

Oral Health for USMLE Step One

Section 2: Oral Lesions



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Oral Health

for USMLE Step One

Pathology of the
Oral Cavity

Lesions

Congenital

Salivary
Pathology

Dental
Pathology

Other

1. Viral
2. Bacterial
3. Fungal
4. Nutritional Deficiency
5. Autoimmune
6. Medication Induced
7. Precancerous
8. Malignant Neoplasms

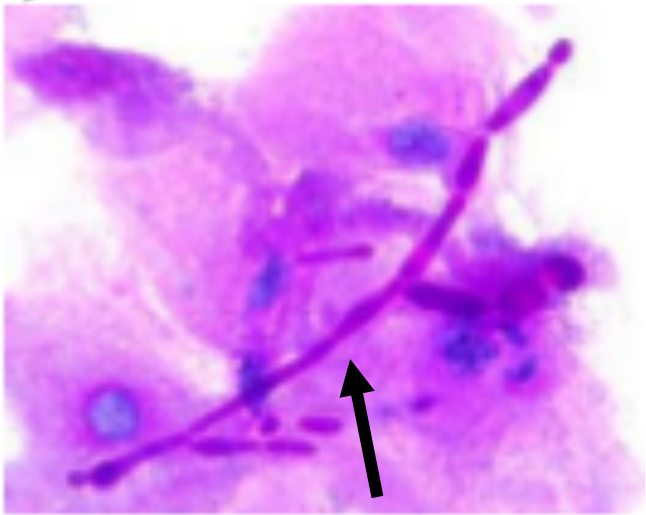
Fungal Lesions of the Oral Cavity

Candida albicans ('thrush')

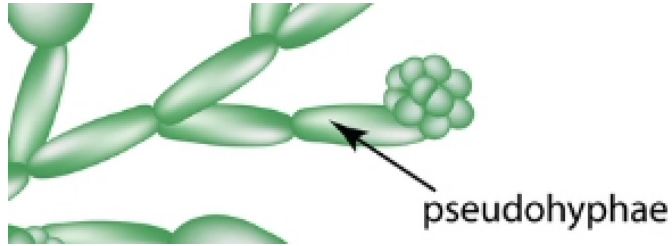


Fungal Lesions of the Oral Cavity

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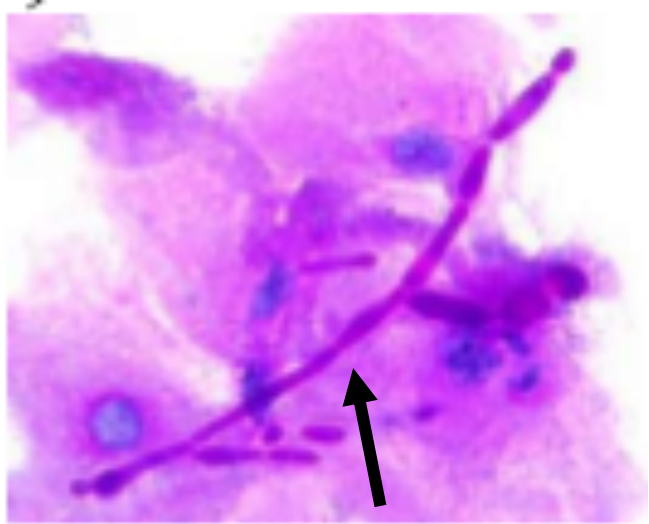
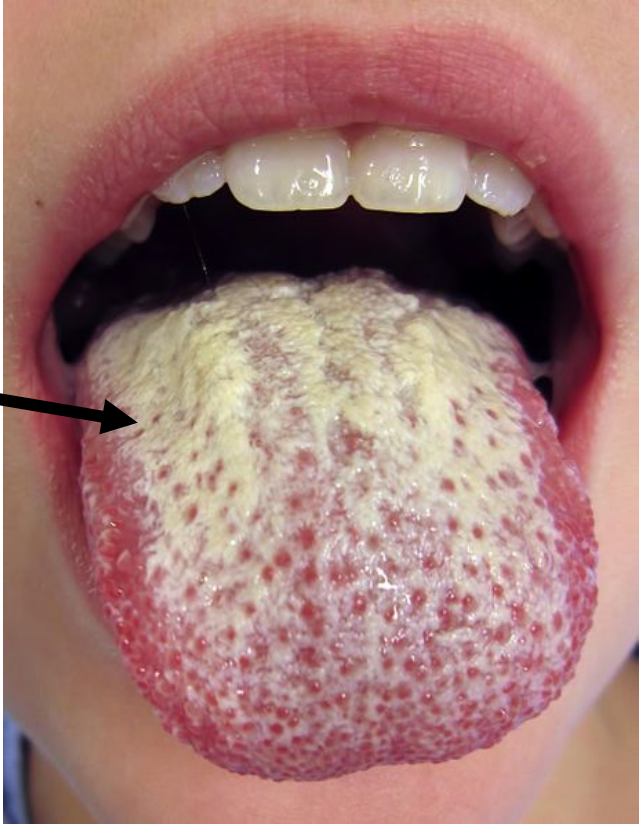
Pseudohyphae
(constriction bands without true budding)



