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A Scientific Approach to Annavaha Srotas Viddh Lakshana

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ABSTRACT: Srotas is a dynamic transport mechanism of body. It transports diverse entities through the channel system, which are found in living body. There are various Srotas for specific substances. Amongst those Srotas one essential Srotas is Annavaha Srotas as it is associated with Anna (food) that is essential for Jeevan (life). Beside description of numerous Srotas, Aacharya Sushrut also cited Srotas Viddh Lakshana, manner signs that seem when a Srotas is injured.There is a need to discover those symptoms so this text is about Annavaha Srotas Viddh Lakshan and their approach with modern science.

INTRODUCTION

In Ayurvedic classics Srotas means structural and functional passage or channel carry such of tissue elements as are undergoing transformation from their previous states or flow of transforming dhatus[1]. According to Aacharya Sushrut Srotas originates from hollow spaces, spread throughout the body and purveys materials. Srotas are entirely different from Sira and Dhamnaya[2]. These are the purveyors of Prana, Anna, Udaka, Rasa, Rakt, Mamsa, Meda, Shukra, Mutra, Purish and Aartava. As Sharir depends on food (Anna) for energy, strength, repair of damaged cells and tissues so Annavaha Srotas has a great importance in Sharir.

AIM AND OBJECTIVES

1) A brief study about *Srotas*.

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2) Description of *Annavaha Srotas*.

3) A small effort for analyze *Annavaha Srotas Viddh Lakshan* by modern science.

4) Discussion and conclusion drawn on the base of study.

MATERIALS AND METHODS

It is a review study based on different *Ayurvedic* and modern texts. Study material related to *Srotas* and *Annavaha Srotas* collected by leading *Ayurvedic* texts. Modern texts used for study related to gastrointestinal disorders. Websites searched for more information. As gastrointestinal disorders have wide area so here some disorders discussed to explore *Annavaha Srotas Viddh Lakshan*.

Definition of Srotas

Aacharya Charak defined *Srotas* as "*Sravanat Srotamsi*"[3] means the structure through which *Sravana* (secretion) takes place. In general *Srotas* are channels that may be *Sthula* or *Sukshma*, large or small and perceptible or imperceptible. *Srotas* are of two types, ie. *Aabhyantara Srotas* and *Baahya Srotas*. *Aabhyantara Srotas* have their opening in the body and *Baahya Srotas* are external openings.

Number of *Srotas* –

Aacharya Charak has said that there are innumerable *Srotas*[4]. He also said that there are thirteen *Sthoola Srotas*[5] (table 1) and nine *Chidra*[6] (table 3).

Aacharya Sushrut mentioned twenty two (11 pairs) *Yogavahi Srotas*[7] *(Aabhyantara Srotas)* (table 2) and nine external orifices[8] (table 3) but he also said that in women three extra external orifices[9] are present as mentioned in table 3.

Table 1

No.	*Sthoola Srotas*	*Mula Sthana*
1	*Panavaha*	*Hridya, MahaSrotas*

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2	*Udakavaha*	*Taalu, Kloma*
3	*Annavaha*	*Aamashaya, Vama Paarshava*
4	*Rasavaha*	*Hridya, Rasavahi Dhamnya*
5	*Raktvaha*	*Yakrit, Pleeha*
6	*Mamsavaha*	*Snaayu, Twacha*
7	*Medavaha*	*Vrikka, Vapaavahan*
8	*Asthivaha*	*Meda, Jaghan*
9	*Majjavaha*	*Asthi, Sandhi*
10	*Shukravaha*	*Vrishan, Shef*
11	*Mutravaha*	*Basti, Vankshan*
12	*Purishvaha*	*Pakvaashya, Guda*
13	*Swedavaha*	*Meda, Roomkupa*

Table 2

No.	***Yogavahi Srotas***	***Mula Sthana***
1	*Panavaha*	*Hridya, Rasavahi Dhamnya*
2	*Udakavaha*	*Taalu, Kloma*
3	*Annavaha*	*Aamashaya, Annavahi Dhamnya*
4	*Rasavaha*	*Hridya, Rasavahi Dhamnya*
5	*Raktvaha*	*Yakrit, Pleeha, Raktvahi Dhamnya*
6	*Mamsavaha*	*Snaayu, Twacha*
7	*Medavaha*	*Kati, Vrikka*
8	*Shukravaha*	*Stana, Vrishan*
9	*Mutravaha*	*Basti, Medhra*
10	*Purishvaha*	*Pakvaashya, Guda*
11	*Aartavavaha*	*Garbhashaya,Aartavavaha Dhamnya*

