INTRODUCTION
HOUSEKEEPING
June 11th 2015

Dr John Adams
Dermatologist/Dermoscopist
MOLEMAP NZ/Australia
MOLESAFE USA

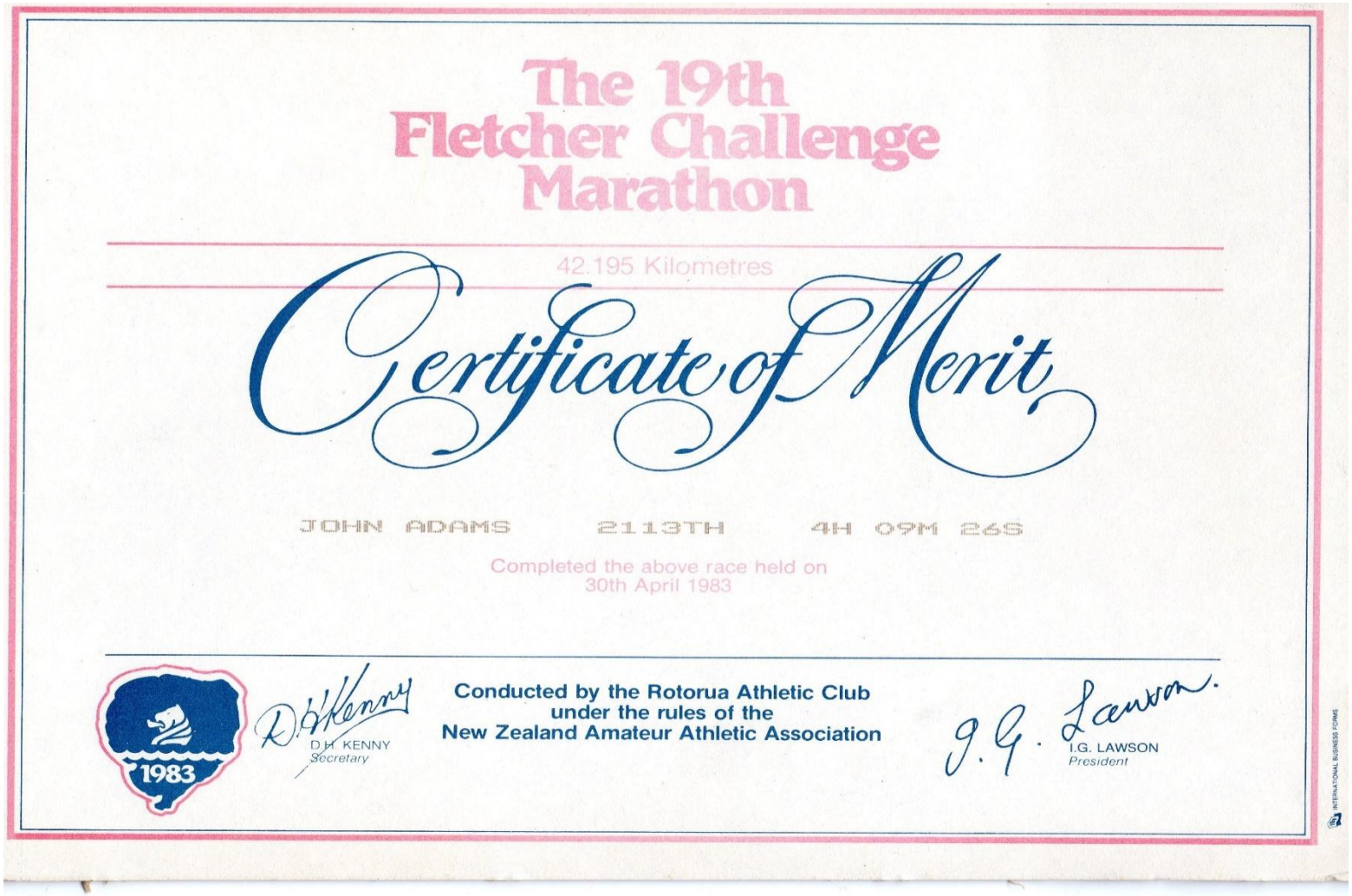
Program

Skin cancer statistics.
Dermoscopy description and usefulness.
Patient /lesion selection.
Algorithms- The 3-point checklist
Moles and melanomas. Quiz.

Break tea/coffee!

Dermoscopy of non-pigmented lesions.
Basal Cell and Squamous cell carcinoma
Observations and interesting lesions.

4 hour marathon



The 19th
Fletcher Challenge
Marathon

42.195 Kilometres

Certificate of Merit

JOHN ADAMS 2113TH 4H 09M 26S

Completed the above race held on
30th April 1983

1983

D.H. KENNY
Secretary

Conducted by the Rotorua Athletic Club
under the rules of the
New Zealand Amateur Athletic Association

I.G. LAWSON
President

INTERNATIONAL BUSINESS FORMS

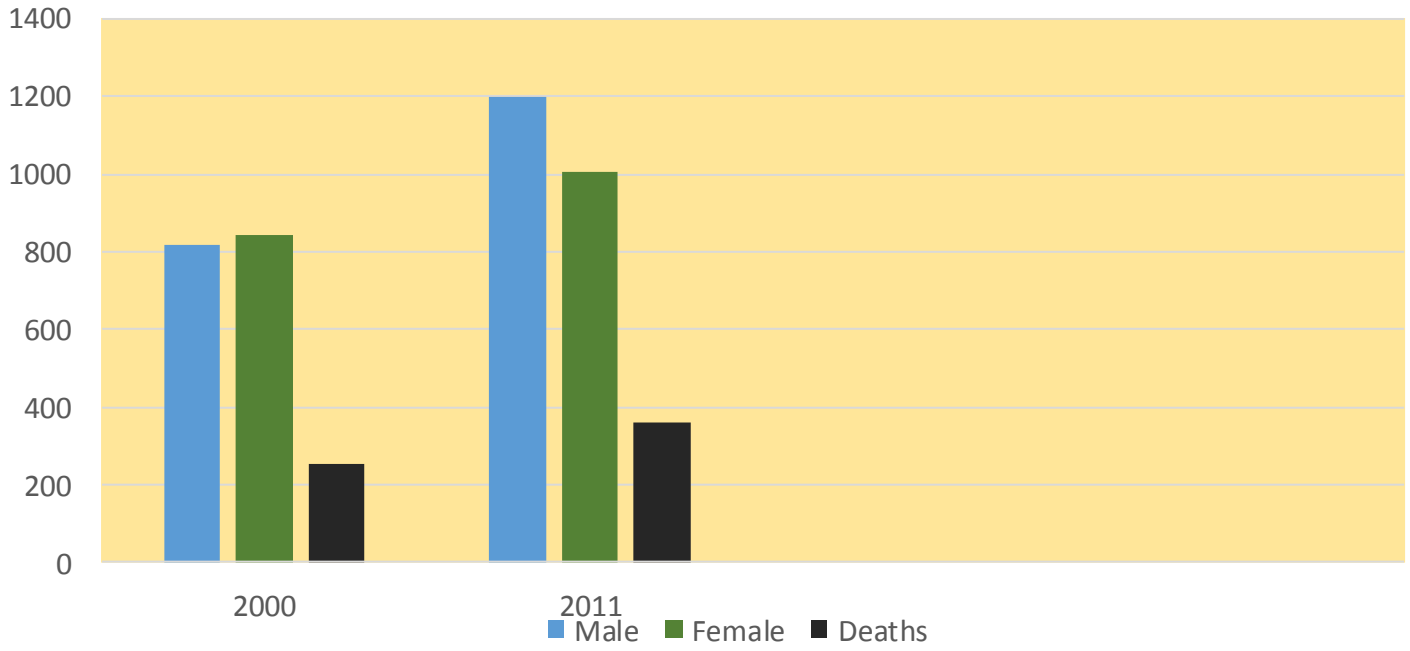
Skin Cancer in New Zealand

- Only melanoma is registered (Not SCC, BCC etc)
- It is estimated that 67,000 NMSCs are treated each year
- By far the most common cancer, costing the health system $57 million each year
- Melanoma in 2011 was the fourth most commonly registered cancer and the sixth most common cause of cancer death
- Male melanoma rates are now higher than females and the male death rates are nearly double

Cancer Registrations and Deaths
Melanoma

2000				2011			
Male	Female	Total	Deaths	Male	Female	Total	Deaths
818	842	1760	253	1199	1005	2204	359

Melanoma in New Zealand



DERMOSCOPY

- Dermatoscopy
- Epiluminoscopy
- Epiluminescence microscopy
- Skin surface microscopy
- Amplified surface microscopy

Combination of a high quality lens applied (or very close) to the skin surface and a lighting system to visualise subsurface structures.

Modern dermatoscopes are light, handheld and battery operated.

Primarily used to diagnose melanocytic lesions.

Two Systems:

Fluid contact with oil or alcohol gel between faceplate of the instrument and the skin to eliminate surface reflection. Excellent focus but may compress vessels.

Polarised lenses which do not need to be in contact and can be rapidly scanned over the body surface. May be better for observing the vasculature and do not need disinfecting between patients.

Heine Delta 10

Heine Delta 20

3GEN Dermlite

EFFECTIVENESS:

There are several studies to demonstrate that dermoscopy is useful in the diagnosis of melanoma.