Fungal Lesions of the Oral Cavity

Candida albicans ('thrush')

CAN be scraped off



Pseudohyphae
(constriction bands without true budding)



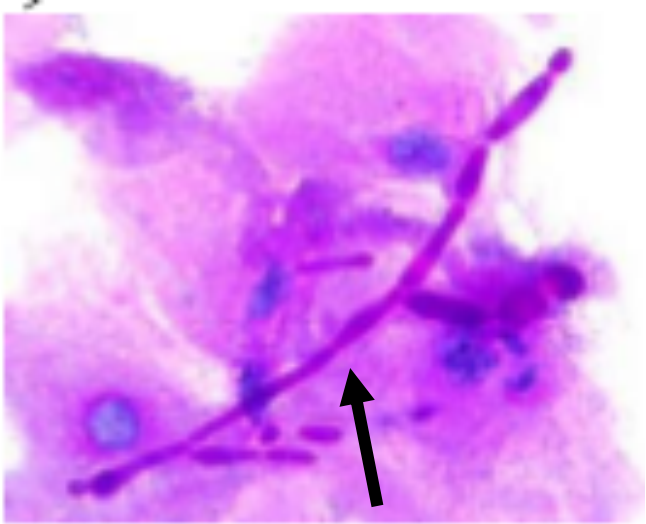
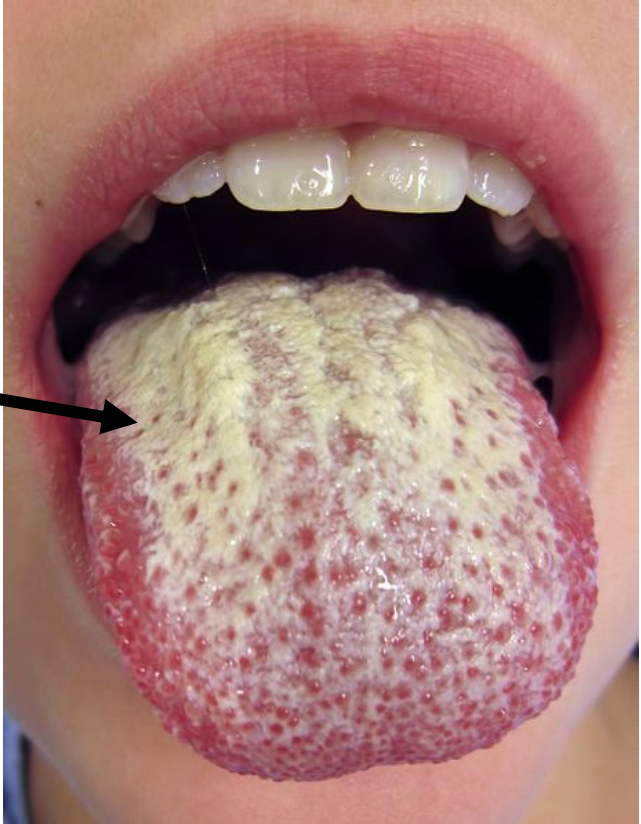
Hairy Leukoplakia (EBV/HIV): can NOT be scraped off

Fungal Lesions of the Oral Cavity

Candida albicans ('thrush')

