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An Appraisal on Physiological and Pathological Aspects of Avasthapaka

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ABSTRACT

Ahara containing *Shad Rasa* undergo *Pachana* (digestion) at different levels in order to nourish the *Dhatu*. In *Ayurveda*, the process of digestion take place in two stages, namely, *Avastapaka* and *Nisthapaka*. *Avasthapaka* is the stage in the state or form of *Ahara* in the *Amashaya* and *Pakvashaya* in the course of digestion. This includes three stages i.e. *Madhura Avasthapaka*, *Amla Avasthapaka* and *Katu Avasthapaka*. *Nisthapaka* or *Vipaka* is conversion of *Ahara Rasa* into state of assimilation. *Jataragni* initiates and maintains *Pachana* of *Ahara* into *Ahara Rasa*. The *Ahararasa* then gets absorbed to respective *dhatu* by the action of *Dhatwagni* and *Bhutagni*. Variations in this process lead to various diseases. Hence, the stages and process of *Ahara Pachana karma* plays a vital role in maintaining the state of health.

KEYWORDS

Avastapaka, Agni, Digestion



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INTRODUCTION

In *Ayurveda*, *Ahara* is considered as one among the *Trayopastambha*¹. *Ahara* maintains and supports *Deha Dhatus*, *Ojas*, *Bala* and *Varna* with the help of *Agni*². The ingested *Ahara* has to get digested to undergo absorption. Every food particles should undergo different stages of digestion in order to convert macro nutrients into micro particles to aid easy absorption. Factors like *Agni*, *Ahara Parinamakara Bhavas*, *Ahara Vidhi Visheshayatana* and *Ahara Sevana Vidhi* contributes to this process. Hence, all these factors collectively maintain the process of digestion leading to *Utpatti* of *Prakruta Dosh*a thereby achieving *Dhatu Poshana*. In contemporary science, digestion and absorption of carbohydrates, proteins, fats, electrolytes, vitamins, minerals etc occur at different levels in GIT along with the formation of metabolic end products. This complete process involves secretions from endocrine glands, enzymes, acids etc. Variation in these alters the normal physiological process and paves way for manifestation of pathological conditions. *Avastapaka* is synonymously referred as *Prapak*a, whereas, *Nistapaka* as *Vipaka* or *Visistapaka*.

AIMS AND OBJECTIVES

To understand physiological and pathological implication of *Avasthapaka* in the light of contemporary knowledge of digestion.

MATERIALS AND METHODS

Concept of *Avasthapaka* explained in *Charaka Samhitas*, *Sushruta Samhitas*, *Astanga Hrudaya* and *Madhava Nidana*, with commentary is reviewed in consideration to physiological and pathological aspects in the light of contemporary science.

DISCUSSION

The act of digestion is bestowed by *Agni* instigating function of *Pachana*. Factors like *Ahara Parinamakara Bhavas*³ namely *Ushma* activates enzymatic action essential for digestion. *Vayu* drags food to abode of *Agni* by movement of food in GIT and further divides the food particle. *Kledata* helps in disintegrating coarse food material into finer particles. *Sneha* softens food, *Kala* contributes by retaining food for the purpose of admixture with the enzyme and allied appropriate movements of GIT, *Samyoga* contributes to proper combination of food articles. Outcome of digestion depends on *Ahara Vidhi Visheshayatana*⁴ such as *Prakruti* (nature of the food e.g.,



Guru/ Laghu), *Karana* (processing method), *Samyoga* (combination of the food), *Rashi* (quantity of food), *Desha* (habitat), *Kala* (time, season and age), *Upayoga* (dietic rules), *Upayokta* (consumer) and *Ahara Sevana Vidhi*⁵.

The concept of *Avasthapaka* is explained in *Charaka Samhita*, *Grahani Chikitsa Adhyaya*. Initial stages of digestion are referred to as *Avasthapaka* or *Prapak*⁶.

Physiology of *Madhura Avasthapaka* commences from oral cavity under the influence of *Bodhaka Kapha*. During this, the ingested *Ahara* is subjected to different initial phases of digestion. The first stage of digestion takes place in *Mukha* and *Urdwa-Amashaya*. The *Ahara* possessing *Shad Rasa* is subjected to digestion. *Madhura Rasa* is considered as *Adhya Rasa* undergoing digestion. *Madhura Rasa* is predominant of *Prithvi* and *Jalamahabhuta*⁷ thereby results in *Udirana* (excited/ elevated/ increased) of *Phenabhuta Kapha*, a physiological entity (*Prakruta*). This process is collectively known as *Madhuraavasthapaka*⁸.

