Sri Aurobindo College of Dentistry

Indore, Madhya Pradesh

INDIA

MODULE PLAN

- TOPIC :**PIGMENTED LESIONS OF THE ORAL CAVITY**
- SUBJECT: OMDR
- TARGET GROUP: UNDERGRADUATE DENTISTRY
- MODE: POWERPOINT – WEBINAR
- PLATFORM: INSTITUTIONAL LMS
- PRESENTER: DR.TANVO DOSI

INTRODUCTION

- Pigmentation can be defined as the process of deposition of pigments in tissues.
- Various diseases can lead to varied colorations in the oral mucosa.
- Pigmented lesions of the oral cavity are due to:

➢ Augmentation of melanin production

➢ Increased number of melanocytes

➢ Deposition of accidentally introduced exogenous materials

Based on Coloration

BROWN LESIONS

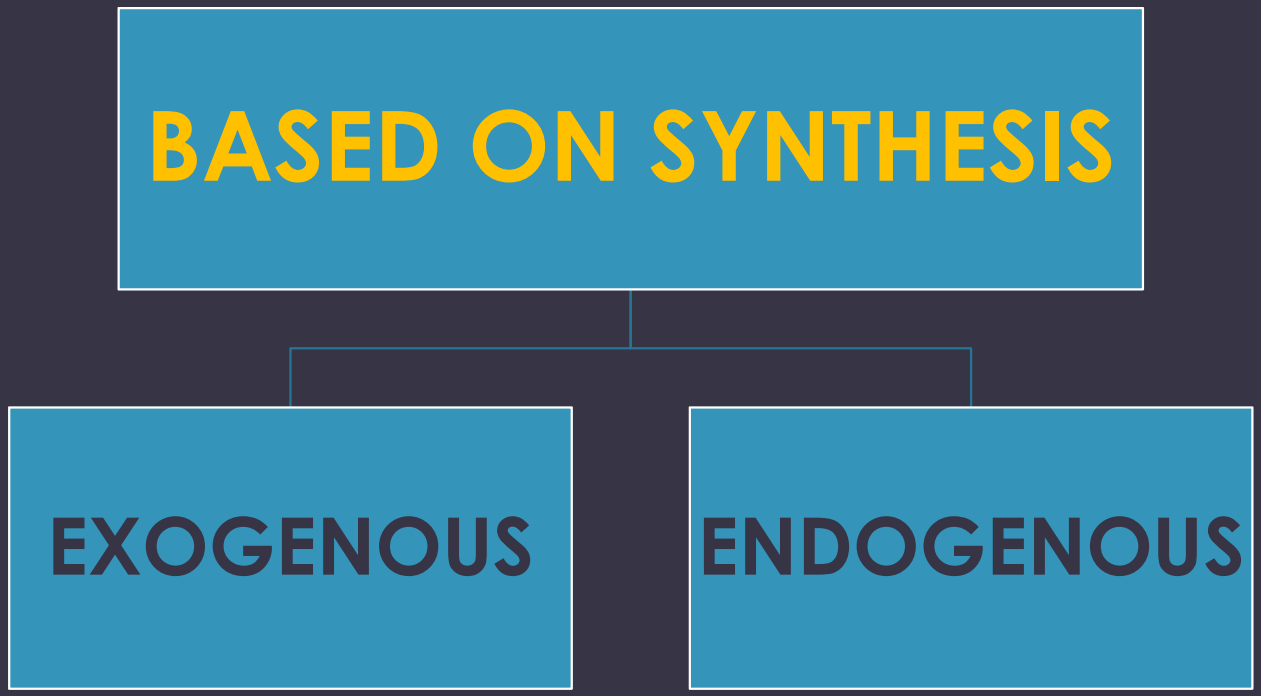
- Oral Melanotic Macule
- Nevus
- Drug Induced Melanosis
- Physiologic Pigmentation
- Smoker's Melanosis
- Café au Lait Pigmentation
- Pigmented Lichen planus
- Endocrinopathic Pigmentation
- Peutz – Jeghers Syndrome
- HIV Oral Melanosis
- Malignant Melanoma

BLUE / PURPLE LESIONS

- Hemangioma
- Varix
- Blue nevus
- Angiosarcoma
- Kaposi's Sarcoma
- Hereditary Hemorrhagic Telangiectasia

