WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.453
Volume 14, Issue 12, 359-365. Review Article ISSN 2277–7105

ANATOMICAL STUDY OF GUDA VALIS IN COMPARISON WITH ANAL SPHINCTERS

Divyanshi Verma[1]*, Pankaj Singh[2], Anshul Sharma[3] and Ravi Pratap Singh[4]

[2]Assistant Professor, Department of Rachana Sharir, Himalayiya Ayurvedic (P.G) Medical College and Hospital, Fatehpur Tanda, Jeevanwala, Dehradun, Uttarakhand, India.

[1,3,4]P.G. Scholar, Department of Rachana Sharir, Himalayiya Ayurvedic (PG) Medical College and Hospital Fatehpur Tanda, Jeevanwala, Dehradun, Uttarakhand, India.

Article Received on
01 May 2025,

Revised on 21 May 2025,
Accepted on 11 June 2025

DOI: 10.20959/wjpr202512-37165

***Corresponding Author**
Dr. Divyanshi Verma
P.G. Scholar, Department of Rachana Sharir, Himalayiya Ayurvedic (PG) Medical College and Hospital Fatehpur Tanda, Jeevanwala, Dehradun, Uttarakhand, India.

ABSTRACT

Ayurveda offers distinctive treatments like *agnikarma* (Cautery) and *ksharkarma* (Application of *kshar*) for anorectal disorders such as *arsha* (Piles). Highlighting *Ayurvedic* principles is crucial in contemporary times to encourage wider adoption among healthcare professionals for comprehensive management of anorectal diseases. This research aims to explore terms such as *guda*, *gudavalis*, *adharguda*, and *uttarguda* through a critical review of classical texts, modern literature, and online resources. The *pravahini vali*, approximately 1.5 *angula* in size, facilitates *'malasya adhah pidanta,'* promoting forward movement of feces, akin to the function of Houston's semilunar valve. The internal anal sphincter aids in fecal propulsion towards the anus, suggesting *visarjani vali* corresponds to it. *Samvarani*, meaning 'to hold or stop,' likely refers to the voluntary muscle function, thus representing the external anal sphincter. *Uttarguda* serves as a repository for feces, while *adharguda* facilitates stool evacuation. This study proposes correlations between *guda* and the rectum segment of the large intestine. *Pravahini vali* resembles Houston's valve, *visarjani vali* resembles the internal anal sphincter, and *samvarani* resembles the external anal sphincter. *Uttarguda* functions as a repository for feces, contrasting with *adharguda*, which aids in stool elimination.

KEYWORDS: *Guda Pradesh*, *Gudavalis*, Anal Sphincters, Anal Canal, Rectum.

INTRODUCTION

Ayurveda, often referred to as the "science of life," is a traditional system of medicine with roots deep in the ancient wisdom of India. This holistic approach to health and wellness has been practiced for thousands of years, offering a unique perspective on the interconnectedness of the mind, body, and spirit. Ayurveda seeks to harmonize and balance these elements to promote overall well-being and prevent illness. Derived from the Sanskrit words "*Ayur*" (Meaning life) and "*Veda"* (Meaning knowledge), Ayurveda encompasses a vast body of knowledge that addresses various aspects of human existence. It goes beyond the mere treatment of ailments, focusing on the prevention of diseases and the promotion of a harmonious and balanced lifestyle.

Rachna Sharir, in the context of Ayurveda, refers to the branch of *Ayurvedic* medicine that deals with the structural and anatomical aspects of the human body. It is one of the fundamental components of *Ayurvedic* education and practice, focusing on understanding the physical form and organization of the body.

"Guda" commonly refers to the rectum, and it is a significant part of the digestive and eliminative systems in the body. Ayurveda places great emphasis on the health of the gastrointestinal tract, including the rectum, as it plays a crucial role in the elimination of waste and toxins from the body.