CAN be scraped off

Is **NOT** limited to the lateral tongue



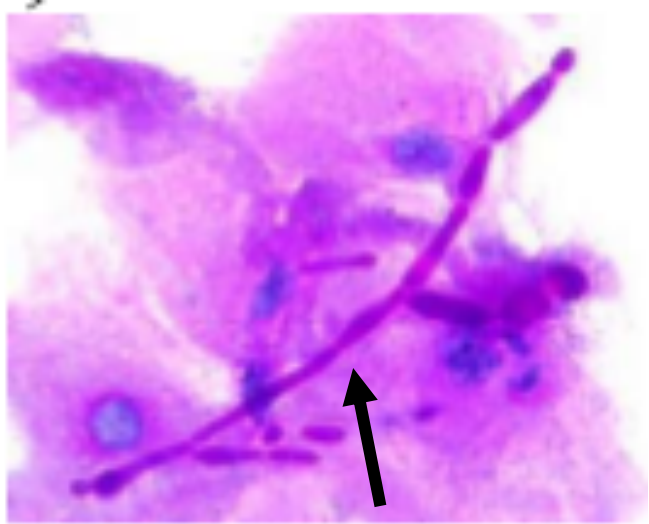
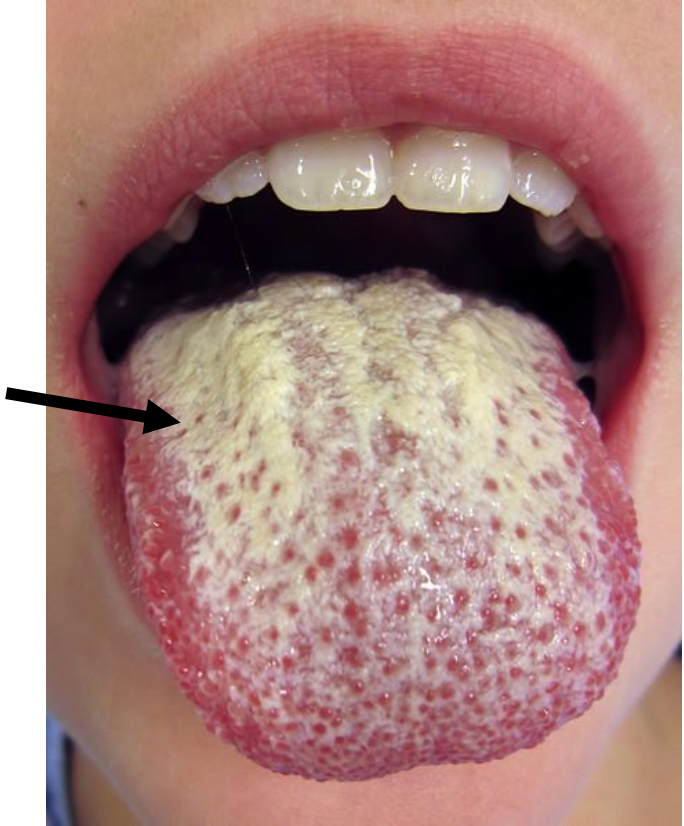
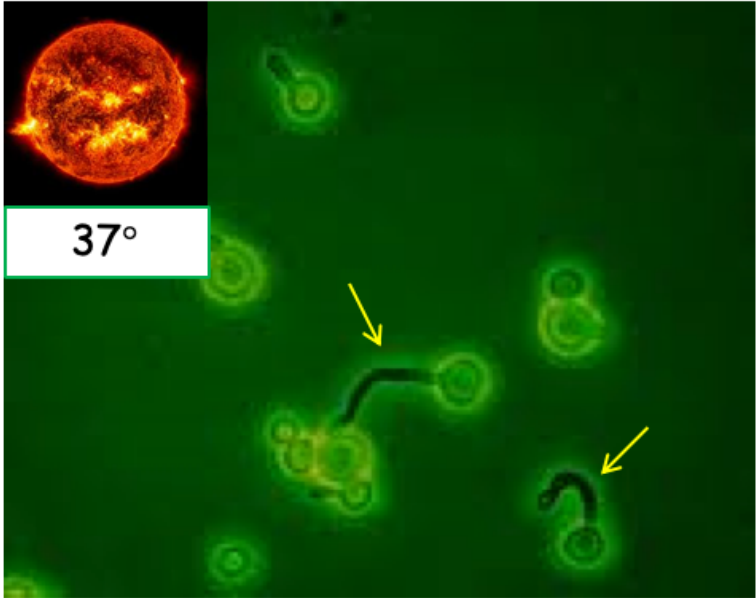
Pseudohyphae
(constriction bands without true budding)



Hairy Leukoplakia (EBV/HIV): presents on **lateral** portion of tongue

Fungal Lesions of the Oral Cavity

Candida albicans ('thrush')



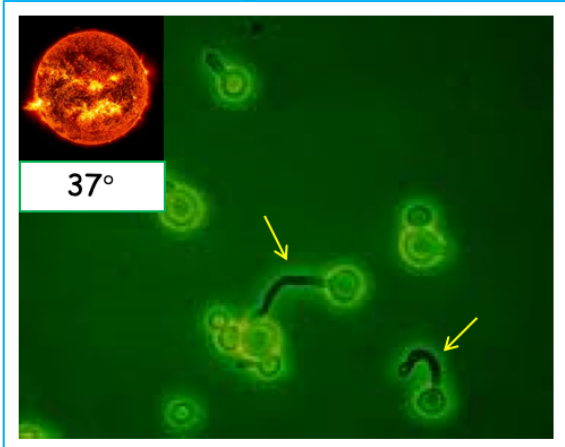
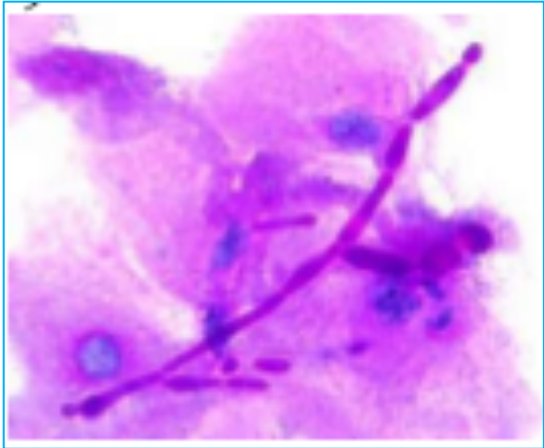
Pseudohyphae
(constriction bands without true budding)

Germ tubes (growing from ovoid yeast cell):
True **hyphae**, growing at 37°, are a distinguishing feature of *Candida albicans*)

Fungal Lesions of the Oral Cavity

Candida albicans

Angular Cheilitis



Angular Cheilitis



Other causes of angular cheilitis???

