Pigmented lesions

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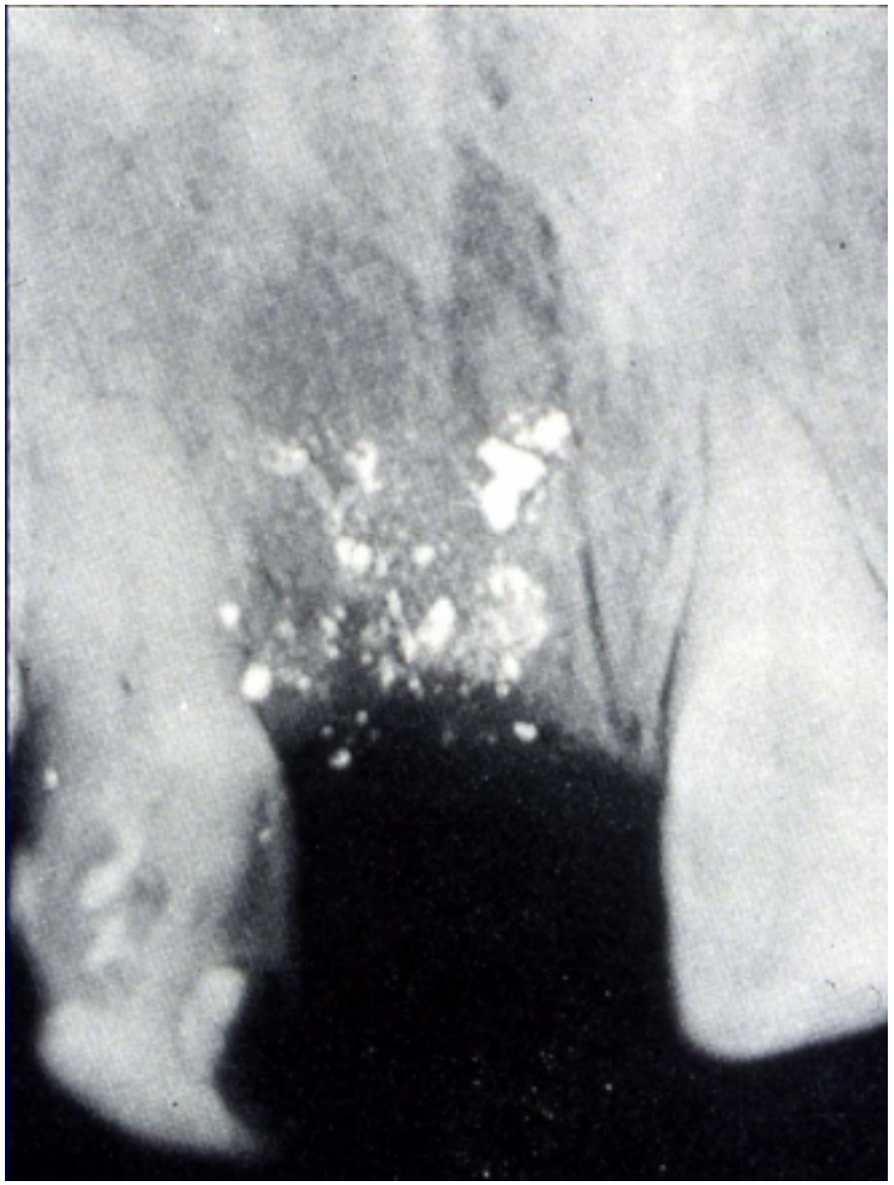
Pigmented lesions

- Foreign material
  - Amalgam
  - Graphite
  - Tobacco
  - Bacteria
- ↑ Production of Melanine
  - Racial pigmn
  - Post-inflmn
  - Smoker's melanosis
  - Syndrome-assoc.
  - Systemic
- ↑ Number of Melanocyte
  - Naevus
  - Melanoma
- Vascular changes
  - Ecchymosis
  - Haemagioma
  - Vascular tumours

Amalgam tattoo

- Most common form of localized oral pigmentation.
- Painless bluish-black macules mostly affecting the gingivae or alveolar mucosa.
- Other less frequent sites include floor of mouth and buccal mucosa.
- Usually due to implantation of amalgam into mucosal abrasions during restorative procedures or fracture of an amalgam restoration during tooth extraction.

