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Rachanatamaka Vivechana of Amashayasthit Sushir Snayu w. s. r. to Pyloric Stenosis.

[1]Vaishali D. Gharpure, [2]Alka Charde

PG Scholar Final Year, Sharir Rachana Department, BMAM, Nagpur.

HOD And Professor, Sharir Rachana Department, BMAM, Nagpur.

ABSTRACT-

Ayurveda is a boundless ocean of knowledge and probably is the only medical science which has elaborate knowledge about the other living being. Chief object of this science is preservation of health and prevention of disease. The Vidyas having the entire knowledge about the sharir. The vaidyas who knows the normal Anatomy and Physiology, he is the only able to treat the happened abnormal things related to anything. Among them, Snayusharir has got an importance. The total number of Snayu described in Ayurveda are 900. There are 4 types of snayu are explained among them SushirSnayu is one of the type. Acharya Sushruta stated the location of SushirSnayu at the end of Amashaya, Pakawashaya and Basti. As the meaning of Sushir suggest like Hole or Hollow like structure we can correlate in advance with the structure i.e. Internal or External Sphincters. The pylorus is a valve that sits between the stomach and small intestine. It stays closed to hold the food in the stomach, then it open to let food move into the intestine, where it is digested. Pyloric Stenosis is the condition that makes the valve get thick and narrow between stomach and small intestine. As we correlate Amashayasthit SushirSnayu with the valve of Pylorus this article enlightened the Ranchatamaka elaboration of Amashayasthit SushirSnayu.

KEYWORDS- Sushir Snayu, Pylorus, Pyloric Stenosis, Amashaya.

Introduction

SharirRachana is one of the basic subjects for the principles of Ayurveda. There are many concepts in RachanaSharir (Anatomy) like Snayu, Sira etc described under ParibhashaSharir (Terminology). Each concept represents certain Anatomical structure. The Vidyas having the entire knowledge about the sharir. The vaidyas who knows the normal Anatomy and Physiology, he is the only able to treat the happened abnormal things related to anything. Snayu is considered as most important structure amongst all. The distribution of these Snayus according to rachanatmaka view are Pratanvatisnayu, Vritta, Pruthu, SushiraSnayu. The total number of Snayu described in Ayurveda are 900. There are 4 types of snayu explained among them SushirSnayu is one of the type. Acharya Sushruta stated the location of sushirSnayu at the end of Amashaya, Pakawashaya and Basti. As the meaning of Sushir suggest like Hole or Hollow like structure we can correlate in advance with the structure i.e. Internal or External Sphincters. The pylorus connects the stomach to the duodenum. The pylorus is considered as having two parts, the pyloric antrum (opening to the body of the stomach) and the pyloric canal (opening to the duodenum). The pyloric canal ends as the pyloric orifice, which marks the junction between the stomach and the duodenum. Pyloric stenosis is a condition in which the pylorus, the opening between the stomach and the small intestine, becomes narrowed. This leads to obstruction and prevents food from passing into the small intestine effective

AIM AND OBJECTIVES-

AIM

To do Rachanatmak study of Sushir snayu specially Amashayasthit Sushir Snayu with reference to Pyloric Stenosis

OBJECTIVES

1) To study of Sushri snayu
2) To do comparative study of Sushir Snayu
3) To study about the Snayu specially Sushir snayu from different areas
4) To study changes occurs in Paloric Stenosis related to Amashayasthit Sushir Snayu

MATERIALS AND METHODS:-

SNAYU

Nirukti[1] **–**Vachasptya states snayu as strilingishabda.

The Etymology is similar to siddhantkaumudi. Its function is binding the body.

Vyutapatti–The word Snayu is formed from the word root (dhatu) 'Sna'. 'Sna' dhatu when combined with 'un' and 'yuk' Pratyaya forms the word Snayu.

