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REVIEW ARTICLE

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Concept of Ahara Parinaman in view of Agni - A Physiological and Anatomical Review

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ABSTRACT

Dosha, Dhatu and Mala are the basic elements of the body whose Source is Ahar Dravya i.e., Food is the basic source of energy for humans. Ayurveda states that our body gets it's nutrition by Aahar Rasa. All the thirteen types of Agnis works on the four types of Ahar (Ashit, Peet, Leedh, Khadit) we take and are responsible in the formation of this Aahar Rasa. The process of Ahar Parinaman is continuing from birth until death at very minute level by Jatharagni, Bhutagni and Dhatwagni. The role of Agni is of immense importance for a healthy living because when the Agni is in normal state and if the individual consumes Matravat Ahar there will be proper digestion of food which forms Dhatusamyawastha ultimately leading to longevity. Impaired Agni is the root cause of all disease.

Key words: Agni, Ahar Parinaman, Awasthapak, Grahani, Amashay, Pakwashay, Koshtha

INTRODUCTION

All the transformation in the universe is brought by Agni or Tejas. Similarly, all the changes or transformation in the universe are represented by a single term called Paaka. The Paaka has been defined in Amarkosh as, that which causes Parinaman (conversion or transformation) and Paravritta (transmutation). Lokapurusha Samyavada, representation of agni which is present in the universe also present in the humans in the form of Kayagni, Pachakagni etc. hence this process of transformation is represented by Agni. It digests the food and helps in absorption, transformation of digested food into body entities i.e. Dosha Dhatu Malas.[1]

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The qualities of healthy individual stated by Ayurvedic Samhita as equilibrium of all three Doshas viz. Vata, Pitta, Kapha, normal state of Jatharagni, normal state and functions of Dhatus v. Normal state and function of Malas; Pleasant soul, mind and sense objects. [2]

When it comes to the importance of Agni, Acharya Charaka says that when the function of Agni is ceased, an individual dies, but when the Agni of an individual is in Sama Awastha, the individual is completely healthy and continues to live long, happy, and healthy life. However, if a person's Agni is vitiated, his entire metabolism is disrupted, resulting in bad health and disease. As a result, Agni is considered the foundation (Mool) of life.[3] From birth until death, all cells (Dhatu Paramanu) in our body undergo metabolic activities, division, and multiplication, according to modern science. Cells are the body's functioning units.

Ayurveda also putforths this concept of metabolism at Suksma level by Agni through Ahar Parinaman so as to form bodily tissues.

AIMS AND OBJECTIVES

1. To emphasize and discuss the Concept of Agni and Ahara Parinaman (Metabolic Transformations) in Ayurvedic classical texts.

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2. To evaluate the anatomical and physiological process of digestion and metabolism in *Ayurvedic* classical texts.

REVIEW OF AYURVEDIC LITERATURE

Agni introduction:

Agni is the principal component of the body for every physiology. The metabolism, catabolism, transformation, digestion, destruction of toxins all are brought about by Agni

Agni plays an immense role to continue body homeostasis, digestion and legitimate body working.

Nirukti of Agni:

The term *Agni* is composed of a अग्नि गतौ means enlighten and move. *Agni* is foremost among that which control our body and is responsible for the *Janma*.^[4]

Acharya Yaska has given the etymology of the term Agni, the word A represents root 'I' which means 'to go', word "G" denotes root "Anja" means 'to glitter' also root "Daha" means 'to burn' and word "NI" means 'to carry'.

In *Shabdakalpa Druma*, 61 synonyms of *Agni* have been compiled. These synonyms help in explaining the nature and functions of the *Agni*, e.g., *Vaishvanara*, *Sarva Paka*, *Tanoonpata*, *Amivachatana*, *Damunasa*, *Shuchi*, *Vishwambhar*, *Rudra* etc.^[5]

Definition:

Agni is defined as an entity that brings about changes in Sharirika Bhava (viz. Rasa, Lohita, Mamsa, etc.) of the body.

Ayurveda states a concept of Agni which is an unevitable part that constitutes digestive and different kinds of hormones or enzymes required for digestion or transformation (*Parinaman*).

