

## TONGUE IN DISEASE DIAGNOSIS:

### Introduction:

Tongue is a muscular organ associated with the function of deglutition, taste and speech. It acts as an easily accessible organ for the assessment of health of an individual and shows the state of hydration of the body. It is said that tongue is the mirror of the gastrointestinal system and any abnormal functioning of the stomach and intestines will be reflected on the tongue.

Some characteristic changes occur in the tongue in some particular diseases. That is why the examination of the tongue is very essential and will give some clues for diagnosis. All doctors examine the tongue and they consider the changes in size, shape, colour, moisture, coating, nature of papillae and movements ect.

Appearance of tongue in some abnormal conditions:-

#### 1) Movements of the tongue:-

a) In one sided paralysis of the body (hemiplegia) tongue moves towards the paralysed side when protruded.

b) Tremulous movement of the tongue is seen in diseases like thyrotoxicosis, delirium tremens and parkinsonism. Tremor is also seen in nervous patients.

c) In progressive bulbar palsy there will be wasting and paralysis of the tongue with fibrillation. Eventually the tongue gets shrivelled and lies functionless in the floor of the mouth. This condition is associated with dribbling of saliva and loss of speech.

d) In chorea (involuntary rhythmic movements) the patient may not be able to keep the protruded tongue in rest, it will be moving involuntarily.

#### 2) Moistness of the tongue:-

The moistness of the tongue gives some indication about the state of hydration of the body. Water volume depletion leads to peripheral circulatory failure characterised by weakness, thirst, restlessness, anorexia, nausea, vomiting, dry and parched tongue.

Dryness of the tongue is seen in following conditions.

a) Diarrhoea

- b) Later stages of severe illness
- c) Advanced uraemia
- d) Hypovolumic shock
- e) Heat exhaustion
- f) Hyponatraemia
- g) Acute intestinal obstruction
- h) Starvation
- i) Prolonged fasting.

### 3) Change in colour of tongue:-

#### a) Central cyanosis:-

Cyanosis is the bluish discolouration of the mucus membrane due to decrease in the amount of oxygen in the blood. This is seen in heart failure, respiratory failure and in anoxia. In cyanosis tongue, lips etc become pale bluish.

#### b) Jaundice:-

This is the yellowish discolouration of all mucus surfaces of the body (including tongue) due to increase of bilirubin in the blood. Jaundice is seen in hepatitis, bile duct obstruction, increased destruction of RBCs and etc...

#### c) Advanced uremia:-

This is the increase of urea and other nitrogenous waste products in the blood due to kidney failure. Here the tongue becomes brown in colour.

#### d) Keto acidosis:-

This is the acidosis with accumulation of ketone bodies seen mainly in diabetes mellitus. Here the tongue becomes brown with a typical ketone smell from the mouth.

#### e) Riboflavin deficiency:-

Deficiency of this vitamin (vitamin B2) produces magenta colour of the tongue with soreness and fissures of lips.

#### f) Niacin deficiency:-

Deficiency of niacin (vitamin B3) and some other B complex vitamins results in bright scarlet or beefy red tongue.

g) Anaemia:-

It is the decrease in haemoglobin percentage of the blood. In severe anaemia tongue becomes pale.

4) Coating on the tongue:-

a) Bad breath:-

The main cause for bad breath is formation of a pasty coating (bio film) on the tongue which lodges thousands of anaerobic bacteria resulting in the production of offensive gases. Those who complain about bad breath may have thick coating on the posterior part of the tongue.

b) Typhoid fever:-

In typhoid fever tongue becomes white coated like a fur.

c) Candidiasis:-

It is a fungal infection which affects the mucous surfaces of the body. On the tongue there will be sloughing white lesions.

d) In diabetes and hypoadrenalism there will be sloughing white lesions.

e) Secondary syphilis:-

Syphilis is a sexually transmitted disease caused by *Treponema pallidum* infection. In secondary stage of this disease we can see mucous patches which are painless, smooth white glistening opalescent plaques which can not be scraped off easily.

f) Leukoplakia:-

Here white keratotic patches are seen on the tongue and oral cavity. This is a precancerous condition.

g) AIDS:-

In these patients hairy leukoplakia is seen.

h) Peritonitis:-

It is the inflammation of the peritonium(inner covering of abdominal cavity which also covers the intestines and keep them in position) in this condition there is white furring of the tongue.

i) Acute illness:-

Furring is also seen in some acute diseases.

5) Papillae:-

These are small projections on the tongue associated with taste. There are different type of papillae on the healthy tongue. In some diseases there are some abnormal changes which are following.

a) Hairy tongue:-

This condition is due to elongation of filiform papillae seen in poor oral hygiene ,general debility and indigestion.

b) Geographic tongue:-

Here irregular red and white patches appear on the tongue. These lesions look like a geographic map. The exact cause is not known.

c) Median rhomboid glossitis:-

In this condition there is smooth nodular red area in the posterior mid line of the tongue. This is a congenital condition.

d) Nutritional deficiency:-

In nutritional deficiency there is glossitis(inflammation of tongue) leading to papillary hypertrophy followed by atrophy.

e) Benign migratory glossitis:-

It is an inflammatory condition of the tongue where multiple annular areas of desquamation of papillae appear on the tongue which shift from area to area in few days.

f) Thiamine and riboflavin deficiency:-

Deficiency of these vitamins cause hypertrophied filiform and fungiform

papillae.

g) Niacin and iron deficiency:-

In this condition there is atrophy of papillae. Smooth tongue is encountered in iron deficiency.

h) Vitamin A deficiency:-

This causes furrowed tongue.

i) In nutritional megaloblastic anaemia tongue becomes smooth.

j) Folic acid deficiency:-

Here macrocytic megaloblastic anaemia with glossitis is seen.

k) Cyano coblamine deficiency:-

Here glossitis with macrocytic megaloblastic anaemia and peripheral neuropathy is encountered.

l) Scarlet fever;-

In this streptococcal infection there is bright red papillae standing out of a thick white fur ,later the white coat disappear leaving enlarged papillae on the bright red surface and is called strawberry tongue.

6) Ulcers on the tongue:--

a) Aphthous ulcer:-

These are round painful ulcers appear in stressed individuals frequently. May be associated with food allergy. Usual sites are tongue, lips, oral mucosa and ect.

b) Herpes simplex:-

It is an acute vesicular eruptions produced by herpes simplex virus. When these vesicles rupture it forms ulcers.

c) Ulcer in cancer:-

Cancerous ulcers are having everted edges with hard base. Bleeding is also

seen. Cancer of the tongue is common in tobacco chewers.

d) Syphilitic ulcers:-

Syphilitic fissures are longitudinal in direction. In primary syphilis extra genital chancre is seen on the tongue. In secondary syphilis multiple shallow ulcers are seen on the under surface and sides of the tongue. In tertiary syphilis gumma may be seen on the midline of the dorsum of the tongue.

e) Dental ulcers:-

These ulcers are produced by sharp edges of carious teeth.