

# Pigmentation

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# Definition

- Pigments are colour substances from normal constitution of cells (melanin)
- Differentiate between exogenous and endogenous

# Exogenous

- **Carbon** (coal dust) – air pollutant in urban life, inhaled and picked up by macrophages (alveoli) to regional lymph nodes.
- Accumulation blackens lung tissue (Anthracosis)
- Coalminers can cause fibrosis of the lung- Pneumoconiosis.

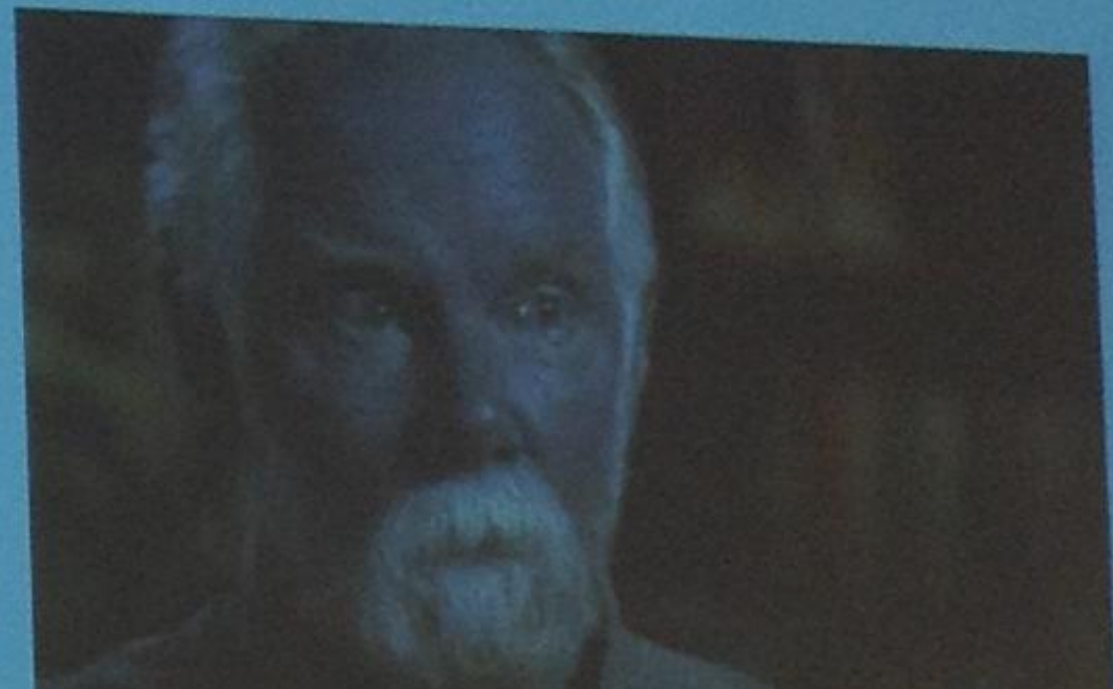




# Exogenous

## ■ Heavy metals – usually ingested

- Lead and bismuth deposition of blue or black pigment – gum margin
- Silver (argyria) and gold (chrysiasis) – grey pigmentation – skin.

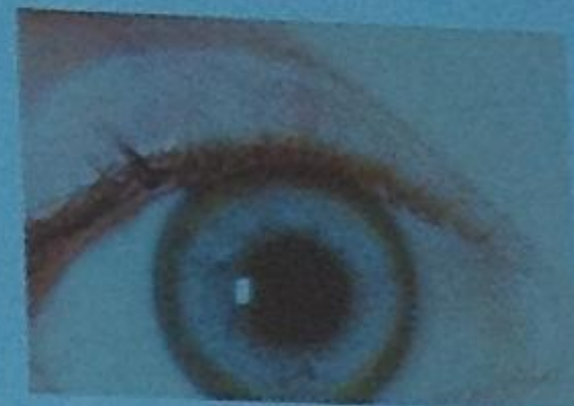
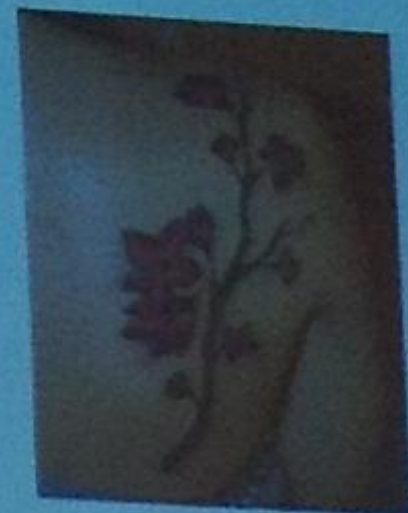




# Exogenous

## ■ Miscellaneous pigments:

- Tattooing – localized pigment to the dermis – red or blue colour
- Copper – Wilson's disease, Kayser – Fleischer ring and Menkes' disease.
- Colour soluble substances – food, drugs - hypercarotonaemia