According to *Acharya Sushruta* the main function of bodily *Agni* are *Dahan* (oxidation or combustion) and *Paka* or *Pachan* (mechanical or chemical digestion).^[6]

Food taken in various forms eaten, drunk, licked and devoured which is wholesome for the person, being

consumed properly by the respective *Agnis*, participating in the non-stopping process of conversion of all *Dhatus* like time and which does not affect *Dhatwagnis*, *Vayu* and *Srotas*, endows the entire body with development, strength, lustre and happy life and provides energy to the body-tissues.^[7]

Agni Swarup:

Agni itself which is included in *Pitta* in the body is responsible for producing wholesome or unwholesome effects in vitiated or unvitiated states respectively. Such as digestion-indigestion, vision-nonvision, degree or otherwise of heat, normal-abnormal complexion, prowess-fear, anger-exhilaration, confusion and clarity and other such duals.^[8]

Symptom of healthy Agni:

Normal appetite, clean tongue, proper appreciation of taste, balanced metabolism, proper elimination, maintain homeostasis stable health good immunity, surplus of *Ojas Tejas* and *Prana*, longevity. [9] Impaired *Agni*: Emotional disturbances, with an increased tendency toward fear, anxiety, anger, confusion, lethargy, or depression, Low energy, weakness, or fatigue, Suppressed or over-active appetite, Indigestion: gas, bloating, constipation, nausea, hyperacidity, loose stools, a sense of heaviness, feeling tired or mentally foggy after meals A tendency toward congestion in the sinuses, the lymph, or even the mind. [10]

Types of Agni

Agni is innumerable because of its presence in each and every *Dhatu Paramanu* (cell) of the body. But, enumeration of the number of *Agnis* varies in various classical Ayurvedic texts, as shown below

- According to Acharya Charaka there are 13 Agnis.
 Jatharagni 1, Bhutagni 5, Dhatvagni 7^[10]
 (Ch.Chi.15/38)
- Acharya Sushruta has described five types of Agnis viz. Pachakagni, Ranjakagni, Alochakagni, Sadhakagni and Bhrajakagni. However, there is an indirect reference of five Bhutagnis underlying in

the brief description made to the transformation of food stuff. [11] (Sh.Su.21/10.)

- Vagbhata also mentioned different types Agni, viz.
 Bhutagnis 5, Dhatvagnis 7, Dhoshagni 3 and
 Malagni 3.
- Sharangadhara has recognized five Pittas only (Pachak, Bhrajak, Ranjak, Alochaka and Sadhak)^[12] (Sha.Sa.Pu.Kh.-5/32)
- Bhavamishra has followed Acharya Charaka and Vaqbhata.^[13] (Bh.Pu.Kh.-3/169,180).

According to the execution of digestion in an individual, his *Jatharagni* can also be classified in to four categories. [14]

- a) Samagni The person who has Samagni has good digestion, due to which his health remains healthy.
 Because in Samagni Tridodsha is in balanced condition.
- b) Vishmagni There is an excess of Vata in it, due to which digestion is sometimes done properly, sometimes not.
- c) Tikshnagni Tiksha means fast digestion due to excess of Pitta Dosha.
- d) Mandagni Manda means slow due to Kapha Dosha aggravation

Among the four different states of *Agni*, *Samagni* is considered as normal one, all others are considered as abnormal.

Stages of Ahar Parinaman:

Our body gets it's nutrition by Aahar Rasa.

For the complete digestion, the *Ahara* undergoes two processes which are as under.

- 1. Avasthapaka (1st phase of digestion)
- 2. Nisthapaka (2nd phase of digestion)
- 1. Avasthapaka: [15,16] The first stage of digestion is Avasthapaka which is completed by Pachakagni in Annavaha Srotasa. In this Paka, three stages occur which are as under.
- a) Madhura Avasthapaka

- b) Amla Avasthapaka
- c) Katu Avasthapaka

A) Madhura Avasthapaka

Four types of Ahara Dravyas like Asitta, Khadita, Pita and Lidha are converted into Madhura Bhav in this stage. Prana Vayu, Bodhaka Kapha & Kledaka Kapha responsible in this transformation. Prana Vayu controls the entire movement of food from mouth to Amashaya, Bodhaka Kapha helps in recognizing the taste of the food while Kledaka Kapha lubricates the food. The final Rasa or taste in the upper portion of the Urdhva Amashaya is Madhura.

