An Observational Study of Relation between Jatharagni(digestion) and Jivha(tongue)

Dr Shalini¹, Dr. Neha Gadgil², Dr. Nirank Kumar³

¹MD Scholar Kriyasharir Dept. Parul Institute of Ayurveda Vadodara,
²Associate Professor, Kriyasharir Dept. Parul Institute of Ayurveda, Vadodara,
³Medical Officer (Ayush Department), Uttar Pradesh Government,

Abstract: Ayurveda is science of life and life depends on Agni(digestive fire). Jatharagni(digestive fire of stomach),Dhatwagni(digestive fire related to body Dhatu) and Bhootagni(digestive fire related to Mahabhoots) are three types of Agni in body. Another division is done on the basis of Paka (digestion) i.e., Tikshna(abnormally high), Manda(low), Sama(proper),Vishama(sometimes proper). Jatharagni(main digestive fire that nourishes other agnis too) is considered main Agni in body which nourishes other Agnis in body. Acharya Vagbhatta considers Agnimandya(low digestive fire) as root cause of all diseases. Whenever there is Agnimandya it causes formation of Ama(indigested food). It’s manifestations can be seen over tongue. It causes coating of tongue. Acharya Yogratnakar suggested JivhaPariksha(tongue examination) under Ashtavidha(8 types)Pariksha. To find this relation,this study was conducted over 350 volunteers. Tongue photographs were taken (before and after brushing)and volunteers were asked questions as per questionnaire. Assessment of Jatharagni status was done with validated format over tongue health. Suitable test(Chi-square) was used to reach conclusion,where this relation found true and not by chance.

Keywords: Ayurveda, Jatharagni, Jivha.

1. Introduction

In Ayurveda,agni refers to the digestive and metabolic process that converts food into energy, supporting all vital bodily functions. Maintaining a healthy Jatharagni(digestive fire) is crucial in preventing illnesses. Jivha (tongue) has direct connection with Jatharagni. The tongue plays a significant role in the digestive process. Firstly, the taste buds on the tongue help detect the flavors of the food, which triggers the release of saliva that contains digestive enzymes. Saliva helps to break down carbohydrates in the food. Additionally, the tongue helps to mix food with saliva and form a bolus, which is easier to swallow and move down the esophagus into the stomach for further digestion. The tongue also helps in mastication (chewing) which further breaks down food and makes it easier for digestive enzymes to act on it. Therefore, the tongue plays a crucial role in the initial stages of digestion and helps to prepare food for further digestion in the digestive system. Whenever digestion is not proper it is reflected on tongue surface. This study aims to establish that clean and healthy tongue reflects good health and digestive power.

रोगााः सर्वेऽपिमन्देऽग्रौसुतरामुदरापितु।
अजीिाान्मपिनेाजयन्तेमिसशयात्।

Tongue examination is an important aspect of Ayurveda, and the tongue can provide information about the health status of a person. In Vataja conditions, the tongue is cold, rough, and cracked, while in Pittaja conditions it is reddish and blackish. In Kaphaja conditions, the tongue is whitish and sticky. In Sannipata conditions, the tongue is blackish, thorny, and dry. In Dwandwaja(any two doshas together)Dosha conditions, there are mixed symptoms and signs.
Currently, there is ongoing research on tongue examination in specific diseases, such as stroke and diabetes. Scholars are also working to develop instruments for tongue examination. In the future, the tongue may become an important tool for disease diagnosis. However, there is a lack of research in this area specifically in the context of Ayurveda, which primarily focuses on the \textit{agni} status of a person when diagnosing and treating patients. A study on the characteristics of the tongue in relation to \textit{agni} could help reduce the time needed for diagnosis, benefiting both the physician and the patient.