GRAY/ BLACK PIGMENTATIONS

- Amalgam Tattoo
- Graphite Tattoo
- Hairy Tongue
- Pigmentation Related To Heavy Metal Ingestion


BASED ON SYNTHESIS
EXOGENOUS
ENDOGENOUS

Endogenous Pigmentation of Oral Mucosa

Pigment	Color	Disease Process
Hemoglobin	Blue, red, purple	Varix, Hemangioma, Kaposi's sarcoma, Angiosarcoma, hereditary hemorrhagic Telangiectasia
Hemosiderin	Brown	Ecchymosis, petechia, thrombosed varix, hemorrhagic mucocele, hemochromatosis
Melanin	Brown, black or gray	Melanotic macule, nevus, melanoma, basilar melanosis with incontinence

Exogenous Pigmentation of Oral Mucosa

Source	Color	Disease Process
Silver amalgam	Gray, black	Tattoo, iatrogenic trauma
Graphite	Gray, black	Tattoo, trauma
Lead, mercury, bismuth	Gray	Ingestion of paint or medicinals
Chromogenic bacteria	Black, brown, green	Superficial colonization

Based on Configuration and Distribution

FOCAL MELANOCYTIC PIGMENTATION

FRECKLE/EPHELIS

- The common cutaneous freckle, or ephelis, represents an **increase in melanin pigment synthesis** by basal-layer melanocytes, without an increase in the number of melanocytes.
- On the skin, this increased melanogenesis can be attributed to **actinic exposure**.
- Ephelides can therefore be encountered on the **vermilion border of the lips**, with the **lower lip** being the favored site since it tends to receive more solar exposure than the upper lip.
- The lesion is **macular** and ranges from being quite small to over a centimeter in diameter.
- Lip ephelides are **asymptomatic** and occur equally in men and women. They are rarely seen in children.

ORAL/LABIAL MELANOTIC MACULE

- It is a unique benign pigmented lesion and the most common oral lesions of melanotic origin.
- Although its etiology remains elusive, trauma is postulated to play a role.
- It is well-circumscribed, small (<1cm), oval or irregular in outline and often uniformly pigmented.
- More commonly found in females.
- It may occur at any mucosal site, but usually at lower lip and gingiva.
- It may develop at any age, but mostly is present during adulthood.
- It does not generally recur after surgical removal.

Differential diagnosis

- Melanocytic nevus
- Malignant melanoma
- Amalgam tattoo

MELANOCYTIC NEVUS

- Nevi occur as a result of melanocytic growth and proliferation.
- Male predilection is seen.
- Lesions are usually asymptomatic and often present as small (<1cm), solitary, brown or blue, well-circumscribed nodule or macule.
- It may occur at any age, mostly have been identified in patients over the age of 30.
- The most common site is hard palate, followed by buccal and labial mucosa and gingiva.