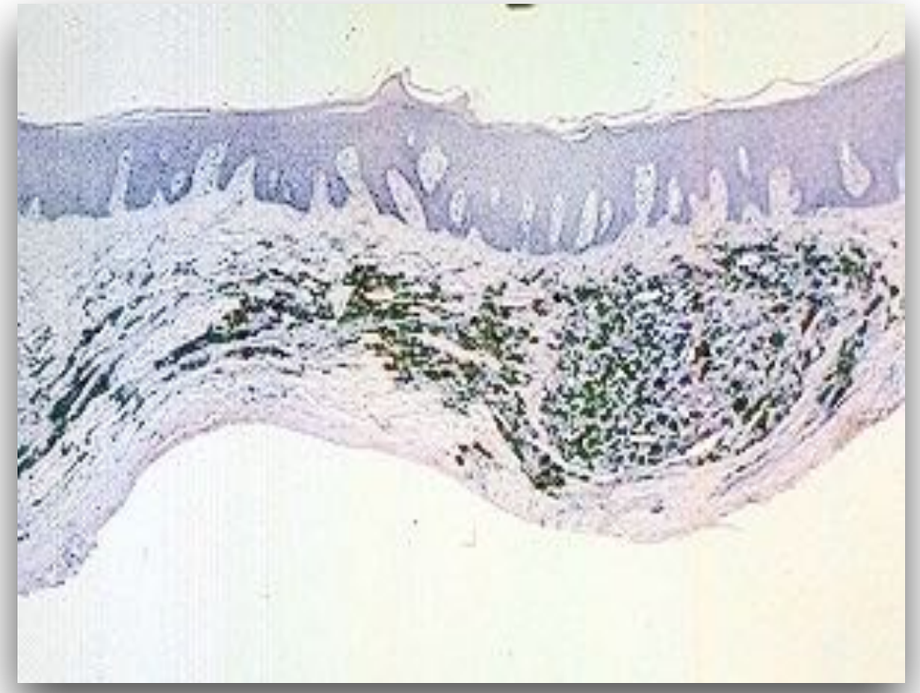
Amalgam tattoo

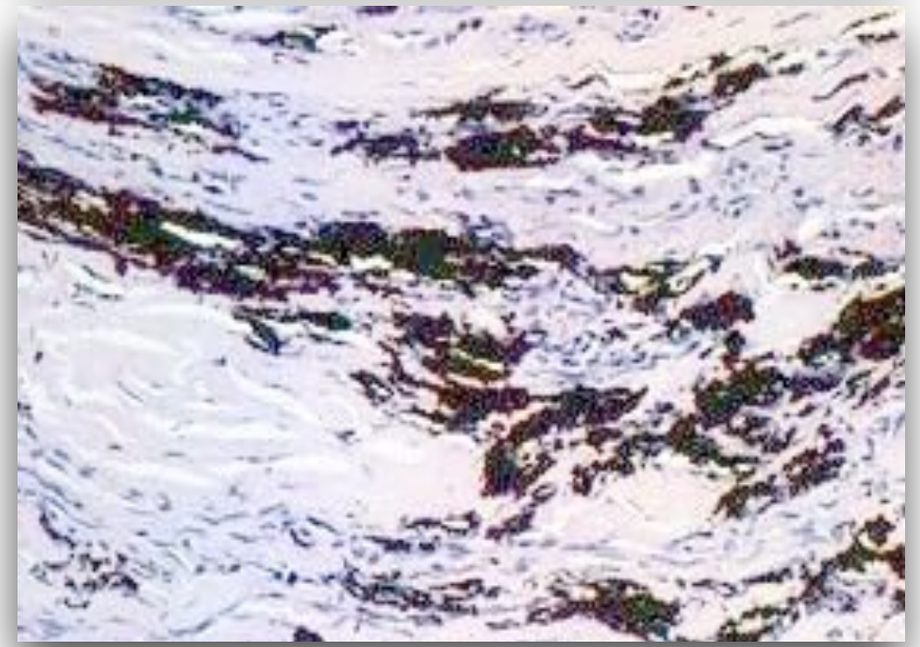


Amalgam tattoo

Histopathology;

- Dark particles of amalgam typically aligned along collagen fibers and around blood vessels.
- Little tissue reaction.
- If particles are large, contaminated or there is an allergy to amalgam —> foreign body giant cell reaction or macrophage accumulations.





