III. Inspection Tongue Coating

Introduction

(1). Definition
The tongue coating is a layer of fur grime on surface of the tongue

(2). The normal tongue coating
A normal tongue coating is thin, white and evenly distributed, and moist. It is generated by Stomach Qi.

(3). Tongue coating formation

**TCM:** A normal tongue coating is created by the upward tide of the Spleen and Stomach Yang Qi evaporating and transforming damp turbidity

"That the tongue has a coating is just like the earth has mosses… moisture exuding from the earth gives rise to the growth of mosses. The Stomach vaporizes the Spleen’s Dampness to rise, thus giving rise to the tongue coating"
- Dr. Wu Kan An

**Western:** Differentiation process of filiform papillae. The tips of the filiform papillae are differentiated into cornified trees of either complete or incomplete cornification. The spaces between the cornified tree branches are generally filled with exfoliated cornified epithelium, saliva, bacteria, fungi, food particles, and exuded leucocytes, forming a normal thin, moist tongue coating
(4). Clinical significance of observe tongue coating
   - To detect the depth of the disease
   - Identify the pathogenic factors and nature of the disease (heat/cold)
   - Reflects the Stomach condition

(5). Content of observe tongue coating
   Observation of the tongue coating
   \{ Color
       \}
   \{ Properties

1. Tongue Coating Color

1). What is the normal tongue coating color?
2). What does the tongue coating color indicate?
   a. Nature and severity of the pathogens (heat/cold)
   b. Locations (organs)
3). What are the tongue coating color changes?
   White
   Yellow
   Gray
   Black

White Tongue Coating
   Description: Tongue coating color is white in color
   Indications:
   (1). Exterior syndrome
   (2). Cold syndrome
   Location: Lung and Large Intestine
### Yellow Tongue Coating

**Description:** The tongue coating color is yellow, it may vary from light yellow to dark or brown yellow.

**Indications:**
1. Interior syndrome
2. Heat syndrome

**Location:** Spleen and Stomach

![Yellow coating](image)

![Light yellow coating](image)

![Dark yellow coating](image)

![Enlarged pale tongue with yellow moist tongue coating](image)

### Gray Tongue Coating

**Description:** Same as a slightly black coating, it develops from the white or yellow coating.

**Indication:**
1. Heat syndrome: dry and gray
2. Cold syndrome: moist and gray

![Gray moist coating](image)

![Gray dry coating](image)

### Black Tongue Coating

**Description:** The tongue coating color looks black and usually evolves from gray coating or yellow coating.

**Indications:**
1. Extreme heat: Dry and cracked
2. Extreme cold: Moist and greasy
3. Recent history of bismuth-based medicines for indigestion (i.e., Pepto-Bismol)

![Black dry or thorn tongue coating](image)

![Black moist coating](image)
Eight principles and tongue coating color

<table>
<thead>
<tr>
<th></th>
<th>White</th>
<th>Yellow</th>
<th>Gray</th>
<th>Black</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exterior</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Interior</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
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<tr>
<td>Heat</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
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<tr>
<td>Cold</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Excess</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Deficiency</td>
<td>+</td>
<td>+</td>
<td>No def. cold</td>
<td>+</td>
</tr>
<tr>
<td>Yang</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Yin</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
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</tbody>
</table>

Summary: Tongue coating color and their relationship

White coating \(\rightarrow\) Yellow coating

Gray coating \(\rightarrow\) Extreme cold \(\rightarrow\) Black coating
2. Appearance of the Tongue Coating

1) What is the normal tongue coating Appearance?
2) What does the tongue coating appearance indicate?
3) What are the tongue coating appearance changes?

<table>
<thead>
<tr>
<th>Tongue Coating Appearance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness</td>
</tr>
<tr>
<td>Moistness</td>
</tr>
<tr>
<td>Viscosity</td>
</tr>
<tr>
<td>Peeling</td>
</tr>
<tr>
<td>Distribution</td>
</tr>
<tr>
<td>Wax/Wane</td>
</tr>
<tr>
<td>Rooted</td>
</tr>
</tbody>
</table>

(1). Thickness of the tongue coating

Definition: the so-called “fur” or thin to thick coating found atop the tongue body proper.