It may be up to 35% more accurate than clinical diagnosis.

Reduction in number of benign lesions excised.

In primary care, results in referral of more suspicious lesions and less banal ones

CLINICAL DIAGNOSIS:

‘Training and utilisation of dermoscopy is recommended for clinicians routinely examining pigmented lesions’

(Level of evidence A)

Clinical Practice Guidelines for the Management of Melanoma in Australia and New Zealand November 2008

Family history

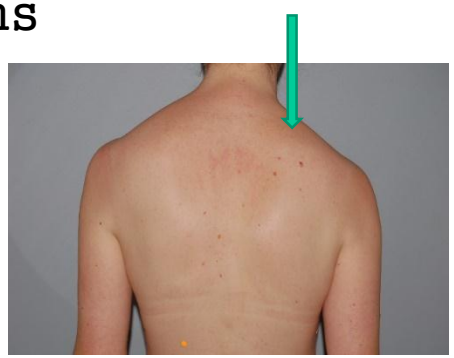
Naevus Pattern

Patient Lesion

Racial/ Country of Origin

Skin type
Hair/Eye

Previous Excisions
NMSC



UV Exposure
Sunbeds
Sunburns
Sundamage

Pregnancy

Occupation
Recreation
Outdoor
Sports

Medical History
Medications
Immunosuppression

Which patients should be examined clinically?

There is basically no agreement in the literature concerning the effectiveness of skin cancer screening.

However there is at least some evidence that adults with risk factors for melanoma (personal or family history of melanoma, multiple naevi, fair skin, multiple sunburns, previous non-melanoma skin cancer) might benefit from skin examination for melanoma screening.

IDS 2007

Patients younger than 50 years who present with more than 50 naevi in total or more than 20 naevi on the deltoid area of the upper arm.

Patients older that 50 years who present with evidence of chronic solar damage.

IDS 2013.

In high risk patients total cutaneous examination should be considered to be the standard of care. All of the skin including palms, soles and scalp should be examined clinically. Additionally self-examination of the skin on a monthly basis should be encouraged.

Documentation of the clinical and dermoscopic features for relevant atypical or changing lesions examined including specific anatomical site(s), is an important part of good clinical practice and should be encouraged wherever possible.

Which lesions deserve closer examination with dermoscopy?

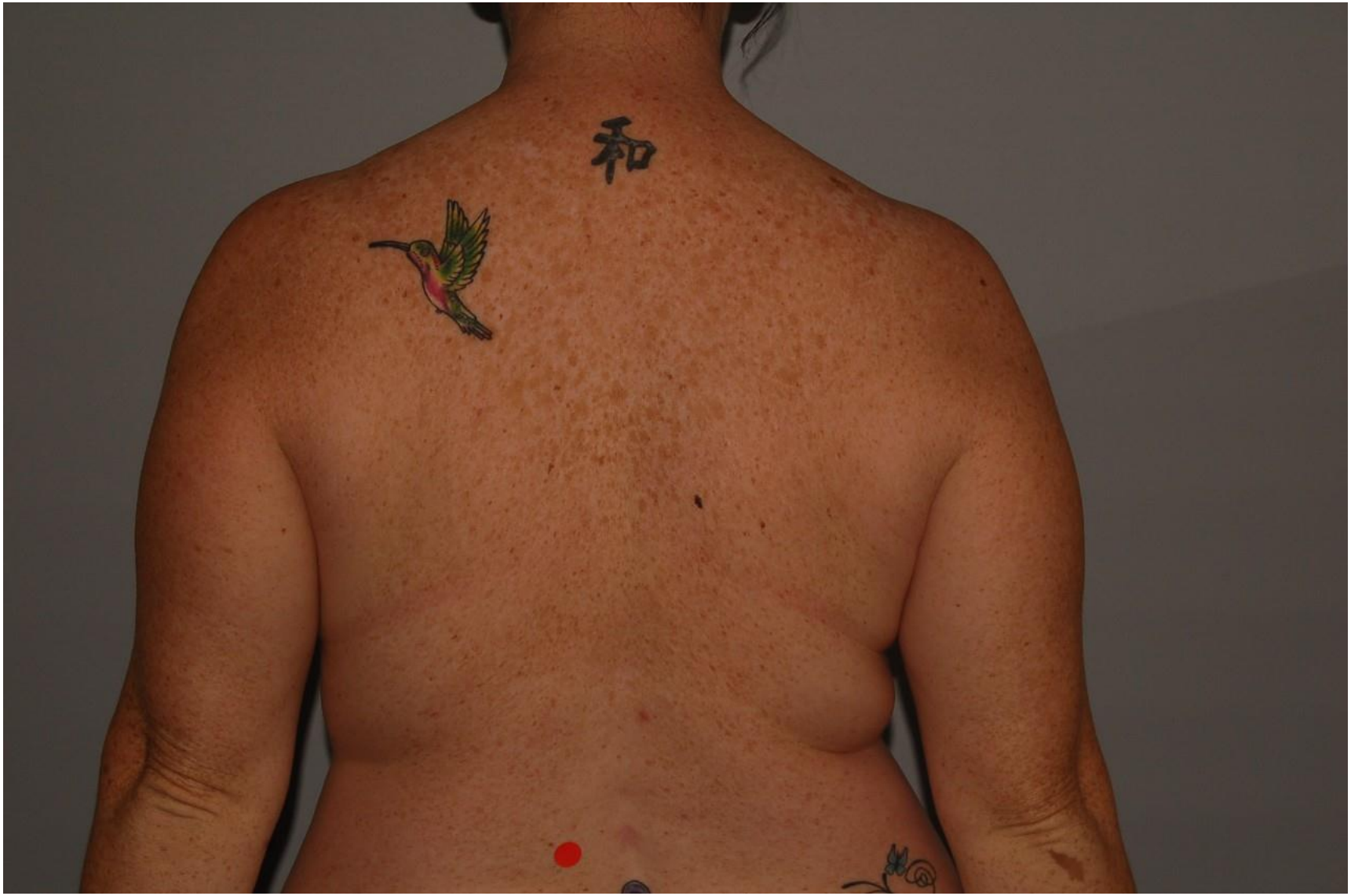
Lesions with reported history of change (colour, size , shape or symptom) even if the patient is not able to specify a particular concern.

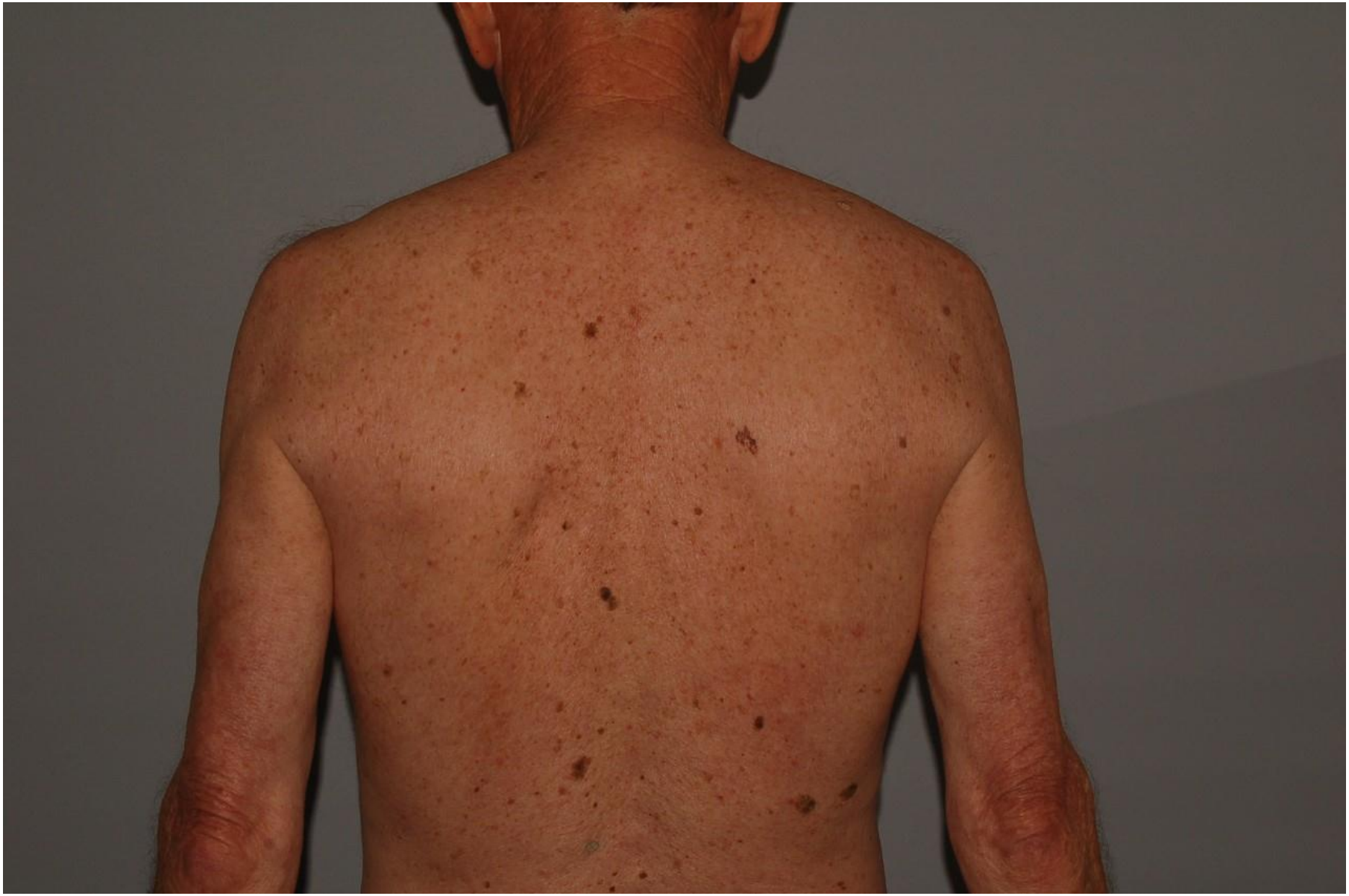
New or changing lesions in adults>50.

