Approach and Management Strategies for Radicular Low Back Pain in Ayurveda: The Classical and Emerging Methods

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Abstract: Radicular low back pain management in Ayurveda includes oral ayurveda formulations for local applications and systemic chanakarma procedures. Several practitioners of Ayurveda are also practicing marma therapy. The lacunae in today’s knowledge are that very less clinical trial evidence can guide ayurveda practitioners in managing this complaint. Due to a lack of documented evidence and research, these therapies and techniques are not used in mainstream management protocols in large public settings. It makes these therapies inaccessible to the general public. This study aims to review the management methods for radicular low back pain or sciatica from published resources and to discuss its approach. For this review study, previous published research and articles on ayurveda and low back pain, sciatica, Ghridhrasi, Katishoola, Katigraha, and Marma therapy have been searched from standard databases (PubMed and Science Direct) and relevant books. After a thorough search, 12 papers on standard databases were reviewed for this study and incorporated to build up the concept of radicular low back pain management through ayurveda. The study concluded that Ayurveda provides a holistic approach and encompasses various pharmacological and non-pharmacological methods to manage pain and associated disability. Marma therapy can become long-term, cost-effective methods to tackle this growing problem. Thus, public settings must be equipped rigorously with ayurveda therapy units for radicular low back pain. Larger scale randomized controlled interventional trials and research needs to be done to evaluate the effect and limitations of ayurveda therapies (ancient and emerging) for radicular low back pain and develop standard management protocols.

Keywords: Low Back Pain, Sciatica, Ghridhrasi, Katishoola, Katigraha, Marma therapy

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Received On 20 January 2023
Revised On 3 January 2024
Accepted On 17 January 2024
Published On 1 March 2024

Funding This research did not receive any specific grant from any funding agencies in the public, commercial or not for profit sectors.

http://dx.doi.org/10.22376/ijlpr.2024.14.2.L1-L7

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1. INTRODUCTION

Radicular low back pain, or sciatica, is one of the most prevalent complaints in the present world. According to the definition of radicular pain, it is "pain perceived to originate in a limb or the trunk and is brought on by ectopic activation of nociceptive afferent fibers in a spinal nerve or its roots or other neuropathic mechanisms".1 This shooting and varying degree of pain is sometimes named as sciatic neuralgia.2 This pain occurs in the area supplied by the sciatic nerve. The lifetime incidence of radicular low back pain (LBP) or sciatic is 13% to 40%3 and the annual incidence ranges from 1% to 5%.4 In the Indian scenario, according to research, the frequency of LBP in the Indian population ranges from 6.2% (in the general population) to 92% (among construction workers).5 Various complex mechanisms are involved, which results to this type of pain. Still, radicular low back pain is most frequently caused by irritation of a specific nerve, which can happen anywhere along the nerve and is most frequently brought on by compressive stress.6 Previously, it was known to affect the older age group, but recent days, the younger age group people are also coming frequently in the OPD with this complaint.7 The sedentary lifestyle and lack of physical activity in today's era is causing the spinal musculature to get weak, and therefore, frequent lumbar disc herniations results, causing nerve root compressions. The symptoms vary from mild to severe radiating low back pain with or without tingling/numbness and heaviness of lower limbs. Generally, the symptoms increases on walking, standing, and bending, but sometimes the pain is so severe that none of the postural changes cause relief in pain. The pain affects the quality of life and productivity of the individuals. The cost of the current management system for this complaint is also expensive, with mostly unsatisfactory results, as the pain tends to occur now and then in most individuals. In ayurveda, various terminologies have been used in the context of low back pain, like Katishoola, Katigraha, Trikshoola, etc. However, the classical radicular low back pain or sciatica has been compared to Ghridhrași. In Ayurveda, the concept of dosha, or the tridoshas, according is basis for every disease classification. In all three doshas (vata, pitta, and kapha), Ghridhrași is predominantly involved in the vata dosha. So, it has been categorised under vatajanatmaja vyadya. It is of two types: vataj and vata-kaphaj. Since long time classical ayurveda therapies have been practiced to manage this pain. These therapies include oral ayurveda formulations, local massage (Abhyanga), and systemic panchakarma procedures. recently, marma therapy is also being practiced by several practitioners of ayurveda and showed promising results. The lacunae in today’s knowledge are that are very little clinical trial evidences that can guide ayurveda practitioners in managing this complaint. Due to lacking documented evidence and research, these therapies and techniques are not used in mainstream management protocols in large public settings. It makes these therapies inaccessible to the general public. Our aim and objective is to review the management therapies in Ayurveda for radicular low back pain or sciatica (Ghidhrași) in published research and review the existing and new emerging fields of ayurveda therapeutics relevant to this therapy.

