Tongue Diagnosis

I. Introduction

1. Definition
Tongue diagnosis is an important diagnostic method unique to TCM. The doctor observes the abnormal changes in the tongue body and coating to make a diagnosis and analyze the disease.
2. Structures of the tongue

A. Filiform papillae: The most numerous and smallest papillae on the tongue, distributed over the tongue.
   TCM: Filiform papillae are formed by Lung Qi and Ming Men fire.

B. Fungiform papillae: mostly seen on tip of the tongue and scattered among the filiform papillae.
   TCM: Fungiform papillae are formed by Heart and Kidney Qi

C. Circumvallate papillae: the largest papillae, seven to nine in number, arranged in a V-shaped sulcus terminalis, which separates the tongue body from the tongue root.

3. Function of the tongue

• Differentiating tastes
• Mixing food, chewing and swallowing
• Modulating the voice, speaking
4. The fundamentals of Tongue diagnosis

The tongue serves as a mirror of the Zang Fu

[ The channels and collaterals of the Zang Fu are all connected directly or indirectly with the tongue

[ The mucosa on the tongue is thin and transparent with a rich supply of blood, and the tongue papillae is sensitive to changes. Therefore, being a sensitive mark of internal changes, the tongue serves as an indispensable guide in differentiating syndromes.

[ The taste sensitivity of the tongue can effect the appetite. Spleen and Stomach functions are related to the tongue’s ability to taste food. The Spleen and Stomach are the source of the Qi and Blood. Appetite and taste are related and both are a function of the Spleen and Stomach.

5. The relation between tongue and Zang Fu

(1). Channels and collaterals that connect to the tongue

1) Three Yin channels of Foot:
   - Spleen: connects with the root of the tongue and scatters over the underside
   - Kidney: harbors the tongue root
   - Liver: has a channel network in the tongue root

2) Yang channels of Foot:
   - Bladder: muscle region, a branch enters the root of the tongue

3) Yang channels of Hand:
   - the divergent channel of the hand Shao Yin, follows the channel into the Heart, and then to the root of the tongue
(2). Relationship with Zang Fu

Heart
- Sprouts, opens
- Distinguish tastes, speech

Liver
- Controls tendons
- Move flexibly, mix food, speech

Kidney
- Stores congenital Jing and Yin
- Normal shape and moisture

Spleen
- External sign
- Normal shape, move flexibly, ability to taste

Stomach
- Thin white coating

Lung
- Filiform papillae

(3). The tongue and its relationship to the Zang Fu

6. Clinical significance of tongue diagnosis
1). To judge the exuberance or decline of the vital Qi
2). To distinguish the nature of the disease
3). To detect the location of the disease
4). To estimate the prognosis of the disease
7. Method of tongue diagnosis and caution
   1). The way in which the patient extends the tongue
   2). Order of observing aspects
   3). The light
   4). Diet and medication
   5). Seasons and time
   6). Age and constitution
   7). Hobby and habit

7. Contents of tongue inspection

8. Normal tongue
   Normal tongue is neither too large or small, soft, neither tough nor tender, moves freely, has a pink color which is covered by a thin and even white coating with moderate moisture. This coating can’t be scraped away and has its root in the tongue body. Or we say “pink tongue with thin white coating”
II. Inspection Tongue Body

Introduction

(1). Definition of Tongue body
(2). The normal tongue body
(3). Clinical significance of inspect tongue body
(4). Content of inspect tongue body

Inspect tongue body

- Shen: Spirit
- Tongue body color
- Tongue body shape
- Tongue body bearing
- Hypoglossal vessels

1. Tongue Spirit

1). What is the tongue Spirit?
2). What is the clinical significance of tongue Spirit?
   It predicts the prognosis and reflects the condition of Zang Fu, Qi, Blood, and body fluids.
3). Physiopathology of the tongue Spirit:

- Have Spirit → Good prognosis
- Have stomach Qi →
  - Tongue → Nutric supplies
  - Qi, Blood, body fluids →Generate
  - Stomach
- No Spirit → Poor prognosis
  - Stomach Qi exhausted
4. What is the manifestation of the tongue spirit?

**Flourish:** refers to the brightness of the tongue body with energetic movement and enough fluid in the body.

**Withered:** refers to the dark and dry tongue body with sluggish movement.

<table>
<thead>
<tr>
<th>Tongue Color</th>
<th>Moisture</th>
<th>Impression</th>
<th>Movement</th>
<th>Indication</th>
<th>Prognosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light red</td>
<td>Moist</td>
<td>Flourish</td>
<td>Energetic</td>
<td>Normal Stomach Qi</td>
<td>Good</td>
</tr>
<tr>
<td>Dark and dim</td>
<td>Dry</td>
<td>Withered</td>
<td>Sluggish</td>
<td>Stomach Qi exhausted</td>
<td>Poor</td>
</tr>
</tbody>
</table>

The flourishing tongue has spirit.
The withered tongue has no spirit.
2. Tongue color

1. What is the normal tongue color?
2. What does the tongue color indicate?
3. Which colors can be visible in the tongue body?

