

EXPLORATION OF APPLIED ANATOMY OF NECK WSR TO GREEVA STAMBHA

***Dr. Shireen Tobassom Dewan, *Dr. Tikendrajit Sarma**

*3rd Year PG Scholar, Department of Sharir Rachana, Govt. Ayurvedic College & Hospital, Jalukbari, Guwahati-14.

*Associate Professor, Department of Rachana Sharir, Government Ayurvedic College and Hospital, Jalukbari, Guwahati-14.

Article Received on
24 July 2025,

Revised on 13 August 2025,
Accepted on 04 Sept. 2025

DOI: 10.20959/wjpr202518-38295



***Corresponding Author**

Dr. Shireen Tobassom

Dewan

3rd Year PG Scholar,
Department of Sharir
Rachana, Govt. Ayurvedic
College & Hospital,
Jalukbari, Guwahati-14.

ABSTRACT

Applied Anatomy relates with Clinical, Structural, Prognostic and diagnostic importance. In Ayurveda, where treatment is emphasised in human being rather than human body shows exclusively range of Clinical correlation or morphological interpretation. Greeva, Kantha, Gala and Manya are 4 specific terminologies which indicate Neck. Avatu is another term that relates to Neck "*Avatu Greevaya Paschimo Bhaga*". Asthi, Sandhi, sira, peshi, dhamani, marma are the morphological structure present in Neck. Greeva included under Shadanga Sharir which is a specific region extending above Shira resembles a stem (shirodhara) and provides a structural continuity. In relation to Kantha, Acharya Sushruta and Madhava Nidana described 17 Kanthagata Roga, whereas Vagbhata mentions 18. Acharya Sushruta has mentioned Rohini, Kanthashaluk, Balaya, Balasa, Vrunda, Shataghni, Galaudha, Swaraghna, Vidari and Mansatan as Asadhya rogas whereas Adhijivya, Ekarunda and Gilayu as Sadhya.

Gala is stressed mostly by Sharangadhara and Bhavprakash enumerated 18 disorders. In present research work therapeutic improvement of morbidity of Neck in terms of Greeva Stambha has observed with application of Greeva Basti and Marma therapy.

KEYWORDS: Greeva, Kantha, Gala, Manya, Avatu, Kanthagata roga, Greeva Stambha, Greeva Basti, Marma Chikitsa.

INTRODUCTION

Ayurveda, with its profound and practical insights, offers a unique perspective on human anatomy, particularly as described in classical texts. These texts detail the structural understanding of the human body through dissection and systematic observation. Applied anatomy translates anatomical knowledge into practical application for the diagnosis and management of medical conditions. It emphasizes the relationship between structure and function within the contexts of diagnostics, imaging, pathology, and clinical practice.

Ayurvedic classics highlight the importance of Greeva by mentioning its measurements (Pramana), structural components (Sandhi, Asthi, Peshi, Sira, Dhamani, Snayu, Marma), and clinical relevance. Among the vital regions described, the Greeva (neck) holds prime importance as it serves as the connecting link between Shira (head) and Sharira (trunk).

Acharya Charaka in Shadanga Sharira has mentioned Shirogreeva as one of the principal divisions, signifying its integral role in sustaining life. Acharya Sushruta has elaborated on the Greeva Marma and Avedhya Sira situated in this region, emphasizing their vital significance. Any derangement in this area can lead to severe clinical manifestations. Among the various Vatavyadhi, conditions like Greeva Stambha are specifically described. The applied anatomical understanding of the neck region in Ayurveda is not only limited to structural descriptions but also extends to its functional, pathological, and therapeutic perspectives. The study of Greeva Stambha provides valuable insights into how vitiated Vata affects the neck structures and produces clinical features resembling cervical spondylosis. Cervical Spondylosis is a type of degenerative disorder that affects neck. It is the general term for age related wear and tear.