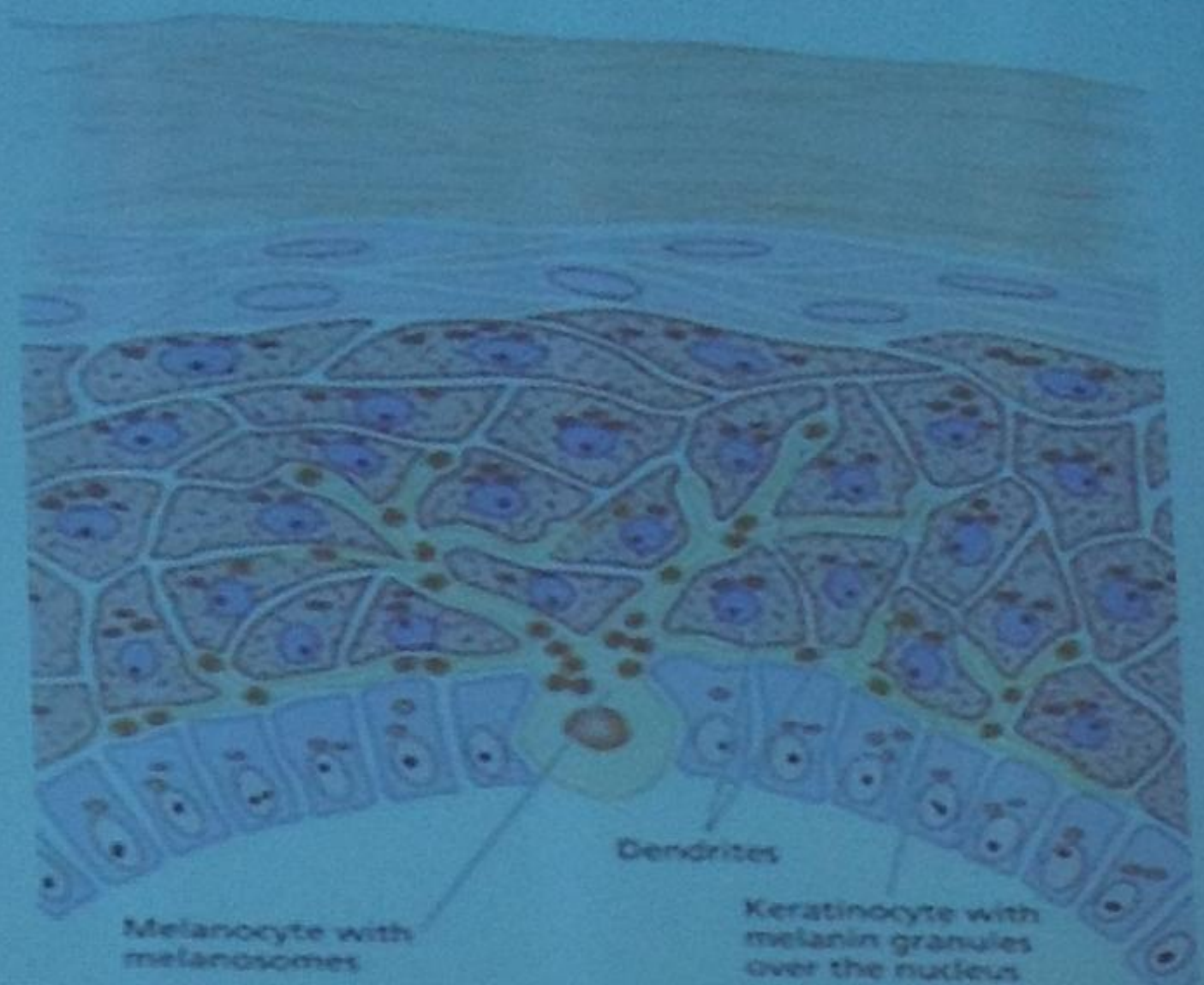




# Endogenous

■ **Melanin** – gives colour to hair, skin and eyes and is formed in melanocytes

■ Leptomeninges, adrenal medulla and certain nerve cells

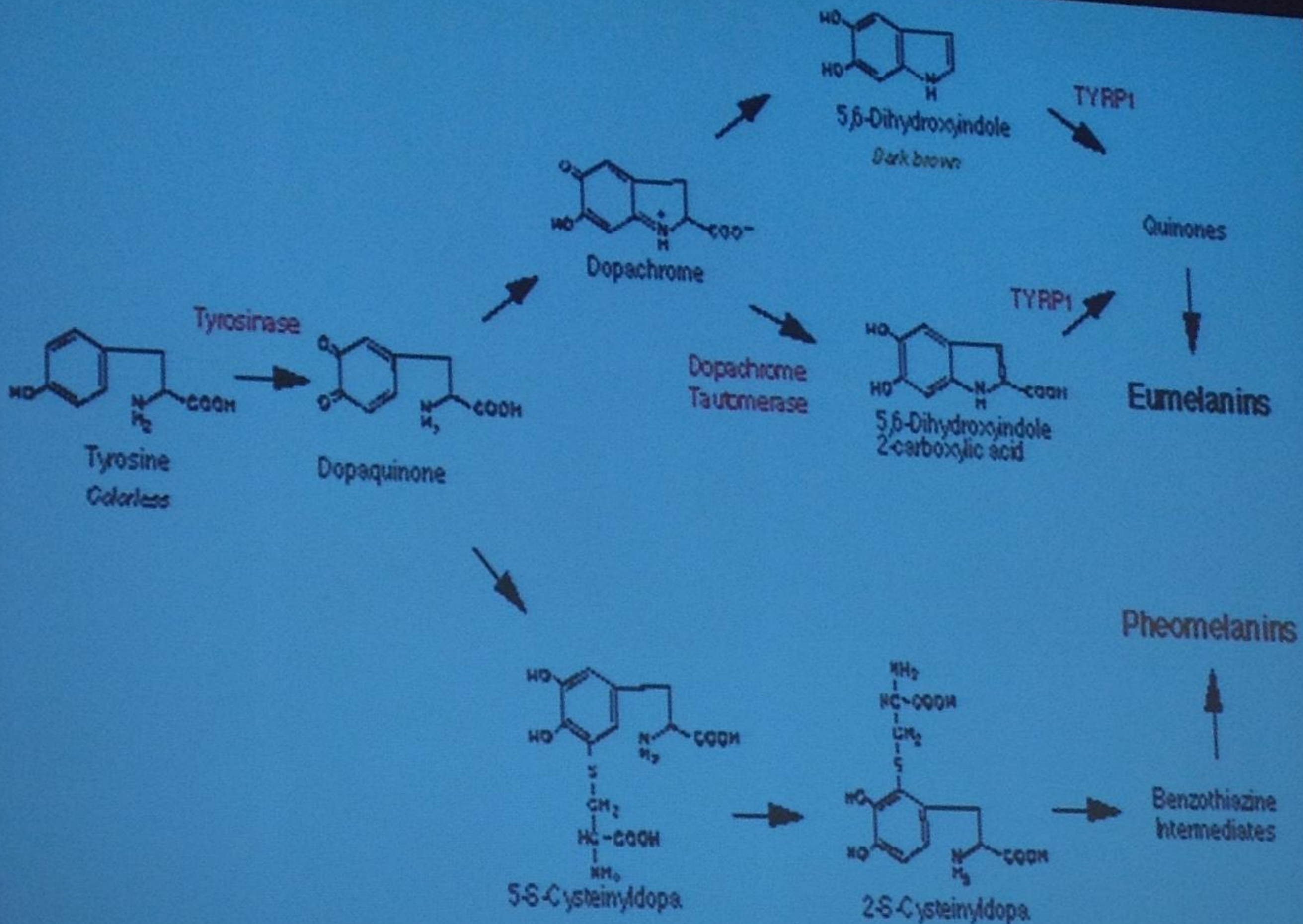




# Endogenous

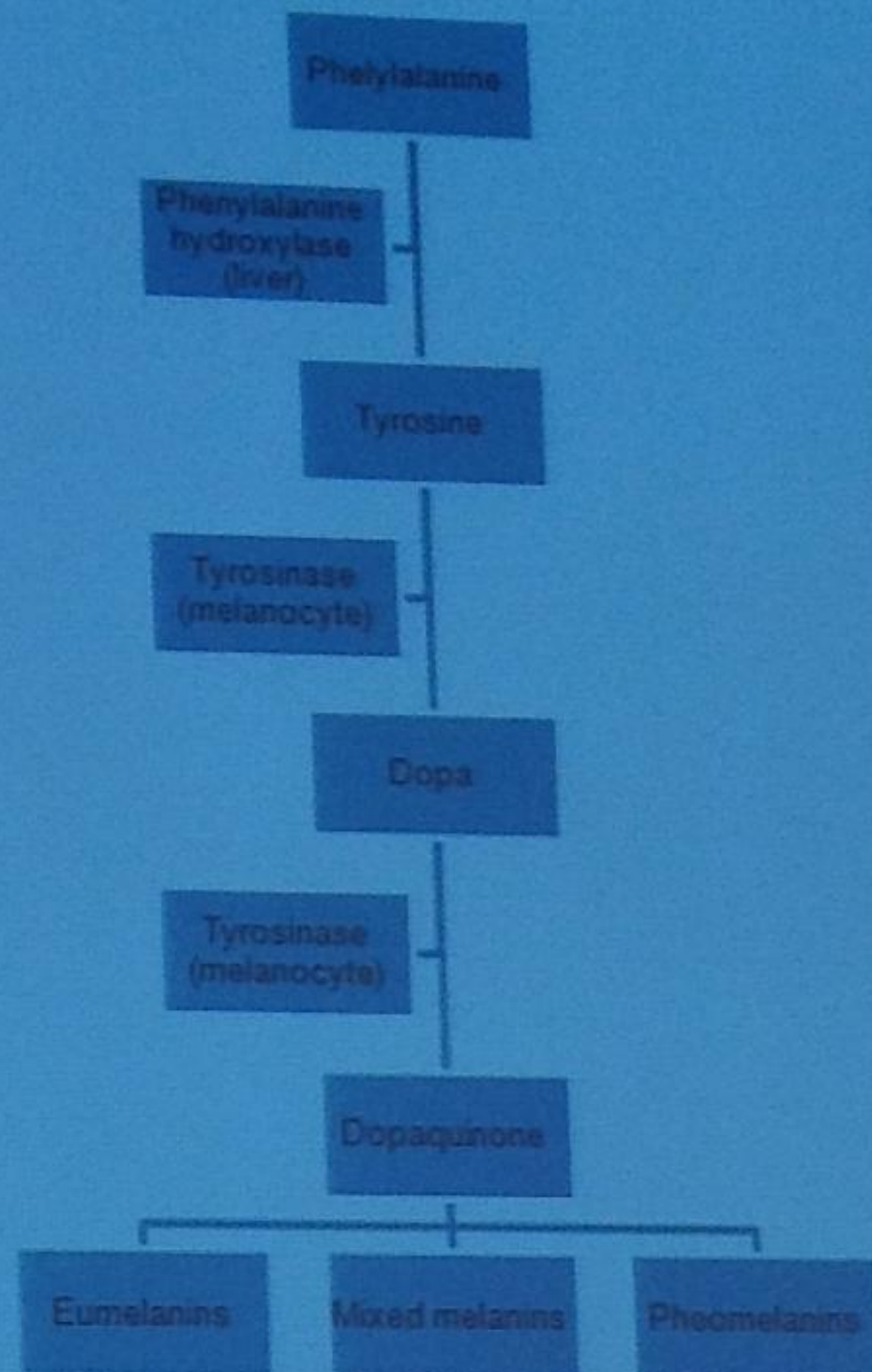
- Composition of melanin:
  - Eumelanin (black or brown pigment) and pheomelanin (red to yellow)
- Function of melanin:
  - provide protection against UV damage.
- Pigment is produced when enzyme tyrosinase catalyzes oxidation of tyrosine to dihydroxyphenylalanine







# MELANIN PRODUCTION PATHWAY





# SUMMARY

- Melanin is the pigment responsible for the skin and hair colour
- Produced by pigment cells, melanocytes found in the basal cell layer of epidermis
- The melanin is distributed to keratinocytes through melanocytes dendritic processes
- 2 types – eumelanin (blacks), pheomelanin (whites).



