelanA) 200x demonstrates absence of LM but presence of dendritic basal and parabasal melanocytes.

Conclusions

RCM can be useful in the monitoring of LM after treatment. In sun-damaged skin, the visualization of widespread dendritic cells in basal and suprabasal layers by RCM may mimic a recurrence of LM. These structures correlate with activated nonmalignant positive melanocytes and Langerhans' cells and represent a pitfall in the confocal evaluation of these lesions.

References

1. Guitera P, Pellacani G, Crotty KA, et al. The impact of in vivo reflectance confocal microscopy on the diagnostic accuracy of lentigo maligna and equivocal pigmented and nonpigmented macules of the face. J Invest Dermatol. 2010;130:2080-91.