Definition of Snayu[2]**-** A very clear structural description about by Acharya Dalhana that Snayu is Shankhakara. Acharya Sharangadhara mentioned Snayu as a structure which supports the body by binding Mansa, Asthi and Meda. According to Acharya ChakrapaniSnayu are the binding structures in the body. These are formed by essence part of the food.

SnayuSankhya[3]**-** According to SushrutaSnayu are nine hundred in number from this 600 are in Shakha, 230 in Koshtha, and 70 in Griva and above.

Types of Snayu[4]**-** There are types of snayu are described in sushrut Samhita sharirsthana.

Snayu is the important structure in the body. Sushruta has described four type of Snayu were present in the body. Pratanavati ,Vrutta, Pruthula, SushirSnayu. Snayu which were like long creepers, present in Urdhva and Adhoshakaha and at the sandhisthana are called Pratanavati Snayu. Sandhi was formed by union of two or more bones. During cadaveric dissection the long slender tendon and nerve which are cord like structure crosses the joint inserted on succeeding bone are responsible for movement. VruttaSnayu also called Kanadara. They were 16 in numbers. Hasta Padagatakandara tips are the Nakha(nails).The Kanadara related with Griva and Hridya is Medhra. Kandara related with shroni (pelvis) and prushtha were end as a Bimba (gluteal). According to anatomical knowledge this description shows similarity with the superficial broad muscles of anterior and posterior aspect of thorax, abdomen, and muscles of back which were ends in tendons and aponeurosis.

Pruthulsnayu , the word meaning of pruthul is a broad, large or great. Especially present in parshwa(lateral),Urah(chest),Shir(head) and Prushtha(back), muscles, fascia present in this region they have broad sheet like origin and insertion.

SushirSnayuprakara means Sachhidra (hiatus) snayu, Snayu type having (opening) in it. These were present at the end of Ampakwashaya and Basti. The end part of Amapakwashya and basti travels through SushirSnayu. This description appears similar to Pelvic floor. Pelvic floor transmit the Urethra, vagina and anal canal. Pelvic floor has two hiatus , anteriorly urogenital hiatus through which urethra in both sexes and vagina in female passes. Posteriorly rectal hiatus through which anal canal passes.

Snayu Formation[5]

Medadhatu is the uttapatisthana of Snayu. Sira and Snayu have the same origin but Sira are flexible and distensible because they are formed by Mrudupaka of Meda and Snayu are tough, strong because of Kharapaka of Meda. After birth, blood vessels from foetal circulation get transformed into the special connective tissue,

similar to ligaments. The human anatomical structure Basti has been mentioned vastly in Ayurvedic Text. Mutrashaya is the another term which has been used side by side in various places for basti. It has been mentioned as a one of the Koshtanga in total 15 kaoshtanga. While describing the urinary bladder Sushrutacharya stated that Basti is completely enveloped by Sira and Snayu , if we study the bladder wall and covering , it is made up of vesicle venous plexus and adventitial layer which is fibrous connective tissue.

While considering marma concept, snayu is one of the type of marma[6] .Most of the snayumarma are vaiklyakar that is if snyumarma injured then definitely disability formed while considering basti as snayumarma ,it is sadyapranhar that means any trauma on basti gat snayu is seems to be fatal.

Table No.1 snayu marma and its anatomical consideration

Sr. No	Marma Name	Total Number	Type as per Rachana	ViddhaLakshana	Anatomical consideration
1	Aani	4	Snayumarma	Shopha, stabdhbahuta	Quadricep tendon, hamstring tendon
2	Vitap	2	Snayumarma	Alpashukratashandhata	Inguinal canal
3	Kakshadhara	2	Snayumarma	Pakshaghat	Brachial plexus cords
4	Kurcha	4	Snayumarma	PadaBhramanavepana	Nerve injuries due to flexor tendonin hand and foot
5	Kurchshir	4	Snayumarma	RujaShopha	Carpel tunnel contents
6	Basti	1	Snayumarma	Sadyapranahara	Urinary bladder
7	Kshipra	4	Snayumarma	Aakshepa	First inter-meta tarsal/carpal space with tendons of digital nerve.
8	Anasa	2	Snayumarma	Stabdhabahuta	Trapezius tendon.
9	Vidhura	2	Snayumarma	Badhirya	Sternocleidomastoid tendon, supramental triangle
10	Utkshepa	2	Snayumarma	Vishalyaghna	Temporal fascia, fibrous endosteal layer of dura mater.