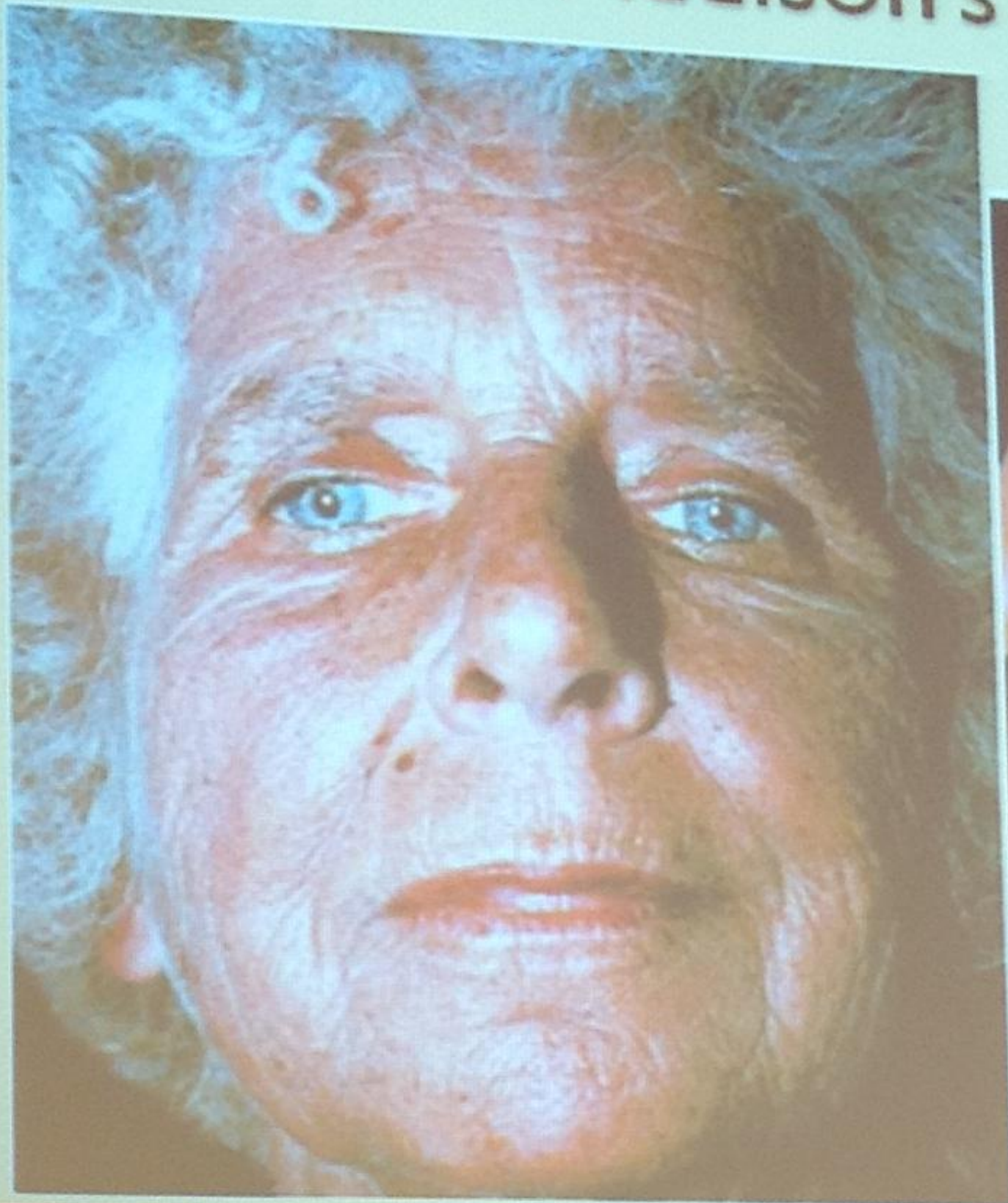
# Disorders Of Melanin

## Hyperpigmentation

Generalised	Focal	Skin nodules
Addison's disease	Freckles	Melanocytic naevi
Pregnancy	Cafe'-au-lait spots	Blue naevi
Haemochromatosis	Peutz-Jeghers syndrome	Dermatofibromas
Localised melanosis	Lentigo	Seborrheic keratosis
	Post inflammatory dermatosis	Basal cell carcinomas, malignant melanomas