Greeva Basti is categorized under Snigdha Drava Swedana, which forms a part of Bahya Parimarjana Chikitsa (external therapeutic measures). Although the classical Ayurvedic texts do not provide a direct description of Greeva Basti, its concept appears to have been developed in line with analogous procedures such as Shiro Basti and Netra Tarpana mentioned by the Acharyas. Contemporary research has also reported clinical studies evaluating the efficacy of this therapy.

In Ayurveda, both Dravyabhuta and Adravyabhuta Chikitsa are emphasized. Marma Chikitsa classified under the Adravyabhuta Chikitsa. Marma science is regarded as a unique treasure of Ayurveda, representing vital points through which Prana (life energy) circulates.

Disturbance of Prana is believed to result in dysfunction of bodily processes, whereas its proper stimulation helps restore balance and reduce morbidity.

Hence, present research work wants to interpret this disease as well as focus on examination of the Neck as a region through the lens of Ayurvedic applied anatomy.

MATERIAL AND METHOD

Literature review are collected from Ayurvedic textbooks like Brihatrayee and laghutrayee and previous published articles.

Review Literature

The review Literature was analysed under the terminologies such as **Greeva, Gala, Kantha, Manya, Avatu**.

Greeva

The term Greeva is also referred to as Shirodhi and Kandhara.^[1] As noted in Monier-Williams, it denotes the posterior region of the neck.^[2] Chakrapani in his commentary, explains the term Shadanga Sharira, where 'Shirogreeva' refers to the combined mention of the Shira and Greeva as described by Charaka.^[3] Sushruta states that the Greeva consists of 9 asthi 4, whereas Bhav Mishra, Charaka, and Kashyapa mention 15,4 and Vagbhata I describes 13.^[5] Sushruta also identifies the presence of 'Taruna' type of asthi in the neck region.

Sushruta, Ashtanga Sangraha, and Bhavaprakasha mention that the Greeva contains 8 no. Sandhis,^[6] among which the 'Pratara' type of Sandhi is specifically described in the Greeva region by Sushruta and Ashtanga Sangraha. 3 no. of sandhi in Kanthanadi as per Sushruta and Ashtanga Sangraha. As per Sushruta, the Greeva contains 4 no. of Kandara^[7] and 1 no. of Kurcha.^[8] Out of the total 164 sira found in the Urdhvajatru gata region, 56 are located in the Greeva.^[9] Among these, 16 are classified as avedhya sira. These include 2 Neela, 2 Manya, 2 Krikatika, 2 Vidhura, and 4 Matrika on each side.^[10] According to Sushruta, there are 10 no. of urdhvaga dhamanis that are responsible for nourishing and supporting the Greeva (neck) region.

Charak mentioned the sthana of Kapha in Greeva.^[11]

Among the marma located in the Urdhvajatrugata, **Matrika marma** is identified as one of significance. As per Sushruta and Vagbhata II, there are 4 Matrika marma, with 2 situated on

both sides of the Greeva.^[12] According to Sushruta, Vagbhata I, and Vagbhata II, there are 2 **Krikatika marma** located at the junction of the Shira and Greeva.^[12]

Anthropometric Measurement of Greeva

Charaka mentions Shirodhara measures 4 angula in Utshed and 22 angula in parinaha.^[13]

Applied Anatomy in relation to Therapeutic Aspect

Mutoli bandha is given in greeva by Sushruta.^[14]

CLINICAL CORRELATION OF GREEVA

Charak	Sushruta	Vagbhat I	Vagbhat II	Madhav	Yogratnakar
-	-	-	-	Greeva Hundanam	Greeva Hundanam
Greeva stambha	Greeva stambha	Greeva stambha	Greeva stambha	Greeva stambha	-
-	Greeva Chapyawartate	-	-	-	Greeva Chapyawartate