A lesion different to the others (ugly duckling sign).

Lesions which look all the same from a distance but differ close-up (little red riding hood sign).

Lesions that look clinically like a melanoma (eccentric peripheral pigmentation or ABCD).





DIGITAL IMAGING

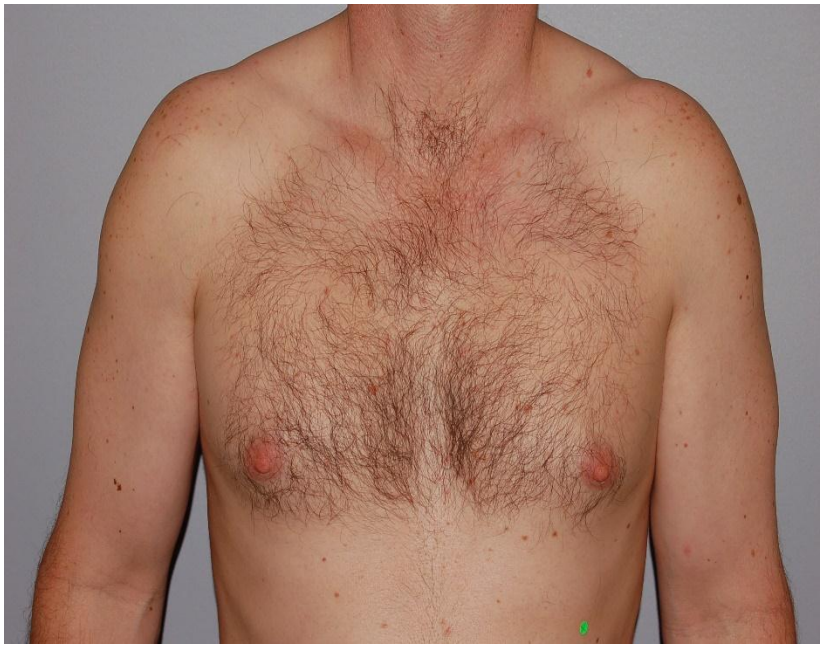
Attaching a digital camera to a dermatosope or using a specially set up camera to take high quality digital images of lesions. Allows follow-up of recorded lesions.

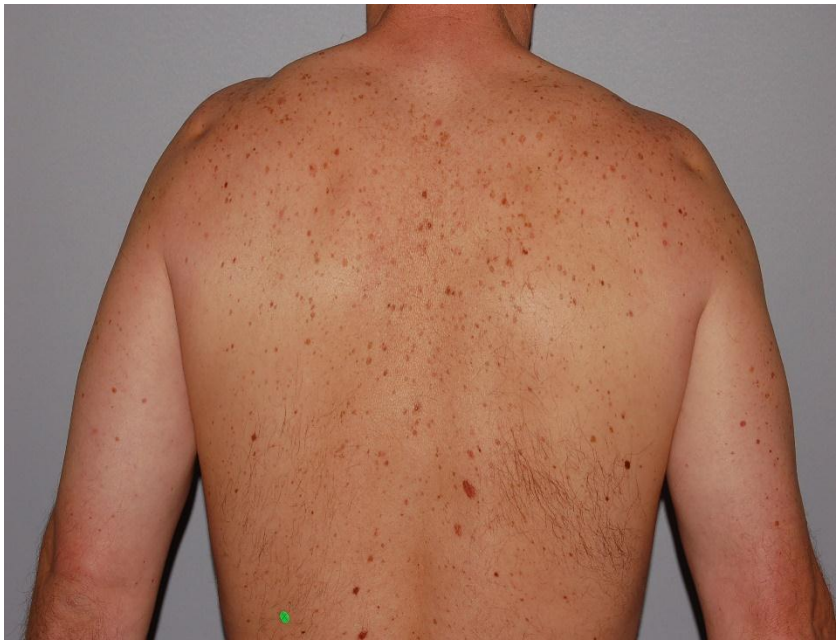
It is estimated that dermoscopy can detect 92% of melanomas immediately due to typical features and the remaining 8% because of change in atypical lesions.

MOLEMAPPING:

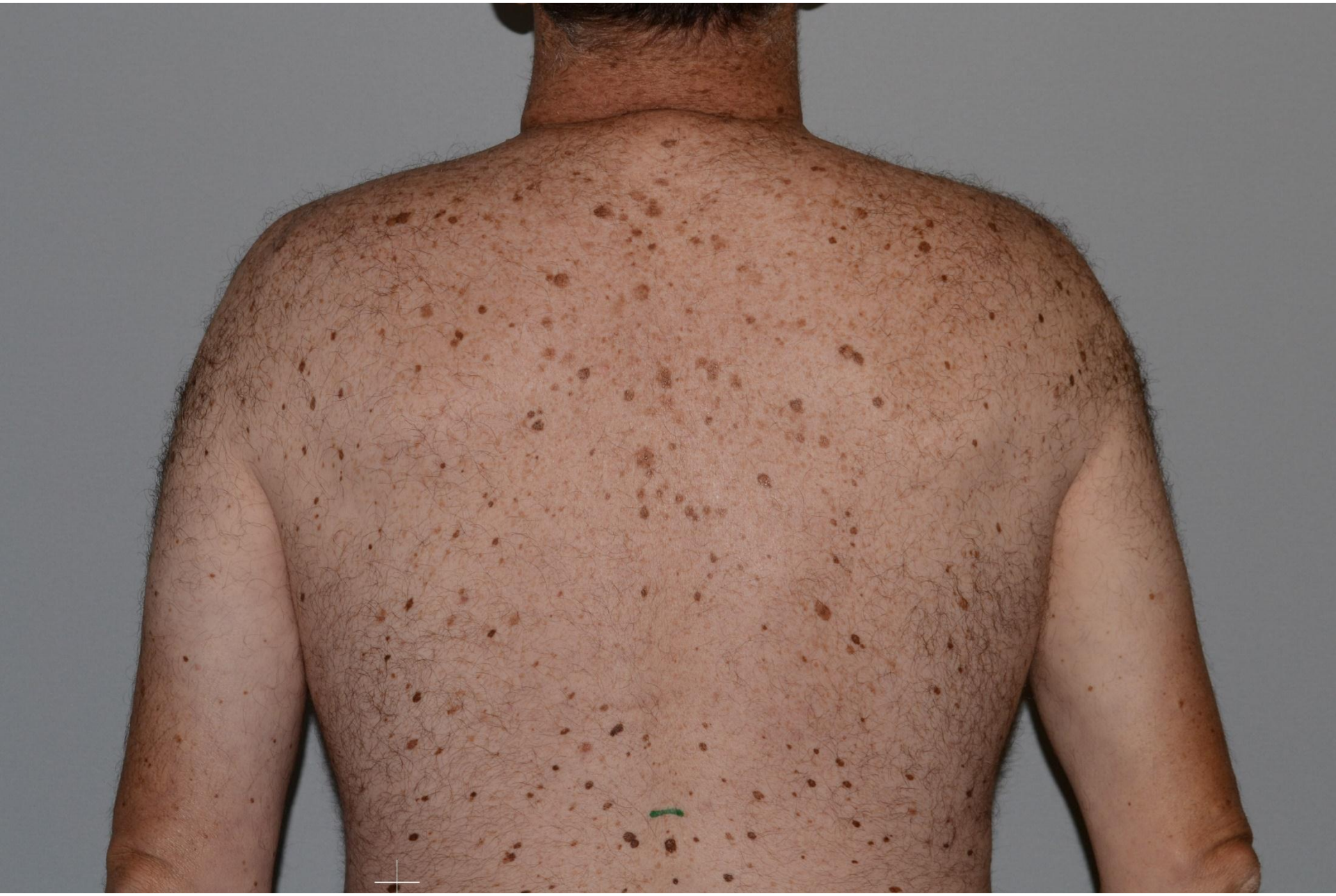
Using a combination of total body photography (TBF) with computer software to archive the images and allow remote diagnosis by dermatologist (Molemap NZ).