# Addison's Disease

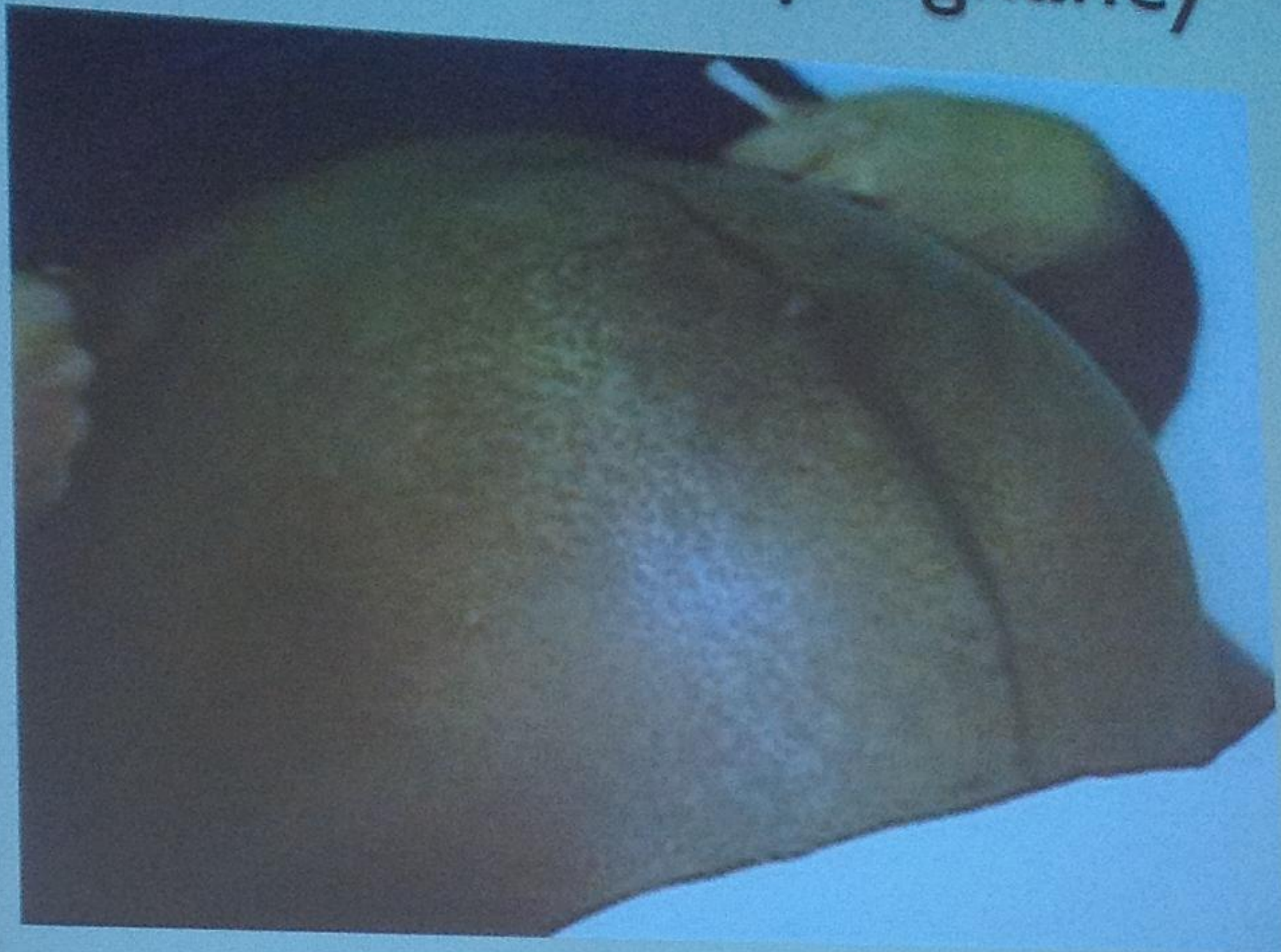


**B**

Hyperpigmentation with accentuation in sun-exposed areas, and hyperpigmented palmar creases