2. MATERIALS & METHODS

Previous published research and articles on ayurveda and LBP, sciatica, gridhrași, katishoola, katigraha, and marma therapy have been searched from standard databases (PubMed and Science Direct) and books. The relevant ones are reviewed and incorporated to build up the radicular LBP management concept through ayurveda.
3. OBSERVATION AND RESULTS

Fig 1- Flowchart of research

The above figure 1 shows the overall research done in the current study. In PubMed advanced search, a total of 29 search results were checked from the year 2012 till 13th January 2023 using the keywords LBP and Ayurveda, sciatica and Ayurveda, Gridhrasi and Ayurveda, Katishoola and Ayurveda, and Katigraha and Ayurveda whose search results were 10, 12, 5, 1 and 1 respectively. Including the relevant ones and eliminating the duplicate and irrelevant ones, 8 published papers were selected to review. An additional search on Marma therapy was done, and 29 search results were obtained from 2004 till 13 January 2023. Out of these, two papers were selected for review. Likewise, two additional research papers were selected from Science Direct using the same keywords. So, a total of 12 papers were reviewed for this study.

Table 1. Showing selected paper for review of treatment of radicular low back conditions in Ayurveda

<table>
<thead>
<tr>
<th>Authors</th>
<th>Type of study</th>
<th>Conclusion</th>
</tr>
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<tbody>
<tr>
<td>Damayanthie</td>
<td>Open-label single-arm clinical trial</td>
<td>Good results of Erand muladi yapana basti in managing Katigraha</td>
</tr>
<tr>
<td>Fernando KP et al</td>
<td></td>
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<tr>
<td>Kumar S et</td>
<td>Open-label group trial</td>
<td>Better results of ayurveda massage and external therapy than standard thermal</td>
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<tr>
<td></td>
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<td>therapy in chronic low back pain patients</td>
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L3
Table 1 shows the selected papers and their prominent findings. Most of the studies found were open-label trials. The studies showed that many ayurvedic therapies and formulations effectively manage LBP. The sample size of the studies was smaller, and the randomization is needed or not mentioned, which showed the weakness of the studies. However, the studies indicated a positive view toward performing more research in that direction.

4. DISCUSSION

Ayurveda, the ancient science of life, has a deep understanding and approach to managing LBP and sciatica. Katishoola, Katigraha, Gridhrasi, Trikedna, and Trikshoola are the terms mentioned in the ayurveda texts to refer to low back pain and related conditions. Gridhrasi has been compared, especially to radiating low back pain and sciatica. The doshic involvement in Gridhrasi is predominantly vata. Along with vata, sometimes in restricted conditions, the involvement of Kapha is also present. Planning the management of radiating LBP in ayurveda indeed requires approaching it with basic classical concepts of etiopathogenesis (Samprapti).

➢ Approach towards Radicular Low Back Pain (Sciatica or Gridhrasi) - (Table 2)

| Table 2. Showing Samprapti ghataks (pathogenesis elements in Ayurveda) for Gridhrasi (Sciatica) |
|---|---|
| Doshya | Vata / vata-kapha |
| Dushya | asthi, snayus |
| Adhithana(udbhav) | Kati, pristha |
| Vyaktsthana | kati, prista, uru, jangha, paada |
| Ashaya | pakvashaya |
| Vyadi prakara | chirakari & ashukari |
| Srotas | asthivaha, mansavaha |
| Srotodusti | sanga, vimarggamana, sirogranthi |

Table 2 shows the pathogenesis elements of gridhrasi as per ayurveda. Ayurveda describes a disease in terms of its dosha, dushya, ashaya, etc. The above need to be considered for planning treatment procedure in ayurveda.\(^{21,22,23}\)

4.1. Doshya

In Gridhrasi or sciatica, the patient majorly complains of pain, which is shooting-type and sometimes intolerable; thus, the predominant dosha is the vitiated vata. Due to pain, the patient complains of difficulty in movement and restriction, which is due to vitiated kapha.

4.2. Dushya

This condition occurs primarily due to degeneration of intervertebral discs. In later degenerative conditions of the lumbar spine, osteophytes are formed in the vertebrae (bony part or Asthi) margins. Due to these degenerative conditions, the exiting nerve roots, or the snayu is compressed. Thus, the involved dushya are the asthi and snayu.
4.3. Adhisthana(udbhav)

The origin of this pathology occurs in the lumbosacral area, so the disease-producing region is the Kati and Pristha.