Oral Health

for USMLE Step One

Pathology of the
Oral Cavity

Lesions

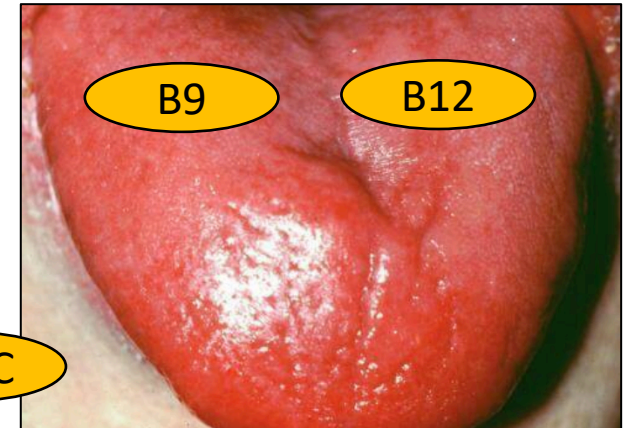
Congenital

Salivary
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Other

1. Viral
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- 4. Nutritional Deficiency**
5. Autoimmune
6. Medication Induced
7. Precancerous
8. Malignant Neoplasms



Lesions of the Oral Cavity: Vitamin Deficiency



Angular Cheilitis

Causes:

- **Fungus**

Lesions of the Oral Cavity: Vitamin Deficiency



Angular Cheilitis

Causes:

- Fungus
- Ill-fitting dentures

Lesions of the Oral Cavity: Vitamin Deficiency



Angular Cheilitis

Causes:

- **Fungus**
- **Ill-fitting dentures**
- **Nutritional deficiency**

Lesions of the Oral Cavity: Vitamin Deficiency



Angular Cheilitis

Iron Deficiency:

- Angular cheilitis

Hemoglobin	13.2 - 17.1 g/dL	7.4 ▼
Hematocrit	39.0 - 52.0 %	22.4 ▼
MCV	80.0 - 100.0 fL	73.6 ▼

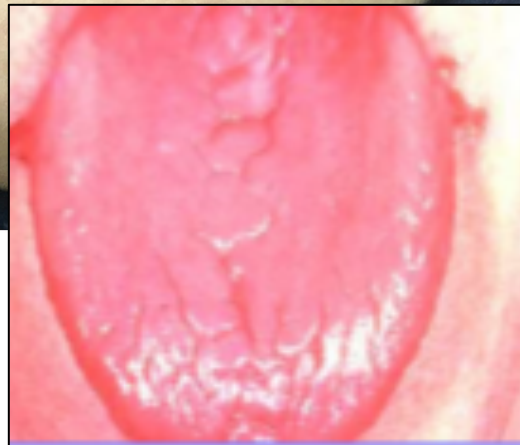
Lesions of the Oral Cavity: Vitamin Deficiency

Angular Cheilitis



Iron Deficiency:

- **Angular cheilitis**
- **Glossitis**
- **Conjunctival pallor**
- **Fatigue**



Atrophic glossitis
(flattening of the tongue papillae)

Lesions of the Oral Cavity: Vitamin Deficiency



Angular Cheilitis

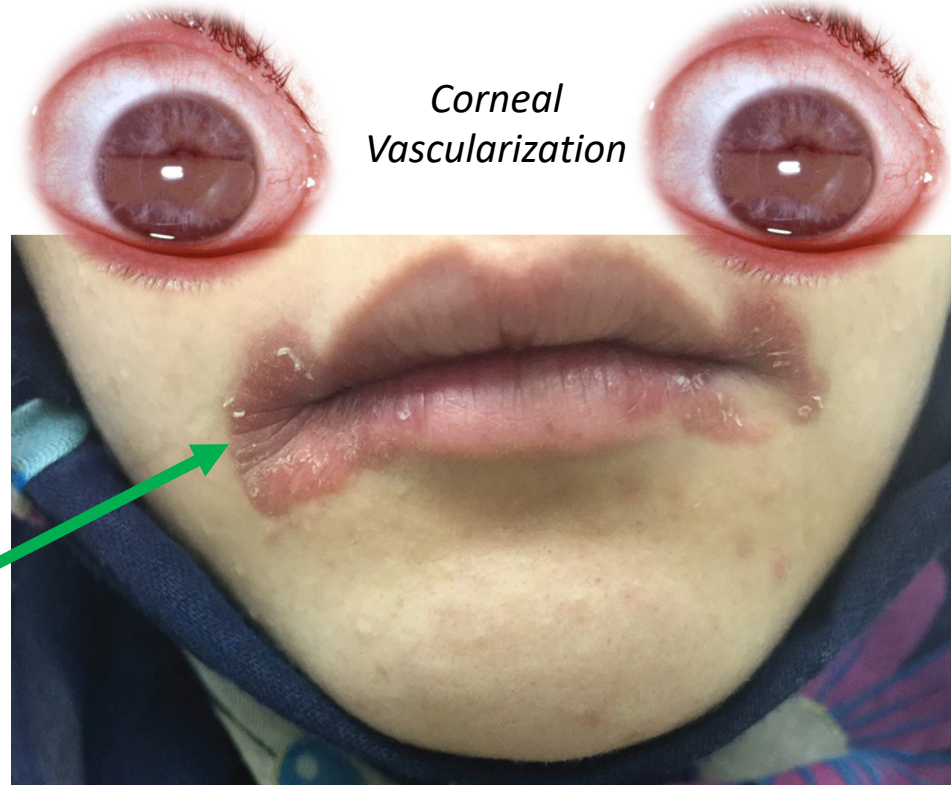


- Iron Deficiency:**
- Angular cheilitis
 - Glossitis
 - Conjunctival pallor
 - Fatigue
 - Koilonychia (spoon nails)
 - Pica