**Concept of Agni and Jivha in Ayurveda and modern sciences:**

\textit{Agni} was also believed to be present in each and every cell of the body\cite{1}, performing functions such as vision, taste, and hearing, and was said to cure many diseases.\cite{2,3,4} The dominance of \textit{agni} is accepted by giving it different names as \textit{Teja}, \textit{Ushna}, \textit{Dehosma}, \textit{Pittosma}, \textit{Santapa}, \textit{Kayagni} and \textit{Audaryagni}\cite{5}. It is believed that \textit{agni} influences both good and evil through the agency of \textit{Pitta}.\cite{6} \textit{Agni} is responsible for \textit{Ayu} (life), \textit{Balat} (strength), \textit{Varna} (color), \textit{Swasthya} (health), \textit{Upachaya} (body growth), \textit{Prabha} (charm), \textit{Oja} (Extract of all body dhatus) and \textit{Prana} (normal functioning of body).\cite{7} \textit{Pachaka Pitta} is accepted as \textit{agni}.\cite{8} \textit{Pitta} is located between the \textit{Pakvasya} (intestine) and \textit{Amashaya} (stomach).\cite{9} \textit{Agni} is included in five types of \textit{Pittas}.\cite{10} The most important of \textit{Agnis} is \textit{Dehagni} or \textit{Jatharagni}, as all other \textit{Agnis} depend on it.\cite{11} There are 4 type of \textit{Agni}.

A) \textit{Samagni}: A person with \textit{Samagni} has a properly functioning digestive system that digests and absorbs food at the appropriate time, resulting in the improvement of the body's supportive tissues. This leads to good health and wellness.\cite{12}

B) \textit{Vishamagni}: This \textit{agni} alternates between fast and slow digestion of food.\cite{13}

C) \textit{Tikshnagni}: \textit{Tikshnagni} refers to a state of rapid digestion, where food is digested quickly, regardless of its type. This results in an increased hunger or desire for food. According to Ayurvedic principles, when the digestive power increases above normal levels, the mouth, throat and lips become dry and have a burning sensation, a condition known as \textit{BhasmakRoga} (condition of excessive hunger eg thyrotoxicosis).\cite{14}

D) \textit{Mandagni}: \textit{Mandagni} refers to a slow digestive power or ability, where the \textit{agni} digests only a small amount of food over a long period of time, according to Acharya Sushruta.\cite{15}

The physiological factors involved in gastrointestinal digestion are essential and auxiliary factors. The essential factors, which play a crucial role in the transformation of food, include \textit{Ushma} (digestive fire), \textit{Vayu} (air), \textit{Kleda} (water), \textit{Sneha} (lubricants), \textit{Kala} (time), and \textit{Samayoga} (appropriate).\cite{16} Digestion is the process where food is broken down into simple chemical substances that can be absorbed and used as nutrients by the body.\cite{17}

The digestion process can be broken down into four stages:

1. Swallowing
2. Breaking down of food
3. Uptake of nutrients
4. Elimination of waste

**Type Of Enzymes In Digestion:**

Enzymes that break down proteins into amino acids, known as Proteolytic Enzymes. • Lipolytic Enzymes that break down fats into fatty acids and glycerol. • Amyloytic Enzymes that break down carbohydrates and starch into simple sugars. • Nucleolytic Enzymes that break down nucleic acids into nucleotides.

\textit{Jivha} (Tongue) Origin:

\textbf{तुर्जीयमातिस्वीक्रियाणिस्वा} चावायायवायोगपथेनभिन्निवर्तने॥ च. श. ४/९

All the body and sensory organs are formed simultaneously during the third month.

\textit{Jivha Of Dirghayu Balaka} (Child With Long Life Expectancy)\cite{18}
A healthy tongue, referred to as Prakrut Jivha, is characterized by a uniformly pink or pinkish red color, symmetrical shape with even length and width, or oval shape. It is moist, not too dry or too wet, with a transparent layer of saliva. The tongue has a transparent or thin layer of white coating, is clean without any bad odor or taste, and is steady when protruded. It is also free of cracks, deep cuts, lines, patches, bumps, and teeth marks. The taste buds on the tongue are also free of any of these anomalies.

The ancient practice of examining the tongue, known as Jivha Parikshana (examination), is part of the Ashatavidha Parikshana, which includes examination of pulse (Nadi), urine (Mutra), feces (Mala), sound (Shabda), touch (Sparsha), vision (Druka), appearance (Akruti), and the tongue itself. By observing the surface of the tongue, one can determine the functional status of the corresponding internal organ. This is emphasized by the quote from Acharya Yogaratnakar.