In contemporary science, digestion begins from oral cavity by salivary enzymes secreted from parotid gland, eventually digesting carbohydrates. Starch breaks down into disaccharides and other small polymers of glucose. Probably 5% of starch gets hydrolyzed by the time the food is

swallowed. Further, starch digestion continues in the fundus (*Urdwa-Amashaya*) and body of stomach as long as one hour before the food is mixed with the stomach secretions. Then activity of salivary amylase is blocked by the acidity of gastric secretion (pH-4), prior to which 30-40% of starch will be hydrolyzed and forms Maltose⁹.

Pathophysiological contribution of *Madhura Avasthapaka* is traced as follows. When a person excessively indulges in *Kaphakara Ahara*, *Madhuravastapak* predominates, compared to other two stages of *Avasthapaka* leading to formation of excessive *Kapha*. In *Sthoulya* indulgence in *Ati Sampurna*, *Ati Madhura*, *Sheeta*, *Snigdha*, *Avyayaama*, *Divasvapna*, *Shleshmakara Ahara*, *Achinta* etc¹⁰ leads to production of excess *Kapha Dosha*¹¹. As a consequence excessive nourishment of *Dhatu* like *Rasa*, *Mamsa*, *Medas* occurs inducing *Vruddhi* of these *Dhatu*. The *Ativruddha Medo Dhatu* causes *Marga Avarana* and results in *Sthoulya*.

Fasting followed by excessive eating, *Vishamasana* (irregular food habits), *Asatmya Bhojana* (unwholesome food), *Guru* (heavy), *Seeta* (cold), *Snehadi Vibramat* (improper oleation therapy). All these results in production of excess of *Kapha* during the *Madhura Avasthapaka*



resulting in *Agni Dushti* thereby manifest *Ajeerna Lakshana*¹².

Amla Avasthapaka: After completion of *Madhura Avasthapaka*, food undergoes second stage of digestion, *Amla Avasthapaka*. Food enters *Adho Amashaya*, undergoes *Amlapaka* with action of *Pachaka Pitta* and leads to formation of *Vidagdha Ahara*. This *Vidagdha Ahara* can be interpreted as *Pakva-Apakva Ahara*. The partly digested food evokes generation of *Accha-Pitta*¹³.

In contemporary science, the food after undergoing digestion in oral cavity and fundus of the stomach, attains semisolid form (chyme) in stomach and duodenum, here protein and fat digestion take place. When food enters body of the stomach the activation of Peptic enzymes (pepsin pH 2 and gastricsin pH 3) take place, these enzymes acts on protein in acidic environment, hence gastric glands secretes large amount of HCl (pH 0.8). By this time, food gets mixed with stomach contents, the pH ranges around 2-3 and is highly favorable range of acidity for pepsin and gastricsin activity, capable of digesting essentially all different types of proteins in the diet. One important features of pepsin digestion is its ability to digest collagen. Pepsin initiates the protein digestion, usually by providing only 10-20% of total protein digestion to convert the protein into

proteases, peptones and few polypeptides. Most protein digestion occur in upper small intestine i.e. duodenum, jejunum under the influence of pancreatic secretions (Trypsin, Chymotrypsin, Carboxypolypeptides) and form amino acids¹⁴. A small amount of triglycerides is digested in the stomach by lingual lipase. First step in the fat digestion is to break fat globules into smaller size so that the water soluble digestive enzymes can act on globule surface, this process is called emulsification of fats¹⁵. It is achieved under the influence of bile. Any variation in process of *Amla Avasthapaka* leads to manifestation of metabolic diseases. Such as *Amlapitta*, *Vidagdhaajeerna*, *Chardhi* etc

Patients with *Amlapitta* indulge in *Viruddha Bhojana*, *Vikruta Bhojana*, *Atyadhika Amla* and *Vidhahi Anna* resulting in digestion predominating with *Amla Avasthapaka*. Thus, *Pitta Dosha* predominates more, due to *Amla Vipaka*, leading to the formation of *Vidghata Pitta*, resulting in *Amla Bhavata* and *Amlodgara*, and finally causes the disease *Amlapitta*¹⁶.

Katu Avathapaka: After *Amlaavashtha Paka* food enters final stage of digestion in *Pakvashaya* with meager action of *Agni*, undergoes *Shoshana* and attains *Paripindita Rupa*, with predominant of *Katu Bhava*, thus generating *Vata Dosha*¹⁷.



