THE SUSPICIOUS SKIN LESION

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The Suspicious Skin Lesion

Aims : To not miss melanoma

To give melanoma patients the best possible treatment

1 Who should we examine?

2 How should we examine?

3 What to look for?

4 How to biopsy?

5 Who to refer?

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1 Who should we examine?

General population screening is unlikely to be cost effective

The “worried well” often have no significant risk factors

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RISK FACTORS FOR MELANOMA

- Multiple naevi
- Multiple dysplastic naevi
- Personal or family history of melanoma (1st degree relatives)
- Personal history of NMSC
- High levels of intermittent sun exposure resulting in sunburn and blisters
- Increasing age
- Fair skin that burns easily, freckles, doesn't tan
- Fair or red hair; blue/ green eyes
- Immune suppression &/or transplant recipients

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Understand the important risk factors

- Personal history of melanoma
- Immediate family history of melanoma
- Dysplastic naevus syndrome
- Immunosuppression
- History of numerous sunburns

Patients' perception of their risk is often inaccurate

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IDENTIFYING PATIENTS AT RISK

- Identification of ‘high risk’ patients is an essential component for the early detection and subsequent management of melanoma
- Risk factors indicate the importance of an ongoing surveillance program
- People at high risk - encourage to have total body skin examination with medical professional at least once a year

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2 How should we examine?

Directed:

"Have you noticed any changes?"

"Over what time period?"

A history of change is the most significant clinical sign for melanoma

A new pigmented lesion in a patient older than 50 is more likely to be a melanoma

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How to examine?

Directed to any changing lesions

Systematically of the entire skin surface

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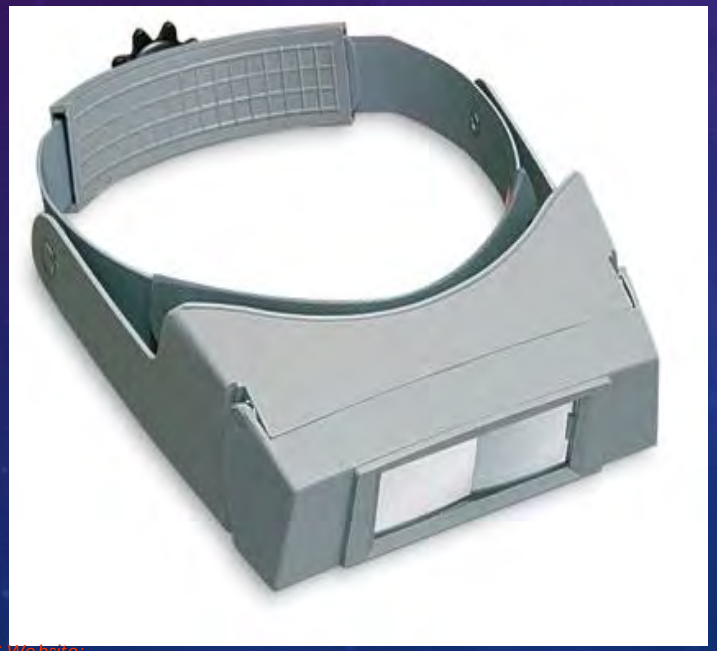
Must examine properly, carefully

Light, magnification

Yearly in those with risk factors



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SYTEMATIC EXAMINATION OF THE ENTIRE SKIN SURFACE

1 Examine body front and back in mirror, then right and left sides, arms raised.

2 Bend elbows, look carefully at forearms, back of upper arms, and palms.

3 Look at backs of legs and feet, spaces between toes, and soles.

4 Examine back of neck and scalp with a hand mirror. Part hair and lift.

5 Finally, check back and buttocks with a hand mirror.

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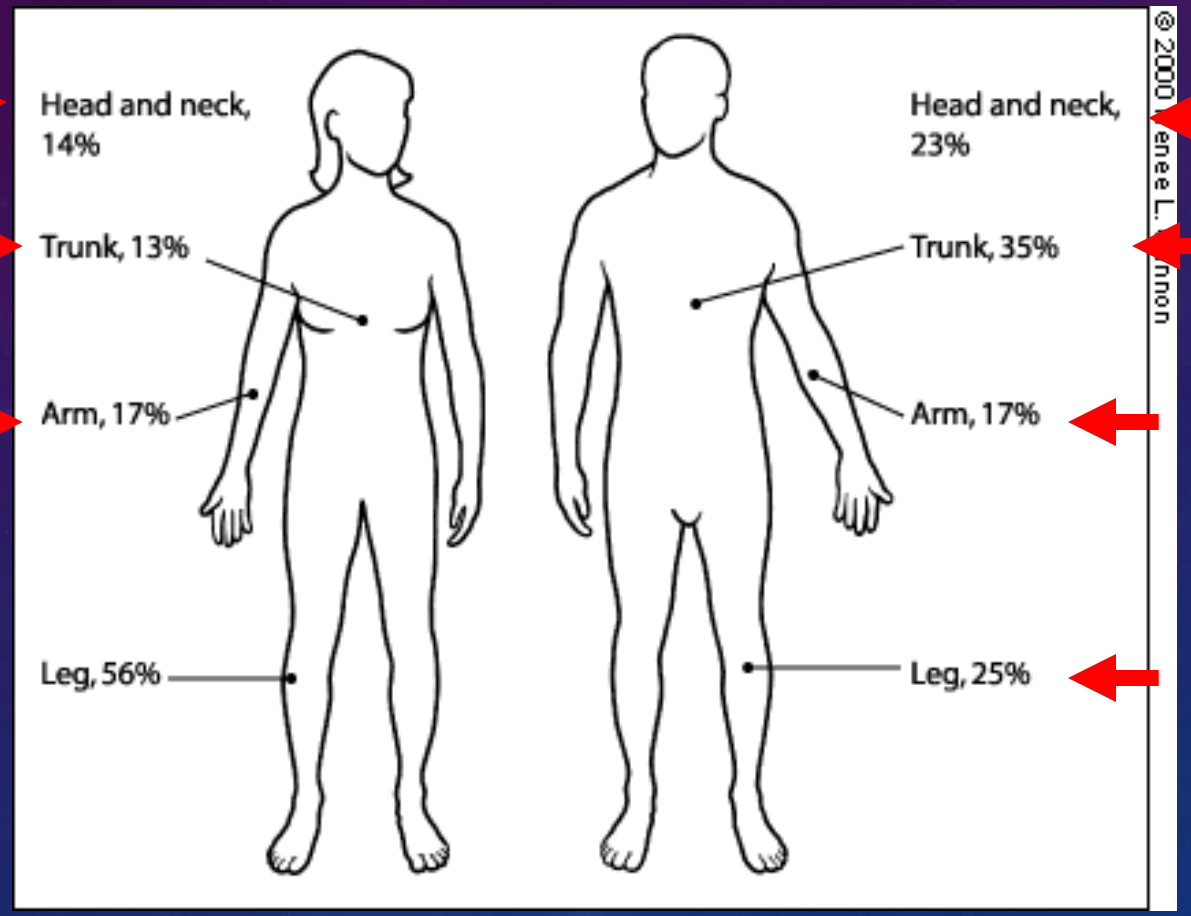
MELANOMA DISTRIBUTION



- Highest for Women = Legs
- Men = Trunk, head/ neck, legs

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Melanoma is very often an incidental finding

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"A total of 94 melanomas were detected during this 12-month period. Of these, 57 (60.6%) were incidentally detected by the dermatologist."