Hemoglobin	13.2 - 17.1 g/dL	7.4 ▼
Hematocrit	39.0 - 52.0 %	22.4 ▼
MCV	80.0 - 100.0 fl	73.6 ▼

Microcytic anemia

Lesions of the Oral Cavity: Vitamin Deficiency



Riboflavin (B2) Deficiency:

- Cheilitis, angular
- Corneal vascularization

Angular Cheilitis

Lesions of the Oral Cavity: Vitamin Deficiency

Angular Cheilitis



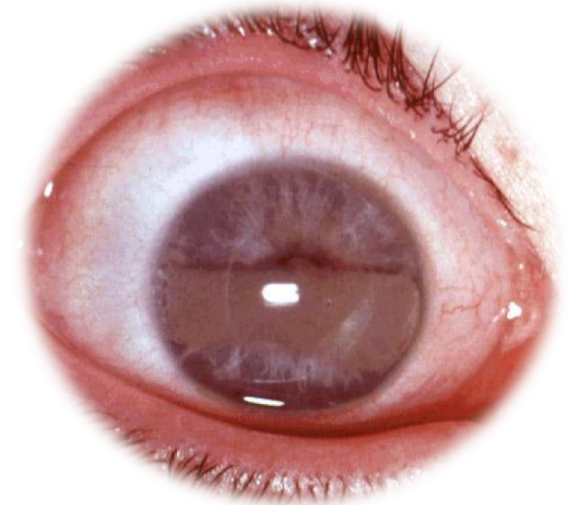
Riboflavin (B2) Deficiency:

- Cheilitis, angular
- Corneal vascularization

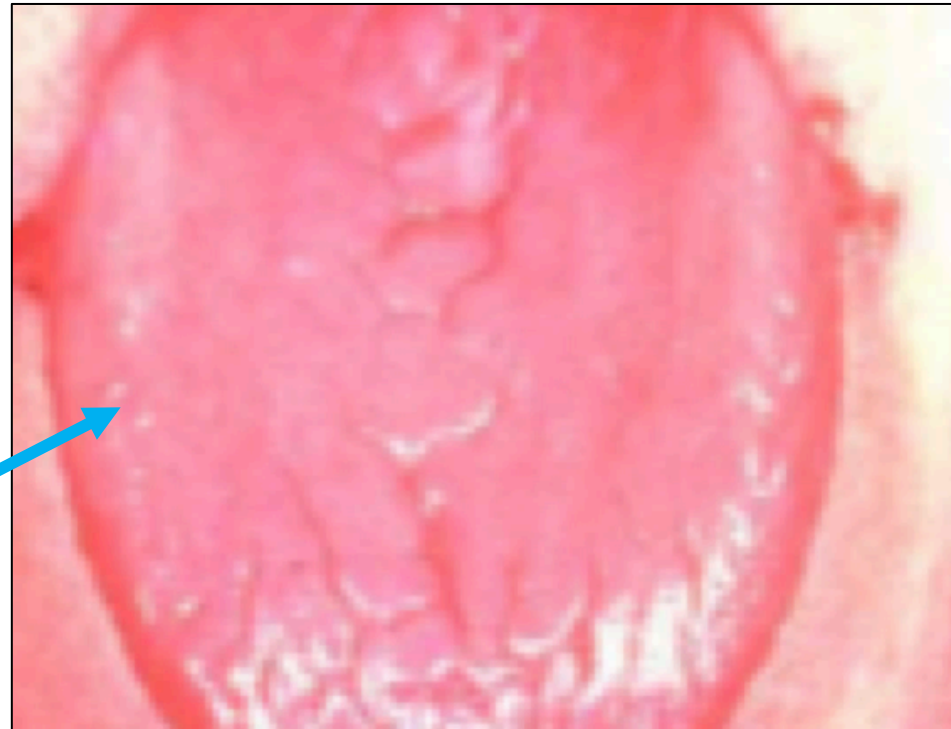
2BC (B2 plus):