Gudavali is categorized into three main divisions known as *Valis: Abhyantara, Madhya*, and *Bahya*. These *Valis* are positioned at specific measurements, precisely 1½ *Anguli Pramana* apart. *Sushruta* and *Vagbhata* have provided detailed descriptions of these *Valis*, identifying them as *Pravahini, Visarjani*, and *Samvarini. Gudavali* structure is crucial in comprehending the physiological mechanisms related to the movement and expulsion of waste or *Mala* from the body. Each *Vali* plays a distinct role in this process, influencing the downward movement, expansion, and closure of the *Guda.*

Guda Pradesh, including *Gudavali*, is integral to understanding various pathological conditions and diseases affecting the rectal and anal regions. Knowledge of these structures is essential for diagnosing and treating conditions such as hemorrhoids, fissures, and fistulas.
Guda Pradesh is directly associated with surgical procedures related to the rectum. Understanding the intricacies of *Gudavali* is crucial for surgeons performing interventions such as fistulotomy, hemorrhoidectomy, or other procedures in the anal region.

AIMS AND OBJECTIVE

To study the correlation between the *ayurvedic* concept of *Gudavalis* in comparison with its modern concept of Anal Sphincters.

MATERIAL AND METHOD

1. *Ayurved* literature (*Brihat Trayi*, *laghu Trayi*) will be consulted and other relevant literature of Ayurveda.
2. Modern literature (Gray's anatomy, B. D. Chaurasia's Human anatomy, Snell RS. Clinical Anatomy, Cunningham's Manual of Practical Anatomy) will be correlated and analysed with the knowledge of Contemporary Science on the Subject.
3. Other Classical texts including Journals, Research articles, Papers presented and Previous Thesis work done will be correlated and analysed with the knowledge of contemporary science on the subject.
4. Cadaveric Dissection of *Guda Pradesh* will be carried out in the department of *Rachana Sharir* to study the structure of Anal Canal with correlation with *Gudavalis*.

REVIEW OF LITERATURE

Guda sharir according to ayurveda

In Ayurveda, *Guda Sharir* is synonymous with *Apan* and *Payu.*

Origin: origin of the organs *Antra, Guda,* and *Basti* involves the *sarabhaga* of *rakta, kapha, pitta,* and *vata*. Specifically, the *sarabhaga* of *rakta* and *kapha* combine with the *ushna guna* of *pitta,* while the *ashaya* is formed through the *chal* and *laghu guna* of *vayu.* Consequently, the embryological formation of the organ *Guda* takes place through this intricate process.

Dimension: According to *charak* and *sushruta* the length of *guda* is four and a half *angula.*

Location: According to *Sushruta Guda* is one of the *koshthanga* and according to *Charak* it is one of the *dasha pranayatam*[1] located at the end of intestine.

***Asthi*:** The pelvis contains five *asthis*, including *guda, bhaga, nitamba,* and one in *Trika.*

***Sandhi*:** A *samudga* type of *sandhi* is created in *Guda*.[2]

Peshi: *Guda* contains three *peshi.*[3]

***Sira*:** According to *Sushrut*, out of the 34 *sira* found in *koshtha*, eight are directed towards *guda* and *medhra.*[4]

Dhamani: A downward-flowing *dhamani* carries *apan vata, mutra, purisha, shukra*, and *artava* to corresponding organs such as *pakwashaya, kati, guda, basti* and *medhra*. All these

organs are located below the umbilicus. The two *dhamanis* connected to the large intestine play a role in the elimination of stools.[5]

***Strotas*:** *Guda* is identified as one of the *bahirmukha strotas* and it is *mool* of the *Purishvaha Strotas.*

***Guda marma*:** According to *Sushruta* the part connected to the *sthulanatra*, facilitating the elimination of faeces, is referred to as *Gudamarma*. It holds the status of a *sadyah pranahara marma.*[6] *Gudamarma* is categorized under *udarmarma* in the regional classification of *marmas* and is one of the three *marmas* in the *udar* region.[7] It is 4 *angula* in *praman*, representing the structures within a 4-*angula* area of *guda.*

***Gudavalis*:** *Guda* is anatomically divided into three *Valis: Abhyantara*, *Madhya*, and *Bahya*, each located at a distance of 1½ *Anguli Pramana*. The presence of these *three Valis*, named *Pravahini*, *Visarjani*, and *Samvarini*, has been detailed by both *Sushruta* and *Vagbhata*. These *Valis* are depicted as layers, one above the other, resembling the curved shape of a conch shell and exhibiting the colour similar to an elephant's palate.