Cherian P; Tait C.

Melanoma in private practice: do Dermatologists make a difference?

Australasian Journal of Dermatology. 50(4):257-60, 2009 Nov.

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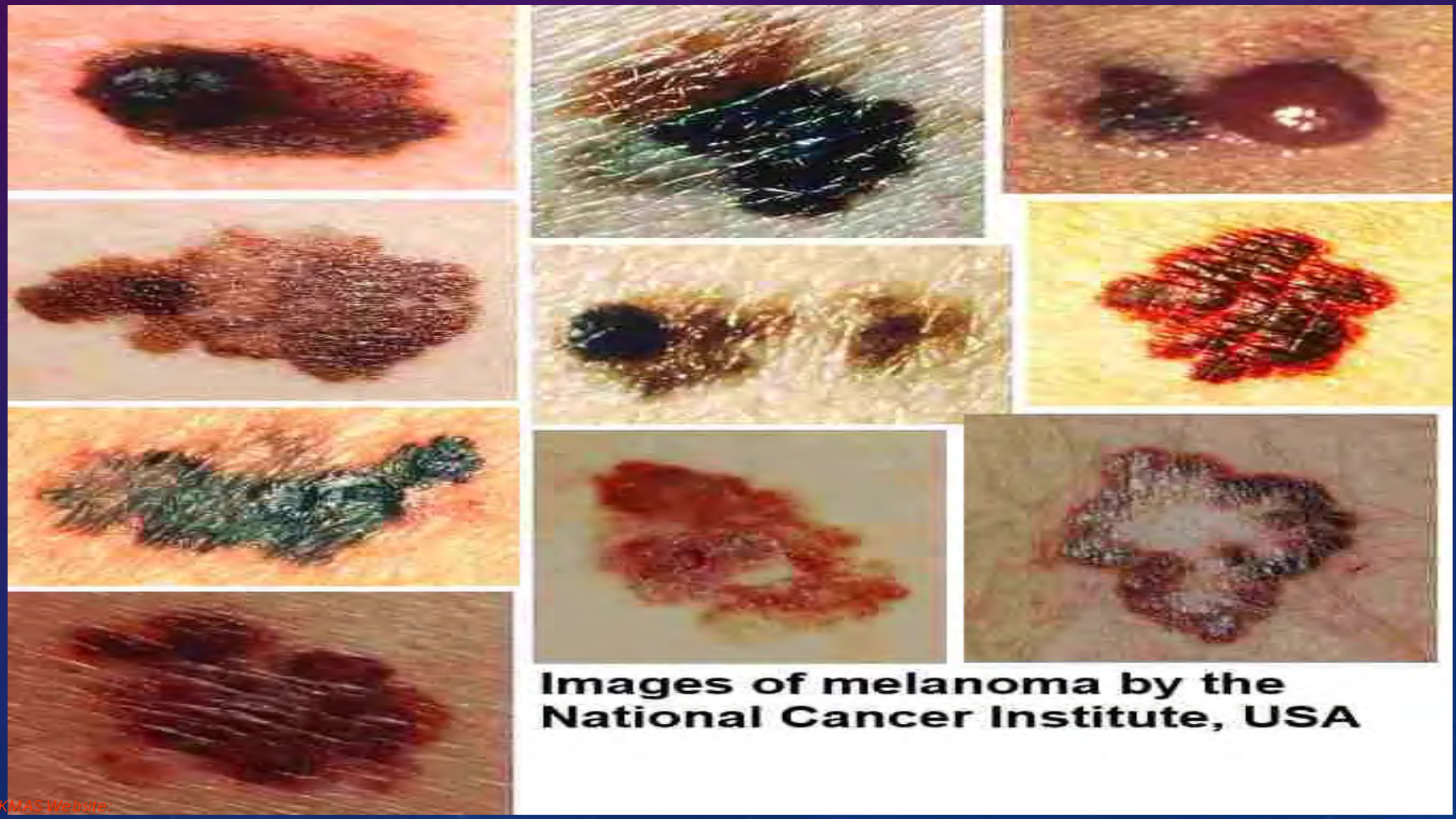
3 What to look for

The features of melanoma



Images of melanoma by the National Cancer Institute, USA

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ABCDE OF MELANOMA

- **A** - **ASYMMETRY**; one half unlike the other half.
- **B** - **BORDER**; irregular, scalloped or poorly defined border.
- **C** - **COLOUR**; varied from one area to another; shades of tan, brown, and black; sometimes white, red, or blue.
- **D** - **DIAMETER**; melanomas are usually greater than 6mm when diagnosed, but they can be smaller.
- **E** -**EVOLVING**; a mole or skin lesion that looks different from the rest or is changing in size, shape, or colour.