Cheilitis

Corneal



Lesions of the Oral Cavity: Vitamin Deficiency



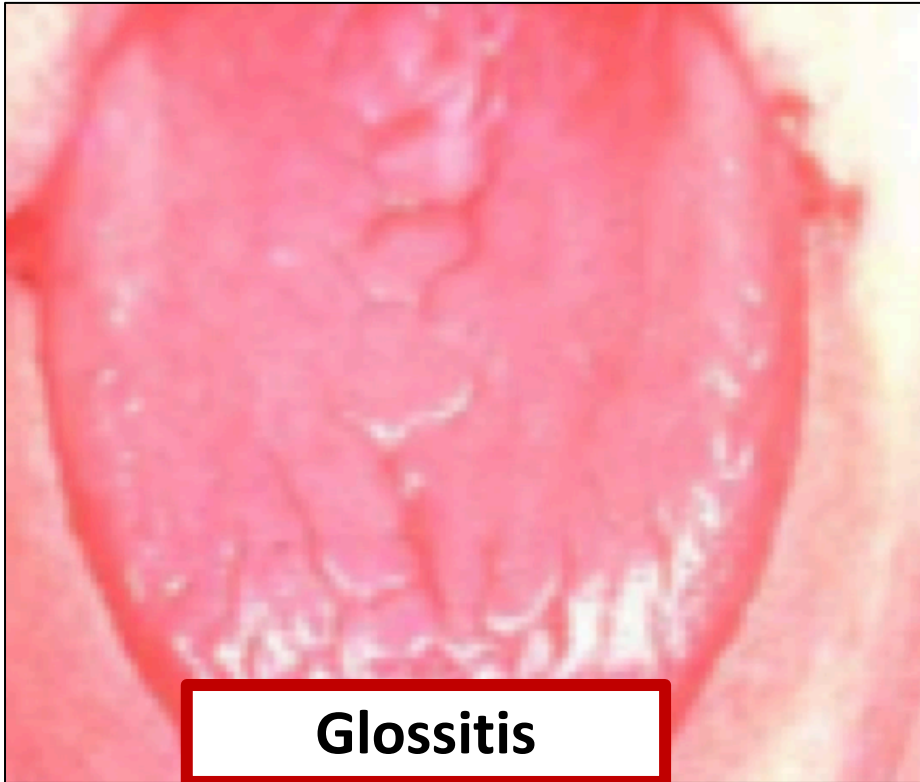
Glossitis

Smooth, shiny and/or swollen tongue

Folate (B9)

Cobalamin (B12)

Lesions of the Oral Cavity: Vitamin Deficiency



Folate (B9)

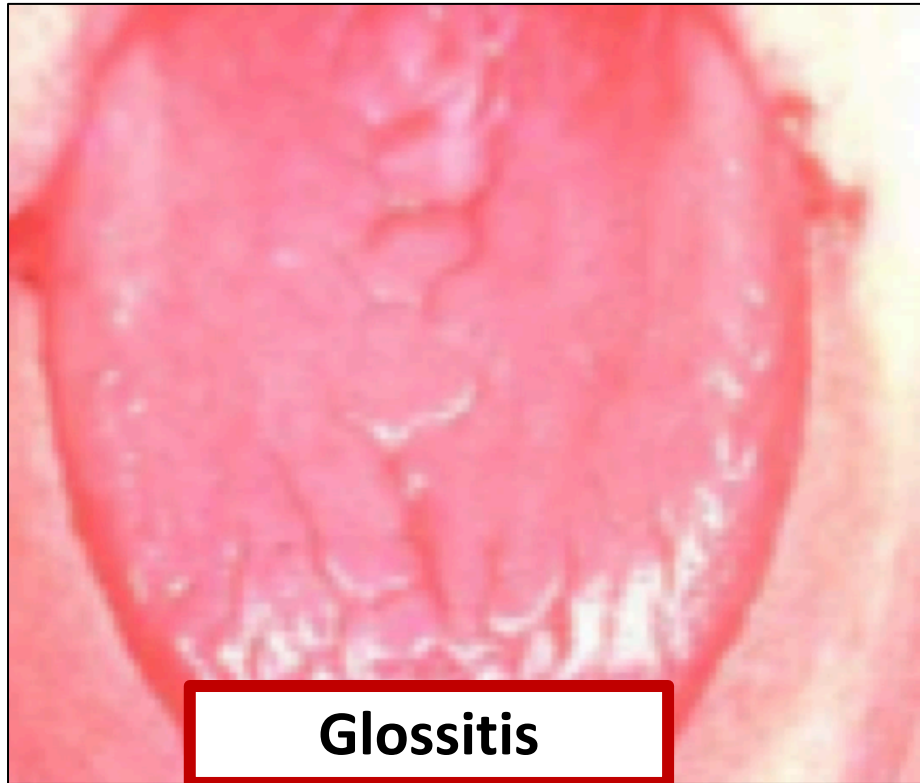
Macrocytic, Megaloblastic Anemia

NO neurologic symptoms

Hemoglobin	13.2 - 17.1 g/dL	10.0 ▼
Hematocrit	39.0 - 52.0 %	28.6 ▼
MCV	80.0 - 100.0 fL	103.6 ▲

Typical setting: Chronic alcohol abuse or Malabsorption (Celiac/Crohn's disease)