Table 3

No.	***Chidra* (external orifices)**	**Numbers**	
		In males	**In females**
1	*Netra*	2	2
2	*Naasa*	2	2

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3	*Karna*	2	2
4	*Mukha*	1	1
5	*Medhra*	1	1
6	*Guda*	1	1
7	*Stana*	-	2
8	*Yoni*	-	1

Annavaha Srotas

Among these *Srotas* there is an important *Srotas, Annavaha Srotas* which acts for digestion & absorption of food and separation of *Sara* and *Kitta*. *Mula Sthana* of *Annavah Srotas* is *Aamashaya, Vaam Paarshava*[10] and *Annavahi Dhamnya*[11].

Aamashaya – Aachaya Charak and Aacharya Sushrut has told that *Aamashaya* is the *Mula Sthana* of *Annavaha Srotas*. *Aamashaya* is situated between *Nabhi* and *Stana*. Anatomically *Aamashaya* is stomach. Here the digestion of food takes place.

Vaam Paarshava – Anatomically *Vaam Paarshava* is left hypochondriac region. Structures present in this region are stomach, spleen and descending large intestine. But spleen is related to blood & its mechanism and descending large intestine is related to *Purishvaha Srotas*. Both of these structures are not related with *Annavaha Srotas*. So *Vaam Paarshava* is left lateral part of stomach which becomes more distended on left side when it is filled with food.

Annavahi Dhamnya – Dhamni is one which shows *Spandan* and carries *Rasa Raktadi Drava Dhatu*. *Annavahi Dhamni* are two in number, present in small intestine[12] and play an important role in digestion, absorption and separation of *Aahar Rasa and Mala*.

Dalhan says that these are helpful in separation of *Rasa, Mutra, Sweda* and *Purish* after the absorption of *Annarasa*. *Ghranekar* correlate the superior mesenteric and celiac arteries to *Annavaha Dhamnya* which provide the nutrition to lining of stomach and small intestine for its proper function.

Anatomically *Annavaha Srotas* is related with esophagus, stomach and small intestine. The digestion and absorption takes place till the last part of small intestine.

Aacharya Charak and *Aacharya Sushrut* both mentioned *Annavaha Srotas* and their *Mula*

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Sthana. Beside this *Aacharya Charak* also mention reason[13] and symptoms of vitiation of *Srotas (Srotas dushti)* [14]. As a *Shalya chikitsak Aacharya Sushrut* differently mentioned *Srotas Viddh Lakshan*[15] means he said that what symptoms develop when a *Srotas* is injured.

Reasons for vitiation of *Annavaha Srotas* –

1) Excess quantity of meal

2) Meal at inappropriate time

3) Harmful food

4) Due to vitiation of *Jatharagni*

Symptoms of vitiation of *Annavaha Srotas* –

1) *Annabhilashanam* (no desire to intake meal)

2) Aruchi

3) *Avipaka* (indigestion)

4) *Chhardi* (vomiting)

Annavaha Srotas Viddh Lakshan –

Any injury in *Annavaha Srotas* produce symptoms like:

1) *Aadhyman* (flatulence)

2) *Shula* (pain in abdomen)

3) *Annadwesh* (anorexia)

4) *Chhardi* (vomiting)

5) *Pipaasa* (thirst)

6) *Aandhy* (loss of vision)

7) *Maran* (death)

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Modern aspect

Annavaha Srotas is related with digestion and absorption of food. Chief parts of *Annavaha Srotas* are stomach and small intestine. Any injury in stomach or small intestine causes inflammation of their mucus membrane (gastritis/enteritis).

Inflammation of mucus membrane of stomach induces pain felt as a diffused burning sensation. It is often referred to epigasrtic pain. Acute gastritis is characterized by inflammation of superficial layers of mucus membranes. Chronic gastritis involves inflammation of even the deeper layers. It results in the atrophy of gastric mucosa, with loss of chief cells and parietal cells of glands. Therefore the secretion of gastric juice decreases.[16] Loss of stomach secretion leads to achlorhydria (no HCl secretion) or hypochlorhydria (less HCl secretion). When HCl is not secreted or secreted in fewer amounts, pepsin remains inactive as it needs HCl for activation.[17] Inactivity of pepsin leads to indigestion, anorexia and flatulence. Inflammation of mucus membrane induces vomiting which is a neurogenic response triggered by reflex through irritation of stomach.