Greeva Hundanam is described among the clinical manifestations of Vata Vyadhi. The condition develops when vitiated Vata dosha localizes in the cervical region, resulting in a disorder attributed to Vata imbalance.^[15] Acharya Sushruta describes Greeva Chapyavartate as a manifestation of deranged Vata dosha affecting the musculoskeletal components of the neck, leading to abnormal twisting or deviation.^[16] Similarly, Yogaratnakara explains this condition as a curvature or misalignment of the neck produced by aggravated Vata, which results in painful and restricted movements.^[17]

Chakrapani in his commentary, provides two interpretations of the term Greeva Hundanam. The first explanation refers to “**Shira Prabhutinan Antah Pravesha**”, which denotes an inward bending or contraction of the head and its associated structures. The second interpretation equates Greeva Hundanam with “**Greeva Stambha**”. The term Stambha can be understood as Nischalikarana which means immobility. Thus, it suggests a restriction in the movement of the neck. Madhavakara also mentioned the term Greeva Hundanam while discussing the general symptoms of Vata Vyadhi. In his interpretation, Greeva Hundanam is understood as either an abnormal curvature or rigidity of the cervical region. Vagbhata I opines that Greeva Stambha is identified as neck stiffness caused by aggravated Vata dosha. When Vata accumulates in the cervical area, it results in pain, rigidity and limited neck motion. Vagbhata II opines that Greeva Stambha is also described under Vata Vyadhi. It is

explained as a disorder where vitiated Vata disrupts the function of sira, snayu and asthi in the neck. This leads to restricted movement and discomfort.

Kantha

Vagbhata I describe Kantha as one of the Dashapranayatana.^[18] According to Vagbhata II, Kantha is included among the Dashajivitadhamani. Chakrapani locates the lateral aspect of Kantha as the site of Shleshmabhu by quoting: “*shleshmabhuwo kanthasya parshyo awasthitow kathino bhagey*”. Shleshmabhu is mentioned as one of the pratyanga and described by Charak to be present in 2 numbers.^[19] As per Sushruta, 4 bones (asthi) are found in Kanthanadi.^[20] Sushruta in context of Prana Sthashalya, foreign bodies in Kanthasrota causes a wound which heals rapidly when there is equilibrium of doshas which otherwise causes obstruction if there is aggravation of dosha due to exercise, indigestion.^[21]

Applied Anatomy In relation to Clinical Aspect of Kanthagata

Sushruta	Vagbhat I	Vagbhat II	Madhav Nidan
Rohini	Rohini	Kantha rohini	Rohini
Kantha shaluk	Kantha shaluk	Kantha Shaluk	Kantha shaluk
Adhijivya	-	-	Adhijivya
Balaya	Balaya	Balaya	Balaya
Balasa	-	-	Balasa
Ekavrunda	-	-	-
Vrnda	Vrnda	Vrnda	Vrnda
Gilayu	Gilayu	Gilayu	Gilayu
Shataghni	Shataghni	Shataghni	Shataghni
Gala vidradhi	Gala Vidradhi	Gala Vidradhi	Gala Vidradhi
Galaudha	Galaudha	Galaudha	Galaudha
Swaraghna	-	-	Swaraghna
Vidari	-	-	Vidari
Mamsatan	-	-	Mansatan
-	Gala arbuda	Gala arbuda	-
-	Galaganda	Galaganda	-
-	Swarha	Swarha	-
-	Tundikeri	Tundikeri	-
-	-	-	Sarvasar

According to Sushruta and Madhava Nidana, a total of 17 diseases are classified under Kanthagata Roga, whereas Vagbhata I and Vagbhata II described 18 kanthagata rogas. Dalhana further opines that Kanthagata diseases are primarily 17 in number. Although Vrnda is sometimes counted separately as the 18th, it is considered a variant of Eka-Vrnda and not a separate disease due to its similar anatomical regions, its appearance but only have slight symptomatic differences.^[22] Although Acharya Charak does not specifically mention