It is also important to have a good illuminating light source, such as a mouth mirror or natural sunlight, to aid in the examination.

**Study Plan:**
Selection of volunteers as per inclusion/exclusion criteria. Informed written consent was taken. First taking tongue photographs two times a day, (before and after brushing) and asking questions as per questionnaire, assessment of Jatharagni status with validated format over tongue health. A questionnaire based on parameters to assess Jatharagani status was also filled while interacting with them. Suitable test (Chi-square) was used to reach conclusion.

**Observation:**
The age range for all volunteers is from 19 to 29 years minimum age 19 years and maximum 29 years, 66.7% of the volunteers were female, 100% of volunteers were student 87.4% from volunteers were resident of urban areas, 70% of volunteers were in regular exercise group, 75.4% were taking sound sleep, 60.6% of volunteers were having Uttam Abhayvharan Shakti (amount of food taken), 79.7% were having pink colour tongue, 69.1% had thin coating over tongue, 66% had clearly visible tongue buds, 90.3% had moist tongue, In 82.3% had same tongue margin as body.

**2. Result**
There is a significant association between Jatharagni and exercise habits, with more people having irregular exercise habits. There is a significant association between Jatharagni and Ahara, with 50.9% of the participants having mix Ahara and 49.1% having Vegetarian Ahara. There is a significant relationship between Jatharagni and abhayavaharana shakti. There is a significant relationship between Jatharagni and tongue color, with Samagni group having dominancy of pink color of tongue.

**3. Conclusion**
Study shows Jatharagni has visible effects on tongue as both these are part of digestive system and all body functions depend on Agni. Whenever there is Agnimandya it causes Ama formation. Subjects with good status of Agni either samagni or tikshanagni had pink color tongue with Tikshanagni group red color tongue is second dominant color.

Tongue margin was same as body in 82.3% volunteers with more dominant in Samagni group volunteers.

Most of the volunteers had oval (54.9%) followed by triangular shaped tongue (35.4%). Though is found non-significant in relation to Jatharagni.

Subjects with Samagni or Tikshanagni were also found to have better abhayavaran and JaranShakti.

Subjects taking vegetarian diet were mostly from Samagni group which indicates lite diet has role in maintaining Samagni.
Subjects involved in exercise either regular or irregular, were having good status of Agni as most of subjects doing exercise were in Samagni or Tikshanagni group.

The study evaluated different parameters of tongue analysis and Jatharagni analysis, including age, gender, profession, religion, habitat, marital status, exercise, sleep, Ahara, habits, abhayavaharanashakti, jarana shakti, tongue color, coating, shape, movement, texture, and moisture. There was no significant association between Jatharagni and habitat, marital status, or sleep. The study also suggests that normal tongue color, coating, shape, movement, texture, and moisture are indicative of good health status, while any differences may suggest health disturbances.

Jatharagni plays a role in digestive health. But it is not the only factor affecting digestive power, as other factors such as diet, lifestyle habits, and other physiological processes can also play a role.

**CHI-SQUARE TEST/ P-value Significance:**

**Jatharagni and exercise** found significant with good Agni status in volunteers with exercise habits (irregular or regular).

**Jatharagni and ahara** found significant relationship which means Jatharagni is directly related to type of food with more samagni volunteers in veg diet taking volunteers.

**Jatharagni and abhayavaharana shakti** significant association between Jatharagni and abhayavaharana shakti.

**Jatharagni and tongue color** found significant with samagni and tikshanagni with dominancy of red color.

**Jatharagni and margin** found significant with samagni individuals had more prevalence of same tongue margin as of skin

**Samagni and tongue color** significant association between the tongue color and the Samagni group.

P value = 0.00<0.05, thus there is a significant relationship between Jathragni and Jivha.

### HEALTH ASSESSMENT PROFORMA

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**Other Information (If any)**

Can be stated for the study:

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Signature of the attending Physician

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Jatharagni assessment and examination of tongue

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