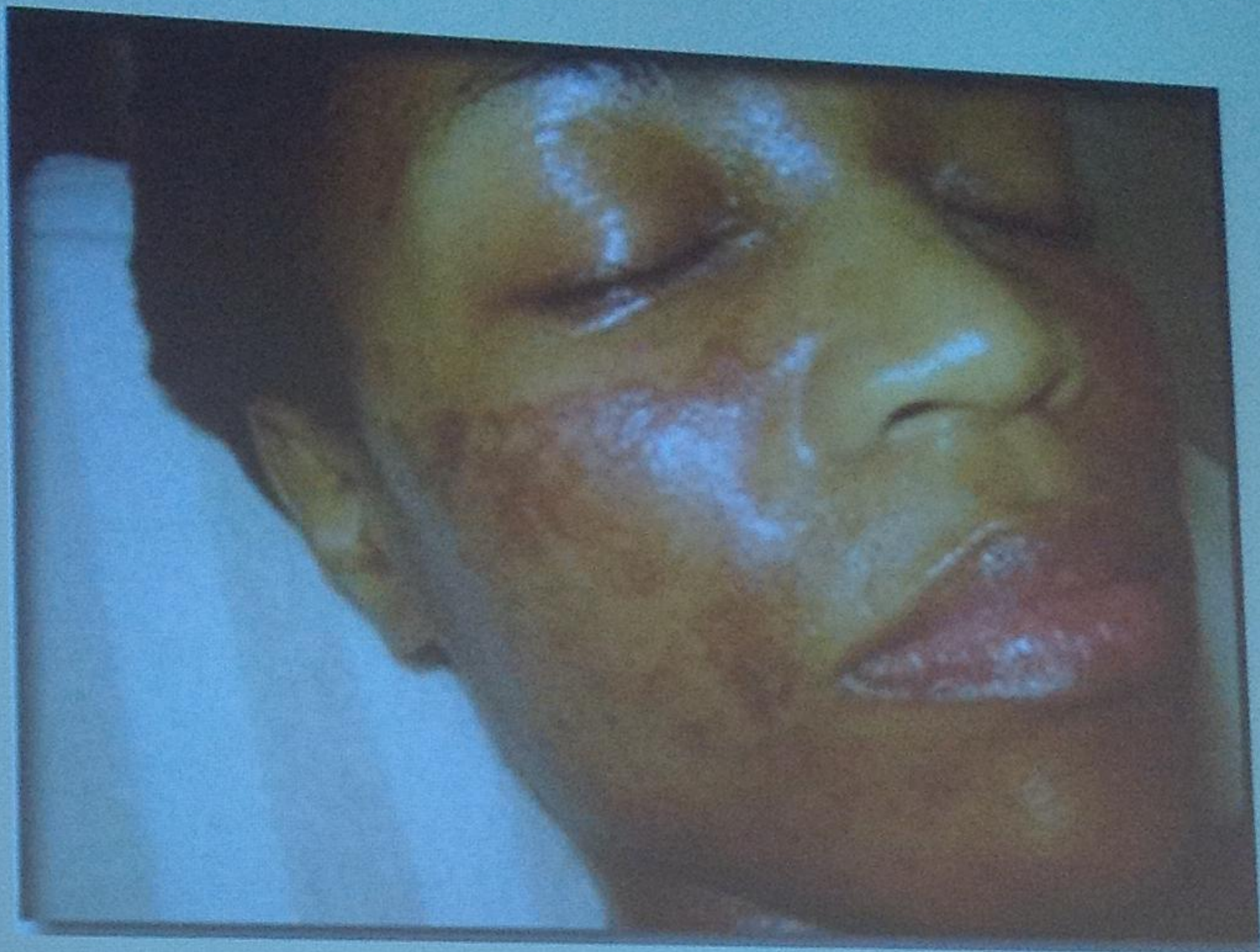


# Pigmentation in pregnancy





# Melasma





# MELASMA

- Also known as chloasma
- Presents as symmetrical, tan-coloured to brown macular hyperpigmentation
- Cheeks, forehead, upper lip and chin
- Affects young women mostly - 10% in men



# MELASMA

- Melasma of pregnancy may clear within few months after delivery.
- Differential diagnosis – ochronosis and photosensitivity.



# AETIOLOGY

- Complex reaction between hormonal, genetic factors and sunlight exposure
- Hormonal - pregnancy, oral contraceptives, menopause(HRT) and ovarian diseases
- Use of dilantin may induce melasma



# TREATMENT

- Very difficult condition to treat
- Sun protection (UVB/UVA) always
- Hydroquinone – most effective (low controlled concentrations)
- Tretinoin – often in combination with hydroquinone +/- hydrocortisone (Kligman's regime), skinoren
- Glycolic acid, kojic acid, arbutin
- Chemical peels
- Laser – limited role, may cause PIH