TBF allows precise localisation of the naevi and the appearance of new lesions can be noted. (24–30 images)



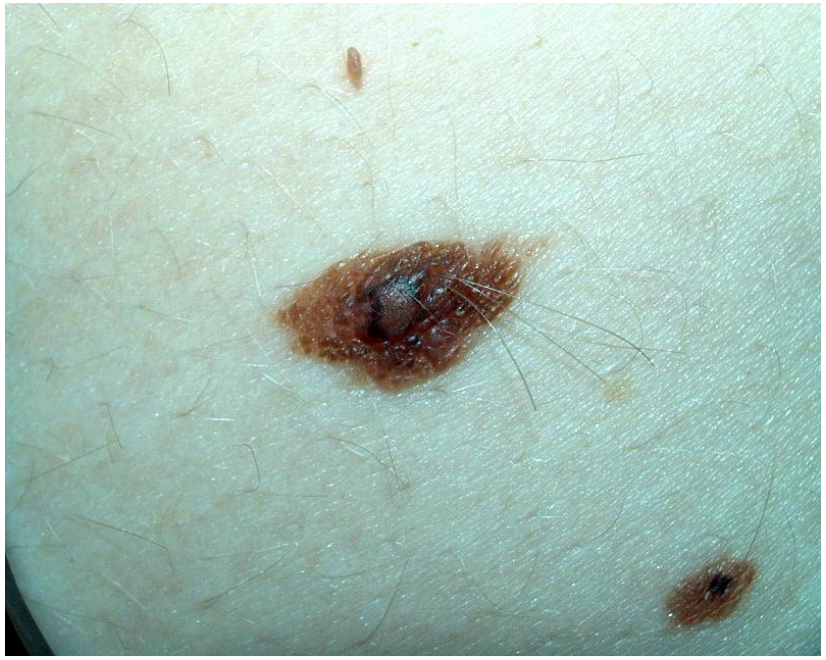


Total Body Photography

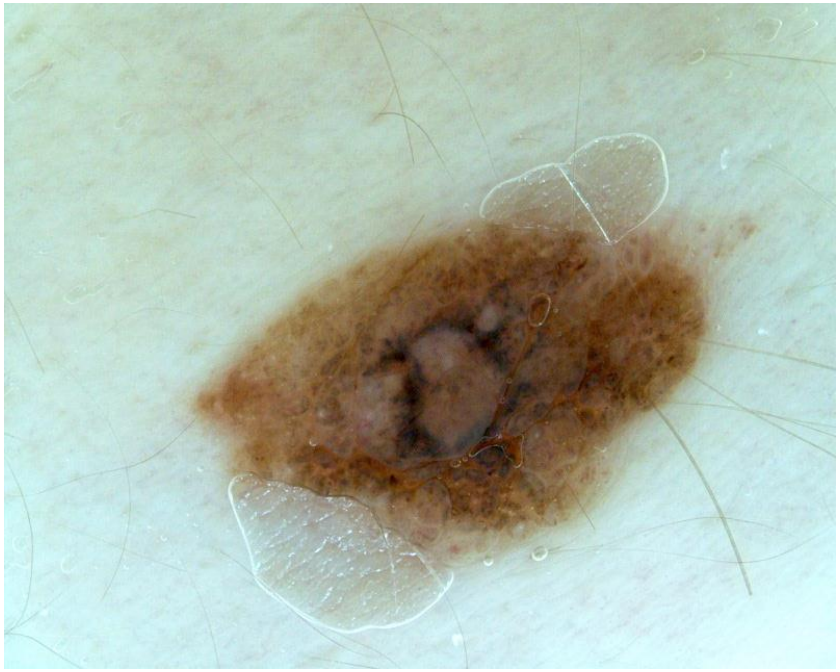


Dermlite Cam

Unashamed Advertisement



Macroscopic Image



Dermoscopic Image

AUTOMATIC (SMART) SYSTEMS:

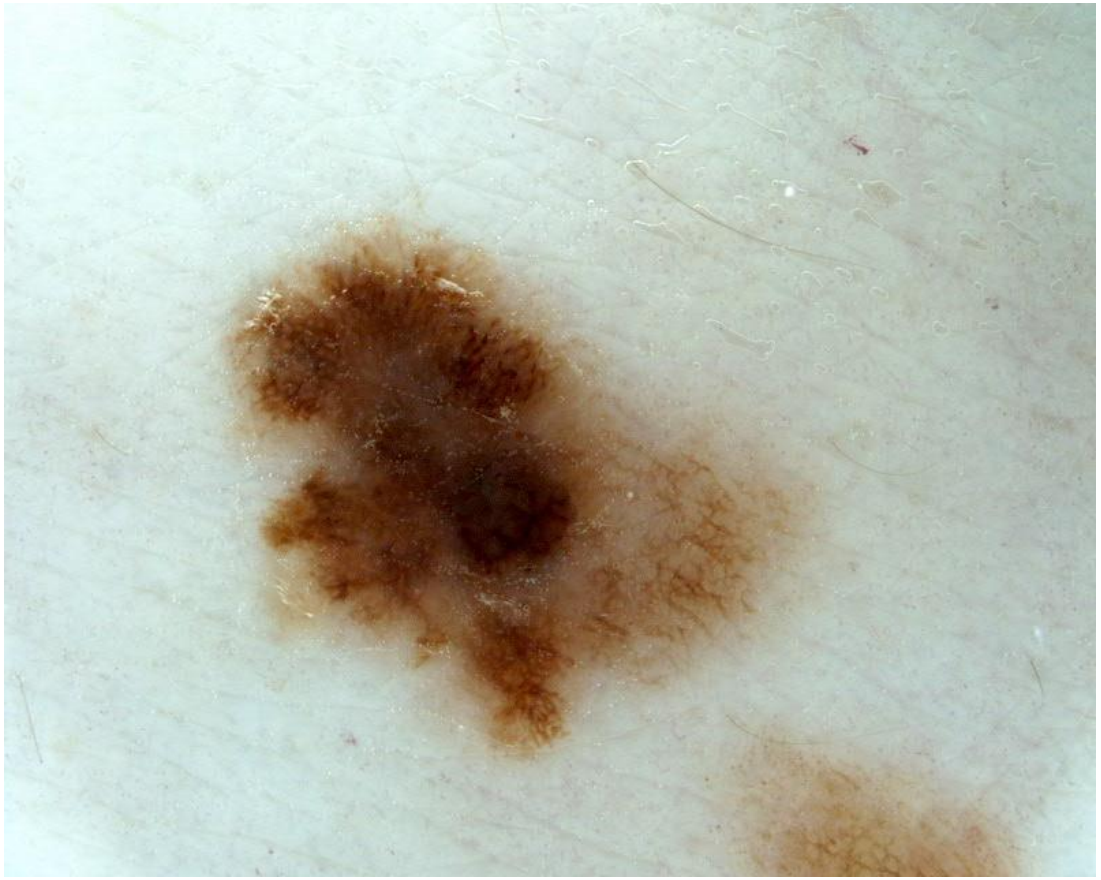
SIAscope, Solarscan, Melafind

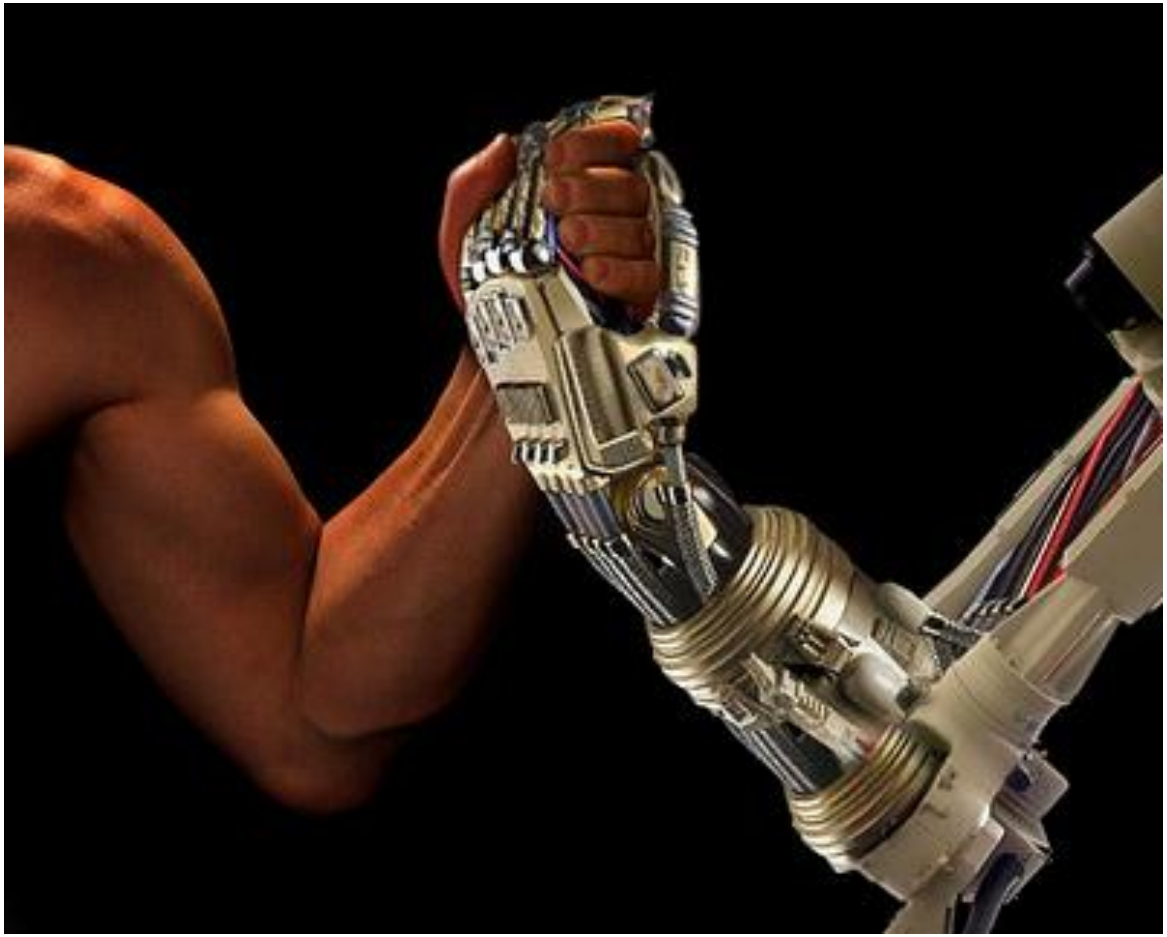
Using artificial intelligence (AI) and neural network methods to predict abnormalities in lesions compared to stored parameters.

