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ISSN: 2581-785X: <https://irjay.com/>DOI: [10.47223/IRJAY.2023.6619](https://doi.org/10.47223/IRJAY.2023.6619)An Anatomical Study of *Pittadhara Kala* w.s.r Duodenal Ulcer - A Review.Nitu Kumari<sup>1</sup> , Vikas Mishra<sup>2</sup>, Priyanka.<sup>3</sup>

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## ABSTRACT:

*Ayurveda* has played important key role in Alternative Medicine, Traditional *Ayurveda* science. In *Ayurveda* basic principles like *Tridosha*, *Panchmahabhuta*, *Dravyaguna* are explained briefly. *Acharya sushruta* has explained *Kala Sharir* in 4<sup>th</sup> Chapter of *Sharirasthana Gharbhashariramadhyaya*. Total seven *kala* are present in the Human body and these are the limiting membranes between *Dhatu* and *Aashaya*. *Pittadhara Kala* is sixth in order, situated in between *Pakwashaya* and *Amashya* (i.e. *Pakwaamashya*). *Pittadharakala* can be correlated with mucous membrane of small intestine. Upper part of small intestine is known as duodenum. Duodenal ulcer is one of the peptic ulcers. Duodenum ulcer are formed due to damage of barrier, which is made up by cells of duodenum from mucus membrane. The main cause of mucus membrane is infection with bacteria called *Helicobacter Pylori* or *H. Pylori*. The bacteria cause the lining of your duodenum to become inflamed and an ulcer can form. Present paper is about to explore involvement of *Pittadhara Kala* in duodenal ulcer

**Keywords:** *Kala*, *Pittadharakala*, Duodenum Ulcer, *Dhatu*.

## INTRODUCTION

*Ayurveda* is known for its basic concept which are unique and very useful in modern era. *kala* is one of the most important basic concept described by *Acharya Sushruta* in *Sushruta Samhita*, *Sharir Sthan*. *Kala* is the covering between the *dhatu* and *Aashya*. they can be recognized by their structure and functions in the body. The fluid between the *dhatu* and *ashaya* subjected to the heat developed from *ushma* gives rise the *kala*.

There are 7 types of *kalas*.

1. *Mansdhara kala*
2. *Rakta dhara kala*
3. *Medodharakala*

4. *Shleshmadharakala*

5. *Purishdharakala*

6. *Pittadharakala*

7. *Sukradharakala*

Out of this seven *Kalas*, *Pittadhara Kala* is sixth in order. *Pitta dhara kala* holds the four kinds of solid and liquid foods (in the *pitta shaman* and biliary region) propelled from the stomach (*amashaya* or *grahani*) and on its way to the intestine for the proper action of the digestive juices upon it. This is an attempt by the *Acharyas* to describe the structural unit of the body in the form of *kala*. Which is reflecting the same qualities and characteristics of the



corresponding dhatus.

Sixth *kala* is *Pittadhara Kala*. The main function of the *Pittadhara Kala* is *Jirya* (digestion) and *shoshana* (absorption) of *Chaturvidha Annapana* i.e., (eating, licking, sucking and drinking). These four types of food get digested due to the *Jatharagni* (*pachakapistam*). According to *Ayurveda*, digestion, absorption and secretion are controlled by *agni* (*pachakagni* and *jatharagni* or *kayagni*) and it is described that the *pittasthana* is the *pachyamanashaya* which is situated in between the *pakvashaya* and *amashaya*. *Pachyamanashaya* is where the digested food is redigested and absorbed. All digestion and absorption take place in *pachyamanashaya* with the help of the *jatharagni*.

## AIM

To study the relation between *pittadharakala* and duodenal ulcer.

## MATERIAL AND METHOD

**Study design:** Literary study.

During the study of *Kalas* mentioned in various *Ayurvedic* Texts along with their commentaries by different authors were referred. References from modern sciences were also used to correlate the concept of *Kala*. While the studying about *Kala* through *Acharya Sushrut Sharirasthan*, the commentaries of different authors were critically studied to interpret and conclude about *Kala*.

### Structure

The wall of the small intestine is made up of 4 layers –

- 1 – Mucosa
- 2 – Submucosa
- 3 – Muscular Layer
- 4 – Serosa (Adventitia)

According to modern anatomy following structures are responsible for digestion and absorption.

Relevant features responsible for digestion.

### Mucosa-

- Major duodenal papilla –which is also called as hepatopancreatic ampulla and lies 8-10 cm distal to pyloric orifice.
- Minor duodenal papilla- at which accessory pancreatic duct opens and it lies 6-8 cm distal to pyloric orifice.
- The presence of intestinal gland i.e. crypts of Lieberkühn which invades the lamina propria. these glands are lined by goblet cells, columnar cells, Paneth cells and enteroendocrine cells which scattered over the entire

mucous membrane of jejunum and ileum.

- Functional anatomy –the above glands secrete digestive enzymes and mucous i.e. epithelial cells deep in the crypts show a high level of mitotic activity. The proliferated cells gradually move towards the surface to be shed from the tips of the villi. In this way the complete epithelial lining of the intestine is replaced every two to four days.

- Enterocyte – absorbing water & electrolytes.

- Goblet cell- secreting mucus.