MALIGNANT MELANOMA

- **ETIOLOGY:**

➢Acute sun exposure, especially at young age

➢Immunosuppression

➢Presence of multiple cutaneous nevi

➢Family history

- **There are four main clinicopathologic subtypes of melanoma:**

➢Superficial spreading

➢Lentigo

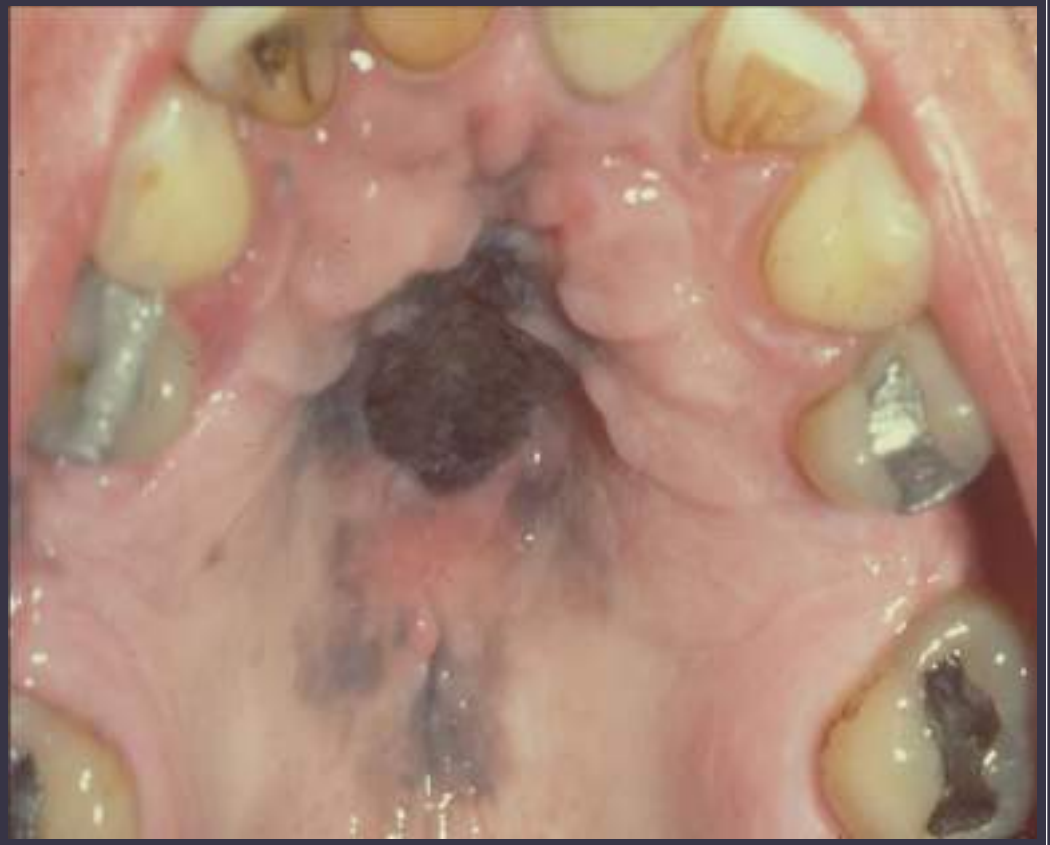
➢Acral

➢Nodular

- The majority develop in the head and neck, in the sinonasal tract and oral cavity.
- The most common site is hard palate followed by maxillary gingiva.
- They may be macular, plaque-like or mass forming, well-circumscribed or irregular and exhibit focal or diffuse areas of brown, black or blue pigmentation.
- Additional signs and symptoms may include ulceration, pain, tooth mobility, root resorption, bone loss and paresthesia/anesthesia.
- Its prognosis is very poor.

Differential diagnosis

- Melanocytic nevus
- Malignant melanoma
- Amalgam tattoo
- Vascular lesions



Criteria for the clinical diagnosis of melanoma:

- **A (Asymmetry):** is when one half of the lesion does not match the other half of the lesion.
- **B (Border irregularity):** is when the edges are notched, ragged or blurred.
- **C (Color irregularity):** pigmentation is not various colored. Pigmentation is seen ranging from black, brown, tan, red, blue and white.
- **D (Diameter):** more than 6mm.
- **E (Elevation):** a rise in the surface is also a sign.

MULTIFOCAL/DIFFUSE PIGMENTATION

DRUG INDUCED MELANOSIS

- Intraorally, the pigment can be diffuse yet localized to one mucosal surface, often hard palate, or it can involve multiple surfaces.
- Some may be even associated with specific pattern of pigmentation.
- The lesions are usually flat and without any evidence of nodule or swelling.