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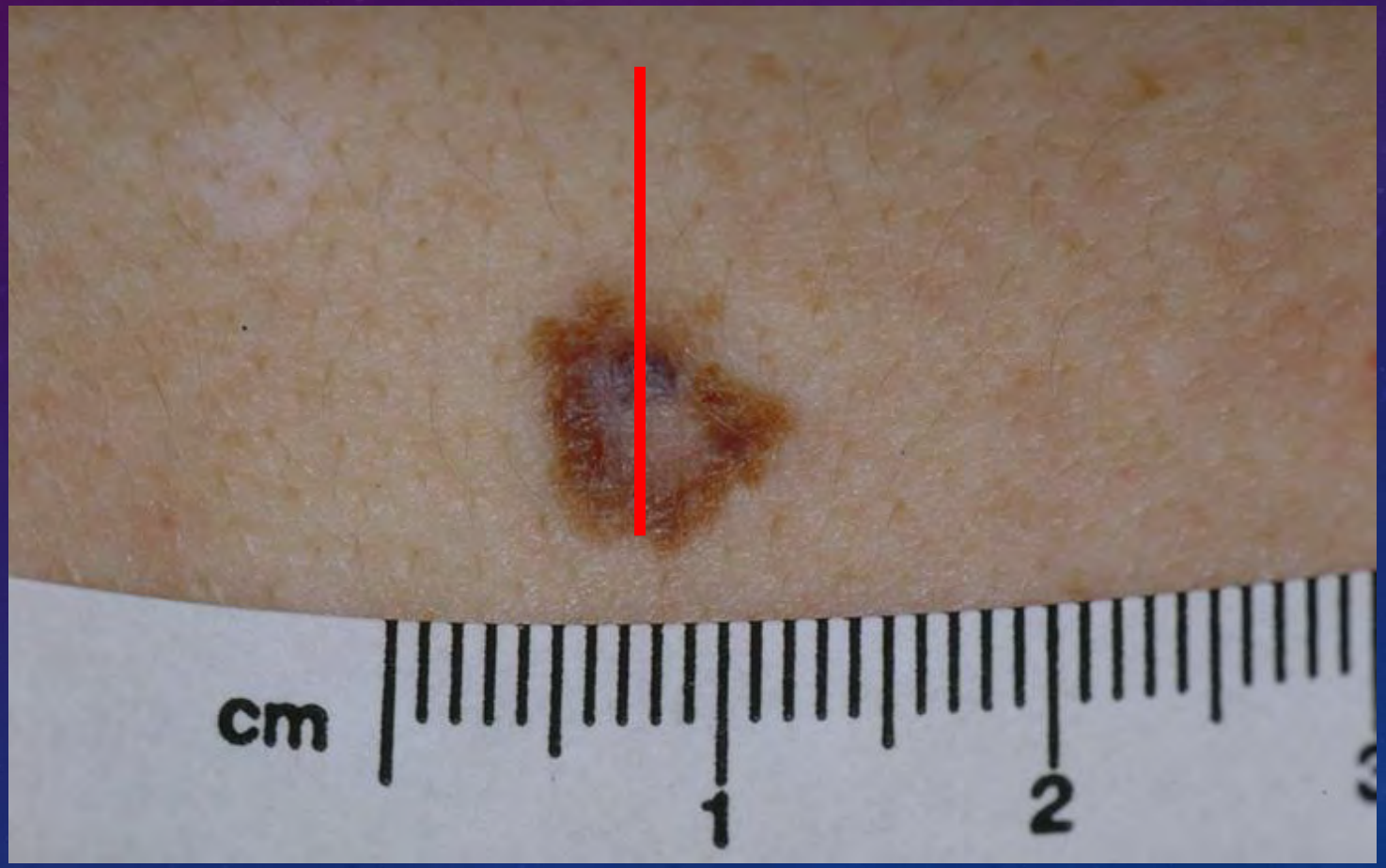
Asymmetry



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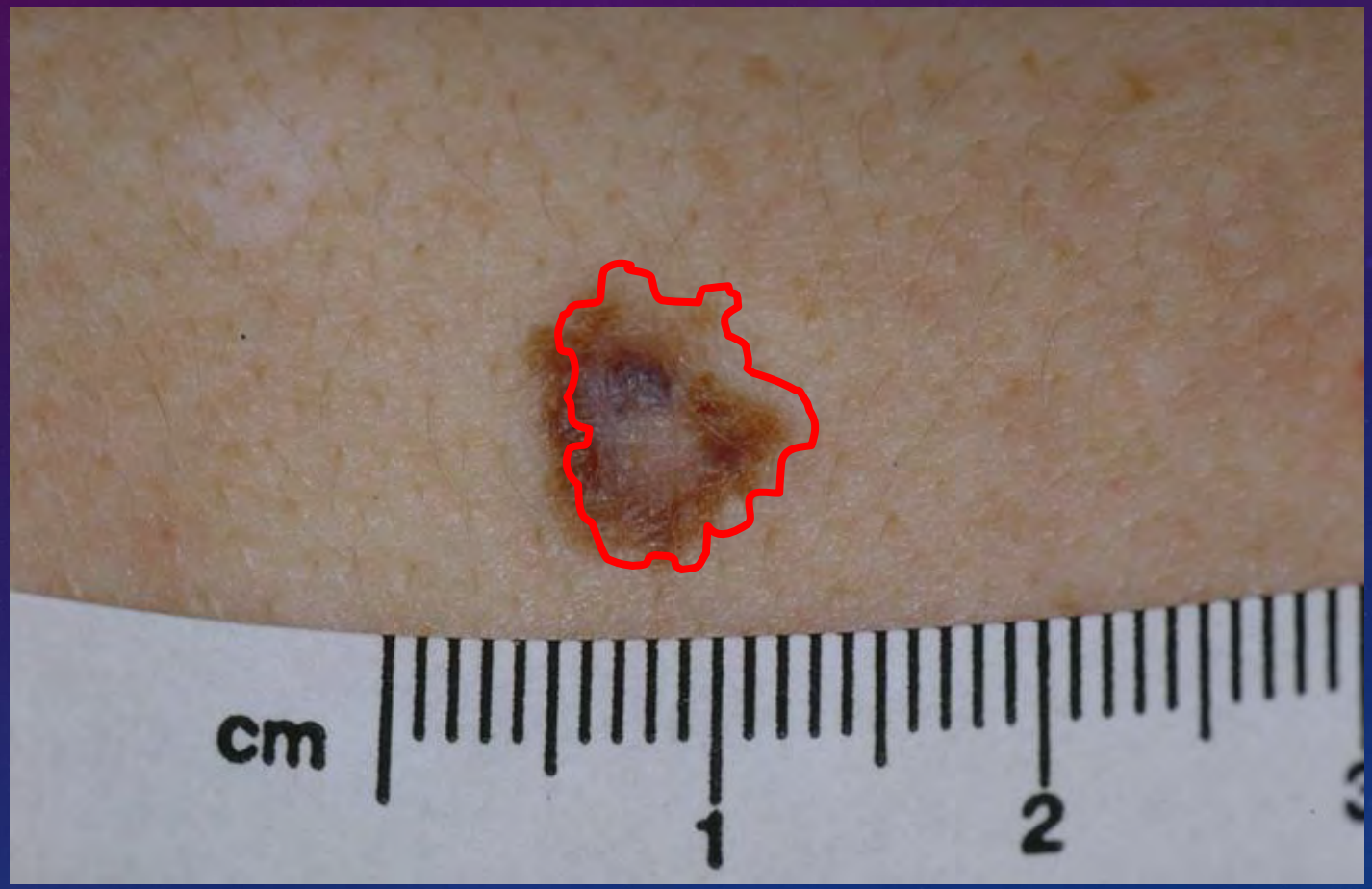
Border irregularity



