

## A CRITICAL REVIEW OF GRIDHRASI AND THE EFFECTIVENESS OF SIRAVEDHA

**Mahenoor Sheikh<sup>\*1</sup>, Dr. Keerthi Sudhakaran<sup>2</sup>, Dr. Amalendu VM<sup>3</sup>**

<sup>1</sup>Final Prof. BAMS Student, ITM Ayurvedic Medical College and Hospital Chehari  
Maharajganj Uttar Pradesh.

<sup>2</sup>Assistant Professor Department of Panchakarma, ITM Ayurvedic Medical College and  
Hospital Chehari Maharajganj Uttar Pradesh.

<sup>3</sup>Assistant Professor Department of Rasashastra and Bhaishajaya Kalpana, ITM Ayurvedic  
Medical College and Hospital Chehari Maharajganj Uttar Pradesh.

Article Received on 22 Jan. 2026,  
Article Revised on 02 Feb. 2026,  
Article Published on 04 Feb. 2026,

<https://doi.org/10.5281/zenodo.18479243>

### \*Corresponding Author

Mahenoor Sheikh

Final Prof. BAMS Student, ITM  
Ayurvedic Medical College and  
Hospital Chehari Maharajganj Uttar  
Pradesh.



**How to cite this Article:** Mahenoor Sheikh<sup>\*1</sup>, Dr. Keerthi Sudhakaran<sup>2</sup>, Dr. Amalendu VM<sup>3</sup> (2026). A Critical Review of Gridhrasi and the Effectiveness of Siravedha. World Journal of Pharmaceutical Research, 15(3), 1355-1365.

This work is licensed under Creative Commons Attribution 4.0 International license.

### ABSTRACT

The term “*Gridhrasi*” comes from the word “*Gridhra*” (vulture), indicating the peculiar gait and posture of the patient due to severe pain, stiffness and difficulty in walking. *Gridhrasi* is one of the most common *Vatavyadhi* described in Ayurveda, characterized by radiating pain from the *Sphik* (hip) to *Pada* (foot) along with stiffness, tingling sensation and difficulty in walking. *Raktamokshan* is one of the *Panchashodhana* procedures which plays an important role in eliminating vitiated *Rakta* and relieving associated *doshadushti*. *Raktamokshan* helps to reduce the local congestion, improve microcirculation, decrease inflammation and relieve nerve compression. Classics texts emphasize *Raktamokshan* as an effective therapy in *Vata-Rakta* and *Vata-Kapha* disorders, which correlates with the pathogenesis of *Gridhrasi*. Therefore, *Raktamokshan* holds significant therapeutic importance in the management of *Gridhrasi*, providing a safe, time-tested and result-oriented approach.

**KEYWORDS:** *Raktamokshan*, *Gridhrasi*, *Sciatica*.

## INTRODUCTION

*Gridhrasi* is one of the most common and painful *Vatavyadhi* described in *Ayurveda*. It closely resembles sciatica in modern medicine, where the pain radiates from the lower back or hip region down to the leg. According to *Vanaspatya*, the term “*Gridhrasi*” comes from the word “*Gridhra*” (vulture). In modern terms, *Gridhrasi* can be correlated with sciatica, which is commonly caused by compression or irritation of the sciatic nerve. Following sedentary lifestyle, prolonged sitting, poor posture, obesity and spinal disorders have made sciatica a frequent clinical condition in today scenario. It affects day-to-day activities, sleep, emotional well-being and overall quality of life. Modern management mainly includes NSAIDs, muscle relaxants, physiotherapy and in severe cases surgery being final option. However, these approaches often give only temporary or symptomatic relief and may lead to recurrence or side effects. *Ayurveda* focuses on the root cause by balancing the vitiated *Doshas* and correcting *Srotorodha* (obstruction in channels). The treatment principles include *Shamana Chikitsa* and *Shodhana Chikitsa*(*Snehana*, *Swedana*, *Basti* and *Raktamokshan*). Among the *Shodhana* therapies, *Raktamokshan* (bloodletting) plays an important role, especially in cases where *Rakta*, *Kapha* or inflammation is involved along with *Vata*. *Raktamokshan* helps in removing vitiated *Rakta*, relieving pain, reducing stiffness and improving circulation. Therefore, understanding the role and importance of *Raktamokshan* in *Gridhrasi* is essential for a more effective, long-lasting and holistic management of this disease.

## AIM

The prime aim of this article is to compile the utility of *Raktamokshan* in various disorders on scientific and clinical background.