Not especially useful for nonpigmented lesions and cannot decide which lesions need imaging.

Automatic dermoscopic image analysis has three stages:

1. Image segmentation
2. Feature extraction and selection
3. Lesion classification





Acta Dermatovenerol Croat. 2014 Dec;22(4):278-83.

Pitfalls of an automated dermoscopic analysis system in the differential diagnosis of melanocytic lesions.

Biyik Ozkaya D[1], Onsun N, Su O, Arda Ulusal H, Pirmit S.

Author information

Abstract

Dermoscopy plays an important role in the diagnosis of pigmented lesions, particularly in the differential diagnosis of early-stage melanoma. Dermoscopy systems that aim to enable automatic "unmanned-without physician" diagnosis are becoming increasingly common. We aimed to investigate the reliability and weaknesses of diagnosis programs. Furthermore, we attempted to determine whether such programs are superior to diagnosis by a physician, compared to histopathological assessment. The images stored in the DermoGenius ultra-computerized dermoscopy system of the Dermoscopy Unit between January 2008 and December 2008 were surveyed retrospectively. Dermoscopic images made prior to excision of 77 lesions from 51 patients verified by histopathology were reviewed. Nineteen patients were men and 32 were women. Mean age was 35.5 years. Diagnosis by a clinician or automatic analysis revealed that 23 (30%) of the lesions were atypical (dysplastic) nevi, 22 (29%) were compound nevi, 10 (13%) were dermal nevi, 8 (10%) were malignant melanomas, 7 (9%) were common nevi, 6 (7%) were junctional nevi, and 1 (1%) was a blue nevus. Compared to histopathological diagnosis, considered the gold standard, the sensitivity of the automated analysis program was 96.6%, its specificity 14.9%, and its diagnostic accuracy 47%. For the clinician, the values were 100% for sensitivity, 66.7% for specificity, and 95% for diagnostic accuracy. Based on histopathological results, the diagnostic accuracy of the physician was higher than that of the automatic analysis program. Therefore, errors are inevitable when an inexperienced physician assesses patients according to automatic program results.

PMID: 25580787 [PubMed - in process]

Compared to the histopathology results from 77 lesions:

The Automatic System (Dermogenius)
Sensitivity 96%
Specificity 15%
Diagnostic accuracy 47%

Experienced Dermoscopist
Sensitivity 100%
Specificity 67%
Diagnostic accuracy 95%

Dermoscopic Diagnostic Aids and Algorithms

The First Step Algorithm

Pattern Analysis

ABCD Rule

Menzie's Method

The Seven Point Checklist

The Three Point Checklist

BLINK

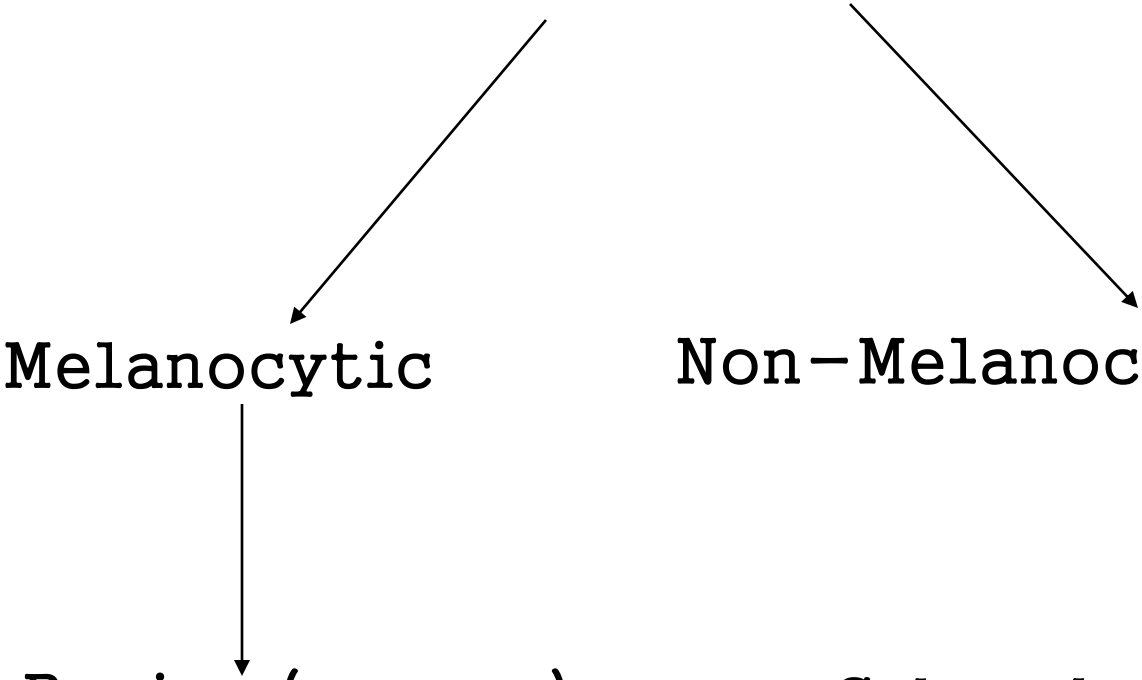
THE FIRST STEP ALGORITHM

To determine whether the lesion is Melanocytic (naevus or melanoma)

or

Non-Melanocytic (BCC, seborrhoeic keratosis etc)