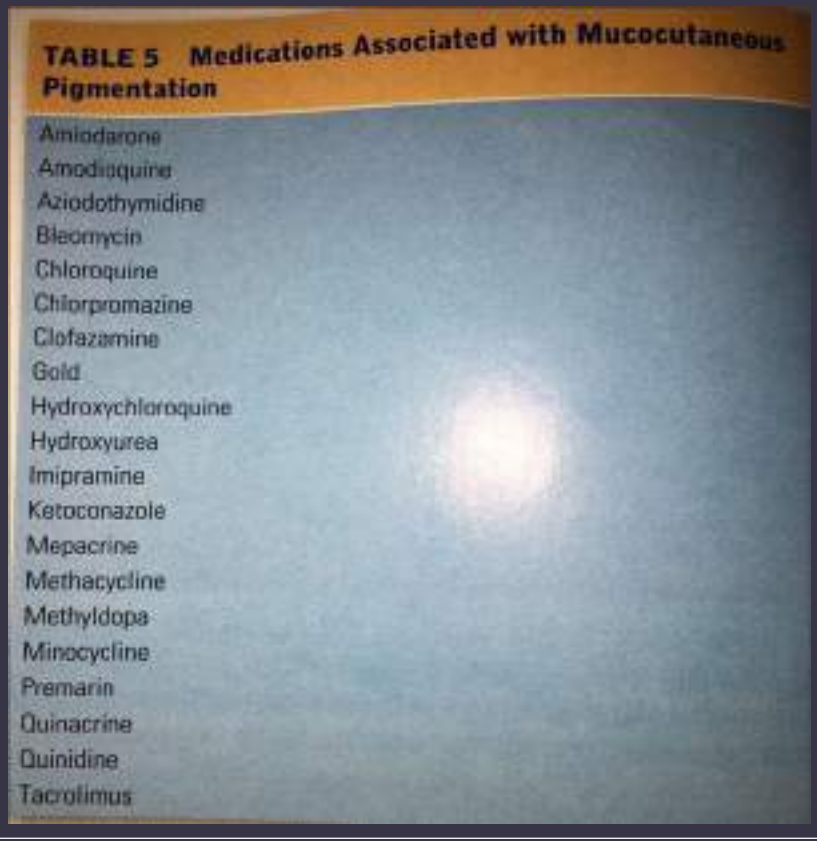
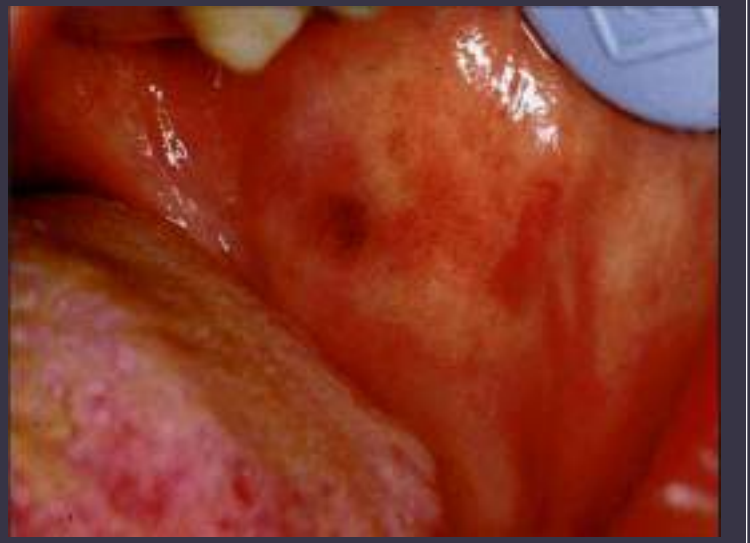


TABLE 5 Medications Associated with Mucocutaneous Pigmentation

Amiodarone
Amodiaquine
Aziodothymidine
Bleomycin
Chloroquine
Chlorpromazine
Clofazamine
Gold
Hydroxychloroquine
Hydroxyurea
Imipramine
Ketoconazole
Mepacrine
Methacycline
Methyldopa
Minocycline
Premarin
Quinacrine
Quinidine
Tacrolimus

SMOKER'S MELANOSIS

- Such type is seen commonly in cigarette smoking individuals.
- Pigmentated areas are brown, flat and irregular.
- Common sites are anterior facial maxillary and mandibular gingiva, buccal mucosa, lateral tongue and palate.