## OBJECTIVE

To review the application of *Raktamokshan* in *Gridhrasiroga*.

## MATERIALS AND METHODS

Classical text and commentaries of *Ayurveda*.

Study materials collected from the internet.

### ***Nidana (Etiological Factors) of Gridhrasi***

#### ***AharajaNidana (Dietary Causes)***

Excessive consumption of *Ruksha* and *Sheeta* food items, *Adhyashana* (Taking meals before the previous food is digested), *Asatmyaahara*, Excessive consumption of *Katu*, *Tikta*, and *Kashayaahara*, *Vishamashana*.

#### ***Viharaja Nidana (Lifestyle Causes)***

Excessive physical exertion or over-exercise, Falling down or physical trauma, *Ratrijagran*, *Vega dharana*, Emotional disturbances such as grief, anger or fear, Excessive riding on animals like elephants, horses or camels, Swimming for long durations.

#### ***VishishtaNidana (Specific Causes)***

Improper administration or misuse of *Panchakarma* therapies, Suffering from chronic diseases for a long duration, Trauma or injury at *marmasthana* (vital points), Excessive loss of blood due to injury or hemorrhage.<sup>[1]</sup>

#### ***PoorvaRupa(Premonitory Symptoms)***

Symptoms are generally *Avyakta* (unclear) or *Ishad Vyakta* (slightly expressed). Thus, *Purvarupa* of *Vata Vyadhi* represents the early stage of pathogenesis, where the *Dosha* has started to move out of its normal site but has not yet fully manifested into a definite disease.<sup>[2]</sup>

#### ***Bheda(Types)***

*Vataja Gridhrasi*

*Vata-Kaphaja Gridhrasi*

#### ***Rupa(Sympotms)***

**Table No.1 *Rupa* of *Gridhrasi*<sup>[3]</sup>**

<b>Sl.No.</b>	<b><i>VatajGridhrasi</i></b>	<b><i>Vata-KaphajGridhrasi</i></b>
<b>1.</b>	<i>Todavat Vedana</i>	<i>Todavat Vedana</i>
<b>2.</b>	Curved Posture of leg	Curved Posture of leg
<b>3.</b>	Stiffness in waist,thigh,knee	Stiffness in waist,thigh,knee
<b>4.</b>	Tingling Sensation in waist,thigh,knee	Tingling Sensation in waist,thigh,knee
<b>5.</b>	-----	<i>Tandra</i>
<b>6.</b>	-----	<i>Mukh-shlesma</i>
<b>7.</b>	-----	<i>Bhakta Dvesha</i>
<b>8.</b>	-----	<i>Agnimandy</i>

### ***Samprapti Chakra (Pathogenesis of Gridharasi)***

Due to the intake of causative factors such as improper diet and lifestyle, there occurs vitiation of *Vata* or combined *Vata–Kapha dosha*. The aggravated *Vata dosha* localizes in the *Sphika* region and causes obstruction in the *Vata vaha srotas* (channels of *Vata*). The *Rasavaha*, *Raktavaha* and *Mamsavaha srotas* get vitiated, leading to impairment in nourishment and functioning of the affected area. Due to this pathological process, pain starts in the *Sphika* (hip region) and gradually radiates to the *Kati* (waist), *Uru* (thigh), *Janu* (knee), *Jangha* (calf) and *Pada* (foot) regions resulting in the manifestation of *Gridhrasi Roga*.<sup>[4]</sup>

### ***Samprapti Ghataka***

**Table No.2 Samprapti Ghataka.**<sup>[5]</sup>

<b>1.</b>	<i>Dosha</i>	<i>Vata, Kapha</i>
<b>2.</b>	<i>Dushya</i>	<i>Rasa, Rakta, Mamsa, Meda, Nadi sansthana</i>
<b>3.</b>	<i>Adhishtana</i>	<i>Kati, Uru, Janu, Jangha, Pada</i>
<b>4.</b>	<i>Srotas</i>	<i>Raktavaha, Mamsavaha, Medovaha, Asthivaha</i>
<b>5.</b>	<i>Srotodushti</i>	<i>Sanga, Siragranthi</i>
<b>6.</b>	<i>Agni sthiti</i>	<i>Vishamagni, Mandagni</i>
<b>7.</b>	<i>Vyadhi swabhava</i>	<i>Ashukari/Chirakari</i>
<b>8.</b>	<i>Sadhyas asadhyata</i>	<i>Krichrasadhyas</i>