Lesions of the Oral Cavity: Vitamin Deficiency



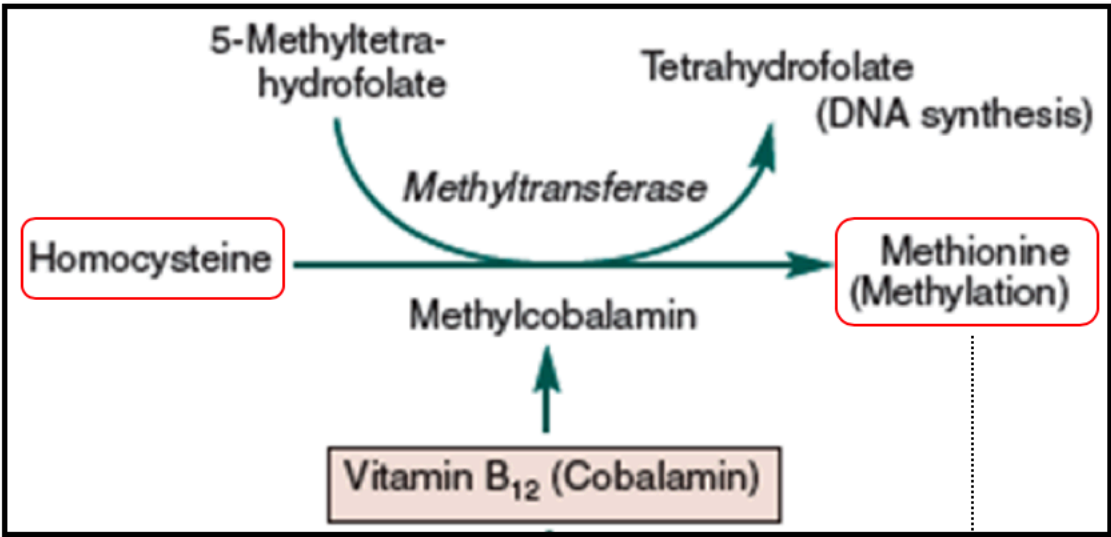
Cobalamin (B12)

Macrocytic, Megaloblastic Anemia

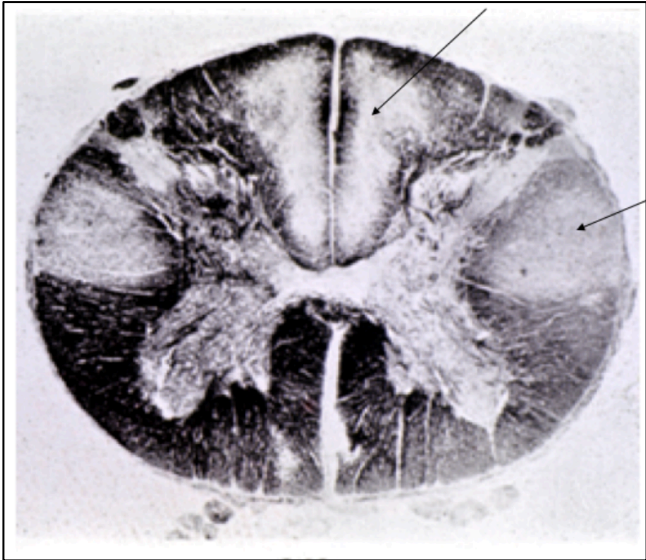
WITH neurologic symptoms

Hemoglobin	13.2 - 17.1 g/dL	10.0 ▼
Hematocrit	39.0 - 52.0 %	28.6 ▼
MCV	80.0 - 100.0 fL	103.6 ▲

Cobalamin (B12) Deficiency



Myelin Synthesis



Subacute **combined** spinal degeneration
Combined: Dorsal (sensory) and Lateral (weakness) tracts
Presentation: Ataxia, Loss of Proprioception

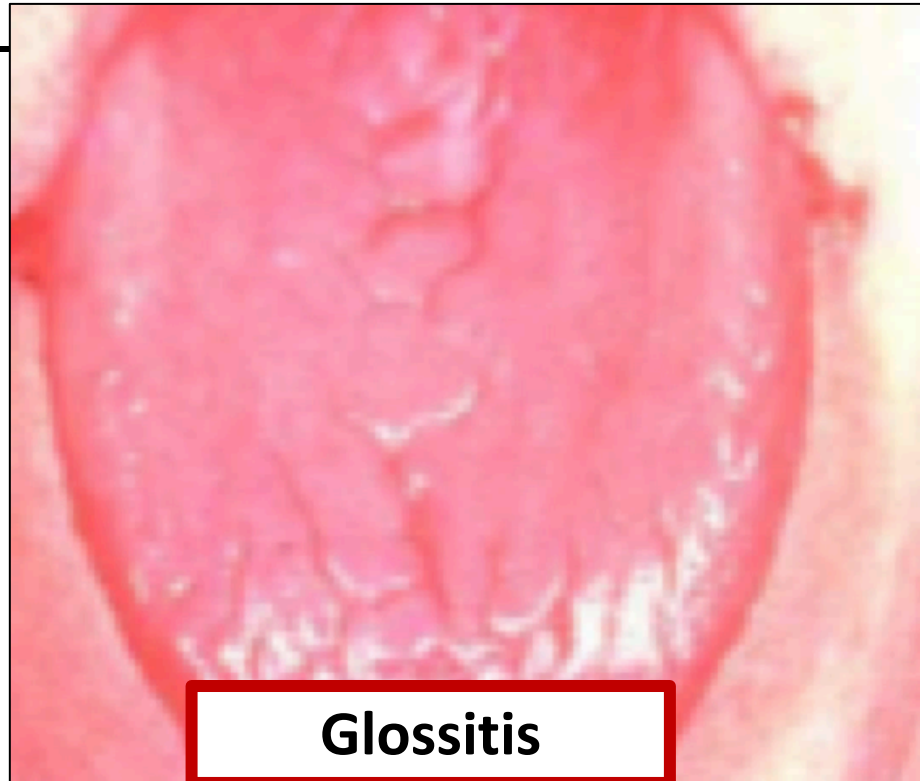
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Lesions of the Oral Cavity: Vitamin Deficiency