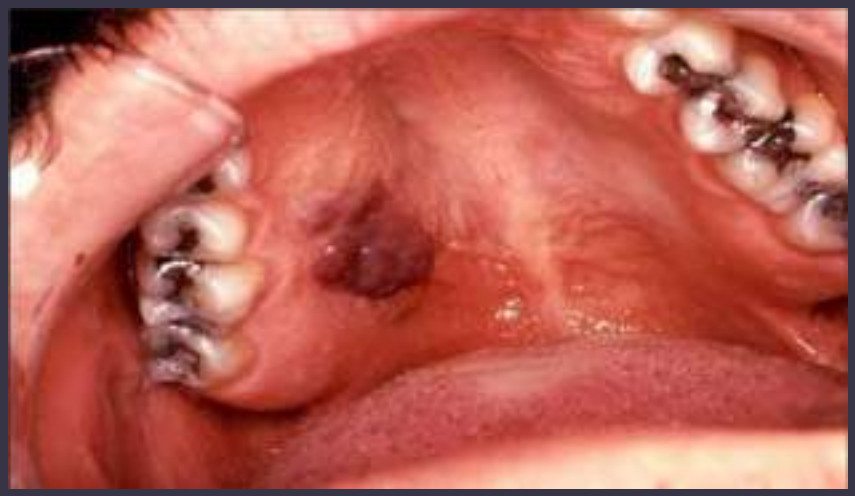


KAPOSI'S SARCOMA

- The classic form generally appeared in two distinct clinical settings:

(1) elderly men (in the oral mucosa and on the skin of the lower extremities) and

(2) children in equatorial Africa (in lymph nodes)



- Most common neoplastic process to **accompany HIV infection.**
- The **cutaneous lesions** begin as red macules and enlarge to become blue, purple, and ultimately brown nodular tumefactions.
- The lower extremity shows no predilection over other cutaneous sites, and lesions may appear on the **arms, face, scalp, or trunk**.
- The **oral lesions** continue to show a predilection for **the posterior hard palate**, and they also begin as flat red macules of variable size and irregular configuration

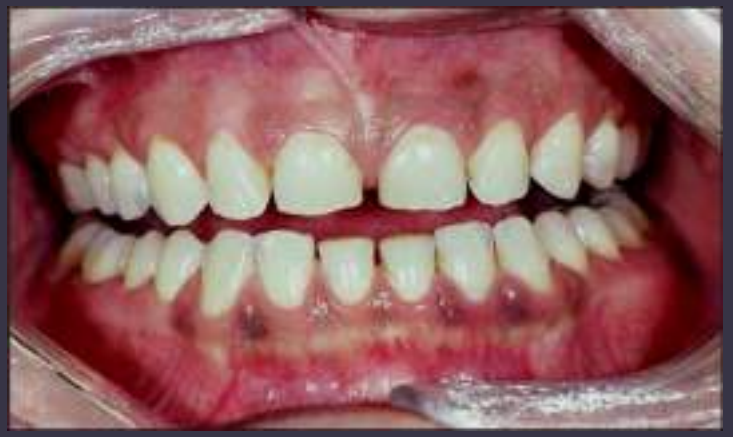
Treatment

- The **early** plaque or macular stage lesions are painless and do not require treatment.
- **Nodular lesions** may become unsightly and interfere with mastication; in this situation, therapy may be desirable.
- **Surgical excision** is **not** usually attended by severe hemorrhage, but **electrocautery is recommended**, either as a primary form of surgery or as a coagulative hemostatic adjunct to conventional excision.
- Intralesional injection of 1% sodium tetradecyl sulfate will result in necrosis of the tumefactions.
- **Intralesional 1% vinblastine sulfate** is also beneficial; because it is not a sclerosing agent, it is not associated with significant post-injection pain.

MELANOSIS ASSOCIATED WITH SYSTEMIC OR GENETIC DISEASE

Addison's Disease

- Hypoadrenocorticism
- Brown macular pigmentation of local or diffuse.
- Caused by:
  - Autoimmune disease
  - Infection
  - Malignancy
  - Trauma
- Lips, gingiva, buccal mucosa, hard palate, and tongue are usually involved.



PEUTZ-JEGHERS SYNDROME

- It is an autosomal dominant disease.
- Clinical features are intestinal polyposis, cancer susceptibility, and multiple & small macules of lips, perioral skin, hands and feet.
- The macules may resemble ephelides, usually measuring <0.5 cm in diameter.
- Some might also appear on anterior tongue and buccal and labial mucosa.