Black hairy tongue

- Caused by chromogenic bacteria which are trapped within hyperplastic filiform papillae.
- Often associated with antibiotic therapy, xerostomia, and/or smoking.

Black hairy tongue

Treatment;

- Cessation of smoking.
- Mechanical removal of overgrown filiform papillae.
- Keratolytics (e.g. retinoids, salicylates).

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Racial pigmentation

- Most common cause of oral mucosal pigmentation.
- It represents an increase in the activity of melanocytes, not the number.
- Gingiva most commonly affected

Racial pigmentation

- Racial pigmentation does not alter the normal anatomical architecture e.g. gingival stippling
- The intensity and distribution of racial pigmentation is very variable i.e. between races, between individuals of the same race and within different areas of the same mouth.

Post-inflammatory melanosis

- Seen following injury to the mucosa.
- Commonly seen associated with chronic mucosal disorders such as OLP, DLE… etc.
- Probably related to stimulation by pro-inflammatory proteins in the area.

Smoking-associated melanosis

- Probably due to a toxin in tobacco that stimulates melanocytes —> more melanin production.
- Time and dose dependent.
- Seen in labial gingiva with cigarettes,
- Or the palate with pipe.
- Birth control pills might modify reaction to smoking —> more melanosis.

Syndrome-associated Pigmentation

- Peutz-Jeghers syndrome
- Neurofibromatosis (von Recklinghausen's disease)
- McCune-Albright's disease
- Addison's disease

Peutz-Jeghers Syndrome

- Autosomal dominant inheritance.
- Multiple peri-oral (and peri-orificial) macules.
- Intestinal polyposis.
- Abdominal symptoms and risk of intussusception.

Neurofibromatosis

- Autosomal dominant inheritance
- Multiple neurofibromas
- Cutaneous pigmentation (“café au lait” spots) >1.5cm and more than 5 with symmetrical distribution
- Skeletal abnormalities

McCune-Albright's Disease

- Polyostotic fibrous dysplasia.
- Precocious puberty.
- Other endocrine abnormalities.
- Skin pigmentation: tan to brown macules (café au lait spots) 1cm or greater with an irregular outline.
- Pigmentation frequently overlies affected bones.
- Pigmentation of oral mucosa is rare.

Addison’s Disease

- Adrenal cortical insufficiency.
- Diffuse cutaneous pigmentation (bronze, tanning).
- Multiple oral melanotic macules.
- Can resemble racial pigmentation.

Heavy Metal Ingestion

- Usually follows industrial or therapeutic exposure to these metals:
  - silver
  - gold
  - lead
  - bismuth
  - mercury

Image source: dentistry.uiowa.edu

Heavy Metal Ingestion

- Can be deposited in skin and oral mucosa.
- Particularly gingiva, where it is usually linear in distribution.
- Apart from aesthetics, this pigmentation is insignificant. But, it is an alert for possible systemic toxicity.

Image source: dentistry.uiowa.edu

Drug-induced

- Minocycline.
- Anti-malarials (amino quinolines).
- Zidovudine (AZT).
- Oral contraceptives.
- Cytotoxics.
- Anti-convulsants (phenothiazines).

Minocycline

- Grey/blue/black pigmentation of alveolar mucosa and affected gingivae.
- Grey/green discolouration of bone.
- Diffuse skin pigmentation especially sun-exposed areas and areas of inflammation.
- It is due to deposition of the drug in tissues (gingivae and bone) or rendering melanocytes more sensitive to light.