Description of *valis*

1. ***Pravahini*:** The uppermost *Vali* in the *Guda*, *Pravahini*, is responsible for pushing the *Mala* downwards, facilitating the forward passage of *Mala.*
2. ***Visarjani:*** Positioned 1½ *Anguli* below *Pravahini* and 1½ *Anguli* above *Samvarini, Visarjani* is the second *Vali* that expands the *Guda* and aids in the expulsion of *Mala.*
3. ***Samvarini*:** The third and final *Vali*, *Samvarini*, is located 1½ *Anguli* above the *Gudaoushta* which represents the distal portion and contribute to the closure of the *Guda.*

Modern aspect

In contemporary understanding of the rectum and *guda sharir*, the rectum comprises two functional segments. The upper part, associated with the peritoneum, develops from the hindgut and is situated above the middle fold of the rectum. It serves as a faecal reservoir capable of anterior distension. The lower part, lacking peritoneum, originates from the cloaca and lies below the middle fold. Normally empty, it may contain faeces in cases of chronic constipation, prompting the urge to defecate. However, some authorities propose that the sigmoid colon acts as the faecal reservoir, with the entire rectum remaining empty in a normal individual and becoming sensitive to distension upon the passage of faeces, eliciting the desire to defecate.[8]

Anatomy of the anal canal

The anal canal is the terminal part of the digestive tract, extending from the anorectal junction to the anus. It is approximately 3-4 cm in length and is crucial for the elimination of feces from the body.

Internal anal sphincter: The internal anal sphincter is a continuation of the circular smooth muscle fibers of the rectum. It is under autonomic (Involuntary) control and provides resting tone to the anal canal.

External anal Sphincter: Surrounding the internal anal sphincter is the external anal sphincter, which consists of skeletal muscle. Unlike the internal sphincter, the external sphincter is under voluntary control, allowing conscious control over defecation.[9]

Anorectal junction: This marks the transition from the rectum to the anal canal and is characterized by changes in the epithelial lining from simple columnar epithelium to stratified squamous epithelium.[10]

Anal Columns (Columns of morgagni): Longitudinal folds within the anal canal lined with anal glands that secrete mucus to aid in faecal passage.

Hemorrhoidal (Anal) cushions: Vascular structures composed of connective tissue, blood vessels, and smooth muscle fibers, located within the anal canal. They contribute to anal closure mechanisms.[11]

Blood Supply and Nerve Innervation: Blood supply is primarily from branches of the superior rectal artery (A continuation of the inferior mesenteric artery) and the inferior rectal artery (A branch of the internal pudendal artery). Innervation includes branches of the inferior rectal nerve (From the pudendal nerve), sympathetic nerves (From the superior hypogastric plexus), and parasympathetic nerves (From the pelvic splanchnic nerves).

DISCUSSION

Ancient texts suggest that *guda*, in Ayurveda, may extend beyond the anal canal to include a portion of the rectum, possibly up to the level of the largest transverse folds known as Housten's semilunar valve. The *pravahini vali*, measuring approximately 1.5 *angula*, is described in *Ayurvedic* literature to facilitate *'malasya adhah pidanta*,' which involves forward propulsion of faeces. This function bears resemblance to the role of Housten's semilunar valve, both functionally and anatomically, in directing faeces towards the *guda*.

The *visarjani vali*, measuring approximately 1.5 *angula*, is positioned between the *pravahini* and *samvarani*. Its function involves facilitating the further passage of faeces, which is considered to be under autonomous control. Similarly, the internal anal sphincter operates

involuntarily, receiving its nerve supply from the autonomic inferior hypogastric plexus and measuring approximately 2.5-4.0 cm. The internal anal sphincter directs faeces towards the anus. Therefore, the *visarjani vali* can be likened to the internal anal sphincter both in terms of function and anatomy.