Tongue color
- Pale
- Pink (slight red)
- Red
- Deep red (crimson)
- Purple
- Blue purple
- Blue
- Pale Purple “Dusky”

Redness aspect increases
Redness aspect decreases

4. Pathophysiology of the tongue color

Qi, Blood, body fluids
- Pale
- Pink Tongue
- Red
- Blue
- Purple
- Crimson

Blood doesn’t fill
Blood fills excessively
Heat
Blood fills excessively
Blood fills excessively

(1) Pale Tongue

Description: The tongue color is lighter than normal, or even bloodless.
Pathogenesis: there is insufficient Blood to fill in the tongue body.
Indications:
A. Cold syndrome: moist
B. Yang deficiency: enlarged and moist
C. Qi and blood deficiency: thin and small

A. Pale and moist with thin white coating. Cold syndrome
B. Flabby and moist with thin and white coating. Yang deficiency with cold
C. Pale and moist with thin white coating. Qi and blood deficiency
(2) Red Tongue
Description: The tongue is redder than normal
Pathogenesis: Heat accelerates Blood movement, which fills up the vessels
Indication - Heat syndrome
- External heat: only slight red or red on tip and edge
- Internal heat:
  B. Excess heat: red and tough tongue with thick dry coating
  C. Deficiency heat: red (with cracks) tongue with little coating

(3) Crimson tongue
Description: Crimson tongue comes from red tongue, but the color is heavy and darker than red, it also called deep red
Pathogenesis: Heat concentrates and accelerates the movement of Blood
Indications: Heat syndromes
A. Exogenous febrile diseases
B. Yin deficiency or exhausted: dry and small, without coating
C. Blood stagnation: with purple color

(4) Purple tongue
Description: Tongue body looks purple
Pathogenesis: Blood stagnates and accumulates in the tongue body
Indications:
A. Cold syndrome: pale purple
B. Blood stagnation: dark purple
C. Extreme heat: crimson purple
(5) Bluish tongue

Description: The tongue color is like that of the blue veins exposed on skin, or bloodless like a buffalo’s tongue

Pathogenesis: cold constricts vessels, and so Blood stagnates.

Indication:
A. Pathogenic cold accumulation
B. Blood stagnation

3. Tongue shape

1). What is the normal tongue shape?
2). What is the clinical significance of a tongue’s shape change?
3). In what ways does the tongue shape change? (contents)

(1). Size of the tongue body

1). What is the normal size of the tongue body?
2). Pathophysiology of tongue body size

Body fluids

Small tongue

Normal tongue size

Enlarged tongue

Blood/Yin deficiency

Dampness, phlegm, or poisoning

Not enough nutrition

Excess fluids buildup

3). In what ways does the size of the tongue body change?

• Flabby tongue
• Swollen tongue
• Teeth marks
• Thin tongue
### Enlarged tongue

**Description:** The tongue body is wider than normal

**Pathogenesis:** Fluids accumulate in the tongue body

**Indications:**

A. Dampness accumulation

B. Spleen and Kidney Yang deficiency with dampness

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### Swollen tongue

**Description:** The tongue body is enlarged both horizontally and vertically. It can fill up the mouth and can be difficult to retract, in some cases the mouth can not even shut.

**Pathogenesis:** Qi, Blood stasis in the tongue body due to heat

**Indication:**

A. Pathogenic heat invasion Heart and Spleen: red and swollen

B. Alcohol poisoning: purple and swollen

C. Blood stasis caused by chemical toxicity: darkish blue purple, swollen

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Teeth marked tongue (Scalloped tongue)
Description: teeth marks are visible on the tongue’s edges
Pathogenesis: Water or dampness stagnates in the tongue, enlarging the tongue body.
Indication:
A. Dampness: (+ pale and moist)
B. Spleen, or Qi deficiency: (+ slight red)

Comparison: enlarged, swollen, and teeth marked tongue

<table>
<thead>
<tr>
<th></th>
<th>Enlarged Tongue</th>
<th>Teeth marks</th>
<th>Swollen Tongue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tongue body enlarged</td>
<td>+</td>
<td>+</td>
<td>++</td>
</tr>
<tr>
<td>Teeth marks</td>
<td>-</td>
<td>++</td>
<td>+</td>
</tr>
<tr>
<td>Vertical enlargement</td>
<td>+</td>
<td>+</td>
<td>++</td>
</tr>
<tr>
<td>Horizontal enlargement</td>
<td>++</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Stiffness of the tongue</td>
<td>-</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Potentially healthy patient</td>
<td>+</td>
<td>+</td>
<td>+</td>
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</tbody>
</table>

Remark: 1. Teeth marks are always found on the enlarged or swollen tongues, but enlarged or swollen tongues may not have teeth marks.
2. Enlarged and swollen tongue can arise simultaneously.