4.4. Vyaktasthana

The symptoms are felt mostly along the path of the emerging nerve root, from the lower back region to the feet. Thus, the symptomatic areas are Kati (lumbosacral area), Pristha (back), Uru (thigh), Jangha (leg), and Paada (feet).

4.5. Ashaya

Pakvashaya has been called the seat of Vata dosha in ayurveda. Vata gets vitiated in pakvashaya and then spreads to other parts to produce symptoms. The Lumbar region corresponds to the lower digestive tract, and this area is responsible for absorptive functions. Any functional defects can cause improper absorption of nutrients needed for maintaining the integrity of structural elements of the body resulting in a gradual weakening of the associated body parts. Here, it manifests as degeneration in spinal elements, especially in vertebrae. Sometimes, they are referred also to pain of pancreatic origin or pain associated with gall bladder pathologies to the lumbar area.

4.6. Vyadhi prakar (type of vyadhi or disease)

As these sciatica symptoms in elders are mostly insidious in origin after prominent degenerative changes have caused intervertebral disc herniations and nerve root compressions, most of them have chronic, progressive pain. In the young population, this complaint occurs after any traumatic incident causing sudden intervertebral disc protrusion or herniation after a jerk. Thus, Gridhrasi is Chirikari (chronic and insidious) and Ashukari (acute and sudden onset).

4.7. Srotas

The degenerative changes in the spine occur in the bony and cartilaginous parts of the lumbosacral area, causing disruption in normal anatomy and the herniation of intervertebral discs into the spinal canal. This spinal or vertebral canal serves as a channel for the spinal cord and nerves, which exits the canal through the intervertebral foramen. After emerging, the nerve runs between the fibromuscular structures to the lower limbs. Thus, the srotas (channels) involved in Gridhrasi are both Ashivaha and Mansavaha.

4.8. Srotodusti

The vitiated vata form pakvashaya affects the structures of the lumbosacral area by Sanga srotodusti, causing them to become weak over time (Kshaya). The affected intervertebral discs get herniated and protrude into the spinal canal, which resembles Vimarggamana srotodusti. Sometimes, certain tumors in spinal canals or nearby structures also cause sciatica symptoms by compressing the nerve. In ayurveda, sira, dharmini, and snayu are interchangeably used for each other. Thus, this tumor, or tumor-like lesions along the nerve, or Sanyu, can also be compared to Siragranthi Srotodusti.

5. MANAGEMENT

The first and foremost step in the management strategy of any disease in ayurveda is the Nidana Parivarjanam or the elimination of causative factors. Grossly, we can divide the management plan of Gridhrasi or radicular low back pain (sciatica) into Dravyabhoot (pharmacological methods) and Adravyabhoot chikitsa (non-pharmacological methods).

5.1. Dravyabhoot (Ayurveda pharmacological methods)

Ayurveda classifies the Dravyabhoot treatment methods into two types- Shodhana and Shamana. Shodhana involves eliminating the vitiated doshas by certain purificatory procedures called Panchkarma. The shodhana procedures also involve the pre-shodhana measures called swedana and snehana. Post-Shodhana, the shamana therapies are used where oral medications or regimes are planned for the rest of the duration of the therapy. In practice, the current well-known ayurveda management methods for gridhrasi, or radicular LBP, are Svedana, Snehana, Basti, Agnikarma, Siravedhana, and Shamana formulations.

5.2. Snehana (Medicated oiling)

Snehana is a purvakarma (preceding procedure) to panchakarma in ayurveda. Snehana, by its singda quality, pacifies vitiated vata. Snehana can be done internally by administration of sneha dravyas or preparations or externally in the form of abhyanga or katibasti. In charaka samhita, snehapana has been described in which ghirata or other sneha drayvas are administered orally. Other 24 types of preparations are mentioned, used internally. Abhyanga is the procedure in which medicated oils are used externally for the massage of a particular area. Likewise, Katibasti is also a modification of the external snehana process in which oils are filled and retained over the lumbosacral area for a certain duration. These oils are warmed to get additional benefits from usna (warm) quality.

5.3. Svedana (Medicated hot fomentation)

Svedana is also a Purvakashma (preceding procedure) to panchakarma, where the goal is to apply usna quality to the target area (lumbosacral area in sciatica and LBP). Usna quality pacifies vitiated vata by counteracting the sheeta quality of vata. Svedana can be done all over the body (sarawangswedana) or only on the affected part (ekangswedana). Grossly, two types of svedana are classified in ayurveda: Saagnisweda and niragnisweda. In both types, various methods were described that can be selected as therapeutic measures to check for pain. Upnah is one of them in which hot vatahara (vata pacifying drugs) are tied to the affected part in the form of a bundle wrapped in a cloth. Together, snehana and svedana give excellent results in counteracting pain of musculoskeletal origin.