Folate (B9)

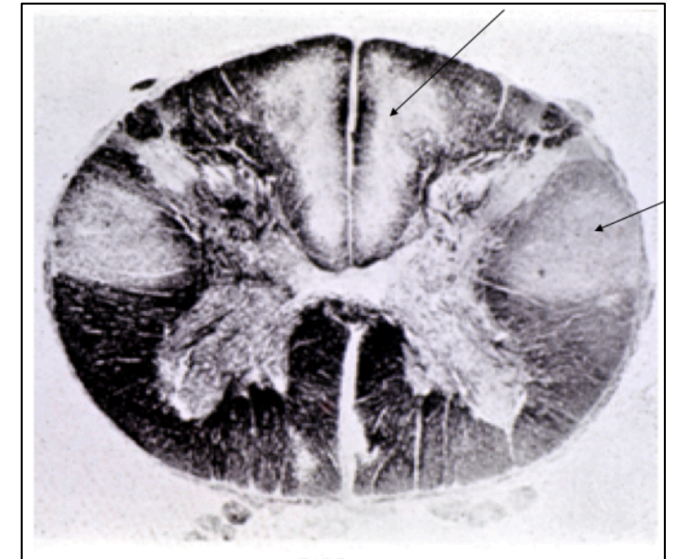
Typical setting:

- Chronic alcohol abuse
- Malabsorption



Glossitis

Cobalamin (B12)



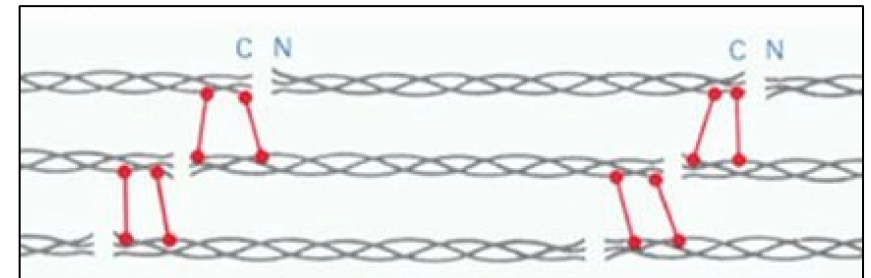
Be familiar with the biochemical roles of these key vitamins

Lesions of the Oral Cavity: Vitamin Deficiency



Scurvy

Vitamin C (Ascorbic Acid) Deficiency



Vitamin C = allows the body to synthesize and cross-link collagen



Vitamin C (Ascorbic Acid) Deficiency

Vitamin C = allows the body to synthesize and cross-link **collagen**



Corkscrew hairs

Scurvy

- **Gingival hypertrophy**
- **Perifollicular petechiae with corkscrew hairs**
- **Capillary fragility (manifest as bleeding, bruising)**
- **Loss of teeth**
- **Poor wound healing**

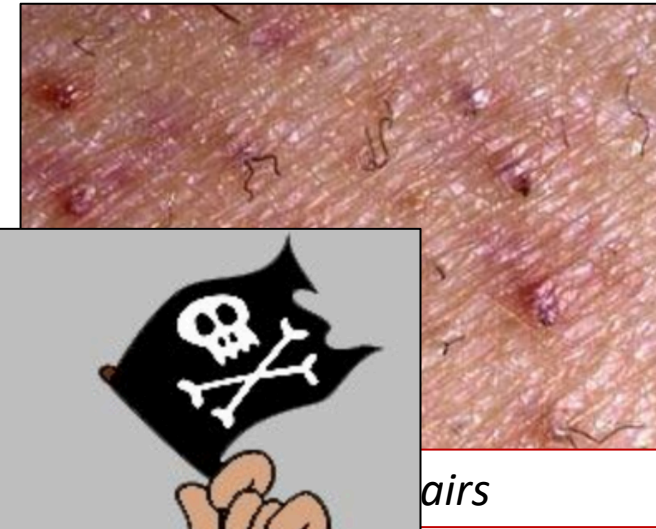


Vitamin C (Ascorbic Acid) Deficiency

Vitamin C = allows the body to synthesize and cross-link collagen

Scurvy

- Gingival hypertrophy
- Perifollicular petechiae with corkscrew hairs
- Capillary fragility (manifest as bleeding)
- **Loss of teeth**
- Poor wound healing



airs



Oral Health

for USMLE Step One

Riboflavin



Lesions

*Folate
Cobalamin*



Iron



Vitamin and Mineral Deficiency

1. Iron (microcytosis)
2. Riboflavin (corneal vascularization)
3. Folate/B12 (macrocytosis)
4. Vitamin C (Scurvy; collagen failure)



*Iron
Riboflavin
(Fungus)*



Vitamin C

Oral Health for USMLE Step One

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Lesions

1. Viral
2. Bacterial
3. Fungal
4. Vitamin Deficiency
5. **Autoimmune**
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