Thin tongue
Description: The tongue body is thinner both horizontally and vertically, and thus smaller than normal
Pathogenesis: Tongue body lacks nutrition.
Indication:
A. Qi and Blood deficiency: (+ pale and thin coating)
B. Yin deficiency with heat: red with little or no coating
(2). Shape tongue body surface

1). What is the normal appearance of the tongue surface?
2). Pathophysiology of the tongue’s surface and how it changes:

<table>
<thead>
<tr>
<th>Qi, Blood and body fluids</th>
<th>Cracked tongue</th>
<th>Normal tongue</th>
<th>Prickled tongue</th>
<th>Ulcerated tongue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not enough nutrition to nourish tongue surface</td>
<td>Too much Qi and Blood fills the tongue body</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Cracked tongue

Description: There are obvious fissures on the surface of the tongue which are not covered with a coating. The size, depth and shape of cracks are different. It may be seen on the whole tongue or restricted to the front part, or both sides of the tongue tip.

Pathogenesis: Malnutrition of the tongue body and eventual atrophy of the tongue surface

Indications:
A. Excess heat: deep red crack with dry coating
B. Yin deficiency: red body with cracks but no coating
C. Blood deficiency: pale or slightly red body with cracks
D. Spleen deficiency with dampness: pale, enlarged with teeth marks and cracks on the edges

Crack tongue (cont.)

A. Crimson cracked body, dry coat
B. Red cracked body, no coating
C. Slight pale with cracks: Blood deficiency
D. Pale, enlarged with teeth marks and cracks on the edges: Spleen deficiency with dampness
**Prickles (thorns, dots, spots) tongue**

Description: There are spots or prickles on the surface of the tongue that look like strawberry thorns. Spots are flat or only slightly raised. They can be red, white, or black. Prickles are raised and can appear red or black. Both can appear on the borders of the tongue, or scattered over the entire surface.

Pathogenesis: accumulation of excessive pathogenic heat putrefies tongue’s surface.

Indication: Excess pathogenic heat
A. Excess heat toxin: bright red with yellow coating
B. Pathogenic heat invasion into Ying or Xue levels: crimson red
C. Damp-heat accumulation: yellow coating

**Prickle (Thorny) tongue (cont.)**

- A. Bright red prickles with yellow coating: excess heat toxin
- B. Crimson color with dark purple dots, with little coating
- C-1: prickles on edges with thick yellow coating: damp-heat in Liver/GB
- C-2: dots on one side of the edge: Damp-heat in GB

**Ulcerated Tongue**

Description: Form is like millet kernels, on top there are yellow dimples, after a long time they erode and create ulcerations, and the area may is red and painful.

Pathogenesis: Heat flaming upward accumulates on the tongue’s surface and putrefies the tissue.

Indication:
A. Heat toxin in the Heart channel: red with yellow coating
B. Deficiency heat: cracked, red with scanty yellow coating

- A. red with yellow coating: heat in the Heart
- B. cracks, red with scanty yellow coating: deficiency heat
(3) Appearance of the tongue body

1. What is the normal appearance of the tongue body?
2. Pathophysiology of the tongue body’s appearance

<table>
<thead>
<tr>
<th>Qi, Blood, body fluids</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tender tongue</td>
</tr>
<tr>
<td>Normal tongue appearance</td>
</tr>
<tr>
<td>Tough tongue</td>
</tr>
</tbody>
</table>

3. In what ways does the appearance of the tongue body change?
   - Tough tongue
   - Tender tongue

Tough (old) tongue
Description: The striae of tongue are rough and sturdy
Pathogenesis: Excessive pathogens invasion and struggle with vital Qi, causing Qi and Blood rise, consuming Qi and body fluids
Indication: Excessive heat syndrome

Tender (young) tongue
Description: The striae of tongue are delicate, fine and smooth
Pathogenesis: Qi and Blood deficiency, or Yang deficiency failing to transform drink into body fluids and generating cold damp which accumulates and causes the tender tongue.
Indication: Deficiency syndrome
   A. Qi and Blood deficiency: tender and dry
   B. Yang Qi deficiency: tender and wet
4. Bearing of Tongue

1. What is the normal bearing of tongue?
2. What is the clinical significance for tongue bearing change?
3. In which ways can the tongue bearing change?