In this stage, the salivary digestion will be completed in the fundus of the stomach. Hence, under the influence of salivary amylase the insoluble starch and polysaccharides are converted into soluble dextrin.

B) Amla Avasthpaka

It is 2nd stage of *Avasthapaka* in which the food attains the *Amla Bhava*, after incorporation of *Amla Srava* secreted at *Urdhva Amashaya*.

According to *Charka* and *Vagbhatta*, the final outcome of the entire gastric digestion is acidified chyme. *Chakrapani* interprets it as *Lakvapakva* or *Kinchit Pakva-Kinchit Apakva*.

As per the modern physiology, the acidified chyme which passes down from the pylorus to the duodenum acts as a secretagogue and stimulates the duodenal glands (Brunner's gland). These glands secrete number of secretions like secretin, cholecystokinin, enterogastrin, pancreozymin etc. Intestinal hormones also play important role in stimulating the secretions of pancreatic juice & enzymes of intestinal mucosa. Secretin enhances the secretions of bile & the intestinal juices. Cholecystokinin is responsible for the contraction of gall bladder leading to the bile secretion into the duodenum. Due to these juices, all fats and semi digested proteins are digested and converted into fatty acids and glycerol and amino acids.

C) Katu Avasthapaka

This is the third stage of Avasthapaka. In this stage the Pakvapaka Ahara passed down from the Amashaya to

Pakvashya where Agni makes it dry and thus lumps are formed i.e., Paripindita Pakva condition is obtained and the food attains the Katu Bhavas. During this process Vayu and Mala are produced. The remaining undigested food materials are converted into faeces. The bacteria present in intestine processed on it and produce some vitamins and some gases like indole and skatole.

At the end of the digestion the digested food has their original rasa which is in accordance with the rasa of the ingested food. This is called as *Nistha Paka*. It is also called popularly as *Vipaka*. *Madhur Rasa* and *Lavan Rasa* have *Madhura Vipaka*, *Amla Rasa* have *Amla Vipaka Katu*, *Tikta* and *Kashaya Rasa* have *Katu Vipaka*.

Jatharagni Paka (digestion by Macrofire)

Agni performs vital activity such as *Pakadi Karma* or Bio physical and Bio chemical reactions.

The food ingested at the proper time, is drawn into the alimentary tract by the *Pranavata*; its hard/big masses split and made soft by the liquid; then the *Jatharagni* activated by *Samana Vayu* cooks the food present in the *Amashaya* just like the external fire cooks the rice and water kept in the pot.^[17]

The *Pachaka Pitta* and *Agni* has seat at *Grahani* because it withholds the food for a certain time inside the *Amashaya* to fecilitate digestion. According to *Dhanvantari*, it is *Pittadhara Kala*, situated at the entrance of the *Pakvashaya* and acting as a bolt to the door of pathway of food, it is responsible for duration of life, health, valour, *Ojas*, strength of the *Bhootagni* and *Dhatvagni*.^[18]

When *Grahani* is strong, it withholds the ingested food in the *Amashaya*, digests it well and then brings it down into the *Pakvashaya* but when weak it allows even undigested food into the *Pakvashaya*. The strength of the *Grahani* is from *Agni* itself, and strength of *Agni* is from *Grahani*; when the *Agni* under goes vitiation, *Grahani* also gets vitiated and produces diseases. That food which bestows nourishment to the *Dhatus* of the body, *Ojas*, strength, colour and complexion etc. is really made by the *Agni*, which is the cause for its digestion; *Rasa* and other *Dhatus* do not formed and nourished by undigested food.