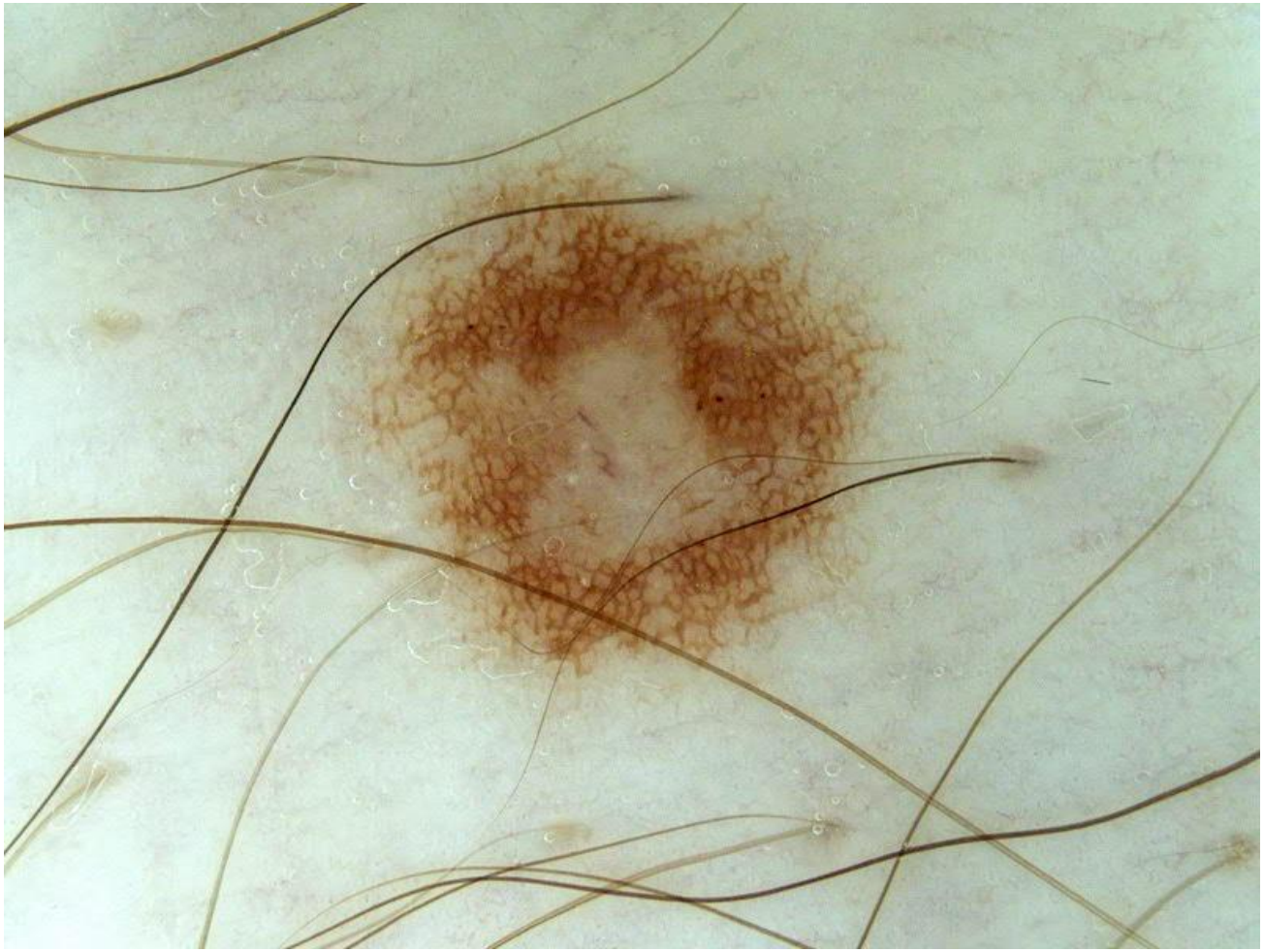
FIRST STEP ALGORITHM



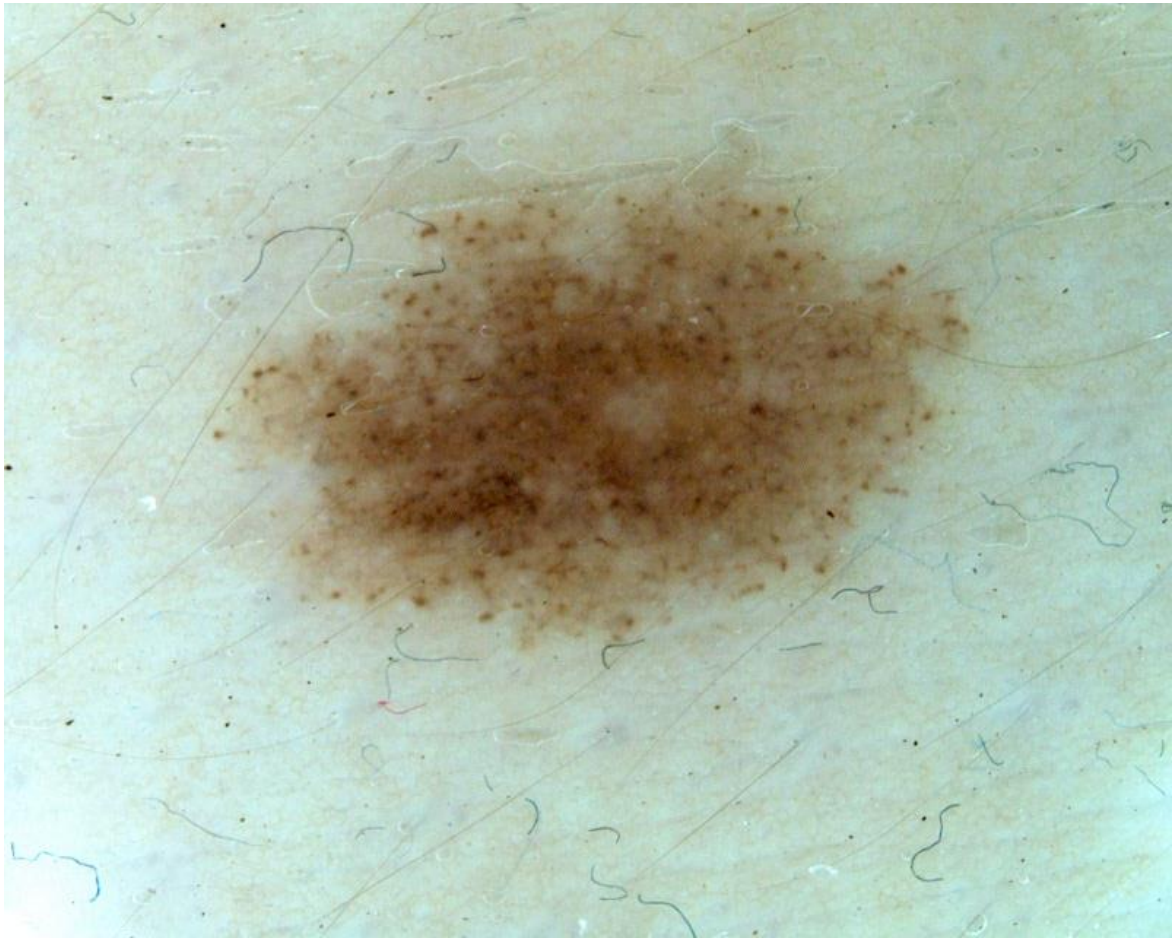
Benign and Malignant Melanocytic lesions have one or more of the following:

Pigment Network
Aggregated (pigment) globules/dots
Streaks
Homogeneous blue pigmentation
Parallel pattern

PIGMENT NETWORK is defined as a
brown grid over a light brown background

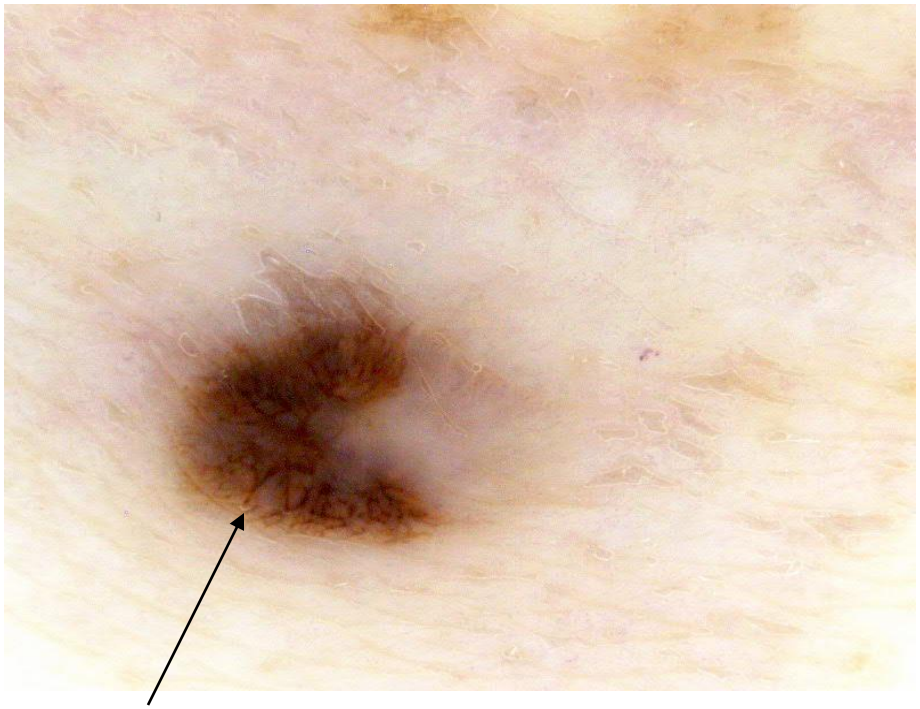


AGGREGATED GLOBULES.
Round to oval variable size uniformly distributed over lesion.

