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Review Article

# *ANNADRAVA SHOOLA & PARINAMA SHOOLA* VS PEPTIC ULCER DISEASE: A REVIEW BASED ON AYURVEDIC AND MODERN CONCEPT

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## ABSTRACT

Ayurveda is one of the most traditional healing systems in India. "To maintain the health and to cure diseased one" is the main aim of Ayurveda. Human beings are prone to diseases due to change in dietary habits, busy lifestyle, *Dincharya, Ritucharya* etc. A lot of various diseases have been described in the context of *Annavaha Srotas* but the diseases predominantly disturbing are *Annadravashoola* and *Parinamashoola*. GIT diseases are most commonly found due to altered food habits these days. Peptic ulcer is one of them. It is a type of acid gastritis in which ulceration occurs in the wall of stomach which is due to excessive amount of HCL. *Maharishi Susruta* first time described different types of *Shoola* in *Uttara-tantra* and a special chapter related to *Shoola* is first time described by *Madhava Nidana*. He categorized *Shoola* into 8 types, excluding it there are other 2 types namely "*Annadravashoola* and *Parinamashoola*. *Annadravashoola* having the characteristic features of pain before and during digestion and relives after vomiting, burning sensation in the epigastrium, belching etc, and *Parinamashoola* which occurs after the digestion of food. *Annadravashoola* and *Parinamashoola* collectively can be called as peptic ulcer disease because of their similarity in symptoms.

## INTRODUCTION

Modern era of fast, busy and stressful life has created several disharmonies in human biological system; one among them is the digestive system (*Annavaha Srotas*). The word *Annavaha Srotas* means the channel through which food is transported. The *Annavaha-Srotas* (alimentary canal) is concerned with *Anna Adana* (ingestion of food), *Anna Pachana* (digestion), *Sara Kitta Vivechana* (separation of nutrient and waste portion) and *Rasa Shoshana* (absorption of nutrients). Ayurveda considers that *Dehagni* is responsible for life, complexion, strength, health, *Oja, Teja*, and *Prana*.[1] Any disharmony at any level of *Annavasrotas* or *Dehagni* results in *Ama*; an intermediate product generated due to the deranged metabolism of digestive fire triggering digestive process in the body results into *Ama-visha* formation and *Ajeerna* and its further stage is *Aandravshoola* and *Parinamashoola*. *Aandravshoola* and *Parinamashoola*, in modern sciences can be correlated with peptic ulcers and duodenal ulcers. *Parinamashoola* term is a self- explanatory i.e., *Shoola* or abdominal colic that experienced during the digestion of food i.e., 3-4 hours after intake of food when food had reached the intestines. *Parinamashoola* is an "*Avarana Janya, Tridoshaja Vyadhi*" and *Annadravashoola* is described as a type of *Shoola* by *Acharya Madhav Nidana* having the characteristic features of pain before and during digestion of food and that relieves after vomiting.[2] *Annadravashoola* is explained as due to *Vata prakopa*, the aggravated *Vata dosha* encircles nearby located *Pitta* and *Kapha doshas* in the *Koshtha* and become powerful enough to produce colic pain during the digestion of ingested food and *Kapha* breaks down from its own location and interact with *Pitta* and combines with *Vata* to cause colic pain during the transformation process of the

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consumed food and this typical *Shoola* or colic is known as *Aandravshool*.

The causative factors of *Parinama shoola /Annadrava shoola* in Ayurveda.

- *Vata (Samana vata)* i.e., less sleep, extra dry /fat free incompatible diet, irregular eating habits, serve injuries leading to stress, worry.
- *Pitta (Pachak pitta) Virudh Sevan, Asatmaye Sevan, Abhojan, Atibhojan, Ahara* having *Rukhsha Tikshna, Ushna Guna, Shar, Lavan, Katu, Amla Rasa Sevana Viharaj Nidan* like *Vegdharan, Raatrijagran* etc., *Various Manik Hetu's* like *Krodha* (anger), *Chinta* (tension/stress), etc.
- ***Kapha (Kledaka kapha):*** *Astang Hridya* commentary *Kledak* cough is compared with the mucosa of the stomach as he explained that the mucosa of the stomach has 2 different types of glands placed in between mucus secreting cells known as surface mucosa cells.[3]
- ***Slesmaj krimi* (H.pylorii):** Helicobacter pylori is a spiral shaped bacteria and which is microscopic and symptoms like abdominal pain, bloating nausea, burning pain in stomach which is the mirror image of the Ayurvedic concept of *Slesmaja krimii* i.e., *Sleshmanimitanam kriminam*[4] described by the *Acarya Charaka* in *Vimana sthana*, *Slesmaja krimi* is can't be seen by naked eye *(Maha suhuksm),* the *Aashaya* of the *Slesmaja krimi* is in *Amaasaya sleshmajaa amasaya aasayah*[4] (duodenum) mentioned in Charaka and the shape of the *Slesmaja krimi* is like leech white thin thread spring like structure and it causes nausea, indigestion, vomiting, bloating etc. The symptom, origin, shape and size of the H.pylori and *Slesmaja krimi* is same. Infection with pylori is the most common etiological agent with gastritis, and it may develop peptic ulcer disease.[5]