‘Kanthagata Roga’ as a separate disease entity, he describes ‘**Kanthauplepa**’ as a sensation of kapha coating in the kantha under the context of Kaphaj Nanatmaja Roga.^[23] Acharya Vagbhat II has described ‘**Kantharodh**’ as blockage of kantha caused due to increase of vata locates in amashaya.^[24]

Gala

Dalhan identifies the presence of 3 sandhi in the kantha, explaining it as **Gala-nalakasthi**.^[25] 1 no. of sandhi is present in the kakalak, which is further explained to as **Galamani** by Dalhana.^[26] According to Ayurvedadipika, Kakala means Talumula. In symptoms of vidalika as per Charak, sotha and daha are found in this Galasandhi.^[27]

Applied Anatomy In relation to Clinical Aspect of Gala

Sharangadhar	Bhavprakash
Vataj Rohini	Rohini (vataja)
Pittaj Rohini	Pittaja
Kaphaj Rohini	Kaphaja
Tridoshaj Rohini	Tridoshaja
Medo Rohini	Raktaja
Vrnda	Vrnda
Galodh	Galodh
Galavidradhi	Kanthavidhradi
Swaraha	Swaraghna
Tundikeri	-
Shataghni	Sataghni
Shaluk	Kantha shaluk
Arbuda	-
Gilayu	Gilayu
Valaya	Valaya
Vataganda	-
Galaganda	-
Medoganda	-
-	Adhijivya
-	Vidari
-	Balas
-	Ekavrunda
-	Mamsatan

Sharangadhara Samhita and Bhavaprakasha Samhita enumerate a total of 18 disorders classified under Gala Roga.

Manya

Arunadatta, the commentator on the Aṣṭāṅga Hṛīdaya, explains manya as referring to a pair of nadis situated on either side of the neck. “*Manya Greevaya Parshavo Sira vishesha*”.^[28]

Applied Anatomy In relation to Clinical Aspect of Manya

Charak	Sushruta	Vagbhat I	Vagbhat II	Madhav Nidana	Sharanga dhar	Bhavprak ash
Manyastambha	Manyastambha	Manyastambha	Manyastambha	Manyastambha	Manyastambha	Manyastambha
	Manyahanugraha					

Acharya Charak discussed **manyastambha** as a manifestation under the condition Antarayama. Here, the vitiated Vata dosha lodges itself in 2 Manya Nadi. As a result, it exerts a pulling force on the Greeva leading to stiffness and restricted movement in the Manya.^[29]

Acharya Sushruta mentioned manyastambha and antarayama are two different diseases. He states that vitiation of Vata occurs due to causes like Divaswapna, Vikritasana Sthana etc. The aggravated Vata gets obstructed by Kapha, leading to stiffness and rigidity in the neck region.^[30] Vagbhata described manyastambha as a symptom of antarayama caused by vata dosha. When aggravated Vāta becomes localized in the Manya dhamanī of the neck, it spreads through the body, leading to stiffness and inward bending of the neck.^[31] Madhavakara has described similar nidana and dosha of Manyastambha in Vatavyadhi Nidana adhyaya.^[32]

Avatu

In the context of Anyatovāta, Dalhaṇa mentions “*Avatu Greevaya Paścimo Bhāga*”, highlighting the posterior aspect of the neck.^[33] Charaka, while enumerating the Pratyāṅgas, includes Avatu (back of the neck) along with two Śleṣmabhūvas among the fifty-six subdivisions. The Śleṣmabhūvas may be correlated with the two lobes of the thyroid gland, which are connected by the isthmus. Anatomically, the thyroid is a highly vascular musculo-glandular structure situated centrally in the neck and resembles a butterfly in shape.^[34] Dalhaṇa further locates Avatu in the Krikatikābhāga mentioned as “*Krikatikābhāga sandhow*”. Since Avatu can be correlated with the atlanto-occipital joint.^[35]

Anthropometric Measurement of Avatu

In Sharir Praman, Sushruta mentioned that the distance from Keshanta to Mastak is 11 Angula, and from Mastak to Avatu is 10 Angula. According to Dalhana's interpretation,