The *samvarani vali* measures approximately 1.5 *angula* and represents the distal part. The external anal sphincter is composed of three layers of skeletal muscle fibers: subcutaneous, superficial, and deep. It operates under voluntary control, receiving nerve supply from the somatic sacral plexus, which ensures faecal continence. Similar in length to *samvarani*, the external anal sphincter measures about 2.5-3.5 cm. The term *samvarani,* meaning 'to hold or stop,' suggests its role as a voluntary muscle. Therefore, *samvarani* can be likened to the external anal sphincter both functionally and anatomically.

Comparison of *Ayurvedic* and Modern aspects of *guda sharir*

Ayurvedic sharir* of *guda valis	**Modern anatomy**
Pravahini	Largest Houston's valve
Visarjani	Internal anal sphincter
Samvarini	External anal sphincter
Uttarguda	Seat for faecal collection
Adharguda	Seat for evacuation of stools
Guda	Anal canal extending up to the largest transverse fold

CONCLUSION

Based on functional and anatomical similarities observed in this study, it is reasonable to correlate *guda* with the rectum segment of the large intestine. The three *gudavalis* can be associated with the three transverse folds of the rectum. *Pravahini* resembles the largest Houston valve, while *visarjani* functions similarly to the internal anal sphincter. *Samvarani* corresponds to the external anal sphincter. *Uttarguda* serves as a repository for faecal collection, and *adharguda* facilitates stool evacuation.

BIBLIOGRAPHY

1. Yadavji Trikamji, *Charak Samhita* with *Ayurved* Dipika commentary of *Chakrapani* Datta, Chaukhamba Sanskrit *Sansthan*, Varanasi, *Sharir Sthana, 2001; 5, 924:* 7-9.
2. Shastri Ambikadatta, *Sushruta Samhita* with *Ayurveda* Tatva Sandipika *Vyakhya*, Chaukhamba Sanskrit *Sansthan*, Varanasi, *Sharir Sthana, 2005; 44:* 5-20.
3. Shastri Ambikadatta, *Sushruta Samhita* with *Ayurveda* Tatva Sandipika *Vyakhya*,

Chaukhamba Sanskrit *Sansthan*, Varanasi, *Sharir Sthana*, 2005; *46:* 5-32.

4. Shastri Ambikadatta, *Sushruta Samhita* with *Ayurveda* Tatva Sandipika *Vyakhya*, Chaukhamba Sanskrit *Sansthan*, Varanasi. *Sharir Sthana*, 2005; *47:* 5-47.
5. Shastri Ambikadatta, *Sushruta Samhita* with *Ayurveda* Tatva Sandipika *Vyakhya*, Chaukhamba Sanskrit *Sansthan*, Varanasi, *Sharir Sthana, 2005; 59:* 7-7.
6. Shastri Ambikadatta, *Sushruta Samhita* with *Ayurveda* Tatva Sandipika *Vyakhya*, Chaukhamba Sanskrit *Sansthan*, Varanasi. *Sharir Sthana*, 2005; *69:* 9-7.
7. Shastri Ambikadatta, *Sushruta Samhita* with *Ayurveda* Tatva Sandipika *Vyakhya*, Chaukhamba Sanskrit *Sansthan*, Varanasi, *Sharir Sthana, 2005; 52:* 6-9.
8. BD Chaurasia, The rectum & Anal canal. Textbook of Anatomy Edition, CBS Publishers & Distributors, New Delhi, 2004; 2, 4: 379.
9. Standring S, Borley NR, Collins P, et al., eds. Gray's Anatomy: The Anatomical Basis of Clinical Practice. London, UK: Elsevier, 2016; 41: 1232-1233.
10. Drake RL, Vogl AW, Mitchell AWM. Gray's Anatomy for Students. Philadelphia, PA: Elsevier, 2020; 4: 309-310.
11. Snell RS. Clinical Anatomy by Regions. Philadelphia, PA: Lippincott Williams & Wilkins, 2012; 9: 285-286.