Café Au Lait Pigmentation

- Means **"coffee with milk."**
- Multifocal macular pigmentations appear on the skin in neurofibromatosis .
- It is an **autosomal dominant**

  inherited disease characterized

  by multiple skin nodules

  or even pendulous tumors.
- The **NF1 gene** is responsible

  present on chromosome 17
- This pigmentation is observed in **95% of patients with neurofibromatosis type 1 (NF1).**
- **Other conditions** in which they may be observed include Albright syndrome, tuberous sclerosis, and Fanconi anemia

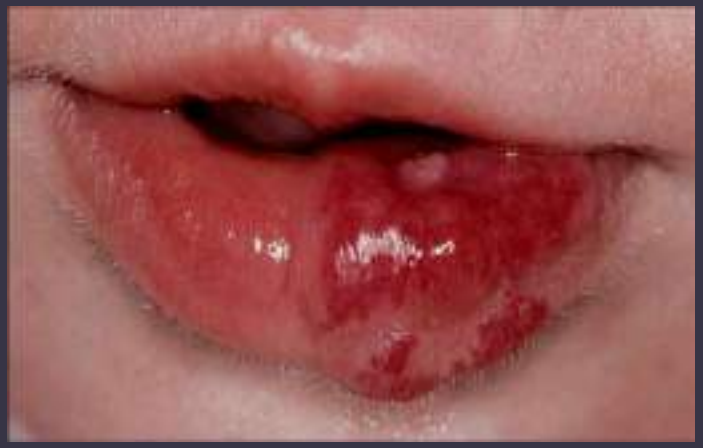
Treatment of mucocutaneous melanosis

- Focally pigmented removal by diagnostic and therapeutic purposes.
- Cases associated with neoplasia, surgical intervention is less of an option for the treatment of multifocal or diffuse pigmentation.
- Drug induced melanosis get subsided after the withdrawal of the offending substance.
- Laser therapy use in the treatment of oral pigmentation: super pulsed CO2, Q-Switched ND-YAG, Q-Switched alexandrite lasers.
- Topical use of medicaments like use of bleaching creams is considered as first line of treatment for perioral and facial pigmentation.

HEMOGLOBIN & IRON ASSOCIATED PIGMENTATION

HEMANGIOMA

Etiology



- **Benign developmental anomalies of blood vessels** that may be sub-classified as **congenital** hemangiomas and **vascular** malformations
- "Congenital hemangioma" usually noted in **infancy or childhood**
- Congenital hemangioma due to **proliferation of endothelial cells**
- "Vascular malformations" due to **abnormal morphogenesis of arterial and venous structures**

Clinical Presentation

- Congenital lesions usually arise **around time of birth**, grow rapidly, and usually involute over several years.
- Malformations generally are **persistent**, grow with the child, and **do not involute.**
- Color varies from red to blue depending on depth, degree of congestion, and caliber of vessels
- Range in size from few millimeters to massive with disfigurement
- Most common on lips, tongue, buccal mucosa
- Usually **asymptomatic**
- **Sturge-Weber syndrome** includes cutaneous vascular malformations (port wine stains) along trigeminal nerve distribution, mental retardation, and seizures.

- Depending on the **depth of the vascular proliferation** within the oral sub-mucosa, the lesion may harbor vessels close to the overlying epithelium and appear reddish blue or, if a little deeper in the connective tissue, a deep blue.

- Angiomatous lesions occurring within muscle (so-called **intramuscular hemangiomas)** may fail to show any surface discoloration.

- Whereas most hemangiomas are raised and nodular, some may be flat, macular, and diffuse, particularly on the facial skin, referred to as **port-wine stains**.

Diascopy

- Most patent vascular lesions will blanch under pressure; indeed, placing a microscope glass slide over the pigmented area and adding pressure will often demonstrate this feature dramatically.

In this procedure a glass slide is placed over a suspected vascular lesion and pressure is applied, the lesion shows decrease in size (compressibility) and color becomes pale (blanching).