Keshanta refers to the area above the temples (Shankhaupari), Mastak indicates the central region of the head, and Avatu denotes the posterior part of the neck.^[36]

Applied Anatomy of Avatu

In Sarvagata Roga Vigyana, Sushruta discusses Adhimantha, a disorder that affects specific Nadis located in the Avatu, Karna, Shira and Hanu regions. When the Nadis present in Avatu, karna, Shira and Hanu region become impaired leads to Anyatovata Roga. Dalhana further stated "*Avatu Greevaya Paschimo Bhaga*".^[37]

Greeva Basti

Griva Basti is classified under Snigdha Drava Swedana, a type of Bahya Parimarjana Chikitsa (external therapeutic procedure). Although classical Ayurvedic texts do not explicitly describe Griva Basti, its concept appears to have evolved from similar therapies such as Shiro Basti and Netra Tarpana, as outlined by various Acharyas. This technique has been adapted and is commonly utilized in Keraliyan Panchakarma practices. It is considered a traditional and effective intervention for managing both acute and chronic disorders of the cervical region, particularly those involving neck pain. The word 'Basti' in the context of Griva Basti implies holding or retaining a substance in a specific area. In this procedure, warm medicated oil is held over the neck region (Griva Pradesh) for a defined duration.

Requirements- Masha powder, Dashmoola Taila (100-200ml), Water, Sauce pan, 2 steel bowl, **Procedure of Greeva Basti**

Gas Stove, Lighter, Thermometer, 50ml syringe, Towel etc.

A dough is prepared using gram flour by gradually adding water until a moderate consistency is achieved, ensuring it is neither too soft nor too firm. A ring-like structure is then formed by shaping the dough and joining its ends together. Meanwhile, water is heated in a vessel on a gas stove to prepare for the subsequent steps of the procedure.^[38]

Pradhana Karma

A dough ring is carefully placed over the cervical region. Approximately 150–200 ml Dashmoola taila is transferred into a steel container and gently heated placing it in a vessel of boiling water for a short duration. Once warmed to a safe temperature, the oil is poured within the ring, allowing it to completely cover the underlying skin, and retained for a few minutes. Initially, lukewarm oil is used to minimize the risk of burns and the temperature is

gradually increased as the patient builds tolerance to heat. This process of replacing the cooled oil with warm oil is continued for approximately 30 minutes per session, and the procedure is repeated daily for a duration of 14 consecutive days.

Paschat Karma

The oil inside the ring is withdrawn using a syringe. After removing the circular dough ring, a gentle massage is performed followed by Nadi Swedana.

Marma Chikitsa

An integral part of Ayurveda, refers to vital anatomical points that serve as channels for the circulation of **Prana—the life force**. Any disruption in the flow of Prana through these points can lead to pain, dysfunction, sensory loss, or even fatality. Therefore, damage to these crucial zones, often regarded as life sheaths, can significantly impact health and survival.

In recent years, scientific studies have explored the therapeutic potential of marma point stimulation, revealing promising clinical outcomes. This method of application appears to restore the natural flow of Prana, even in conditions involving structural or cellular impairments. Ancient Indian texts such as the Vasistha Samhita and the Shandilya Upanishad emphasize the importance of this concept.^[39]

Since Prana is believed to govern both physical and subtle processes within the human system, stimulating marma points serves as a powerful and direct technique for rebalancing and enhancing the flow of this vital energy throughout the body.

Prana

The word Prana means life energy which has vast implication in Ayurveda. Prana understood as life energy, vitality or immunity, its disturbance influence disease while enhancement or correction help to prevent diseases.