Metabolic

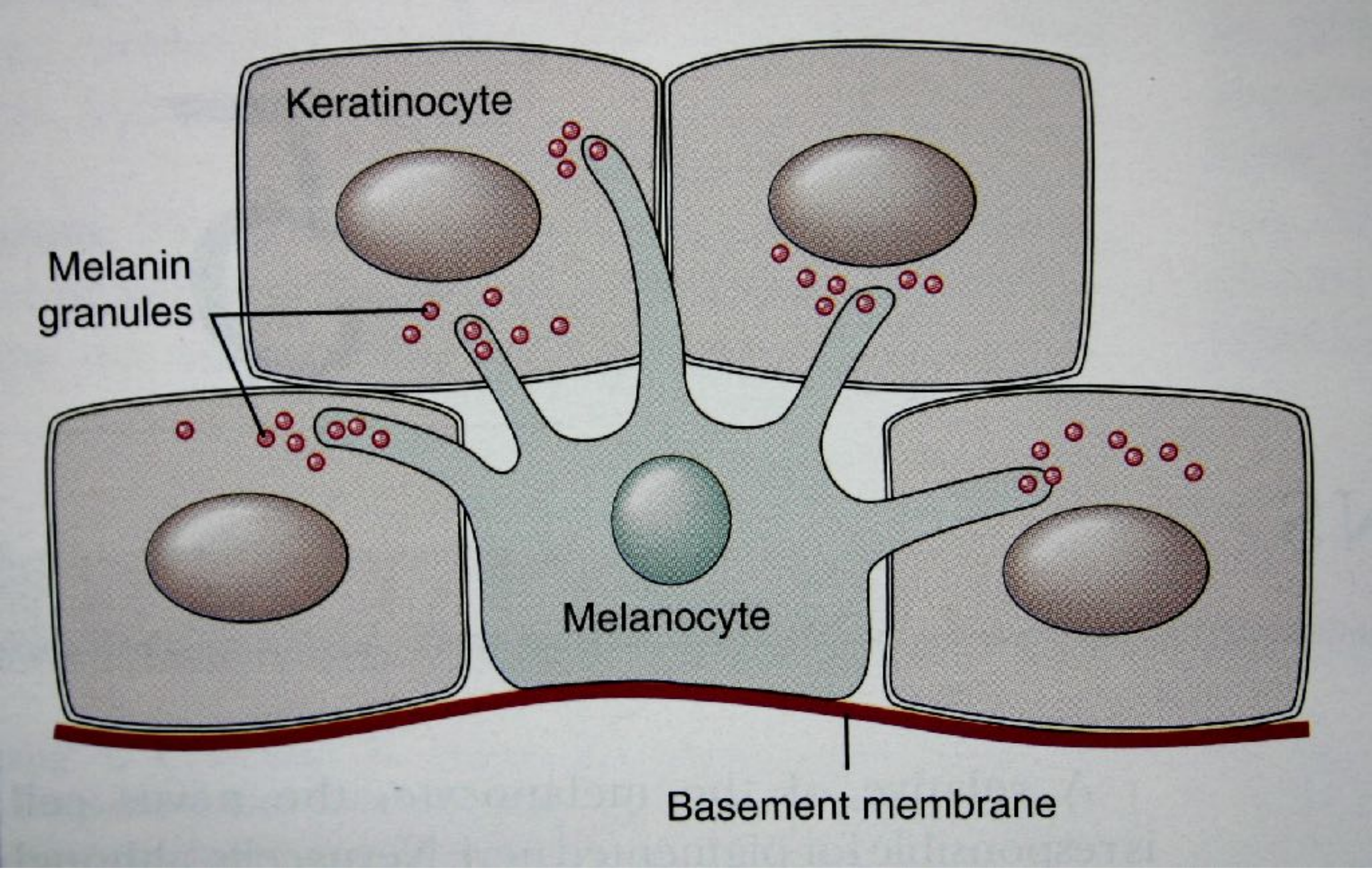
- Haemochromatosis
- Cyanosis
- Jaundice

Pigmented lesions

Foreign material	↑ Production of Melanine	↑ Number of Melanocyte	Vascular changes
Amalgam	Racial pigmn	Naevus	Ecchymosis
Graphite	Post-inflmn	Melanoma	Haemagioma
Tobacco	Smoker's melanosis		Vascular tumours
Bacteria	Syndrome-assoc.		
	Systemic		

Increased number of Melanocytes

- Melanocytes are dendritic cells of neuroectodermal origin which migrate with the peripheral nerves to the basal layer of skin and oral mucosa.
- They are a clear cell with a small dark nucleus representing ~ 1/10 basal cells.