In contemporary science after the digestion of protein and fat, digested food enters large intestine where the mucosa of large intestine is capable of absorbing sodium actively along with water and electrolytes. Abundant salts, insoluble calcium phosphates, high bicarbonate and water constitute the feces. Due to the movement of chloride and other negatively charged ions out of colon into intestinal fluid, little amount of water is also lost with the feces. Bacilli which are present in the absorbent colon helps in the digestion of small amount of cellulose. Other substances formed as result of bacterial activity are vitamins K, vitamin B12, thiamin, riboflavin and various gases that contributes to flatus¹⁸. Any variation in this stage leads to conditions where involvement of *Vata Dosha* is predominant, such as *Udavarta*, *Vibanda*, *Grahani* etc.

Examples- If the person indulges excessively in *Visamaasana*, *Ruksha Ahara*, *Atilanghana*, *Alasya*, *Ratri Jagarana*, *Ati Vyavaya*, *Vegadharana*, *Chinta* etc it leads to disturbance of *Katu Avsthapaka* leading to *Dushana* of *Vata (apana)* resulting in *Vibanda*¹⁹.

Excessive use of *Kashaya*, *Katu*, *Tikta*, *Ruksha Bhojana*, *Vegadharana*, *Langana* etc kindles digestion predominating with *Katu Avasthapaka*, resulting in disease *Udvarta*²⁰ due to *Dushana* of *Apana Vata*.

Nidanas like, *Ajeerna*, *Vishamasana*, *Asatmya Guru*, *Sheeta*, *Ati Ruksha*, *Abhojana Atibhojana*, *Samdushta Bhojana* leads to the disturbance of *Katu Avasthapaka* resulting in *Dushana* of *Vata (Samana)* leading to *Grahani Roga*²¹.

Indulgence in food article of *Atidrava* (excessive watery), *Snigdha* (unctuous), *Lavana* (salty), *Atimatra* (excess quantity), *Akala Bhojana* (untimely food habits) etc results in the predominance of *Madhura Avasthapaka* during the process of digestion. Thereby *Kapha Dosha* will generated excessively in this phase then physiological limit, with association other *Doshas* the excess *Kapha Dosha* is throughout forcefully causing disease *Chardi*²².

Overview on Avasthapaka in the light of commentaries of Samhitas²³:

Rasa performs important function in *Avasthapaka*. In the initial stage of digestion, *Kapha Dosha* is generated due to *Madhura Bhava*. Because of *Kapha Vruddhikara Guna*, *Madhura Avasthapaka* predominates in stage. If the *Guna* in food are *Katu*, *Laghu*, *Tikshna* etc Copious *Pitta* is formed. If the food is predominated with qualities like *Sheeta*, *Madhura*, *Guru* etc only small amount of *pitta* is generated. Hence *Guna* of *Ahara* contributes in *Udirana* of *Doshas* in different stage of



digestion. This holds good for all the stages of *Avasthapaka*.

Ahara containing *Shad Rasa*, undergo digestion irrespective of the qualities such as *Madhura, Amla, Lavana, Katu* etc, *Kapha dosha Udirana* take place during the *Madhura Avasthapaka, Pitta Dosha* and *Vata Dosha Udirana* take place during *Amla* and *Katu Avasthapaka* respectively.

It is not necessary that food should come in contact with *Agni* to undergo *Avasthapaka*, default location of *Kapha* and other *Dosha* are fixed. *Bhava* like *Madhura Bhava, Amla Bhava etc* permanently exist in default location, these *Bhava* are responsible for food to turn into stages and generate *Kapha* and other *Doshas*.

Madhura Rasa in *Koshta* located above *Hrudaya*, replenishes *kapha dosha* and contributes to *Shareera Bala*. *Amla Rasa* expressly located between *Nabhi* and *Hrudaya* and by default *Pitta* gets replenished there. *Katu Rasa* particularly located below *Nabhi Pradesha* and by default *Vata* gets replenished there.

CONCLUSION

Aharapaka Karma occurs in different stages of *Avasthapaka*. In each stage specific *Bhava* predominates leading to formation of *Doshas*. From this article clear contemporary understanding of

Avasthapaka is established. Further in *Madhura, Amla* and *Katu Avasthapaka Madhura, amla, Katu Rasas* predominates and results in *Udirana* of *Kapha, Pitta, Vata Doshas*, respectively. These maintain physiological homeostasis. If this Physiological Homeostasis is disturbed then it leads to *Vaishamya* of *Doshas*, which play a definite role in the *Samprapti* (pathogenesis), leading to manifestation of *Vyadhi*. Hence all care should be taken to follow dietetic rules explained in *Ayurveda Samhitas* to maintain Physiological homeostasis and thereby avoid occurrence of disease.



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