Treatment

- Since many hemangiomas spontaneously involute during teenage years, treatment may be withheld in children.
- Patients who require treatment can undergo **conventional surgery, laser surgery, or cryosurgery.**
- Larger lesions that extend into muscles are more difficult to eradicate surgically, and **sclerosing agents** such as 1% sodium tetradecyl sulfate may be administered by intralesional injection.
- Cutaneous port-wine stains can be treated by **subcutaneous tattooing or by argon laser.**


Petechiae
(1 – 2 mm)
Purpura
(≥ 3 mm)
Ecchymosis
(> 1 – 2 cms)

EXOGENOUS PIGMENTATION

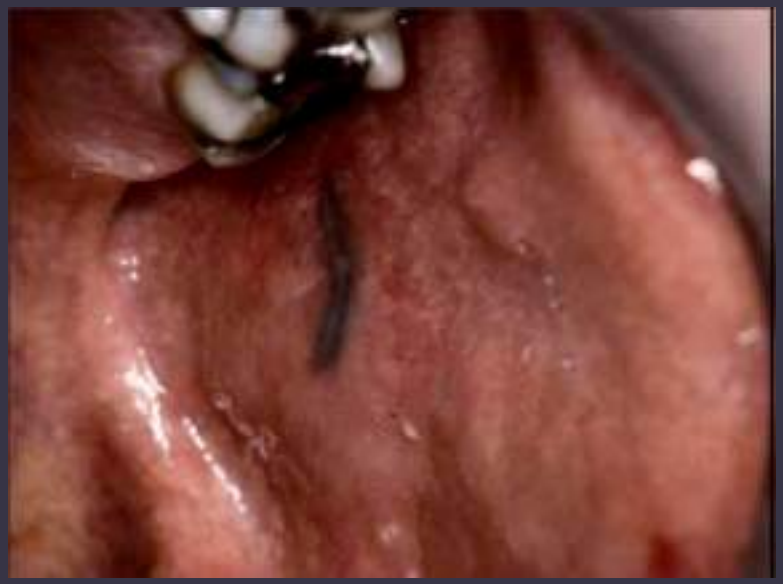
Amalgam Tattoo

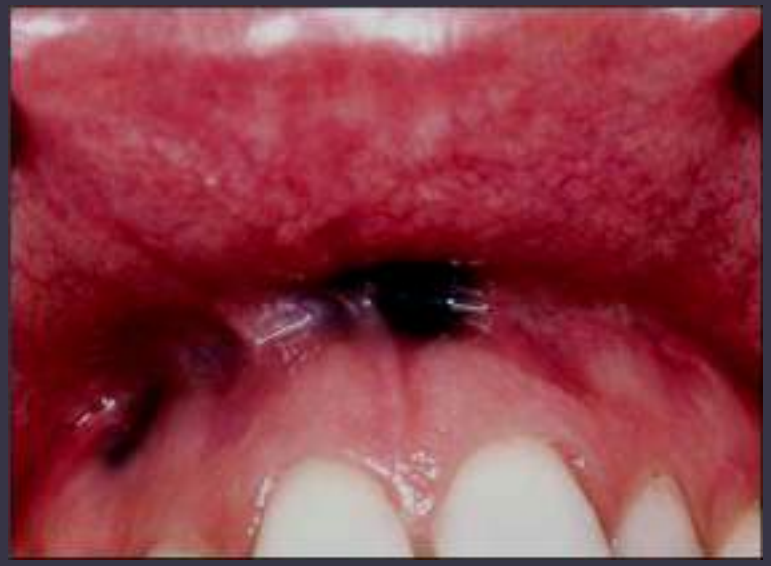
Etiology

- Implantation or passive/frictional transfer of dental silver amalgam into mucosa

Clinical Presentation

- Gray to black focal macules, usually well defined, but may be diffuse with no associated signs of inflammation
- Typically in attached gingiva, alveolar mucosa, buccal mucosa.
- Occasionally may be visible radiographically.





Graphite Tattoo

- Graphite tattoos tend to occur on the **palate** and represent traumatic implantation from a lead pencil.

- The lesions are usually macular, focal, and gray or black.

Heavy Metal Pigmentation

- **LEAD**

  Plumbism

- **MERCURY**

  Acrodynia (pink disease, swift disease)