The tongue coating is regarded as thin if the underlying tongue surface shows through faintly, whereas a thick coating is one that blots out the tongue surface completely.

Clinic significance:
- Distinguish condition of right Qi
- Depth of the disease

Physiopathology of thickness of the tongue coating

- Sp/St impaired, Kd/St Yin deficient
- Not enough powder or less (or no) turbidity to steam up
- Little coating or no coating
- Stomach Qi + Turbidity
- Thin Coating
- Thick Coating
- Sp/St dysfunction, Dampness, phlegm or food stagnation
- Too much turbidity, stem up

- Intestines: Qi津津, turbidity, Dampness
- Stomach: Qi津津, turbidity, Dampness
(2). Moistness

Definition: A healthy tongue is kept moist naturally by saliva. A normal tongue coating is moist and lustrous.

Moist coating: Tongue coat is enriched and moist with saliva

Glossy (slippery) coating: A tongue covered with a transparent or semitransparent film of fluid, even to drop when stretching out tongue.

Dry coating: Fur whose surface is dry and without saliva

Rough coating: The tongue coating granules very rough that likes sands, give a roughness feeling which tough it by hand

Clinic Signification:
• Help to understand body fluids condition
Physiopathology of Moistness of tongue coating

Moist and Dry Coating

<table>
<thead>
<tr>
<th>Description</th>
<th>Moist coating</th>
<th>Dry coating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal condition</td>
<td>Normal condition, neither slippery nor dry</td>
<td>The coating is very dry without fluid on it.</td>
</tr>
<tr>
<td>Body fluid</td>
<td>Body fluids sufficiency</td>
<td>Insured or deficiency</td>
</tr>
<tr>
<td>Indications</td>
<td>Health person, or body fluid has not been injury even under illness</td>
<td>Excess heat</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yin deficiency</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yang deficiency which failure transform water into body fluid</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Exopathogenic dryness invades the Lung</td>
</tr>
<tr>
<td>Prognosis</td>
<td>From dry to moist: better</td>
<td>From moist to dry: worse</td>
</tr>
</tbody>
</table>

Glossy and rough coating

Glossy Coating

Rough Coating
(3). Viscosity

Definition: Viscosity of tongue coating is the appearance of the tongue coating

- Clean coating: A normal health tongue coating should be extremely fine coating with a grainy appearance.
- Moldy tongue coating: also known as “bean curd”, “tofu”. The coating is thick and patchy looks like coarse mulch granules as small curd cottage cheese on the tongue, and is easy to be scraped off
- Greasy tongue coating: also know as “sticky coating”. The greasy coating is make of fine particles, it is thicker in middle and thinner in margin and difficult to be scraped off. Looks like wet peanut butter smeared on to tongue’s surface

Clinic Signification: To observer viscosity of the tongue coating can help to identify the pathogenic factors as well as the condition of water transformation

Physiopathology of viscosity of tongue coating

Stomach Qi Turbidity

Thin Clean Coating

Greasy coating or Moldy coating

Indication: Food stagnation, dampness or phlegm and water retention
Moldy coating and Greasy coating

To observer viscosity of the tongue coating can help to identify the pathogenic factors as well as the condition of water transformation

Description

The coating is thick and patchy looks like coarse mulch granules as cotta cheese piling on tongue

The greasy coating is made of fine particles. It is thicker in middle and thinner in margin. It looks like being covered by greasy mucus

Coating

Particles

Big and loose which like cottage cheese

Fine and small which like greasy fat (oily)

Adhere

Easy to wiped or scraped off

Difficulty to wiped or scraped off

Pathogenesis

Excessive Yang heat steaming the turbid and putrid Qi rise to the tongue surface

Food stagnation

Phlegm

Indication

Internal abscess

Dampness

Remark

Moldy coating and Greasy coating can be show at same time as moldy and greasy coating

Greasy on left, moldy on right

Greasy tongue coating

(4). Distribution of coating

Definition: Under normal conditions there is thin white coating distributed evenly all over of the tongue body, with the center part and the root part being relatively thick

- Even Coating: It refers complete tongue coating
- Uneven Coating: also call partial coating, the coating covers only a localized area of the tongue surface, such as the anterior, posterior, left, right, central or peripheral area.