Source: Regezi, Scuibba and Jordan; Oral Pathology, Clinical Pathologic Correlations. 5th Ed. Page 130

Melanotic naevi

- Developmental defect (often called “moles”).
- Appears soon after birth and in childhood
- Exceedingly common on the skin.
- Rare in the oral mucosa.
- The amount of melanin they contain is highly variable.

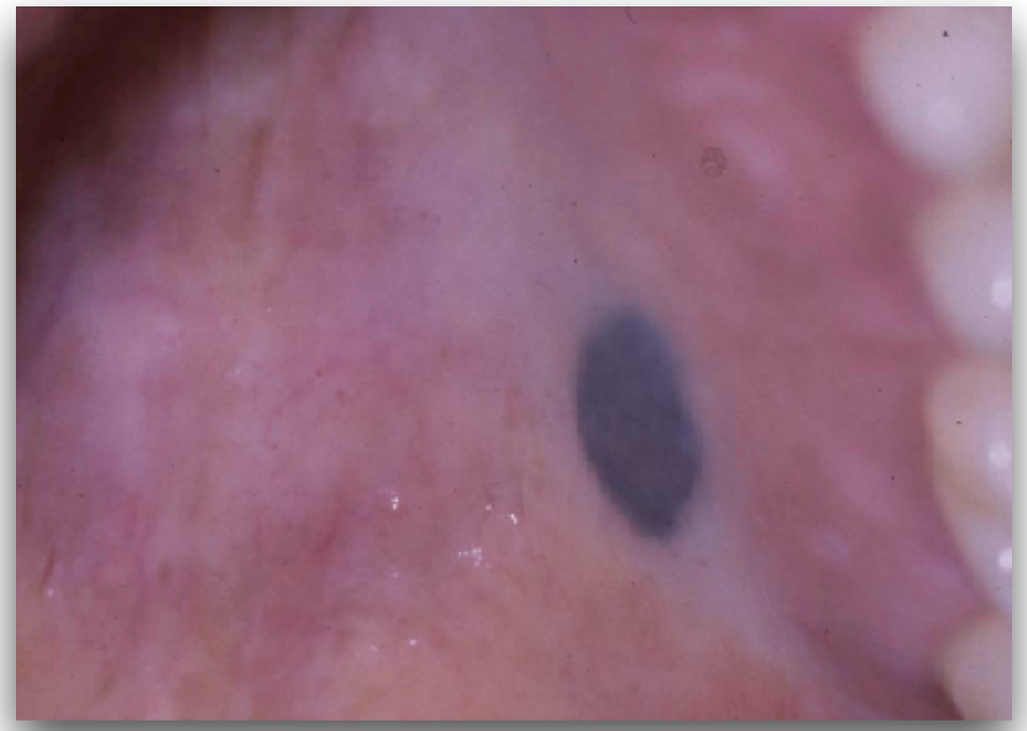
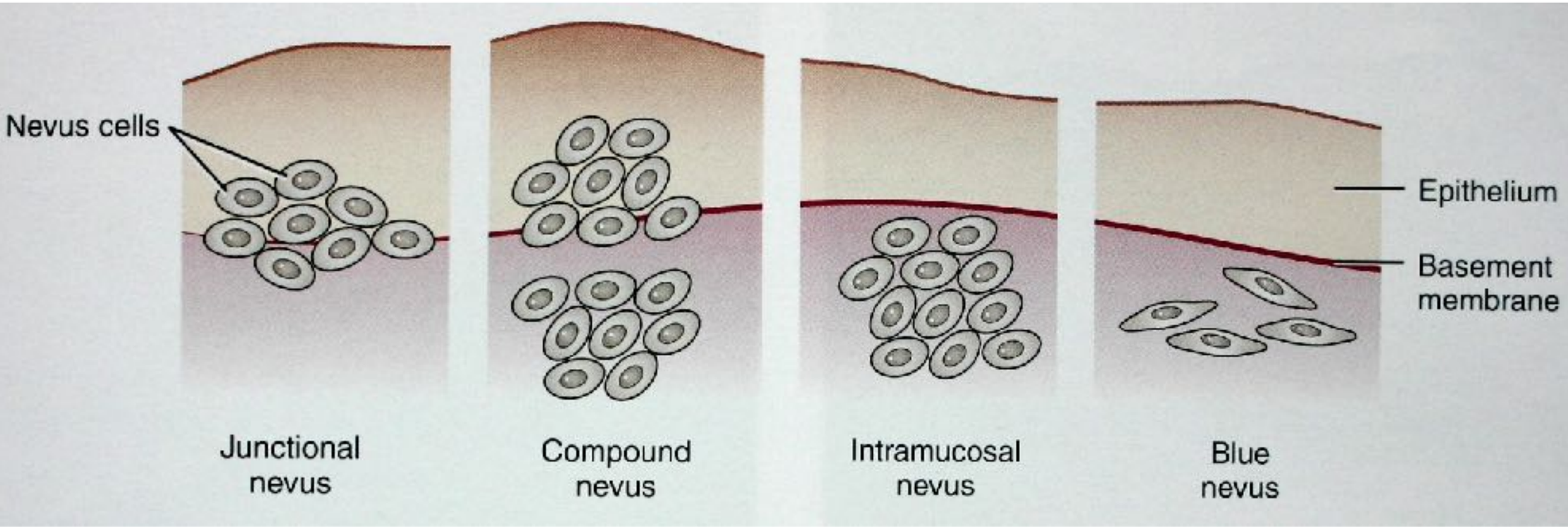