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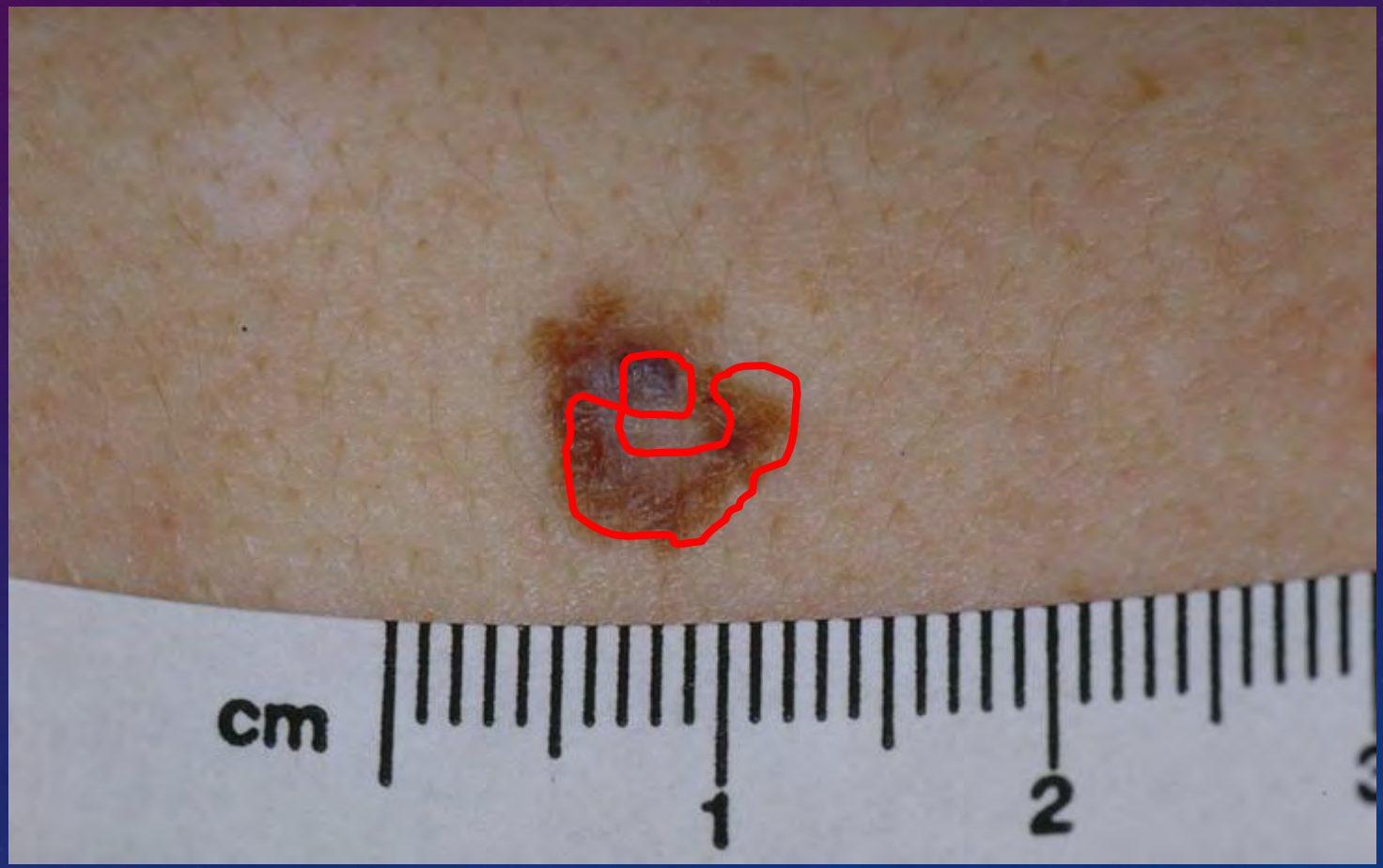
Colour variegation / variation



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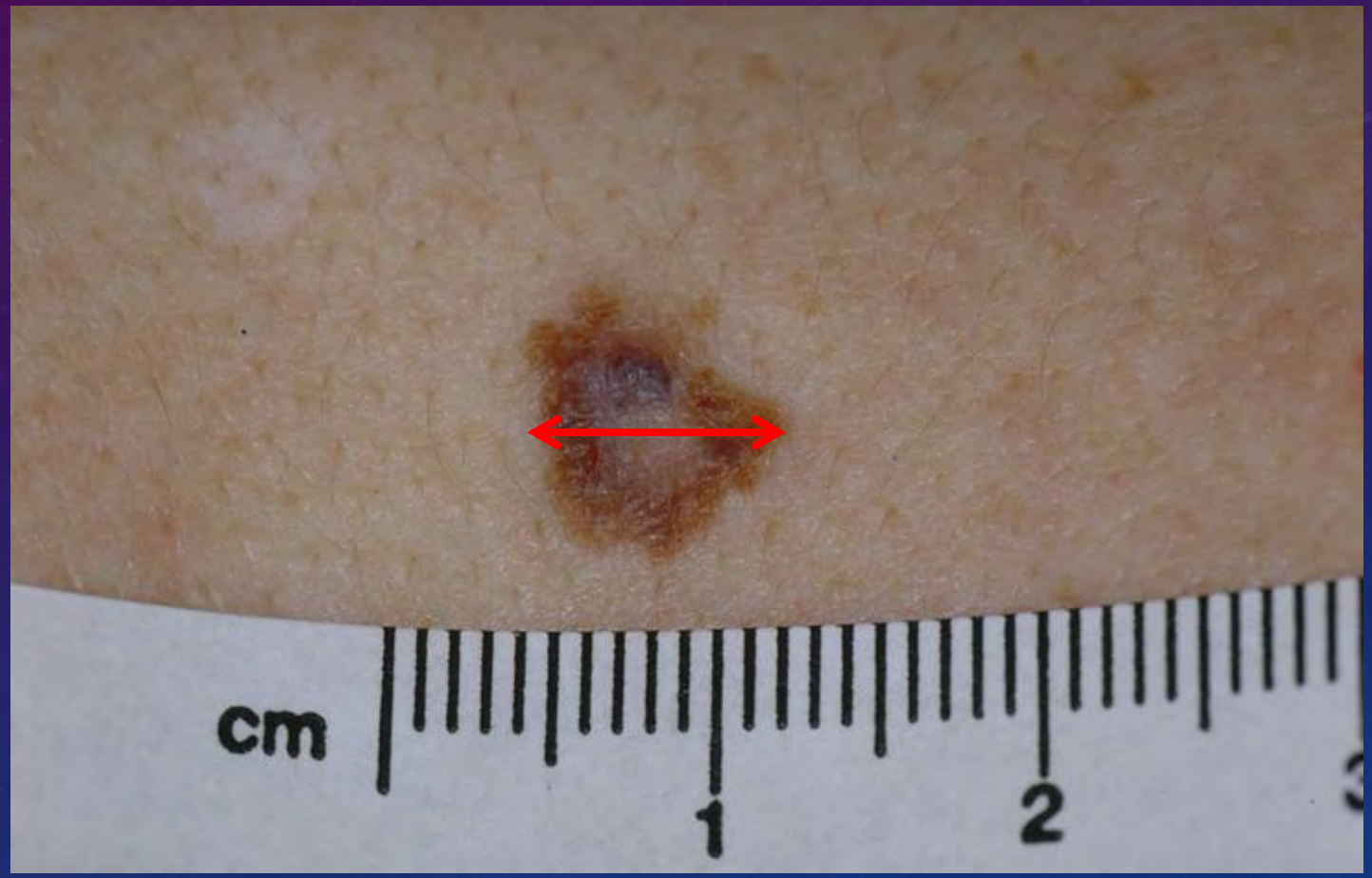
Diameter >6mm