Importance of PRANA in MARMA

Marma located in collective presence of Mamsa, Sira, Snayu, Asthi and Sandhi where life energy (i.e. prana) persists naturally. Hence, maximum morbidity is seen injuring to Marma depending on different factors (like Type, Amount of injury, Localization etc.) Acharya Sushruta further quotes that Marma are the vital points where Soma, Maruta, Teja, Raja, Satva, Tama and Bhutatma are placed. Hence, Tridosha and Triguna and soul (Bhutatma) will

get affected. Emphasizing the concept of prana he further mentioned dwadasha Prana namely Agni, Soma, Vayu, Satva, Raja, Tama, Pancha Indriya and Bhutatma.^[40]

DISCUSSION

Present study aimed to Evaluate the Applied Anatomy which has been emphasized through the Structural, Clinical and Prognostic platform. Neck in Ayurveda has been studied under Kantha, Greeva, Gala, Manya. Avatu is another term which indicate posterior aspect of Neck as stressed by Dalhan. However, emphasising a specific structure it has been highlighted as a region. The external and internal contribution of the structure present here mentioned in specific terminology with their specific number. Greeva understood as a region emphasizing neck properly. Persistent location it is the below part of Shira (i.e, head) and above Jatru (i.e, Clavicle). In Classics for Neck, Kantha has mentioned where Applied Anatomy of Neck is found vividly. Kantha is the terminology included under Pranayatana. In Clinical Correlation, Sushruta and Madhav Nidan has mentioned 17 disorders while Vagbhat I and II mentioned 18 under Kanthagata roga. Here, similarities of Sushruta and Vagbhat are 12 where Vagbhat does not mentioned Balas, ekvrnda, Swaraghna, mansatana, vidari and Adhijivya. He mentioned Rohini, Kanthashaluk, Balaya, vrnda, Gilayu, Shataghni, Gala vidradhi, Galoudha, Svaraha, Gala arbuda, Galaganda and Tundikeri. Sharangadhara has mentioned Vataja rohini, Pittaja rohini, Kaphaja rohini, Tridoshaja rohini, Medoja rohini, Shaluk, Balaya, Vrnda, Gilayu, Shataghni, Gala vidradhi, Galoudha, Svaraha and Tundikeri. However, among this Galaroga, Bhavprakash does not mention Svaraha and Tundikeri. Bhavprakash mentioned Raktaj Rohini and Sharangadhar mentioned Medoja Rohini. In the classical Ayurvedic texts, Sharangadhara Samhita and Bhavaprakasha Samhita, there is no explicit reference to Kanthagata Roga under the category of Urdhwajatrugata Roga. Furthermore, it is noteworthy that while Kanthagata Roga is not distinctly outlined, these treatises may have considered similar clinical presentations under the broader heading of Gala Roga. Instead of any specific grouping, Harit has included Galashundika and Galaganda in Mukharoga chikitsa.

In Greeva Basti, Although Griva Basti is not explicitly mentioned in classical Ayurvedic texts, its concept has been derived by adapting elements from other traditional procedures that are well documented in the Samhitas i.e, Nabhi Poorana, Netra Tarpana and Shiro Basti.

Marma Chikitsa is an important aspect of Ayurvedic treatment where the application of pressure or stimulation on these Marma points induces the flow of Prana (vital energy) along a complete system of subtle channels called Nadis.

CONCLUSION

Applied Anatomy of Neck is vividly noted in 4 terminologies, that is Greeva, Gala, Kantha, Manya etc. Among them, Greeva has taken for the present work with the clinical correlation with Greeva Stambha. Whole context are distributed with Applied Anatomical in relation to clinical Aspect, Structural Aspect, therapeutic Aspect and Prognostic Aspect. In relation to Greeva, 2 terminologies are found that is Greeva Stambha and Greeva Hundanam while in relation to Kantha and Gala, 18 terminologies such as Rohini, Kanthashaluk, Adhijivya, Balaya, Balasa, Ekvrnda, Vrnda, Gilayu, Shataghni, Gala vidradhi, Galaudha, Swaraghna, Vidari and Mamsatan are found and in relation to Manya 2 terminologies i.e, Manyastambha and Manyahanugraha are found.

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