### **Sciatica**

Sciatica is defined as a neuropathic pain syndrome resulting from irritation, inflammation or compression of the sciatic nerve or its nerve roots, usually originating from the lumbosacral spine (L4–S3). It is characterized by a sharp, shooting or burning pain that radiates from the lower back (lumbar region) down through the buttock, posterior aspect of the thigh, leg and sometimes to the foot. The pain follows the anatomical course of the sciatic nerve and is often unilateral, though in some cases it may affect both sides. The intensity of pain increases with movements such as bending, walking or sitting for long periods and may be associated with numbness, tingling or muscular weakness in the affected limb.<sup>[6]</sup>

### **Etiology**

Prolapsed intervertebral disc (IVDP), Tumor of the vertebral column, Spondylolisthesis (forward slipping of vertebra), Ankylosing spondylosis, Compression of the nerve by an abscess or tumor, Hip joint diseases, Lumbago (lower back pain due to muscle or ligament strain).<sup>[7]</sup>

## Pathogenesis

The pathogenesis of sciatica primarily involves mechanical compression, chemical irritation or inflammatory damage to the sciatic nerve or its spinal nerve roots. The most common cause is intervertebral disc prolapse (IVDP), where the nucleus pulposus of the disc herniates and exerts pressure on the adjacent nerve roots. Other causes like osteophyte formation in spondylosis, spondylolisthesis, tumors or inflammatory lesions can similarly compress the nerve roots within the spinal canal. This compression leads to obstruction of nerve blood flow, resulting in ischemia (decreased oxygen supply) and local inflammation. The inflammatory mediators (such as prostaglandins, cytokines, and neuropeptides) irritate the nerve fibers, causing pain impulse generation along the sensory pathway of the sciatic nerve. Continuous irritation and pressure can also cause demyelination and nerve conduction disturbances, leading to radiating pain, tingling, numbness and weakness along the distribution of the sciatic nerve — extending from the lumbar region to the thigh, calf and foot.<sup>[8]</sup>

## Symptoms

Pain starts in the lower back or buttock (often on one side), Radiates down the thigh, back of the leg and sometimes to the foot or toes, sharp, shooting or burning type of pain, pain can worsen when coughing, sneezing or sitting for long periods, tingling (“pins and needles”) or numbness along the sciatic nerve path, weakness in the affected leg or foot, Difficulty in moving or controlling the leg due to nerve compression, involvement of L4, L5 and S1 nerve roots.<sup>[9]</sup>

## Examination

### Straight Leg Raising (SLR) Test

The Straight Leg Raising (SLR) test is a fundamental clinical examination used to assess irritation or compression of the sciatic nerve roots, commonly seen in conditions like *Gridhrasi* (Sciatica). There are two types of SLR tests — Active and Passive.

**Active SLR** in this method, the patient actively raises the affected leg while keeping the knee extended. Normally, a person can lift the leg up to about 70°–80° before feeling hamstring tightness. In cases of Sciatica (*Gridhrasi*), pain is typically felt when the leg is lifted only up to 30°–40°, beyond which pain radiates along the course of the sciatic nerve — from the lower back to the thigh and leg. This pain occurs due to stretching and irritation of the inflamed sciatic nerve.

**Passive SLR** in this test, the examiner lifts the relaxed leg of the patient while keeping the knee straight. The normal range of hip flexion without pain is 80°–90°. If the patient experiences pain between 30° and 70°, it is considered a positive SLR test, indicating nerve root compression, most often due to intervertebral disc prolapse (IVDP) or other causes of sciatica.

**Lasegue's Sign** is a specific modification of the Straight Leg Raise (SLR) test used to confirm irritation of the sciatic nerve. In this test, the examiner slowly raises the patient's extended leg until the patient feels pain. Once pain appears, the leg is slightly lowered until the discomfort reduces. The examiner then dorsiflexes the foot by pulling the toes upward. If this dorsiflexion again reproduces the patient's pain, the test is considered positive and indicates sciatic nerve irritation, commonly seen in conditions like *Gridhrasi* (sciatica).<sup>[10]</sup>

**Femoral Nerve Stretch Test (FNST)** evaluates femoral nerve involvement or L2–L4 nerve root compression, often referred to as upper lumbar radiculopathy or “high sciatica.” During the test, the patient lies prone on the stomach and the examiner gently flexes the knee to about 90° before extending the hip by lifting the thigh off the examination table. If this method produces pain in the anterior thigh, sometimes radiating toward the knee, it indicates tension or irritation of the femoral nerve or associated nerve roots.<sup>[11]</sup>

### Differential Diagnosis

Table.No.3 Differential Diagnosis.

