



# **Pain Management by Ayurveda in Lumbar Spondylosis– A Case Study and Selective Review of Literature**

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## **Authors' contributions**

*This work was carried out in collaboration with both authors. Both authors read and approved the final manuscript*

## **Article Information**

DOI: 10.9734/JPRI/2021/v33i60A34482

## **Open Peer Review History:**

This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: <https://www.sdiarticle5.com/review-history/79052>

**Case Study**

**Received 09 October 2021**

**Accepted 18 December 2021**

**Published 19 December 2021**

## **ABSTRACT**

**Introduction:** In Ayurveda, Snehana is an important method of treatment for diseases of the spine. As per Ayurveda, fatty substances are having properties opposite to that of Vata Dosha which is the root of many diseases. Therefore, Sneha (fatty substances) have an important position in Ayurvedic treatment. Fatty substances are of 4 types of Ghrita (Ghee), Taila (oil), Vasa (muscle fat), and Majja (bone marrow fat).

Among these types, the literature is available about Ghrita (ghee), Taila (oil), and Majja (bone marrow fat) only, but Vasa (muscle fat) is not currently practiced. We got a case study, in which cod liver oil capsules were used as a representative of Vasa Sneha.

A male of 35 suffering from lumbar spondylosis approached for moderate to severe low back pain. We successfully used cod liver oil capsules as representative of Vasa Sneha in this case.

**Study Design:** A single case study and selective review of the literature.

**Place and Duration of Study:** Panchakarma OPD, Yashwant Ayurvedic medical college, PGTRC, Kodoli, 416114, Dist. – Kolhapur, Maharashtra, India.

**Presentation of Case:** This is a single case study in which a male of 35 years was suffering from chronic low back pain (CLBP) due to lumbar spondylosis. The patient had chronic low back pain which was aggravated for 3 months.

We prescribed him Ayurvedic medicines and cod liver oil capsules orally. The patient was followed for 16 months.

**Results:** The outcome measure was assessed by the Oswestry low back pain disability questionnaire. The low back pain score was measured in different positions. The before treatment value was 36 (median  $\bar{x}$  = 3.5) and the score was 72, and after treatment value was 2 (median  $\bar{x}$  = 0) and the score was 4. The Mann Whitney U test was performed. The  $p$  was 0.00009 (<0.05).

**Conclusion:** It is concluded that cod liver oil can be successfully used as a representative of vasa Sneha, and it is very effective in relieving chronic low back pain in lumbar spondylosis along with other ayurvedic preparations.

*Keywords: Vasa Sneha; cod liver oil; muscle fat; chronic low back pain.*

## 1. INTRODUCTION

Snehana (therapeutic oleation) is the administration of fatty substances into the human body through various routes like oral route, anorectal route, smearing of fats over the skin, etc. It forms an important part of Ayurvedic treatment. It is not only useful for treating diseases but also plays a significant role in maintaining health among healthy individuals.

The Sneha Drugs are divided into 4 types, Ghee, oil, Vasa (muscle fat), and Majja (bone marrow fat). Each type has specific qualities and indications for example in patients having frequent constipation or hard stools, oil is preferred among the 4 types of fatty substances. It is essential to select fatty substances in a particular condition to relieve the symptom perfectly [1].

However, at present, only ghee and oil are in practice, and Vasa (muscle fat) and Majja (bone marrow) are not in practice.

In a case study, by (late) Dr. T.M. Gogate, cod liver oil capsules were used as a representative of Vasa Sneha in a patient suffering from earache. The patient had good relief. In this anecdote, cod liver oil capsules were used as representative of Vasa Sneha Pana [2].

In the present case study also, cod liver oil capsules were used as a representative of Vasa Sneha along with other Ayurveda medication.

Analysis of the low back pain was done using the Oswestry disability index for low back pain before initiating the therapy and after the completion of the therapy. We found that there was a significant reduction in the pain and associated symptoms in absence of modern medicines. The

patient was able to resume his daily routine without any fear and pain.

## 2. SELECTIVE REVIEW OF LITERATURE

In Ayurveda, fatty substances are described in detail. The sources of fats such as plants like sesame, mustard, etc., and animals such as cow milk, buffalo milk, etc. are also described. The method of the extraction of fats is also described, for example, the preparation of ghee from milk. Since these fatty substances play a key role in the treatment of diseases as well as in maintaining health, Ayurveda gives a special position to the fats or fatty substances.