- **Flexibility**
  - Stiff tongue
  - Flaccid tongue
- **Abnormal bearing**
  - Shaking tongue
  - Deviated tongue
  - Protruding and licking
- **Contraction**
  - Short tongue
  - Loose tongue

(1). Flexibility of the tongue body

1. What is the normal flexibility of the tongue body?
2. Pathophysiology of shape of the tongue body

- **Liver**
- **Blood, body fluids**
- **Tendons**
- Stiffness of tongue
- Tongue body flexibility
- Flaccid tongue

3. How does the flexibility of the tongue body change?
   - Stiff tongue
   - Flaccid tongue

Stiff tongue

Description: The tongue’s body has difficulty in moving or turning. It causes slurred speech and difficulty with eating.
Pathogenesis: Tongue tendons spasm due to malnutrition.
Indication:
   A. Pathogenic heat invades the pericardium: crimson with dry yellow coating
   B. Turbid phlegm obstructs the meridian: flabby tongue, with thick greasy coating
   C. Internal wind: Slight red or green purple tongue
Flaccid tongue
Description: It refers to a weak tongue unable to protrude or curl up with atrophy of the tongue muscle. In severe cases it has a crumpled look, with many lines on its surface.
Pathogenesis: Tongue tendons and muscles lack nutrition
Indication:
A. Severe Qi and Blood deficiency: pale and flaccid
B. Excessive pathogenic heat injury body fluids: crimson and flaccid
C. Yin fluids exhausted: deep red and dry flaccid, and no coating

(2). Abnormal tongue movements
1). What is the normal tongue state?
2). Pathophysiology of tongue state and movements

Shaking tongue (Quivering tongue)
Description: The tongue body shivers and sways uncontrollably.
Pathogenesis: Tongue tendons spasm due to malnutrition
Indications:
A. Qi and Blood deficiency, or Yang depletion: pale and flaccid
B. Internal wind due to extreme pathogenic heat: red
Deviated tongue
Description: When tongue protrudes out of the mouth, it points to one side
Pathogenesis: unilateral obstruction of the collateral
Indication:
A. Liver Yang rising: purple red
B. Blood deficiency: pale
C. Wind phlegm: Thick coating
D. Extreme heat: red tongue

Protruding and licking
Description: The tongue stretching out of mouth is called a protruding tongue. And that tongue stretches out and immediately retracts into mouth or like snack head move around is called licking.
Pathogenesis: heat creates dryness which leads to tendon spasms
Indication:
A. Pathogenic heat in the Heart channel
B. Pathogenic heat in the Spleen channel

(3). The contraction of the tongue
1). What is the normal tongue length?
2). Physiopathology of tongue length and contraction

3). How length of the tongue changed?
   • Shortened tongue
   • Loose tongue
Shortened (contraction) tongue
Description: The tongue contracts and shortens, and is inability to stretch, even can not reach teeth
Pathogenesis: Tongue tendon atrophy or construction due to cold, or malnutrition.
Indication: Critical condition
A. Excessive pathogenic cold invades: pale with moisten coating
B. Turbid phlegm accumulation: Flabby with greasy coating
C. Excessive pathogenic heat: red tongue with dry yellow coating
D. Spleen and Kidney failure, both Qi and Blood deficiency: pale tenderness tongue and flabby.

Shortened (contraction) tongue (cont.)
A. Shortened pale tongue: cold invades tendon and channel
B. Flabby and short tongue: thick slimy coating
C. Short crimson tongue: dry thick yellow coating: Excessive heat
D. Pale puffy and tender: Qi and Blood deficiency

Loose (Protracted tongue)
Description: The tongue hangs outside the mouth when it is extended, and is difficult to retract. It may drip with saliva
Pathogenesis: Tongue tendon couldn’t contract due to malnutrition which may results channels and collaterals obstruction or deficiency
Indication:
A. Excessive heat or heat phlegm
B. Qi deficiency
5. Hypoglossal Vessels

**Normal hypoglossal vessels:** In normal condition, beside the frenulum of tongue, two thick bluish purple vessels can be seen. Their diameter is no more than 2.7 mm. Their length is no more than one third of the length from the sublingual caruncle to the tip of the tongue. There are no branches or spots.

Abnormal hypoglossal vessels

**Description:**
- The shape of main part are varicosity in some part or diffuse varicosity
- The length of main part is over reaching the middle point
- The filling degree of main part are filling up all parts with little crooked or dilation with crooked
- The color is bluish purple or purple black
- The peripheral parts cystic, thick processes just like grape-string
- The diameter over 2.7 mm

**Indication:** Qi and blood stagnation