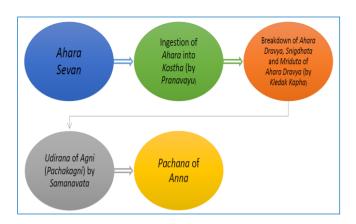


Fig. 1: Jatharagnipaka

Bhutagni Paka

The five Agnis (groups of enzymes) viz. Parthivagni, Apyagni, Taijasagni, Vavavaagni and Akasagni. [Thereafter], bring about transformation (Paka) of five categories, viz., Parthiva, Apva, Taijasa, Vayaviva and Akasiya attributes (Gunas) of food ingredients respectively. Thus, the five Mahabhutas as well as their attributes in the tissue elements in the body are nourished by the five Mahabhutas and their attributes in the food respectively. In other words, the Parthiva ingredients and respective attributes of the tissue elements get nourishment from the Parthiva ingredients and their attributes in the food. Similarly, other Mahabhutas and their attributes in the tissue elements are also nourished by their respective ingredients and attributes in the food. [19]

This includes factors responsible for digestion and metabolism at the organic level. Five types of *Bhutagni* act after *Jatharagni*, but before *Dhatvagni* on the food and its metabolites. This represents the basic metabolism of various food components and minerals at hepatic level like carbohydrate, protein and fat metabolism. This *Agni* carries out the absorption of nutrients in the liver, which plays an essential role in metabolism. Several processes such as transamination, de-amination, beta-oxidation of fatty acids, glycolysis etc. take place in the liver. Therefore, the overall intermediary metabolism (involving fats, carbohydrates and proteins) can be understood as the functioning of the *Bhutagni*.

This step would seem to be necessary, as the food consumed is foreign body i.e., Vijatiya and unless they

are suitably processed, they may not be converted as organism specific i.e., *Sajatiya* substances and unable to enhance the qualities of tissues.

Dhatvagni Paka

According to *Charaka* the *Sarabhaga* or *Anna Rasa* of the food ingested, an outcome of *Jatharagni* and *Bhutagni Paka*, is absorbed from *Adhoamasaya* and distributed throughout the body by *Dhamanis*.

By virtue of their respective seven categories of *Agnis* (enzymes), *Dhatus* (tissue elements), the sustainers of the body, undergo metabolic transformation in two different ways, viz. *Saar-kitta* formation. *Saar Paka* (transformation into nourishing material) and *Kitta Paka* (transformation into waste products). The nutrient part of Rasa (plasma) provides nourishment to *Rakta* (blood), that of *Rakta* (blood) to *Mamsa* (muscle tissue), that of *Mamsa* to *Medas* (fat), that of *Medas* to *Asthi* (bone), that of *Asthi* to *Majja* (bone-marrow), and the nutrient fraction of *Majja* nourishment to *Sukra* (semen). The foetus (*Garbha*) is the product of nutrient fraction of *Sukra* or semen (sperm).

Anatomical ailments involved in process of *Ahar*Parinaman

Important organs involved in process of *Ahar Parinaman* by *Agni* gives a detail concept of how the *Ayurvedic* physiology of *Agni* takes place.

Koshtha: The food which is ingested is accommodated at the Koshtha region. Also, various physical entities like enzymes, bile which is responsible for digestion is present at Koshtha.

In Ayurveda, Mahasrotas is a tube-like structure formed by flow of Vayu which is extended from mouth to anus and included Annanalika, Amashaya, Kshudrantra and Pakvashaya. While Gastro-intestinal tract is originated from endoderm, which is a first in the form of a flat sheet, is converted into a tube by formation of head, tail and lateral folds of the embryonic disc. This tube is the gut. The gut consists of foregut, midgut and hindgut. Oesophagus, stomach and superior part of duodenum are derived from foregut. Jejunum, ileum and ascending colon are derived from midgut. While left one third of transverse

colon, descending and pelvic colon, rectum and anal canal are derived from hindgut. Mahasrotas is a long tubular structure which extended from mouth to anus includes Amashaya and Pakvashaya while Gastrointestinal tract is the same structure which included oesophagus, stomach, small intestine and large intestine. Ayurveda mentioned the term Kostha for abdominal cavity in which Kosthangas are situated while modern medical science has termed it as thoraco-abdominal cavity where visceral organs are presents. The term Ashaya means Adhisthan (place where can stay for some time) e.g. Amashaya is the Ashaya where Ama- Anna stay for some time. Same as the stomach where the meal stays for a while to facilitate the proper mixing and digestion by mixed gastric juices. According to Ayurveda Amashaya is situated between Nabhi and Stana whereas according to modern medical science stomach is situated mainly in left hypochondrium which similar as mention in Ayurveda.