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EVOLUTION

- A history of change in a skin lesion is the most important clinical sign for melanoma

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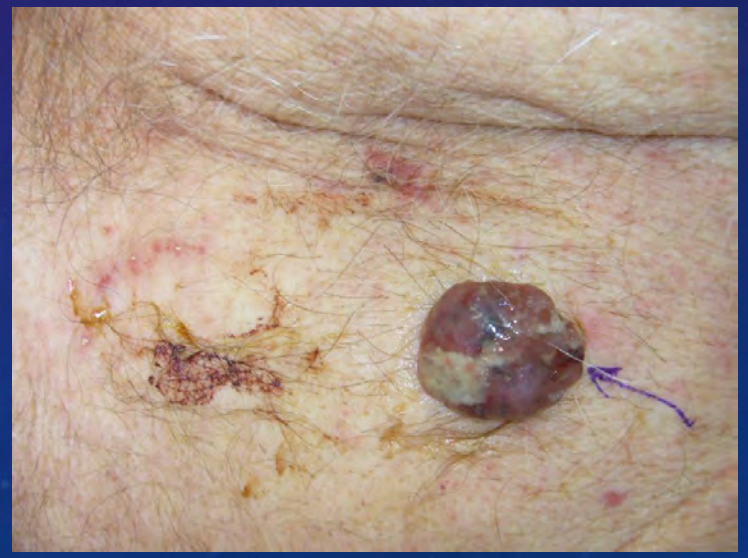
Significant **change** over 3 months is the key

Melanomas either grow from preceding melanocytic lesions or grow as new lesions

29% melanomas arose in a pre-existing mole (JAAD Nov 2017)



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MANY CLINICAL SUBTYPES

- Superficial spreading melanoma (SSM)
- Nodular melanoma (NM)
- Lentigo maligna (LM) &
  lentigo maligna melanoma (LMM)
- Desmoplastic melanoma
- Acral lentiginous melanoma (ALM)
- Subungual melanoma

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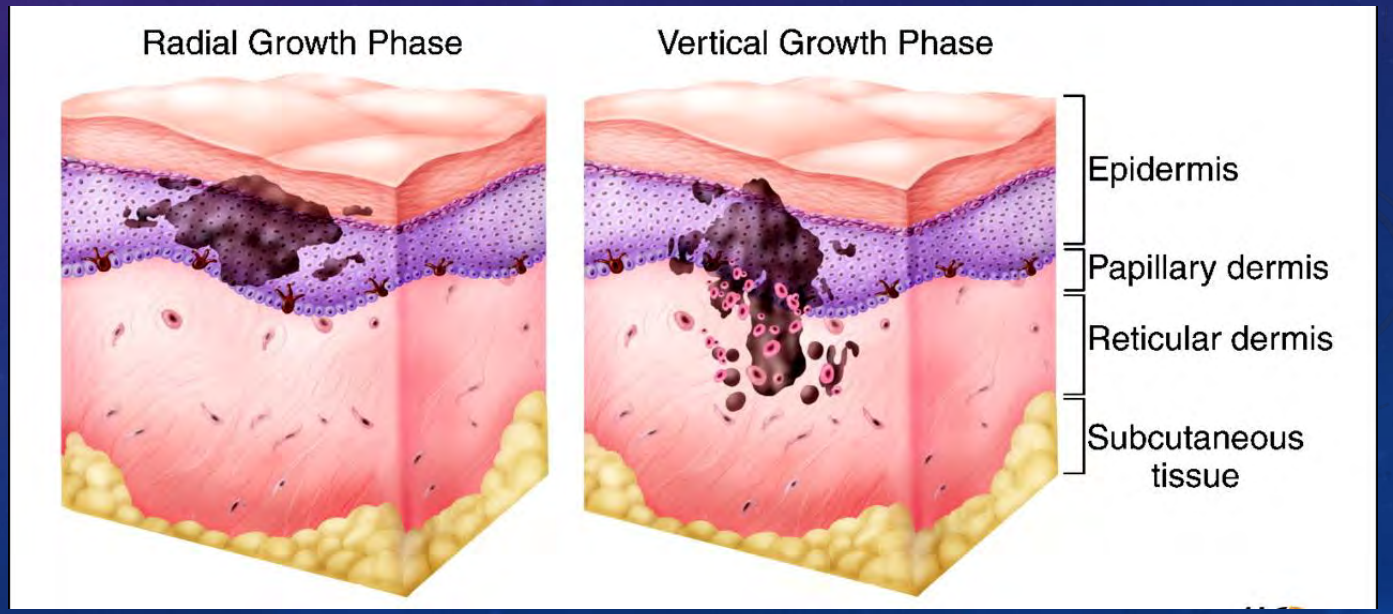
ABCDE of Melanoma is good at detecting horizontal growth phase

Melanomas with a significant mortality have a vertical growth phase early



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15% of melanomas present with an expansile nodule - features can be summarized using:

Elevated

Firm

Growing

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Beware the ugly duckling

Use other lesions as a reference

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DERMOSCOPY

- Sensitivity is increased by all dermoscopy methods
- Useful in diagnosing benign lesions such as seborrhoeic keratoses and haemangiomas
- New meta-analysis shows 15.6 x greater diagnostic odds ratio than for naked eye assessment

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DERMOSCOPY

- What are some of the features we look for on dermoscopy that are suggestive of melanoma?