S.no.	Modern	D.D as per classics
1.	Prolapsed Intervertebral Disc	<i>Katigraha</i>
2.	Spinal Stenosis	<i>Sandhivata</i>
3.	Sacroilitis	<i>Khanja</i>
4.	Piriformis Syndrome	<i>Pangu</i>
5.	Arthritis,Avascular Necrosis	<i>Khalli</i>
6.	Diabetes,B12 Deficiency	<i>Urustambha</i>
7.	Compressing lumbosacral plexus	-----

### Investigation

#### Imaging

X-ray lumbosacral spine helps to detect bony changes, disc space narrowing and the presence of osteophytes.

MRI spine considered the gold standard for evaluating nerve root compression, disc herniation and soft tissue pathology.

CT scan provides better bony detail and serves as an alternative when MRI is not possible. Myelography a contrast study used to detect spinal canal narrowing, though it is rarely used in modern practice.

### **Nerve Function Tests**

Nerve Conduction Studies (NCS) assess the electrical conduction of the sciatic nerve to detect any nerve damage or delay in transmission.

Electromyography (EMG) helps to identify nerve root damage and assess muscle response to nerve stimulation.

### **Laboratory Tests**

Complete Blood Count (CBC) indicates the presence of infection.

ESR, CRP serve as inflammatory markers useful in identifying inflammation or infection.

Blood sugar helps rule out diabetic neuropathy as a cause of nerve pain.

Serum B12 evaluates for neuropathy due to vitamin B12 deficiency.

### **Special Tests**

CSF Examination performed when infection or demyelinating diseases of the central nervous system are suspected.

Bone Scan indicated if a tumor or metastasis is suspected as the underlying cause of pain.

### ***Chikitsa***

In the management of *Gridhrasi*, procedures such as *Siravedha* between the *Kandara* (tendon) and *Gulpha* (ankle joint), administration of *Anuvasana* and *Niruha basti* and *Daha karma* with *Lohashalaka* (heated metallic rod) are recommended.<sup>[12]</sup>

After *Vamana* (emesis) and *Virechana* (purgation), *Sneha basti* (unctuous enema) should be administered.

In the early hours of the day, *Erand taila* given internally along with cow's urine.

A therapeutic combination of oil, ghee and the juices of *Ardraka* (ginger) and *Matulunga*, along with *Cukra* and jaggery when taken regularly helps in alleviating pain in the pelvis, thighs, lower back and sacral region.

Paste of *Erand beeja* is boiled with cow's milk. Drinking this milk is a very good medical therapy in a case of *Gridhrasi*.

A decoction prepared from the roots of *Eranđa*, *Bilva*, *Brhati* and *Kantakari* is mixed with *Rucaka* salt and administered internally. This formulation helps in relieving pain in the inguinal region, suprapubic area and the lumbago-sciatic region.

Powder of *Pippali* is consumed along with a combination of cow's urine and castor oil it helps in curing chronic *Kapha-Vataja Gridhrasi*.

A decoction prepared from *Vasamula*, *Dantimula* and *Argavadha* fruit mixed with *Eranđataila* is especially beneficial in severe cases of *Gridhrasi*.

Decoctions like *Mahanimba sarakwatha* is highly effective even in chronic cases of *Gridhrasi*.

Decoction of the leaves of *Sephalika* (*Nirgundi*), when prepared on a low flame, is also capable of curing chronic cases of *Gridhrasi*.<sup>[13]</sup>

### ***Siravedha in Gridhrasi***

***Raktmokshan*** the process of removing, eliminating or letting out impure blood from the body is known as *Raktamokshan*. *Siravedha* is one of the procedure among the *Raktmokshan*. In the diseases *Gridhrasi* (sciatica) the joints of the knee should be flexed and (*Siravedha*) venesection should be performed at the appropriate site.<sup>[14]</sup> *Siravedha* helps by removing impure, stagnant blood that accumulates around the sciatic nerve pathway, especially near the *Janu Sandhi* and lumbosacral region. This process reduces local inflammation, decreases nerve compression and restores proper blood circulation. The sudden drop in local pressure relieves nerve irritation and gives relief from radiating pain and numbness. *Siravedha* pacifies aggravated *Vata* by clearing the obstructed pathways that carry nerve impulses, because of these advantages, *Siravedha* is highly regarded as an important treatment modality in the Ayurvedic management of *Gridhrasi*.