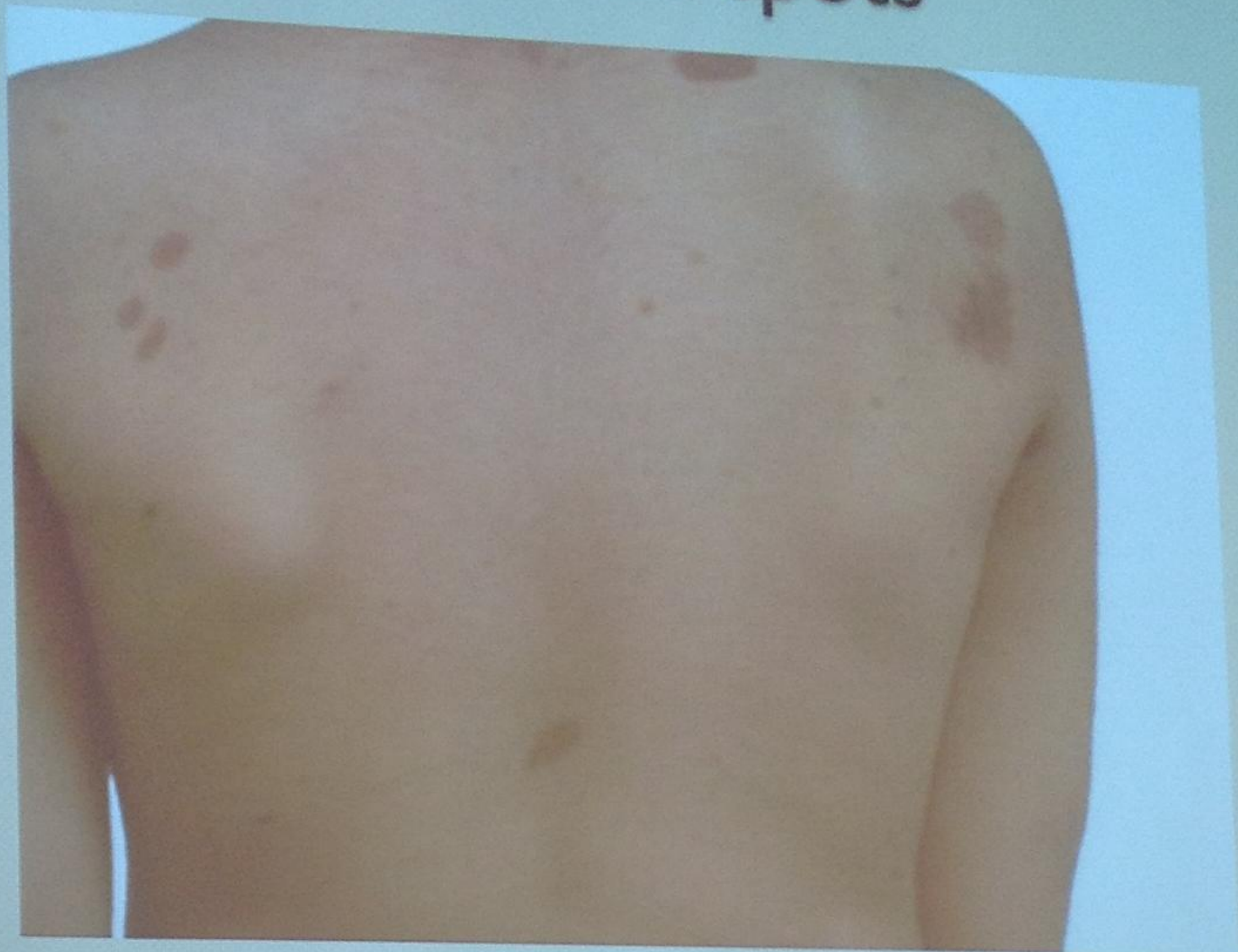


# Freckles



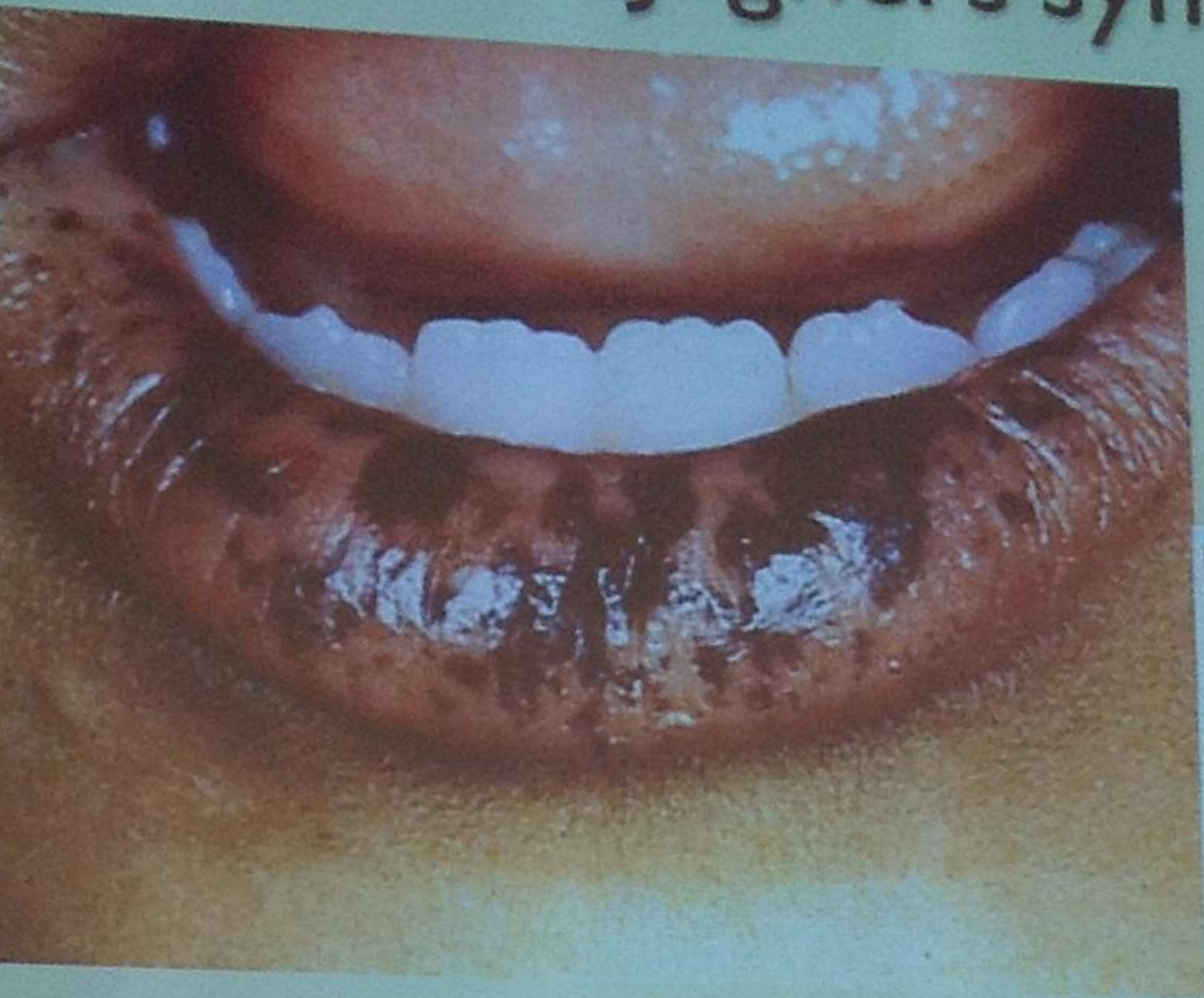


# Cafe'-au-lait spots





# Peutz-Jeghers syndrome





# Lentigo





# Post inflammatory hyperpigmentation