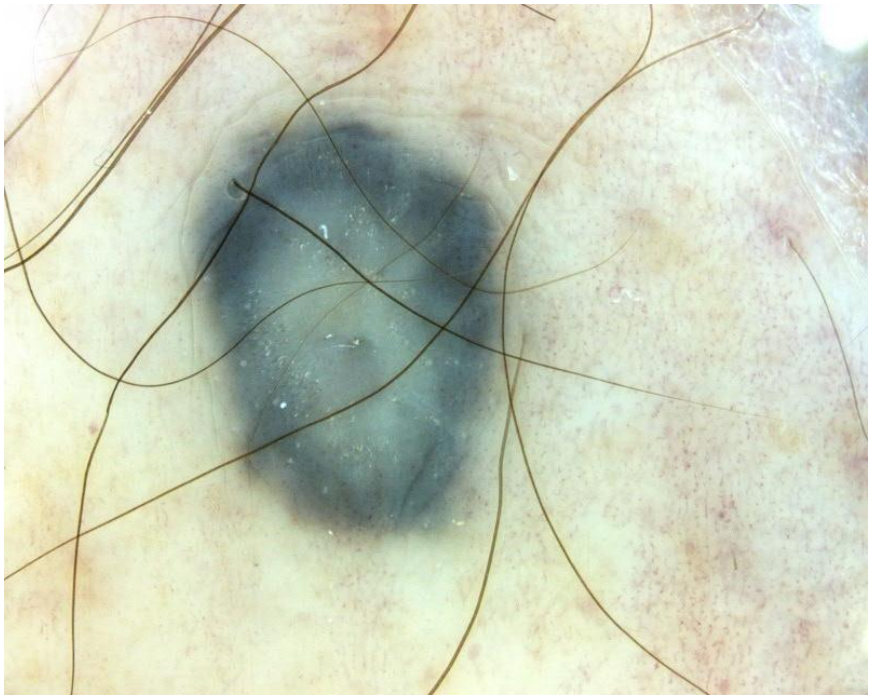


STREAKS

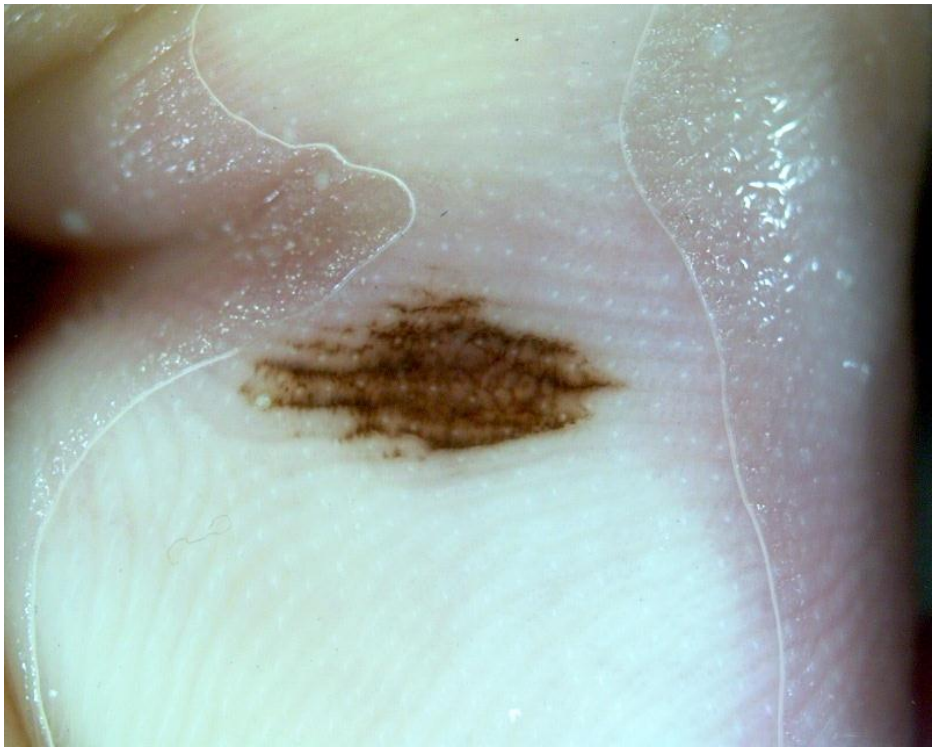
Brown–black linear structures often with bulbous tips usually at periphery of lesion.



HOMOGENEOUS BLUE PIGMENTATION
Hallmark of blue naevi.



PARALLEL PATTERN
Found almost exclusively in melanocytic lesions on palm/soles



PATTERN ANALYSIS

Is the preferred method of most experts in dermoscopy to diagnose skin lesions.

The traditional ABCD and scoring methods are all still very useful but it is best to stick to one technique to avoid confusion.

PATTERN ANALYSIS involves describing the

1 GLOBAL FEATURES and

2 LOCAL FEATURES

A simultaneous assessment of the diagnostic value of all the dermoscopic features of the lesion

GLOBAL FEATURES

Reticular Pattern
Globular Pattern
Cobblestone Pattern
Homogeneous Pattern
Starburst Pattern
Parallel Pattern
Multicomponent Pattern
Unspecific Pattern

LOCAL FEATURES

Pigment network
Streaks
Dots and Globules
Blue-white veil
Regression structures
Blotches
Hypopigmentation
Vascular structures
Milia -like cysts
Comedo-like openings
Brain-like fissures
Exophytic papillary structures
Red lacunas
Central white patch
Leaf-like areas
Spoke-wheel areas
Large blue-gray ovoid nests
Multiple blue-gray globules

It is likely that many of these features(criteria) will undergo deletion or change and there are at least 50 local dermoscopic features that have been described in the last 10 years that await international recognition and agreement of definition.

3rd Consensus Conference of the International Dermoscopy Society
Thursday April 6th 2015
Vienna Austria

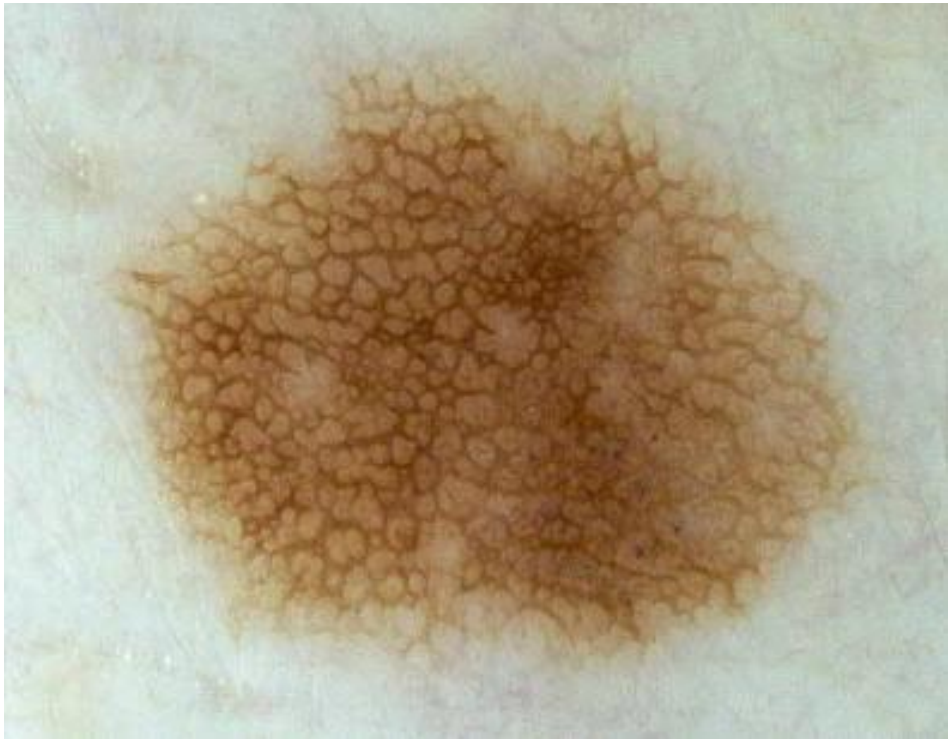
Terminology in historical perspective and why we need a new consensus

A plea for metaphoric terms

Preliminary results of the internet survey (not yet published)

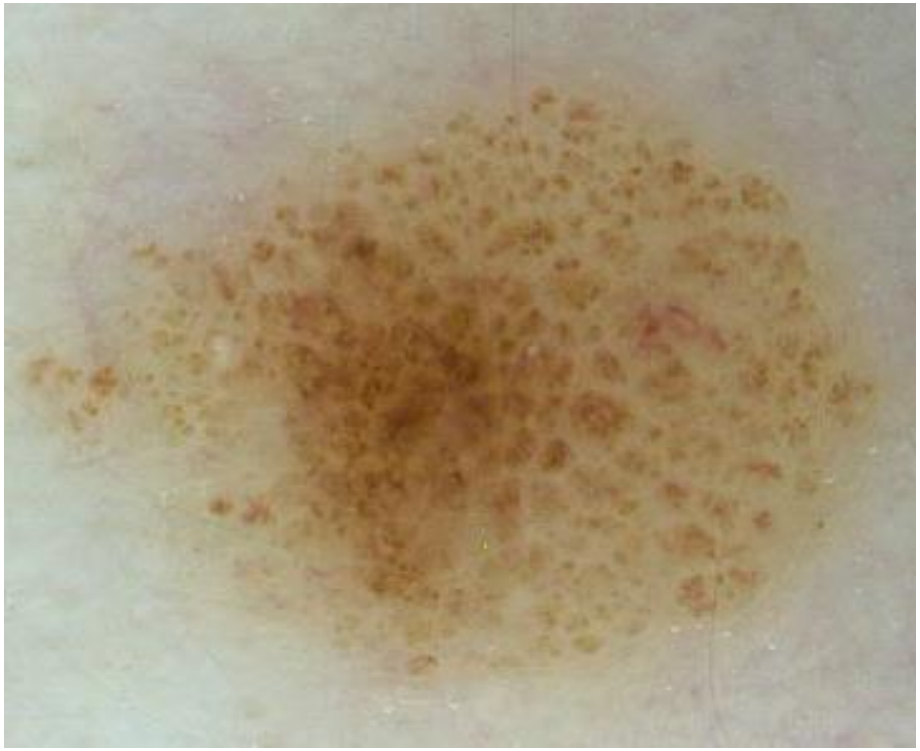
GLOBAL FEATURES– RETICULAR PATTERN

Characteristic of benign melanocytic lesions with a regular grid network covering most of the lesion.
'Fades out' at edges.