1. Blue-white veil
2. Scar like depigmentation
3. Pseudopods
4. Radial streaming
5. Multiple colours
6. Multiple brown dots

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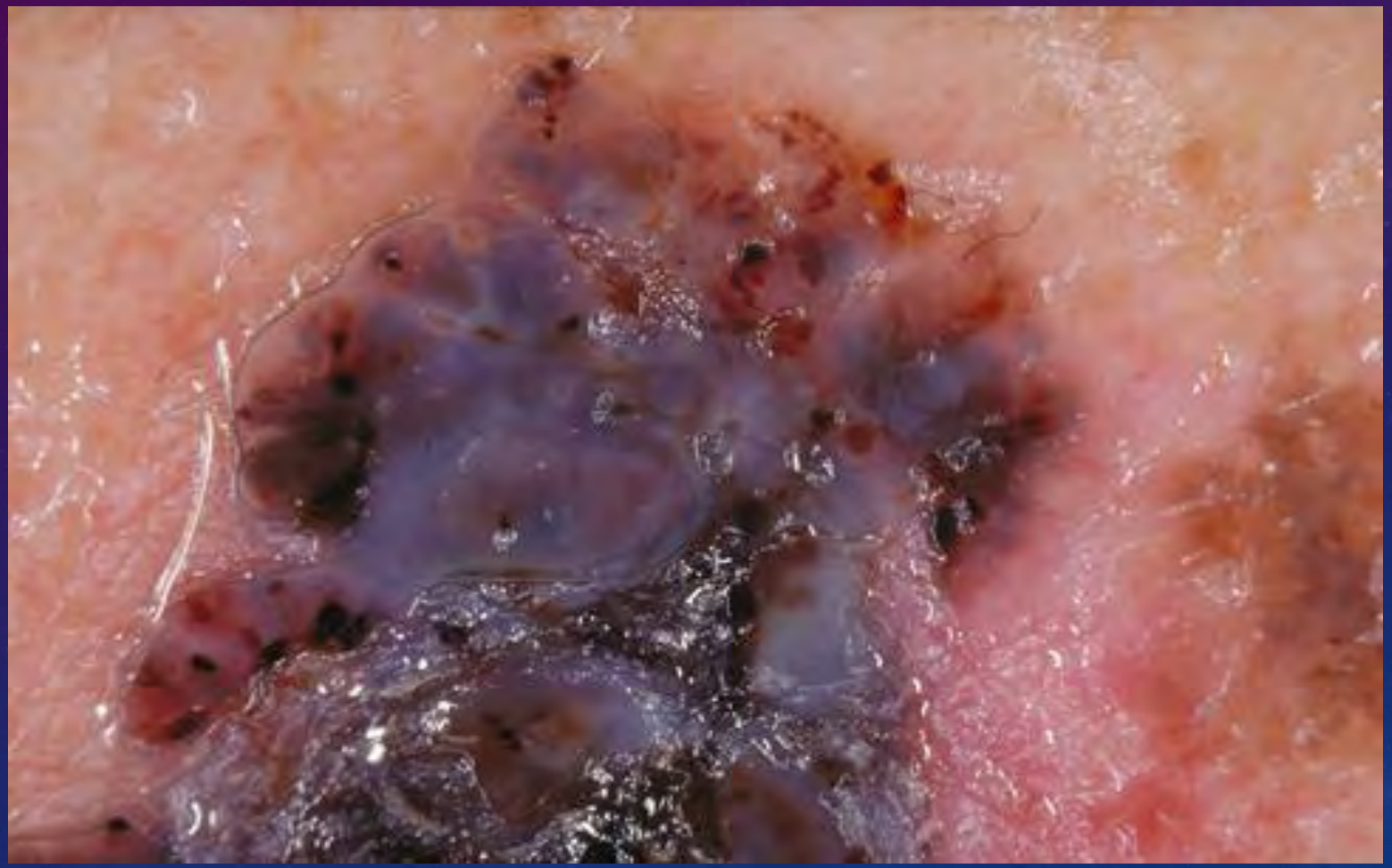
1. BLUE-WHITE VEIL



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2. SCAR-LIKE DEPIGMENTATION

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3. PSEUDOPODS

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4. RADIAL STREAMING

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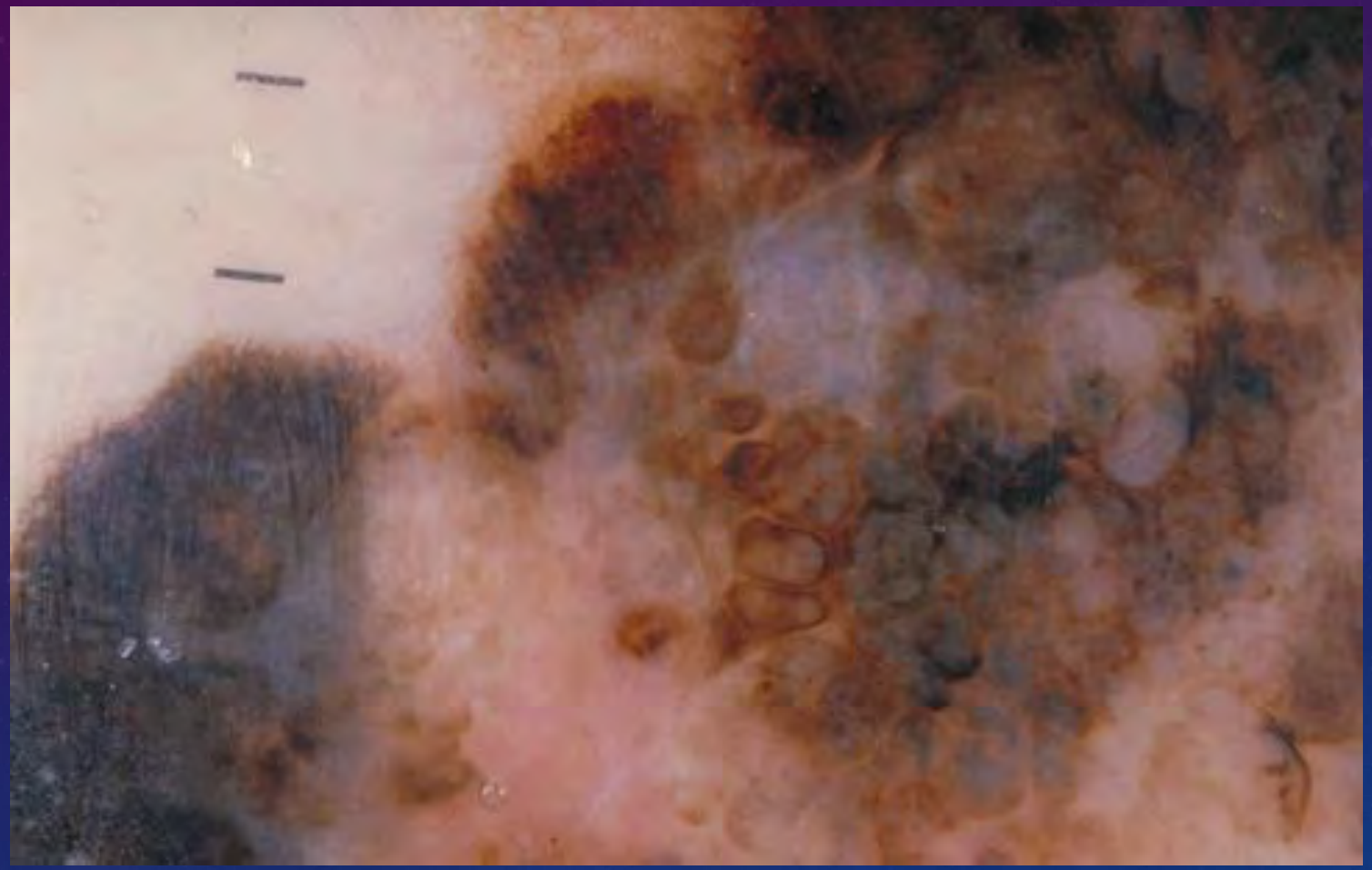
5. MULTIPLE COLOURS