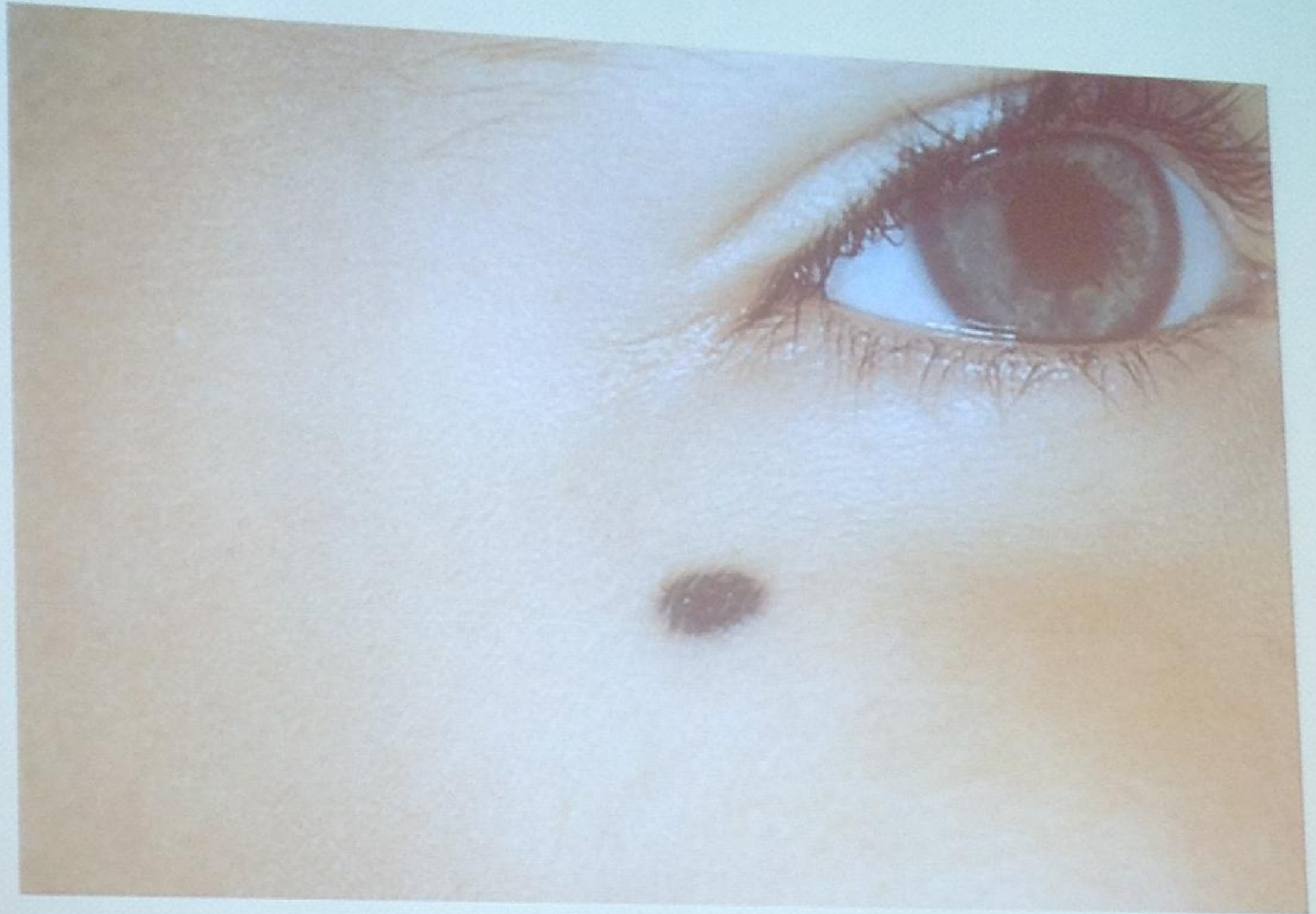


# Melanocytic naevi





# Blue naevi





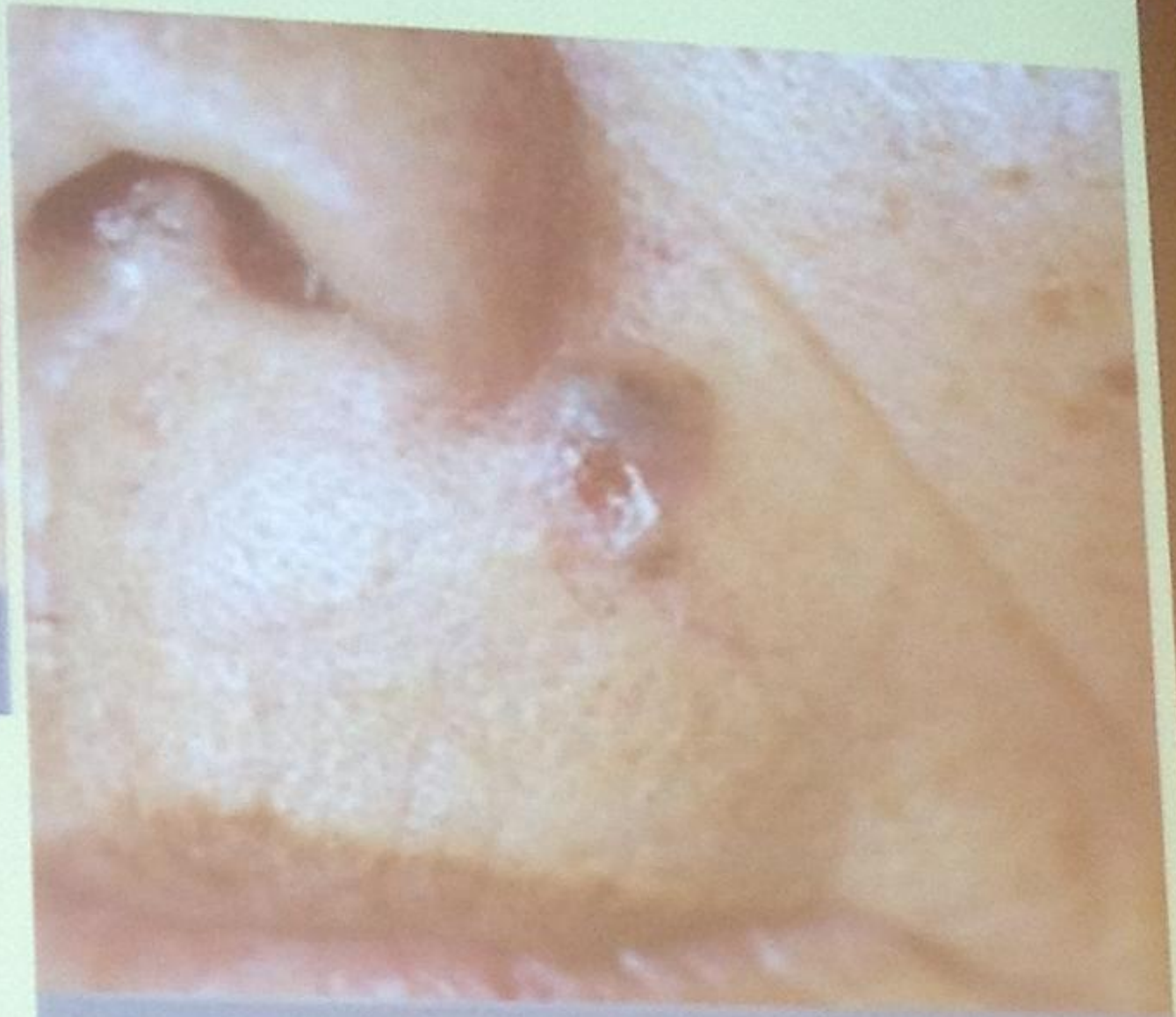
# Seborrheic keratosis







Malignant Melanoma



Pigmented Basal Cell Carcinoma