Image source: Woo, Oral Pathology 2012



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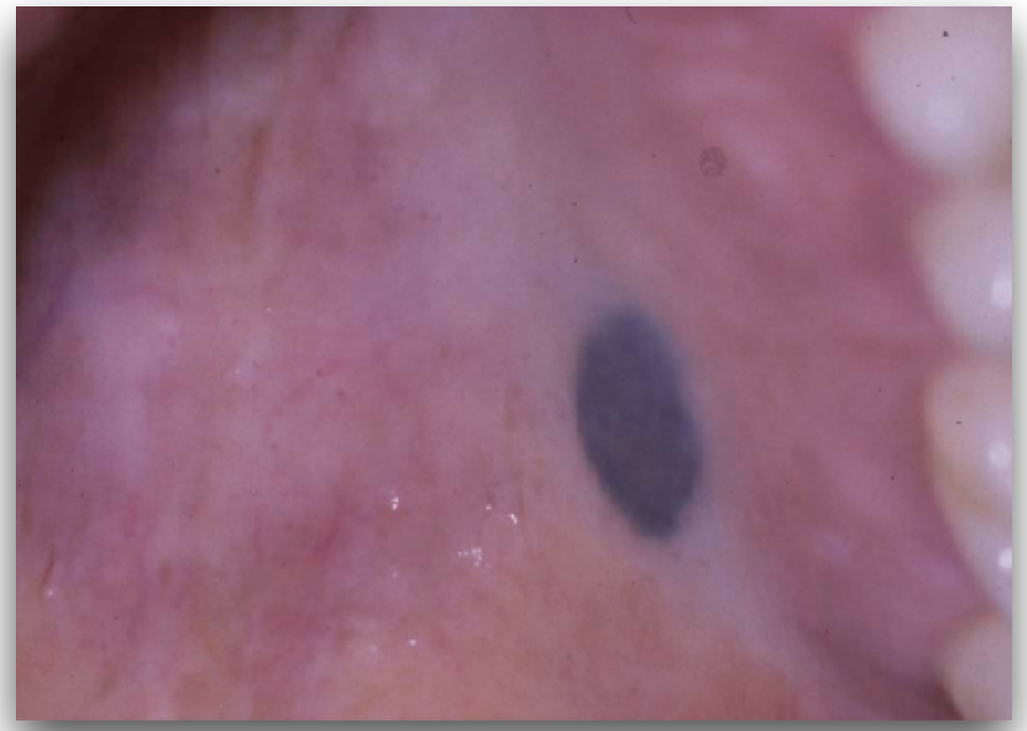
Blue naevi

- Characterized in having a dark blue color.
- Located deeper than intramucosal naevi.
- Covered by normal epithelium and well separated from the basal layer by connective tissue.
- Characterized by a proliferation of spindle-shaped pigmented melanocytes and melanophages loosely grouped together.