Snehana (therapeutic oleation) is the method of the application of fatty substances to the human body. The method of application may be internal or external.

Ayurvedic treatment cannot be completed without the application of fatty substances. Sneha or fatty substances are originated from plants or animals i.e., Sthavar yoni or Jangam yoni. The fatty substances are divided into 4 types of viz. ghee (Ghrita), oil (Taila), vasa (muscle fat), and Majja (bone marrow).

In the Ayurvedic texts like Charaka Samhita, Sushruta Samhita, and Ashtang Sangraha, qualities and indications of each type of fatty substance have been mentioned in detail. For better and quick results in the treatment, the suitable fatty substance among the 4 types must be applied, for example, ghee is suitable for the persons with Vata – Pitta dominance and the diseases due to Vata and Pitta. Oil is mentioned as suitable for stoutness. It is applicable in sinus and constipation (hard stool), [3,4,5].

However, in the present era, only ghee and oils are in practice and there are also some studies to establish the use of Majja (bone marrow) but there is not a single publication regarding the Vasa (muscle fat) among these 4 types of fatty

substances. Vasa (muscle fat) has been mentioned in the treatment of various pains like pain due to various injuries, bone injuries, pain in the joints, abdominal pain, etc. but, since the Vasa Sneha has been not in use in the current practices, this description has remained in the texts only [Fig. 1].

In this connection, we got a case study by (Late) Dr. T.M. Goagate, a veteran Panchakarma physician. In this case study, he used cod liver oil capsules orally in the patient having earache. In that case study, excellent relief in earache was reported by the author. As per Ayurveda, Vasa is defined as the fat obtained from Mamsa (flesh), while Majja (bone marrow fat) is the fat inside bones. Though cod liver oil is considered as oil in modern medicine since it is extracted from the fish liver (codfish -Gadidae) which can be considered as Vasa from Ayurvedic perspective. Secondly, among the properties of the oil, there is no indication of pain. Vasa is indicated in various pains like Asthi Ruja (severe pain in bones), Sandhiruja (pain in joints), Marmaruja (pain in the Marma), etc. therefore, by applying reverse logic i.e., from action the cause is investigated), cod liver oil capsules gave good relief in the chronic low back pain. Thus, cod liver oil was considered representative of Vasa Sneha.

Cod liver oil contains higher concentrations of vitamin A and vitamin D. It also contains omega-3 fatty acids. The presence of omega 3 fatty acids in cod liver oil is in the range of 11-24%. it

also contains EPA (eicosatetraenoic acid) and DHA (docosahexaenoic acids) cod liver oil also contains other unsaturated fatty acids such as omega 6 fatty acids mainly linoleic acid and arachidonic acid and omega 9 namely oleic acid which are also useful for health.

By considering the indications of Vasa Snehapana, chronic low back pain (CLBP) is the condition in which, there is continuous pain. As the low back is the seat of Vata as per Ayurveda. CLBP is considered a Vata dominant disorder. Fatty substances are the mainstay in the treatment of any Vatavyadhi. So, Cod liver oil capsules were used as Vasa Sneha in this case study. It is used as Shaman Sneha (palliative). The patient was asked to consume cod liver oil capsules when he was hungry, so that it may act as Shaman Sneha (palliative).

Cod liver oil has been used for years in modern medical science as a rich source of Vitamin-D and it plays a very good role in the treatment of rickets, beriberi. It has been used since ancient times in Europe. Hippocrates also used cod liver oil. Edward Mellanby, an English physician conducted a study in 1919 to explore the role of diet in the etiology and treatment of rickets [6]. In 1922, the therapeutic value of cod liver oil and young sunlight against rickets was confirmed [7].

Fish oil might encourage brain development and gene expression to brain maintenance during aging through nutrigenomic mechanisms [8].