### **Procedure**

#### ***Purvakarma***

*Snehana* intake of medicated ghee or External massage using medicated oils.

*Swedana* Either *Nadi swedana*, *Patrapind swedana* or *Sankar swedana* should be administrated with the *Vatahar* drugs like; *Erand patra*, *Dashmoola*, *Nirgundi* and *Rasna*.

#### ***PradhanKarma***

After proper *Snehana* and *Swedana*, the patient should consume light and easily digestible food or *Yavagu*. The patient should be seated or made to stand comfortably during the

procedure. The physician should tie a band (*Bandhana*) above the site of venesection using a clean cloth, thread or tourniquet to make the veins prominent. Vein should be punctured either four fingers above or below the *Janu Sandhi* (knee joint) should be punctured using a Butterfly wing cannula (18G, 20G or 22G). In Ayurveda, this method corresponds to *Ardhadhara* or *Vetasapatraka Yantra* (venesection instruments). The Dushita Rakta (impure blood) should be allowed to flow out gradually.

### ***PaschatKarma***

After the desired amount of blood (approximately 1 *Prastha* = 768 ml) has been removed, the procedure is stopped. The venesection site should be cleaned properly. Apply cold and soothing measures *Sheetal Upachara* of *Chandana*, ghee or coconut oil massage on the puncture site. The patient should rest and avoid exertion, sun exposure and heavy meals for the next 24 hours. Light diet (*Peyya, Manda*) is advised after the procedure.

## **DISCUSSION**

*Ayurvedic Chikitsa* supports pain relief and correction of underlying *Vata* imbalance. *Siravedha* is preferred in the management of *Gridhrasi* because it acts directly on the root pathology, the obstruction and irritation of *Sira* and surrounding neuro muscular structures caused by aggravated *Vata*. *Gridhrasi* involves deep congestion, localized inflammation and pressure over the sciatic nerve. *Siravedha* removes vitiated and stagnated blood from deeper veins thereby reducing pressure, relieving nerve compression and improving local circulation immediately. This direct evacuation of *dushta rakta* produces a rapid reduction in radiating pain, stiffness and muscle spasm which are hallmark symptoms of *Gridhrasi*. Procedures such as *Siravedha* between *Kandara* and *Gulpha* target the course of the sciatic nerve directly and reduce venous congestion and spasms. Formulations used in *Gridhrasi* also have strong relevance. *Eranda taila*, given with cow's urine, works as a potent *Vata-Anulomana* and reduces stiffness in the thighs, legs and sacral region. Preparations of *Eranda beeja* boiled with cow's milk provide internal oleation and act as a mild purgative, helping relieve chronic constipation often associated with *Vata* disorders. Herbal combinations containing *Ardraka*, *Matulunga*, *Cukra* and jaggery enhance circulation, reduce nerve inflammation, and relieve pain in the lower back and pelvis. Decoctions prepared from *Eranda*, *Bilva*, *Brhati* and *Kantakari*, when mixed with *Rucaka lavana*, act as potent analgesics and relieve pain radiating to the inguinal and lumbosacral region. *Pippali* taken with cow's urine and castor oil is effective in chronic *Kapha-Vataja Gridhrasi* due to its deep penetration, *Kapha-*

*shoshana* and *Vata*-pacifying actions. Similarly, decoctions of *Vasamula*, *Danti mula* and *Argavadha* mixed with *Eranda taila* are especially beneficial in severe cases due to strong *Vata-Kapha* alleviation and their ability to clear obstructions. Formulations like *Mahanimba sara kwatha* show high efficacy in chronic and stubborn cases by reducing inflammation and pacifying aggravated *Vata*. *Sephalika (Nirgundi)* decoction, known for its anti-inflammatory and analgesic properties, helps relieve long-standing sciatic pain, even when prepared over mild heat. While other *chikitsas* such as *Sneha Basti*, *Virechana*, *Eranda taila* preparations and herbal decoctions help by pacifying *Vata* and reducing inflammation, they work gradually and are mainly supportive therapies. In contrast, *Raktamokshan* gives instant and significant symptomatic relief making it the most precise and effective therapy for addressing the acute, severe and radiating nature of sciatic pain. Because of its ability to target the exact pathological site and provide rapid functional improvement, *Raktamokshan* can be considered as the treatment of choice among all interventions for *Gridhrasi*. Among the different forms of *Raktamokshan*, *Siravedha* is considered most suitable because it directly removes impure blood from deeper veins, which are closely associated with irritated nerves and muscles in *Gridhrasi*. *Alabu* and *Shringa* mainly act superficially and are useful in conditions with mild stagnation or skin-level disorders, they cannot remove deeper venous congestion or strongly pacify *Vata*. *Siravedha*, however provides rapid reduction in pain, stiffness and pressure over affected structures. Therefore, *Siravedha* becomes the most peculiar and effective method of *Raktamokshan* in the management of *Gridhrasi*.