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Oral malignant melanoma

- Rare.
- Arises from neoplastic transformation of either melanocytes or naevus cells.
- Aetiology of oral melanoma is unknown.
- >70% of cases involve the maxilla.
- ~50% of cases involve the hard palate.
- ~25% of cases involve the gingivae and alveolar ridge.

Oral melanoma

- Men more frequently affected (2:1).
- Peak incidence 40-60 years.
- Lesions typically dark brown/bluish or black.
- May be a mixture of colours.
- Most often slightly raised or nodular with irregular margins.
- *DR.ABCs*: *D*iameter, *R*aised, *A*symmetric, *B*order, *C*olour, *S*atellite lesions

Oral melanoma

- Late presentation is due to a long asymptomatic period.
- After this, growth is usually rapid.
- Ulceration, pain, bleeding, loosening of teeth.
- ~30% of cases are preceded by oral pigmentation which has been present for months or years.

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- Vascular changes
  - Intra-vascular
  - Extra-vascular

Red and blue lesions

- Intra-vascular
  - Congenital
  - Reactive
  - Neoplastic
  - Systemic
- Extra-vascular
  - Petechiae
  - Ecchymoses

Intra-vascular lesions

- No extravasation of blood outside blood vessels.
- Can be congenital, reactive, neoplastic or systemic.
- Diagnosed clinically by history, and diascopy test.

Intra-vascular lesions

- Congenital vascular lesions;
    - Either hemangioma or vascular mal-formations
    - Both appear at birth or very early.
        - **Hemangioma** is a neoplasm of endothelial cells.
        - **Vascular malformations** represent an abnormal morphogenesis of blood vessels.
- Histologically both are similar and often indistinguishable.

	Hemangioma	Vascular malformation
Components	Capillaries	All as vascular components
Growth	Rapid congenital growth	Grows with the patient
Borders	Circumscribed	Poorly circumscribed
Bone involvement	Rare	Possible
Pulse	Not felt	Maybe felt
Resection	Resectable	Risk of hemorrhage
Recurrence	Uncommon	Common

Encephalo-trigeminal Angiomatosis (Sturge-Weber Syndrome)

- This is a vascular malformation which involves veins of the cerebral cortex, face, oral cavity, neurological manifestation.

- Malformations appear clinically as "port-wine" stains, and neurological manifestations include mental retardation, hemiparesis and seizures.

Fig. 1 Sturge-Weber syndrome is characterized by a reddish discoloration of the skin on one side of the face.

Image source: aapos.org

Hereditary Hemorrhagic Telangiectasia HHT

- Also called Rendu-Osler-Weber Syndrome.

- Abnormal dilatation of superficial cutaneous and mucosal vessels.

- Clinically manifests as multiple red macula or papules. Might result in anemia due to slow long term bleeding. Family history is positive.

- Telangiectasia is also seen in CREST syndrome and in alcoholism.

Image source: aocd.org

Reactive Lesions

- **Varix or varicosity**
  - Dilatation of a superficial vein.
  - Common oral finding, particularly of the lingual veins in adults and elderly.
  - Also seen in the sun-damaged lower lip in the elderly.
- **Pyogenic granuloma**
  - Excessive granulation tissue proliferation in which capillaries are prominent.
  - The cause is local irritation.
- **Peripheral Giant Cell Granuloma**
  - Hyperplastic connective tissue with multi-nucleated giant cells.
  - Exclusively on the gingiva.

Neoplastic Lesions

- Erythroplakia
- Kaposi's sarcoma

Systemic Lesions

- Anemia.

- Allergic reactions.

Red and blue lesions

- Intra-vascular
  - Congenital
  - Reactive
  - Neoplastic
  - Systemic
- Extra-vascular
  - Petechiae
  - Ecchymoses

Extra-vascular Lesions

- Petechiae --> pinpoint haemorrhage
- Ecchymoses --> larger haemorrhages
- Mostly related to trauma, but blood dyscrasias should always be ruled out.