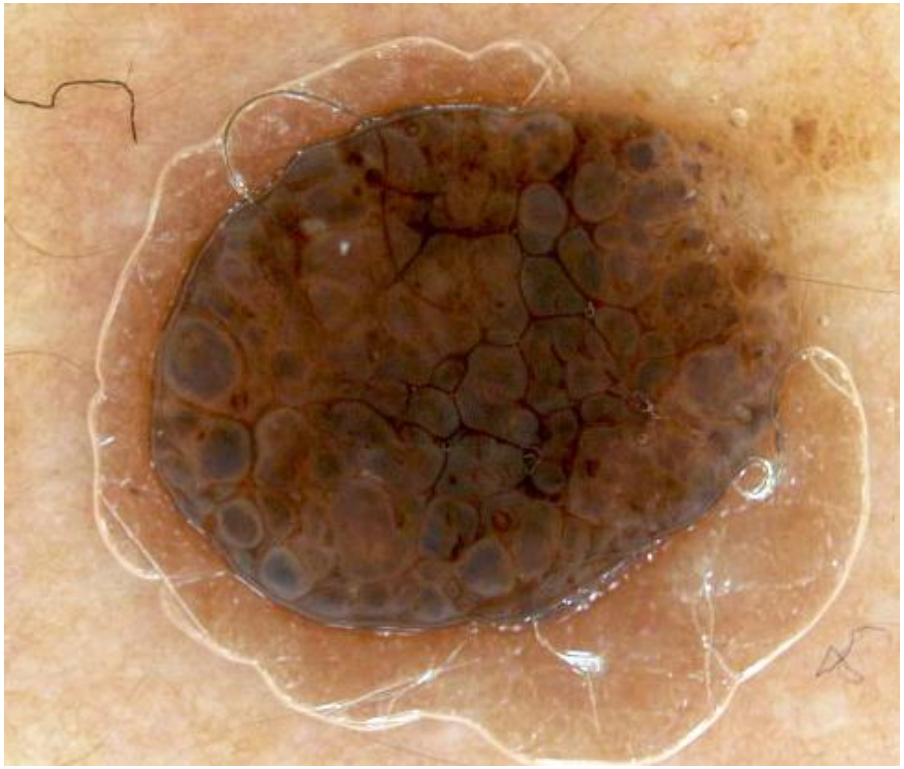
GLOBAL FEATURES –GLOBULAR PATTERN

Typical for benign naevi especially in young persons.



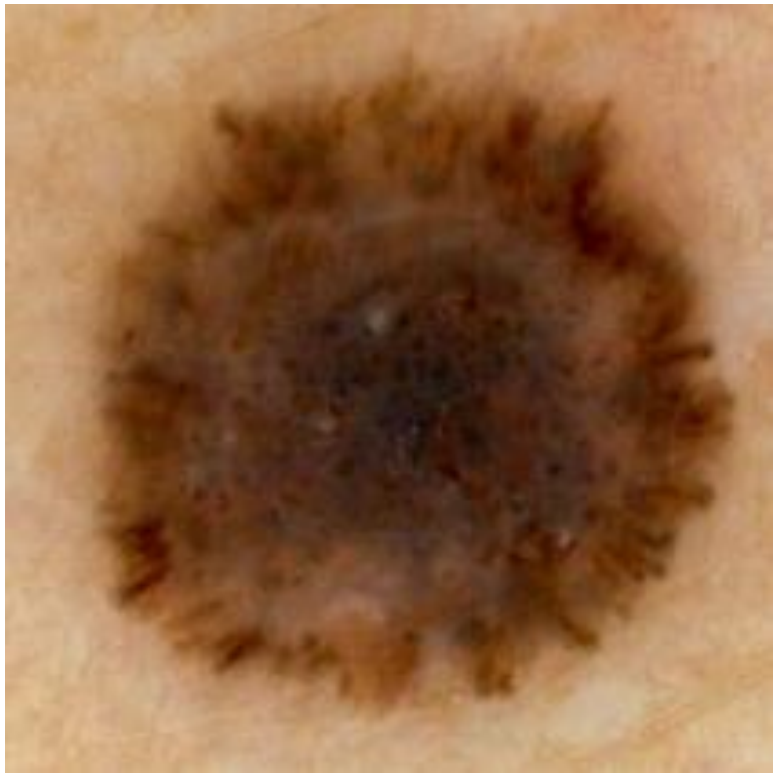
COBBLESTONE PATTERN

Large closely aggregated large gloular structures(papillomatous)



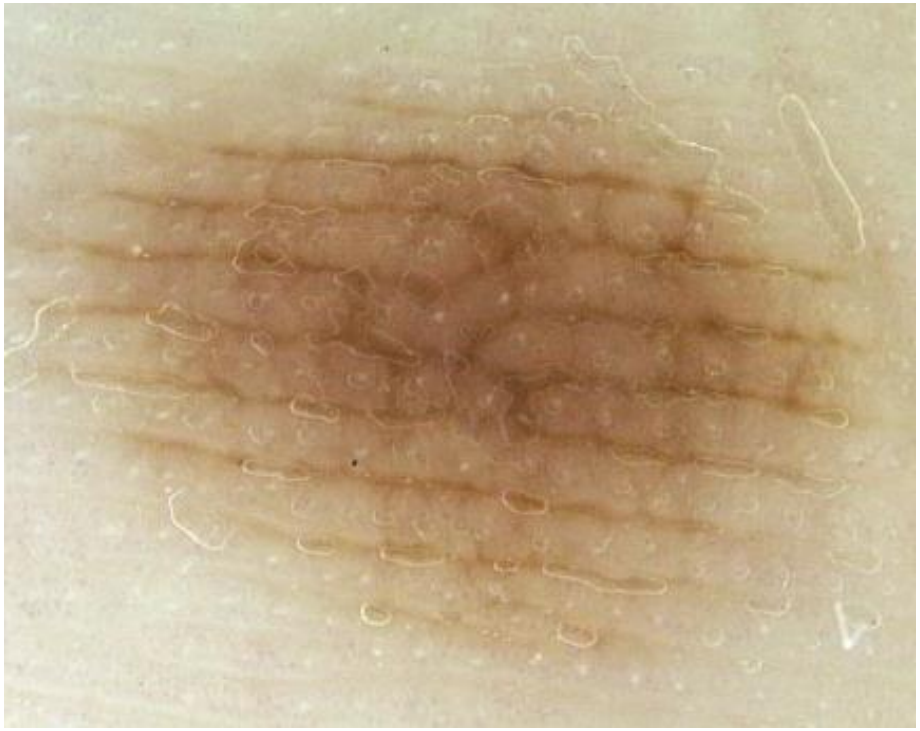
STARBURST PATTERN

Pigmented streaks in a radial arrangement at the edge of the lesion– Spitz/Reed naevi



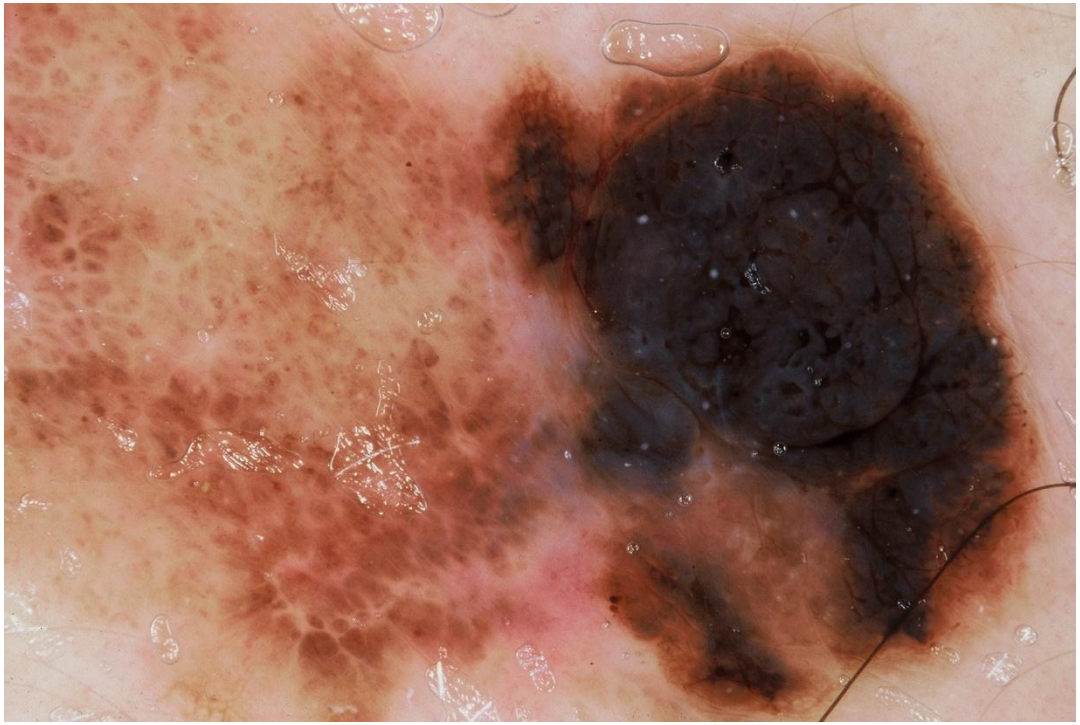
PARALLEL PATTERN

Pigmentation on palms/soles
in the furrows–acral naevi
Parallel ridge pattern– melanoma



MULTICOMPONENT PATTERN

Combination of three patterns– melanoma



The Dermoscopy report:Proposal for Standardization (10 points)

1. Age, history(of lesion), personal/family history
2. Clinical description of the lesion
3. The 2-step method of distinguishing melanocytic/nonmelanocytic
4. Standardized terms to describe structures as defined by the Dermoscopy Consensus Report of 2003
5. The dermoscopic algorithm used

6. Information on the imaging equipment and magnification
7. Clinical and dermoscopic images of the tumour
8. Diagnosis or differential diagnosis
9. Decision concerning the management
10. Any specific comments for the pathologist if excision and histopathologic examination are recommended