5.4. Basti (Medicated Enema)

It is one of the main panchkarma procedures and is said to be the best therapy for vata disorders. In this treatment, selected vatahara (vata pacifier drugs) are used as an enema. This medicated enema works in two ways: by purifying the pakvashaya area and by absorbing vata pacifying drugs through rectal mucosa. Thus, Basti as a whole treats the main residing area of vata. For example, Erandmuladi yapana basti and Mustadi yapana basti have shown good results in studies for low back pain.

Ayurveda
5.5. Agnikarma (Therapeutic cautery)

It is a para-surgical procedure where direct or indirect cautery is done on the lumbosacral area after marking some pain points. Repeated Agnikarma procedures by usna and ashu guna have shown quick and better pain management results and improved quality of life.⁴⁸

5.6. Raktaabhokshana or Siravedhana (Therapeutic bloodletting)

It is also a para-surgical procedure where therapeutic bloodletting relieves pain. It is helpful in inflammatory conditions or where inflammation is also associated with compression of the sciatic nerve. Susruta has instructed puncturing the vein 4 angulas above and below the knee joint for gridhrasi (sciatica). Classical ayurveda Jaluka-karma (leech therapy) and other methods like cupping are also used for blood-letting in sciatic and low back pain.⁴⁹

5.7. Shamana Chikitsa (Treatment with oral formulations)

For Sham chikitsa in radicular LBP or gridhrasi, various formulations that are to be taken orally are used. They can be from ekal dravyas (single herb) to rasashaadhis (Herbo-mineral-metallic preparations). Ekal dravyas include rasna, nirgundi, vacha, ashwagandha, etc., and combination formulations include yojaga guggulu, trayodashang guggulu, rasnasaptak kwath, bhrit vata chinta mani rasa, ekangyner rasa etc. many ghritis, like indukant ghrita, panchtikta ghrita, etc., are also used.

5.8. Adravyabhoot (Non-pharmacological methods)

5.8.1. Yogasanas

Postural exercises in yoga science, like Bhujaga asana, Salabh asana, pristasana, setubandhasana, etc., improve pain by providing strength to the musculature of that area. These asanas create a back extension posture with good long-term improvement effects.⁵⁰

5.8.2. Marma Chikitsa

It is the most recent emerging method. Marmas are the points in Ayurveda that are known for their vitality. These 107 Marma points in Ayurveda are instructed to be protected in any surgical or para-surgical procedure. Marma therapy is gaining popularity, and these vital marma points are used for therapeutic purposes by controlled pressure application.⁵¹ Out of 107 marma points, 7 pair (14 points) are described on the back, in which 3 pairs (nītamba, kukundara, and katikataruna) are related to the lower back or lumbosacral region. These points carry great importance in preventive aspects, but for therapeutic aspects in sciatica, a marma point in the lower limbs called Gulpha has been used for manipulation. This point is in the bilateral ankle joint and is posterior-inferior to the medial malleolus. In this therapy, controlled pressure is applied in a pulsatile way by breathing. This point has been said to relieve pain and other radicular symptoms.

6. CONCLUSION

Radicular LBP, or sciatica (Gridhrasi), is a prominent discomfort aetiology and is becoming more widespread. Contemporary painkillers are just a temporary solution to the complaints, and patients very frequently grumble about the re-emergence of pain. Surgical options are costly and inaccessible to the large, poor population, and long-term use of painkillers like NSAIDS can cause other adverse effects. So, there is a need for the establishment of alternative medical procedure to treat this problem. Ayurveda provides a holistic approach and encompasses various pharmacological and non-pharmacological methods to manage pain and associated disability. Marma therapy can become a long-term, cost-effective method to tackle this growing problem. Thus, public settings must be equipped rigorously with Ayurveda therapy units for radicular low back pain.

7. SCOPE OF THE STUDY

Large-scale randomized controlled interventional trials, and research should be done to evaluate the effect and limitations of Ayurveda therapies (ancient and emerging) for radicular low back pain and develop standard management protocols.

8. AUTHORS CONTRIBUTION STATEMENT

Piyush Verma framed the concept and idea, Piyush Verma and Shiwangi Kanaujia wrote the manuscript, Piyush Verma and Dr. Sakshi Surve collected the data, and Ashutosh Kumar Pathak guided the preparation of the manuscript and revised the manuscript.

9. CONFLICT OF INTEREST

Conflict of interest declared none.