***Samprapti Ghataka***

- *Dosha = Tridosha-samanvayu, Pachak pitta, Kledaka kapha.*
- *Srotasaha=Annavaha*
- *Adhisthana= Aamasaya* and *Grahni*
- *Swabhava = Aasukari*
- *Sadhyaasadhyata= Sadhya*

**Modern Concept of Peptic Ulcer Disease**

Burning pain in epigastric region exacerbated by fasting and improved with meals is a symptom associated with Peptic Ulcer Disease (PUD). An ulcer is defined as disruption of the mucosal integrity of the stomach wall or duodenal wall leading to a local defect due to active inflammation. Ulcers occur within the stomach or duodenum and are often chronic in nature. Acid peptic disorders are very common in the United States, with 4 million individuals (new cases and recurrences) affected per year. Lifetime prevalence of PUD in the United States is ~12% in men and 10% in women. The financial impact of these common disorders has been substantial, with an estimated burden on direct and indirect health care costs of -$10 billion per year in the United States.[5]

In modern science, *Annadravashoola* and *Parinamashoola* can be correlated with peptic ulcers disease. Peptic ulcers affect thousands of people and are the most common gastrointestinal disorders in clinical practice. It is accepted that ulcers are caused due to imbalances in mucosal protective factors. Its pathogenesis is influenced by acid pepsin secretion, cellular regeneration, mucous secretion, blood flow, mucosal barrier, prostaglandins and epidermal growth and Helicobacter pylori.[6]

Also, it can be explained as imbalance between acid production and the defensive mechanism of gastric mucosa i.e., prostaglandin and bicarbonate. Ulcer develops in the lining of the stomach and duodenum which is upper part of the small intestine.

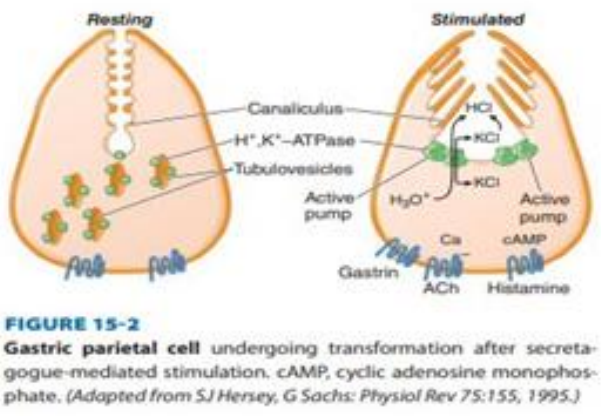


**FIGURE 15-2**
**Gastric parietal cell** undergoing transformation after secretagogue-mediated stimulation. cAMP, cyclic adenosine monophosphate. *(Adapted from SJ Hersey, G Sachs: Physiol Rev 75:155, 1995.)*

**Figure 1**

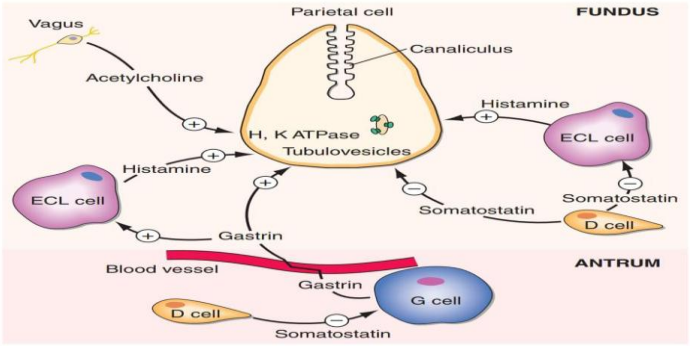


**FIGURE 15-7**
**Summary of potential mechanisms by which *H. pylori* may lead to gastric secretory abnormalities.** D, somatostatin cell; ECL, enterochromaffin-like cell; G, G cell. *(Adapted from J Calam et al: Gastroenterology 113:543, 1997.)*