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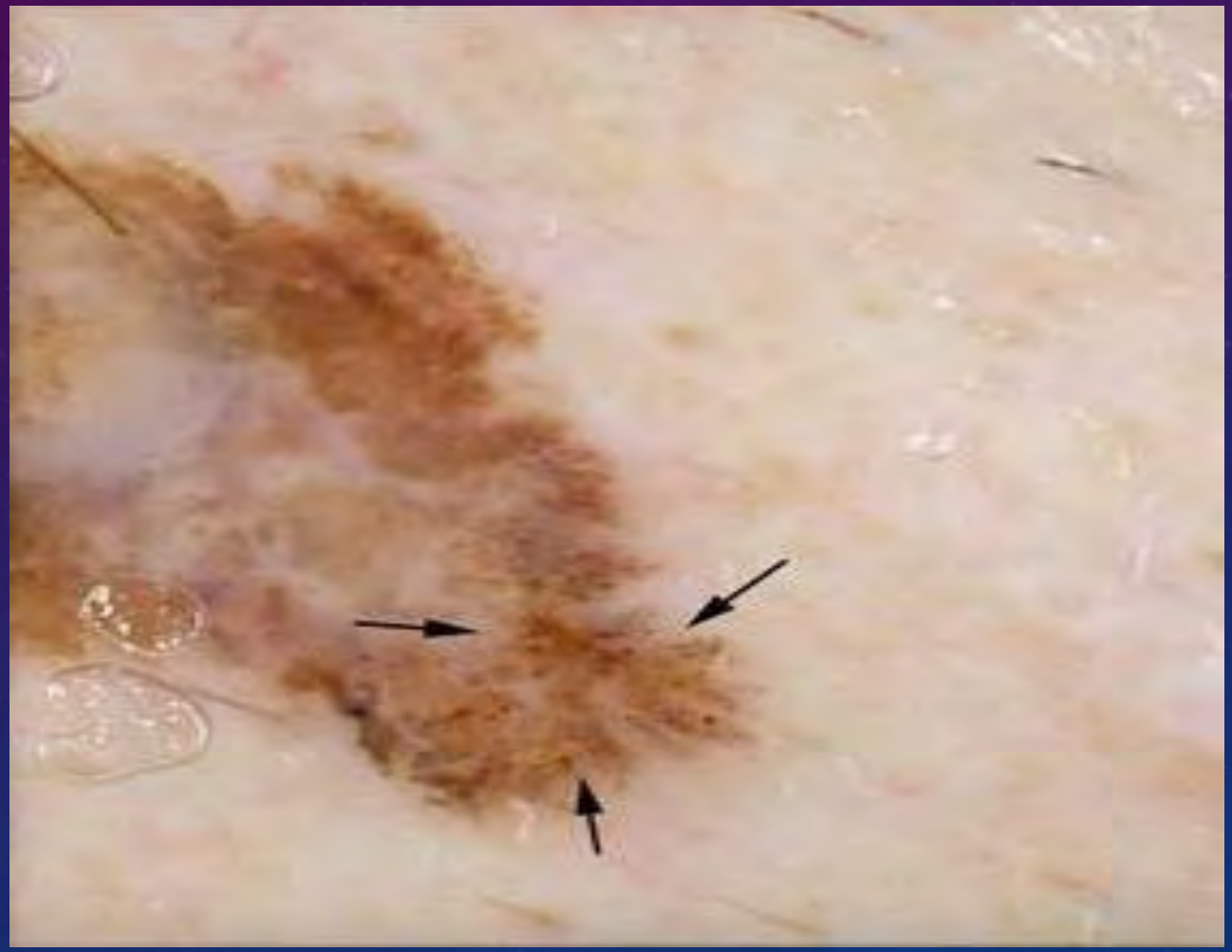
6. MULTIPLE BROWN DOTS



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NEW ADVANCES IN DETECTION OF MELANOMA

- Total Body Photography (TBP)- most useful in patients with extensive or dysplastic melanocytic naevi, and high risk patients. Useful baseline to assess stability of naevi. Medical photography is time consuming, and expensive. Studies have shown benefits with 4 fold reduction in biopsy procedures.
- Newer innovations for TBP include-
  - Automated TBP machines -Canfield Scientific, 3D digital avatar of patient, 1 pose with 92 cameras taking photos from all angles, 360^{o} view, and can include individual dermoscopic picture of specific naevi. Very large machines, >$500,000
  - Simplified TBP- digital photos from smart phones and tablets incorporated into patient EMR, Molemapper iOS apps to store photos on patient smart phones

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NEW ADVANCES IN DETECTION OF MELANOMA

- Sequential Digital Dermoscopic Imaging (SDDI)- allows dermoscopic image monitoring of suspicious pigmented lesions. Detects early transformation of pre-existing lesion into melanoma, can be incorporated with TBP. Image captured easily using dermatoscope with camera lens attachment or with smartphone adapter. Benefits of earlier detection of melanoma, reduce unnecessary biopsy procedures.
- Reflectance Confocal Microscopy (RCM)- uses 830nm laser to produce an image with cellular detail with in vivo near histologic resolution at 30x, image depth of 200-300µm, useful as additional tool for diagnosing lentigo maligna melanoma (LMM), amelanotic melanoma, equivocal dermoscopically suspicious lesions, mapping of poorly defined LMM's on face or scalp. Costly machine, time consuming, expert training
- Electrical Impedence Spectroscopy (EIS)- Nevisense, uses probe to detect electrical impedence differences between benign and malignant lesions. High sensitivity and negative predictive value, incorrectly classifies seborrhoeic keratoses as melanomas, can miss thin melanomas