- Enteroendocrine Cell-

- 1-Secretin-Pancreatic Juice Secretion

- 2-cck- bile juice secretion.

- Paneth cell- secrete lysosomal enzyme.

Relevant features responsible for absorption

- The length of small intestine which provides large surface area.

- villi are finger like projection, with large blood supply in the form of plexus of blood capillaries which helps in rapid absorption of nutrients into the blood.

- Plicae circularis for increase the surface area of mucosa.

- Microvilli are the smaller fold that helps to increase the surface area.

## SUBMUCOSA

It is rich with Brunner’s glands i.e. duodenal glands. They secrete alkaline mucous with bicarbonates which neutralize acid effect secreted by stomach. The serosa and muscular layers correspond exactly to the general structure of alimentary canal.

## Physiology of Digestion

### I Phase

Whenever we take food, the food is mixed with saliva (ptyalin). The food is changed in to a soft flexible mass called as bolus. The salivary gland secretes salivary amylase which breaks down the carbohydrates (disaccharides).

### II Phase

It goes to oropharynx and this is controlled by the tongue.

### III Phase

From the oropharynx it goes to the larynx’s pharynx. In this phase it is involuntary and the food goes to the oesophagus. It has two sphincters, upper oesophagus sphincter and lower oesophagus sphincter. Oesophagus does not secrete any enzyme and hormones. By the peristaltic movement of the oesophagus the food goes to the stomach.

## Stomach

1. Zymogen peptic cell which secretes pepsin helps in the digestion of proteins.
  2. Parietal cell-It secretes HCl it helps for the digestion of protein. It converts pepsinogen in to peptide and does the absorption of Vitamin B12.
  3. Mucus Cell- Which secretes mucus.
  4. Entero endocrine cells - Which secretes a hormone called as gastrin hormone. It stimulates the gastric secretion.
- Then from the stomach the food enters the duodenum. Duodenum is controlled by two hormones.

1. Secretin
2. Cholecystokinin.

Both are present in the intestinal mucosal. The hormones increase the secretion of the pancreatic juice.

1. Achlorhydria - HCL is absent in the stomach.
2. Hyperchlorhydria - Excess of HCL in the stomach. Hyperchlorhydria is called as Zollinger Ellison Syndrome.

## Structural Aspect of *Pittadhara Kala*

- 1- In between *Pakwashaya* and *Amashaya*.
- 2-Holds the food at *Pakwashaya*.

These statement refer to the activity concern states that of the *Ashaya*. which holds the undigested food production or absorption with the function of assimilation.

As the sigmoid colon and Rectum are term with “*Purishdhara Srotas* and lined by *Purishdhara Kala*”- these parts of GIT are ruled out of the discussion of *Pittadharakala*.

From mouth till to end in the *Amashaya*- four food varieties passed in undigested from thus conformably can be termed as *Amashya*.

The part between jejunum and sigmoid colon is the ileum *Pakwa Amashaya Madhya* is the part Anatomically consider as *Grahani* or *Pittadharakala*.

## Duodenal Ulcer

Peptic Ulcers are the wound on lining of GI tract. Gastric ulcer and duodenal ulcer are the type of peptic ulcer. Duodenal ulcer will be felt on closer to belly button region, around the midline of body. Duodenal ulcer more likely to be painful at night. Two-three hours after meal duodenal ulcer feels painful. When the stomach digested food and acid into duodenum. Duodenum is the first part of the small intestine. *Pakwaamashaya Madhya* is the part anatomically consider as *Grahani* or *pittadharakala*.

A/c to *ayurveda* people with a *pitta* predominance can develop ulcers. Duodenal ulcers occurred when stress causes bile reflux, hyperacidity, low digestive strength ,

emotions like stress or tension increase *pitta dosha* and activate digestive juices from the stomach ,liver and pancreas making stomach and intestines excessively acidic.

## DISCUSSION

Concept of *Pittadhara Kala* is explained by *Acharya Sushrut*. We find references about *Pittadhara Kala* in *Ashtanga Samgraha* and *Sharangdhar Samhita* also. All *Acharya*’s mentioned seven types of *Kala*. Describing the structure of *Pittadhara Kala* *Acharya sushrut* has stated that it holds four kinds of food propelled from *Amashaya* on its way to *Pakwashaya*. All types of food brought into *Koshtha* of man becomes *Jirnra* and undergoing *Shoshan* in proper through heating agency of *pitta* thus *Amashaya* and *Pakwsahaya* appear to be upper and lower limit of *Pittadhara Kala* respectively. According to *Acharyavagbhata*, being the abode of internal fire, it with holds by force, the movement of food material passing form *Amashaya* i.e. stomach into the *Pakwashaya* i.e. intestine, digest food by heat of *Pitta*, absorbs it and allows the digested food to move further. *Pittadhara Kala* can be compared as mucous membrane of small intestine.

## CONCLUSION

An ulcer on the mucosa of small intestine i.e., *Pittadharakala* caused by the action of gastric juices known as duodenal ulcer. Pre-existing helicobacter pylori infection increase the risk for subsequent development of duodenal ulcer. So, we conclude that the greater length, circular folds as well as intestinal glands are the main characteristics of small intestine which helps in performing digestion and absorption which is the basic function of *Pachak Pitta* so we can easily correlate with *Pittadhara Kala*.

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