Amashaya is the considered as the seat of Pitta and Kapha specially Pachaka Pitta and Kledaka Kapha. Kledan procedure over the ingested food takes place at Amashaya. Here the food is mechanically and chemically converted into such a form that various Agni can perform the Parinaman process easily. The different gastric juices and hydrochloric acid secreted by stomach cells can be attributed the same properties of Pitta as liquefication and breakdown of the Anna. While hydrochloric acid helps in the transformation of pepsinogen into pepsin and combination of B12 with intrinsic factor. Likewise, mucus is secreted by glands of stomach have the properties of Kledaka Kapha as lubrication of Anna and protect the stomach wall. Amashaya is the seat of Ranjaka Pitta which transforms *Rasa* into *Rakta* by *Ranjana Karma* whereas according to medical science this is similar to the function of vitamin B12 because of the B12 Transcobalamin-II complex which is finally secreted into the portal circulation from where it is taken by the liver, bone marrow and other cells for the formation of blood.[20]

Grahani is situated between Amashaya and Pakvashaya. It is also called as Pittadhara Kala. It is an

important organ for *Dharan* of food. The food which is about to transfer into pakwashaya from the Amashaya is held by Grahani for proper assimilation of and various derivatives of Agni like ayu (longitiviy), Varna (complexion), Balam (strength) Swasthya (health), Utsaha (Enthuasiasm), Upachay (body accumulation), Prabha (lusture), Ojas, Prana (life)are obtained well. The part of GIT situated between stomach and large intestine can be considered as Grahani and entire membrane of the small intestine can be called as Pittadhara Kala. Grahani is the place of Samana Vata which responsible for digestion of food and discriminates its products. When vitiated it causes Gulma, Agnisada, Atisara etc. diseases. While autonomic supply of this region provided by vagus nerve have same function such as in anxiety it decreases the secretion of gastric juices cause Agnisada, Atisara etc.

Pakwashaya: The food is then bifurcated into Saara (digested food ready for absorption) and Kitta (undigested food, waste remnants after digestion that are non-absorbable). This differentiation between Sara and Kitta or absorbable and non-absorbable is done by Samana Vata. Absorbable Saara is now absorbed by the intestinal villi present in jejunum with the help of Vata. Non absorbable waste material travel from jejunum to ileum and goes to large intestine. After terminal absorption the waste material will travel throughout large intestine and gets evacuated out of the body through anus. The excretion of waste material is produced by Apana Vata.

CONCLUSION

The concept of *Agni* and *Ahar Parinaman* is the most important fundamental principle of *Ayurveda* in understanding the conversion of food into bodily tissues and waste products of body. Food which is consumed by the person is the major responsible factor for the state of health and manifestation of diseases. Hence it also aquires a seat during physiopathology of diseases. Once *Ama* formed at the levels of *Jatharagni* and *Dhatvagni*, it initiates many pathological events inside the body. *Ama* further deteriorates digestive and metabolic activities, blocks,

vitiated *Dhatus*, therefore, causes various diseases including auto-immune disorders. Hence maintenance of *Agni* in order to proper *Ahar Parinaman* is important.

Maintaining good appetite, use of digestive stimulates and ensuring regular bowel movements are of prime importance in enkindling the digestive fire and preventing the production of root cause of all diseases, i.e., *Ama/Agnimandya*.

The key to a healthy *Agni* is the intake of easily digested, freshly cooked, *Satvika* (Pure) and compatible foods eaten consciously at the appropriate times.

Validation of the concept of *Agni* and *Ahar Parinaman* would be a significant step in the process of improving our maintenance of healthy life, understanding of diagnosing, classifying, and staging the progress of the disease as well as specific therapeutic decisions made in clinical practice.

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