## CONCLUSION

*Raktamokshana* through *Siravedha* is an effective therapeutic measure in *Gridhrasi*, as it directly eliminates vitiated *Rakta* and pacifies aggravated *Vata*. The procedure improves local blood circulation, reduces inflammation and relieves pain and stiffness. When preceded by proper *Snehana* and *Swedana*, it enhances detoxification and ensures better results. Thus, *Siravedha Karma* serves as a simple, safe and beneficial treatment modality in *Gridhrasi*, providing both curative and preventive effects in the management of *Vatavyadhi*.

## REFERENCE

1. Acharya Vidyadhar Shukla and Prof. Ravi dutta Tripathi, Vaidya Manorama hindi commentary along with special deliberation, Charak samhita of agnivesha revised by charak and drudhbala vol.2, 28, 15-16, 2022 revised edition, Chaukhamba sanskrit Pratisthan Delhi, 110002,999.

2. Acharya Vidyadhar Shukla and Prof. Ravi dutta Tripathi, Vaidya Manorama hindi commentary along with special deliberation, Charak samhita of agnivesha revised by charak and drudhbala vol.2, 28, 19, 2022 revised edition, Chaukhamba sanskrit Pratisthan Delhi, 110002,999.
3. Dr.Bulusu Sitaram, Bhava Prakash vol.2, 24, 130-132, 2017 revised edition, Chaukhamba Orientalia 221001,770.
4. Acharya Vidyadhar Shukla and Prof. Ravi dutta Tripathi, Vaidya Manorama hindi commentary along with special deliberation, Charak samhita of agnivesha revised by charak and drudhbala vol.2, 28, 53, 2022 revised edition, Chaukhamba sanskrit Pratisthan Delhi, 110002,999.
5. Prof. Ajay Kumar Sharma and Dr. Amit Kumar Sharma, Roga Nidan and Vikriti Vigyan vol.2, 41, Reprint 2025, Chaukhamba Viswabharti Varanasi, 221001, 560.
6. Prof. Parameswarappa S. Byadgi,Text Book of Roga Nidan and Vikriti Vigyan vol.2, 42, Chaukhamba Publications,524.
7. Prof. Ajay Kumar Sharma and Dr. Amit Kumar Sharma, Roga Nidan and Vikriti Vigyan vol.2, 41, Reprint 2025, Chaukhamba Viswabharti Varanasi, 221001, 560.
8. Prof. Ajay Kumar Sharma and Dr. Amit Kumar Sharma, Roga Nidan and Vikriti Vigyan vol.2, 41, Reprint 2025, Chaukhamba Viswabharti Varanasi, 221001, 560.
9. Prof. Ajay Kumar Sharma and Dr. Amit Kumar Sharma, Roga Nidan and Vikriti Vigyan vol.2, 41, Reprint 2025, Chaukhamba Viswabharti Varanasi, 221001, 560.
10. J. Maheshwari and Vikram A. Mhaskar, Essential Orthopaedics, 29, 7<sup>th</sup> edition, Jaypee Brothers Medical Publisher New Delhi, 110002, 378.
11. Sir Stanley Davidson and Ian D Penman, Davidson's Principles and Practice of Medicine, 28, 24<sup>th</sup> edition, Elsevier, 1357.
12. Acharya Vidyadhar Shukla and Prof. Ravi dutta Tripathi, Vaidya Manorama hindi commentary along with special deliberation, Charak samhita of agnivesha revised by charak and drudhbala vol.2, 28, 101, 2022 revised edition, Chaukhamba sanskrit Pratisthan Delhi, 110002, 999.
13. Dr.Bulusu Sitaram, Bhava Prakash vol.2, 24, 133-142, 2017 revised edition, Chaukhamba Orientalia, 221001,770.
14. Kaviraja Ambikadutta Shastri, Ayurveda Tattva Sandipika, Susruta samhita of Maharsi Susruta vol.2, 08, 07, Reprint 2024, Chaukhamba Sanskrit Sansthan Varanasi, 221001, 680.