Clinical Signification: Identify the location and stage of the disease

Indication:

A. Even coating: The wide spread of pathogens in the body and stagnation of damp phlegm in middle-jiao
B. Uneven coating
- Coating on anterior area: Stomach Qi deficiency before the invasion of external pathogens to the internal organs of the body. Pathogens in the interior but not deep.
- Coating on posterior area: Mild exopathogens invasion with Stomach function disorder
- Coating on one side: Pathogens in between exterior and interior, or in liver and gallbladder
- Coating absence on center: Stomach Qi, Yin, or Kidney Yin insufficient, or deficiency of all Yin, essence, Qi and blood

(5) Peeling
Definition: Under certain condition, the tongue coating suddenly comes off completely or partly, the tongue body can be seen in exfoliated part. Different terms are given according to the site, state and range of the exfoliation
- Partial exfoliative coating: There partial peeling of coating and there is no coating at the exfoliated part
- Geographic tongue: Scattered peeling with borders that are raised above the surface
- Mirror tongue: The tongue has no coating at all, as smooth and glassy as a mirror
- Exfoliative like coating: The exfoliated part is somewhat rough and covered with new produced particles
(6). Wax and wane

Definition: It also call increase or decrease of tongue coating. It means the changes of the thickness of the tongue coating.

Clinical Signification: Understand the condition of Stomach Qi, the state of the right Qi as well as the prognosis of the disease

Indication:

1). Wax: increase the thickness of the tongue coating
   A. From thin coating to thick coating: Pathogenic factors getting stronger or invade deeper.
   B. From no coating to have coating: Stomach Qi recovered

2). Wane: decrease the thickness of the tongue coating
   A. From thick coating to thin coating: right Qi overcome the pathogenic factors
   B. From have coating to no coating: Stomach Qi failure

(7) The rooted and non-rooted

Definition

Rooted: Under normal condition, tongue coating should attach with the tongue surface tightly and is relatively difficult to scrape or wiped off. It grows out of it much like grass grows from the soil

Non-rooted: The tongue coating looks like being put on tongue body, easy to be wiped or scraped off. The surface of the tongue body looks very smooth after scraped off the coating

Clinical Signification:

Judging the state of the pathogens and the condition of right Qi and Stomach Qi
Rooted and Non-rooted coating

**Description**
- An even coating which is closely adhered to the tongue body and is difficult to be wiped or scraped off. It looks like growing out from the tongue body.
- Thick coating with clear boundary and is easy to be wiped or scraped off. It looks like being put on the tongue body. The surface of the tongue body looks very smooth after scraped off the coat.

**Indication**
- Have Stomach Qi and right Qi
- Stomach Qi and right failure

**Pathogenesis**
- Stomach Qi and right strong enough to tide up to the surface of the tongue
- Stomach Qi exhausted and failure to tide up to generate new coat, old coat separate from tongue body

**Prognosis**
- Good
- Poor

**Remark**
- Can be seen in all stages of the illness
- Only seen in chronic and critical condition

IV. Tongue body and Tongue coating
Observing tongue body: judge the condition of vital Qi, and differentiation the nature of pathogenic factors

Observing tongue coating: differentiation the nature and location of the pathogenic factors

This 8-year-old girl developed a red papular eruption on her lower extremities and a disseminated sandpaper-like rash 3 days after the onset of a sore throat with a positive Group A beta hemolytic streptococcus culture. She also had a strawberry tongue with a white membrane and prominent red papillae poking through the coating.

This 25 year old woman with advanced acquired immunodeficiency syndrome and a CD4 count below 100 was admitted for hospice care a few weeks before her death. She had painful oral ulcers with white exudate that did not respond to oral antibiotics or antifungal therapy.
strawberry tongue; red scarlatiniform eruption with circumoral pallor. Comments: A 6 year old girl with a sore throat developed a widespread fine red sandpaper-like eruption with bright red cheeks, circumoral pallor, and strawberry tongue.