**Figure:2**

Fig 1 and fig 2 the parietal cell, also known as the oxyntic cell, is usually found its apical in the neck, or isthmus, or the oxyntic gland. The resting, or unstimulated, parietal cell has prominent cytoplasmic tubulovesicles and in tracellular canaliculi containing short microvilli along surface (Fig.1), H, K-ATPase is expressed in the tubuloves membrane, upon cell stimulation, this membrane, along with apical canaliculi containing long microvilli. Acid secretion, a process membranes, transforms into a dense network of apical intracellular requiring high energy, occurs at the apical canalicular surface. Numerous mitochondria (30 to 40% of total cell volume) generate the energy required for secretion of stomach function and play a key role in production and regulation of HCL as well as degradation of mucus in lining of stomach.

The acid-secreting parietal cell is located in the oxyntic gland, adjacent to other cellular elements (ECL cell, D cell) important in the gastric secretory process (Fig. 2). This parietal cell also secretes intrinsic factor (IF). The parietal cell expresses receptors for several stimulants of acid secretion including histamine ($H_2$), gastrin (cholecystokinin B/gastrin receptor), and acetylcholine (muscarinic, $M_3$). Binding of histamine to the $H_2$ receptor leads to activation of adenylate cyclase and an increase in cyclic AMP. Activation of the gastrin and muscarinic receptors results in activation of the protein kinase C/phosphoinositide signalling pathway. Each of these signalling pathways in turn regulates a series of downstream kinase cascades, which control the acid-secreting pump. H+, K+-ATPase. More importantly, this observation explains why blocking one receptor type ($H_2$) decreases acid secretion stimulated by agent specified by frequent recurrences after initial therapy that activate a different pathway (gastrin, acetylcholine). The enzyme H+, K+-ATPase is responsible for generating the large concentration of H.[7]

The parietal cell expresses receptors for several stimulants of acid secretions, including histamine, Gastrin (cholecystokinin B/gastrin receptors) and acetylcholine. Stimulants like acetylcholine can be correlated with *Vata* and *Vata* are the aggressive factor for PUD. The discovery that different ligands and their corresponding receptors lead to activation of different signalling pathways explain the potentiation acid secretion that occur when histamine and gastrin or acetylcholine are combined. HCl and pepsinogen are two principal gastric secretory products compared with *Pachak pitta* capable of inducing mucosal injury. Cholinergic input via the vagus nerve and histaminergic input from local gastric sources are the principal contributors to basal acid secretions.

## DISCUSSION

1. *Samana vata* compared with peripheral Nervous System[8], *Pitta* with Pepsinogen & HCL and *Kledaka kaph* with the mucous here modern and ancient pathology compared well.
2. *Acharya charaka* has described about *Slesmaja krimi* which can be compared with the pylori. Due to its shape size symptom and origin of bacteria h pylori in antrum region in stomach and duodenum. The *Slesmaja krimi* is *Amasaya*. *Amasaya* here compared with duodenum.
3. Peptic ulcer disease is not a newly discovered disease it's an ancient disease which can be correlate with all factor of *Parinam shoola* and *Annadrava shoola* in Ayurveda.

### Comparison Between Ancient and Modern Concept

*Samanavata* = Parasympethtic nervous system

*Pachaka pitta* = Pepsinogen, HCL

*Kledaka kapha* = Gastric mucosa

*Slesmaja krimi* = Helicobacter pylorii

## CONCLUSION

In summary *Vata, Pitta, Kapha* and *Slesmaja krimi* are involved in the pathogenesis of *Parinama shoola* and *Annadrava shoola*. *Vata* is the predominant causative *Dosha* which is correlated with Parasympathetic Nervous mechanism of sensation of pain in abdominal region. *Kledak kapha* resembles with mucus layer and mucin. So, it can be concluded, *Kledaka kapha* is defensive mechanism in pathogenesis of *Parinam shoola* and *Annadrava shoola*. *Pitta* is correlated with HCL and pepsin and it is aggressive factor for *Parinam shola* and *Annadrava shoola*. And the *Slesmaja krimi* is correlated with the Helicobacter pylori.

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