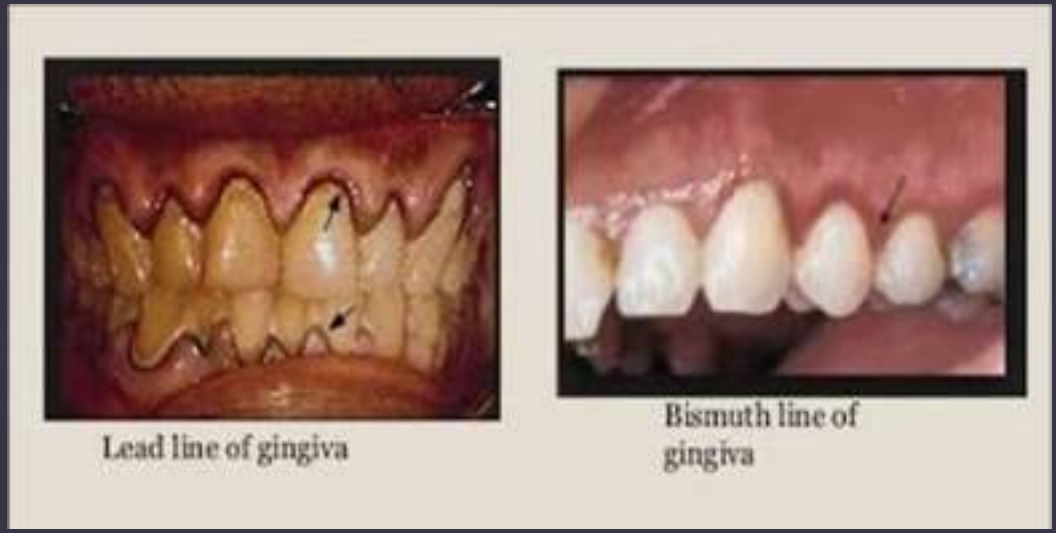
- **SILVER**

  Argyria

- **ARSENIC**

  Arsenical keratosis

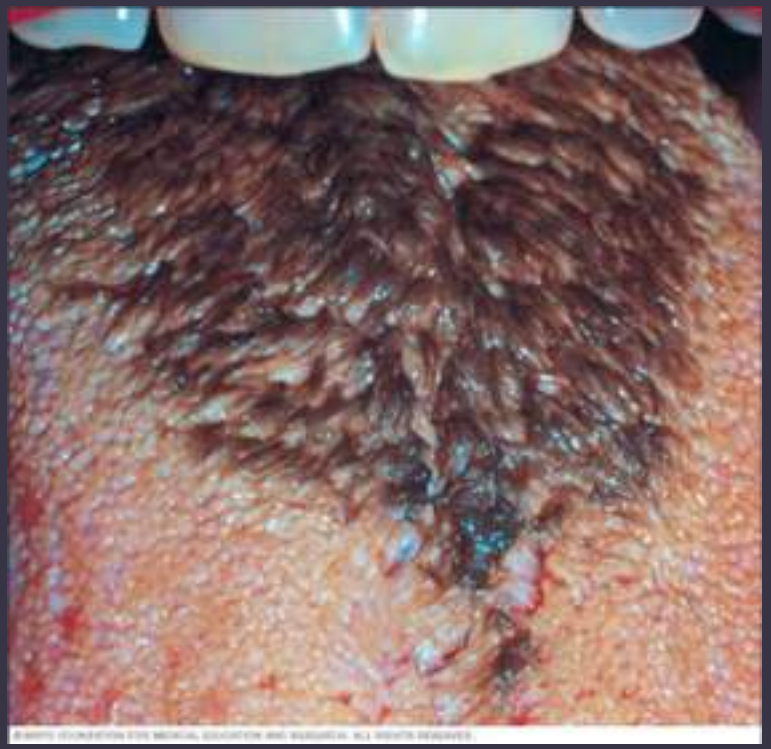
- **BISMUTH**
- **GOLD**



- These ingested pigments tend to **extravasate from vessels** in foci of increased capillary permeability such as inflamed tissues.
- Thus, in the oral cavity, the pigmentation is usually found along the **free marginal gingiva**, where it outlines the gingival cuff.
- This metallic line has **a gray to black** appearance.
- The heavy metals may be associated with systemic symptoms of toxicity, including behavioral changes, neurologic disorders, and intestinal pain.

HAIRY TONGUE

- It is relatively common condition of unknown etiology.
- It involves dorsum of the tongue, especially middle and posterior one-third.
- The filiform papillae are elongated, sometimes markedly so, and have the appearance of fine hair.
- **TREATMENT:** patient is asked to keep the tongue clean by the use of brush or tongue scraper.

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