PYLORUS [7]:-

The pylorus connects the stomach to the duodenum. The pylorus is considered as having two parts, the pyloric antrum (opening to the body of the stomach) and the pyloric canal (opening to the duodenum). The pyloric canal ends as the pyloric orifice, which marks the junction between the stomach and the duodenum. The orifice is surrounded by a sphincter, a band of muscle, called the pyloric sphincter. The word pylorus comes from Greek via Latin. The word pylorus in Greek means "gatekeeper" related to "gate" and is thus linguistically related to the word "pylon".

Structures-

1. Body of stomach 2. Fundus 3. Anterior wall 4. Greater curvature 5. Lesser curvature

6. Cardia 7. Pyloric sphincter 8. Pyloric antrum 9. Pyloric canal 10. Angular incisure

11. Gastric canal 12. Rugal folds

The pylorus is the furthest part of the stomach that connects to the duodenum. It is divided into two parts, the antrum, which connects to the body of the stomach, and the pyloric canal, which connects to the duodenum.

Antrum- The antrum also called the gastric antrum or the pyloric antrum is the initial portion of the pyloric region. It is near the bottom of the stomach, proximal to the pyloric sphincter, which separates the stomach and the duodenum. It may temporarily become partially or completely shut off from the remainder of the stomach during digestion by peristaltic contraction of the prepyloric sphincter; it is demarcated, sometimes, from the pyloric canal by a slight groove.

Canal- The pyloric canal (Latin: canalis pyloricus) is the opening between the stomach and the duodenum. The wall thickness of the pyloric canal is up to 3 millimeters (mm) in infants younger than 30 days, and up to 8 mm in adults.

Sphincter- The pyloric sphincter, or valve, is a strong ring of smooth muscle at the end of the pyloric canal which lets food pass from the stomach to the duodenum. It controls the outflow of gastric contents into the duodenum. It receives sympathetic innervation from the celiac ganglion.

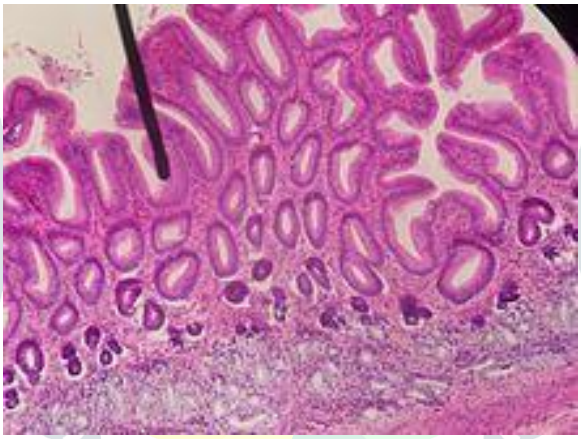

Fig 1- microscopic cross-section of the pylorus

Under microscopy, the pylorus contains numerous glands, including gastric pits, which constitute about half the depth of the pyloric mucosa. They consist of two or three short closed tubes opening into a common duct or mouth. These tubes are wavy, and are about one-half the length of the duct. The duct is lined by columnar cells, continuous with the epithelium lining the surface of the mucous membrane of the stomach, the tubes by shorter and more cubical cell which are finely granular. The glands contain mucous cells and G cells that secrete gastrin. The pylorus also contains scattered parietal cells and neuroendocrine cells. These endocrine cells include D cells, which release somatostatin, responsible for shutting off acid secretion. (There is a second hormone-sensitive population near the fundus.) Unstriated muscles, which are entirely involuntary, are located at the pylorus.