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NEW ADVANCES IN DETECTION OF MELANOMA

- AI and Machine Learning- convoluted neural networks (CNNs) allow use of computer algorithms based on data sets of images to allow for differentiation between benign and malignant lesions. Computer learns from each mistake and progressively refines predictions.
  - Study in 2017 Esteva et al showed CNN performance comparable or superior to 21 board certified Dermatologists regarding melanoma and keratinocyte neoplasm diagnosis
  - Google's Inception v4 CNN compared dermoscopic image assessment and CNN outperformed an international group of 58 Dermatologists
  - Combining automated TBP machines with CNN- work in progress
  - Useful as triaging tool in Telehealth when combining AI and smartphone photos or dermoscopic images for delivery of Dermatologic care to remote or rural areas

- Limitations being the predictive values of CNN is based on the datasets of images supplied for training, difficulty of identifying discrepancies

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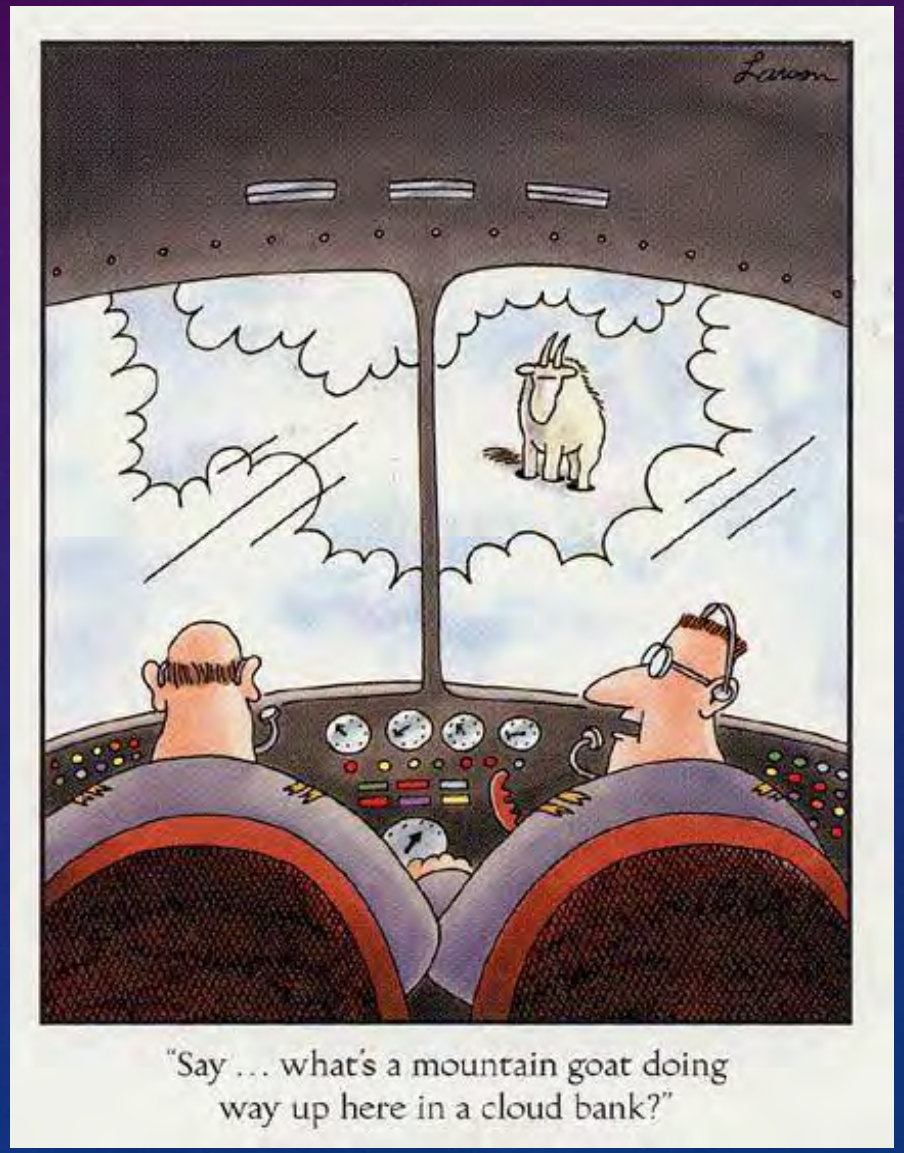
Know when you can’t make a diagnosis

If you are not sure biopsy or refer

Err on the side of caution



"Say … what's a mountain goat doing way up here in a cloud bank?"

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4 How to biopsy?

Excisional biopsy with narrow lateral margin >2mm and include superficial subcutaneous tissue

Large incisional biopsy if excision is not possible. Biopsy through the most atypical pigmented area

Do not do punch biopsies or shave biopsies

Refer if uncertain

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Aims of biopsy are to -

confirm there is melanoma present (can be localized to one small area of lesion)

- partial biopsies have high false negative rates

accurately determine Breslow thickness

- shave biopsies do not do this

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Do not punch biopsy

Sampling error-Melanocytic hyperplasia = melanoma

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The increasing use of shave biopsy for diagnosing invasive melanoma in Australia Sara L de Menezes, John W Kelly et al. MJA July, 2019.

400 patients 2005-2015

Proportion of shave biopsies increased from 9% to 20%

54% of shave biopsies transected the base (did not provide an accurate Breslow thickness)

Base transection was just as common among Dermatologists as GPs

The “appropriate” lesion for shave cannot be reliably identified

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5 Who to refer?

To Dermatologist

High risk patients- surveillance

Management of melanoma

Review or follow up of previous melanomas

Not sure what to biopsy

Don’t have time to check their skin

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To WAKMAS – Breslow thickness ≥ 0.8mm

To discuss possible other investigations-

- Sentinel lymph node biopsy
- PET/CT scan
- Ultrasound monitoring of lymph nodes

To give patient best access to best possible surgical and systemic treatments

To give patient access to any possible adjuvant trial treatments

To get all of this to happen as quickly as possible- WAKMAS will assess patients within 2 weeks of referral

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1 Who should we be examining?

Those with risk factors

2 How should we examine?

Directed, systematic and comprehensively

3 What to look for?

ABCDE

4 How to biopsy?

Excision with narrow margins if possible, if not incisional biopsy

5 Who to refer?

≥ 0.8mm Breslow thickness

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