Normal gastric secretion contains a glycoprotein called intrinsic factor, secreted by the parietal cells. It is necessary for adequate absorption of vitamin B 12 from the ileum. Intrinsic factor combines with vitamin B 12 in stomach and protects it from being digested & destroyed as it passes into the small intestine. Then, when the intrinsic factor – vitamin B 12 complex reaches the terminal ileum, the intrinsic factor binds with receptor on the ileum epithelial surface. This in turn makes possible absorption of vitamin B 12.[18] Loss of parietal cells results in absence of intrinsic factor in gastric secretion. Without intrinsic factor adequate amount of vitamin B12 is not made available for the food. It leads to pernicious anemia as vitamin B 12 is necessary for maturation of red blood cells. Sometimes pernicious anemia is associated with neuropathies because vitamin B 12 is also necessary for myelin synthesis in nerves so deficiency of vitamin B 12 leads to neuropathies or neurological disorders. Occasionally vitamin B 12 deficiency leads to nutritional optic neuropathy (damage to optic nerve) which is associated with drop in vision.[19]

Enteritis is characterized by inflammation of mucus membrane of small intestine. It causes malabsorption and diarrhea.[20] Malabsorption of vitamins and minerals leads to deficiency of vitamins and minerals. Deficiency of vitamin A leads to night blindness. Vitamin A deficiency causes defective rodes and cones function. Prolonged deficiency leads to anatomical changes in rodes & cones and finally the degeneration of other retinal layers occur.[21] These conditions obstruct proper vision.

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Malabsorption of calcium leads to hypocalcemia. Hypocalcemia causes neuromuscular hyperexcitability, resulting in hypocalcemic tetany. When the calcium level falls below 4mg/dl, it becomes fatal. During such severe hypocalcemic conditions, tetany occurs so quickly that a person develops spasm of different groups of muscles in the body. Worst affected are the laryngeal and bronchial muscles which develop respiratory arrest, resulting in death.[22]

Poor absorption of water leads to dehydration and induces thirst. Inflammation of intestine is a common cause behind diarrhea. Diarrhea results in loss of water and electrolytes. This leads to dehydration and electrolyte imbalance. Dehydration also induces thirst. Chronic diarrhea results in hypokalemia and metabolic acidosis[23] which may be lethal in severe conditions.

DISCUSSION

Srotas are entirely specific structures which secrete, circulate or transport different entities in our body. Among these Srotas, Annavaha Srotas has its peculiar functions as it transport, digest and absorb the food. Seeing its functions we can correlate Annavaha Srotas with gastrointestinal tract. Aacharya Sushrut mentioned Annavaha Srotas Viddh Lakshana like Aadhyman, Shula, Chhardi etc. means any injury in Annavaha Srotas produces these symptoms. As Gastrointestinal tract has wide area, anatomically and physiologically both so chief part of GIT is preferred for study.

According to modern science any injury in gastrointestinal tract develops many symptoms or diseases in which one is inflammation of mucus membrane of stomach (gastritis) and small intestine (enteritis). Gastritis leads to loss of gastric juice secretion which results in indigestion, anorexia and flatulence. Deficiency of intrinsic factor leads to vitamin B12 deficiency which causes optic neuropathy and results in vision loss.

Enteritis leads to malabsorption of mineral, vitamins and other nutrients. Malabsorption of vitamin A leads to drop in vision. Malabsorption of calcium leads to hypocalcaemia tetany that may be lethal in severe conditions. Poor water absorption induces thirst. Diarrhea also induces thirst as it creates dehydration. Electrolyte imbalance due to diarrhea results in hypokalemia and metabolic acidosis that may be lethal.

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CONCLUSION

Now we can conclude that Annavaha Srotas Viddh Lakshan mentioned by Aacharya Sushrut, ie: Aadhyman (Distention of abdomen due to gas), Shula (pain), Annadwesh (Aversion to food), Chhardi (Vomiting), Pipaasa (Thirst), Aandhy (loss of vision) and Maran (death) are completely relevant with modern science.

As Annavaha Srotas is an expanded area so only some disorders related to gastritis and enteritis are studied here to outline Annavaha Srotas Viddh Lakshan. It needs further studies to scrutinize it more.

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