Function The pylorus is one component of the gastrointestinal system. Food from the stomach, as chyme, passes through the pylorus to the duodenum. The pylorus, through the pyloric sphincter, regulates entry of food from the stomach into the duodenum.

PYLORIC STENOSIS [8]

Pyloric stenosis is a condition in which the pylorus, the opening between the stomach and the small intestine, becomes narrowed. This leads to obstruction and prevents food from passing into the small intestine effectively.

Anatomical Relevance-

1. Muscle Hypertrophy: The most significant change is the hypertrophy of the circular muscle fibers in the pylorus. This thickening narrows the pyloric channel, impeding the passage of food from the stomach to the duodenum.

2. Fibrosis: Along with hypertrophy, there can be an increase in fibrous tissue within the pyloric muscle. This fibrosis may further contribute to the rigidity and narrowing of the pylorus.
3. Altered Anatomy: The pylorus itself becomes elongated and narrowed, creating an obstruction that prevents normal gastric emptying. The narrowing can be so severe that it leads to a characteristic "string sign" on imaging.
4. Increased Gastric Pressure: As food accumulates in the stomach due to the obstruction, gastric pressure increases. This can cause the stomach to become distended, which may lead to secondary changes in the stomach lining, such as inflammation.
5. Mucosal Changes: The mucosa of the pylorus may show signs of stress or irritation due to the prolonged retention of food and gastric acids, potentially leading to mucosal erosion in severe cases.

Symptoms [9]

1. Projectile Vomiting: Infants often vomit forcefully after feeding, sometimes several feet.
2. Dehydration: Due to persistent vomiting, infants may show signs of dehydration.
3. Weight Loss or Poor Weight Gain: Inability to retain food can lead to inadequate weight gain.
4. Hunger: Infants may appear hungry shortly after vomiting.
5. Palpable Olive: A firm, olive-shaped mass can sometimes be felt in the abdomen, indicating the hypertrophied pylorus.

Diagnosis [10]

1. Physical Examination: A healthcare provider may feel the olive-shaped mass in the abdomen.
2. Ultrasound: Abdominal ultrasound is the most common imaging technique used to visualize the thickened pylorus.
3. Upper GI Series: In some cases, an upper gastrointestinal study may be performed to assess the passage of contrast through the digestive tract.

Treatment [11]

Surgical Intervention: The primary treatment is a surgical procedure called pyloromyotomy, which involves cutting the thickened muscle to relieve the obstruction.

Preoperative Care: Infants may require stabilization with intravenous fluids to address dehydration and electrolyte imbalances before surgery.

DISCUSSION and CONCLUSION

Sushir Snayu prakara means Sachhidra (hiatus) snayu, Snayu type having (opening) in it. These were present at the end of Ampakwashaya and Basti. The end part of Amapakwashya and basti travels through SushirSnayu. The pylorus connects the stomach to the duodenum. The pylorus is considered as having two parts, the pyloric antrum (opening to the body of the stomach) and the pyloric canal (opening to the duodenum). The most significant change is the hypertrophy of the circular muscle fibers in the pylorus. This thickening narrows the pyloric channel, impeding the passage of food from the stomach to the duodenum. Along with hypertrophy, there can be an increase in fibrous tissue within the pyloric muscle. This fibrosis may further contribute to the rigidity and narrowing of the pylorus. The pylorus itself becomes elongated and narrowed, creating an obstruction that prevents normal gastric emptying. The narrowing can be so severe that it leads to a characteristic "string sign" on imaging. As food accumulates in the stomach due to the obstruction, gastric pressure increases. This can cause the stomach to become distended, which may lead to secondary changes in the stomach lining, such as inflammation. The mucosa of the pylorus may show signs of stress or irritation due to the prolonged retention of food and gastric acids, potentially leading to mucosal erosion in severe cases.

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