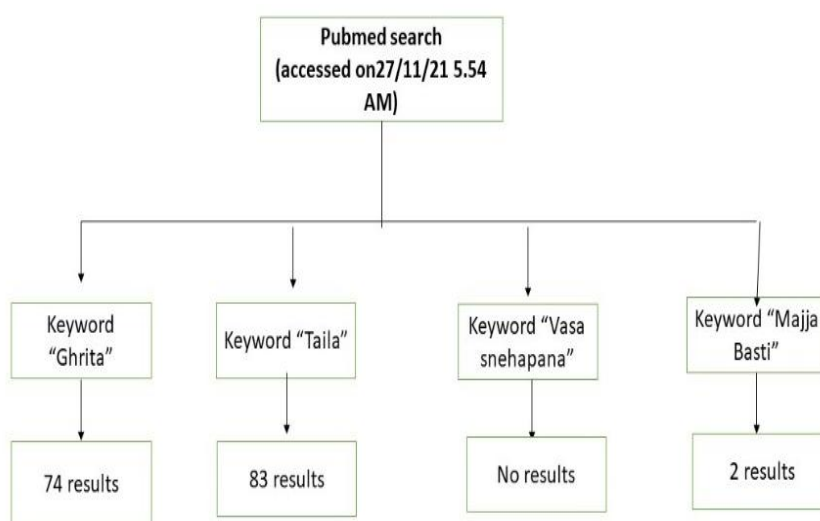


Fig. 1. Review of literature

## 2.1 Case Study

A male of 35 years visited OPD of Panchakarma with his relative complaining of chronic low back pain (CLBP). A desperate man having a poor economic background and working as a laborer in Peth Vadgeon a town near Kolhapur, Maharashtra state.

He was having episodes of moderate to severe low back pain in the last 3 months. The pain used to be so severe that, he was not able to continue the work. He returned from the work due to pain. So, he approached an orthopedic surgeon and had investigations and treatment, He was informed that he had been suffering from lumbar spondylosis. He started consuming medications as prescribed, but he did not have relief. The pain was related to overactivity. The surgeon advised him to consume the analgesics, nutrients, and calcium supplements, that he prescribed and take rest, which was not feasible for him, as the only working person in the family.

As the patient had to join his work, he looked for an alternative treatment. He arrived at our hospital as his uncle brought him. He was examined in detail at our hospital. He was non-diabetic, non-hypertensive, and was not having any other disorder. He was a thin person (body weight 52 kg, height – 5 feet, 3 inches). The nature of pain was moderate to severe and persisted for 4 – 6 hours. The pain was relieved after the ingestion of painkillers temporarily.

He was having a history of trauma, but it appeared not so severe, and it was too old. The record of the trauma was missing, the oral history appeared that it was not severe and not directly over the low back [Fig. 2].

The patient was exhibiting signs and symptoms related to Vata Dosha, so, as per Ayurvedic principles, fatty substances were applicable in this condition. Therefore, the treatment for Vata alleviation was given [Table 1].

He was also given local Snehana in the form of sesame oil massage over concerned body part followed by Swedana (fomentation) for 3-4 days. He got relief by Snehana -Swedana. Therefore, it was concluded that Niram Vata is present. So, cod liver oil was started as representative of Vasa Sneha. Since the patient was not able to visit the hospital for Snehana – swedana, he was asked to take the medicines at home.

The main reason to prescribe cod liver oil capsules in this patient was the patient was

sued for Snehana (therapeutic oleation). In the Ayurvedic texts, Vasa (muscle fat) is indicated for the patient suffering from Marma Ruja (pain in Marma-vital points). As the low back is also a marma as per Ayurveda, Vasa (muscle fat) was indicated. Secondly, Vasa Sneha (muscle fat) is indicated for those who perform heavy physical activities like lifting, walking, etc. The patient was working as a laborer at a construction site involving heavy physical work. Thirdly, Vasa (muscle fat) is also useful for those who feel intense hunger and who consume a large quantity of food. This was also seen in this patient. So, vasa (muscle fat) in the form of cod liver oil capsules were prescribed for this patient.

Once cod liver oil was prescribed, the patient had marked relief in the symptoms. After a few months, he began to visit the workplace. He also started to work next week, and he has good confidence about the treatment. He used to have low back pain sometimes, but as soon as he started cod liver oil capsules, the pain relief was there. He was asked to stop all the medicine and continue cod liver oil only. So, he was on cod liver oil for 7 – 8 months.

In September 2020, he visited the orthopedic surgeon once again but not because of pain but for another patient's consultation. He was advised to take an x-ray to check the prognosis. The x-ray was showing spondylosis at the level of L<sub>4</sub> – L<sub>5</sub> [Fig. 3]. He was taking the cod liver oil capsules continuously.

In the year 2021, he stopped cod liver oil as well and now he is free from low back pain. He has been working with full efficiency. He has been advised to take sesame oil massage regularly before bath and avoid pungent taste food articles, as pungent taste is responsible for the disease chronic low back pain, as per Ayurvedic literature.

The follow-up was taken in March 2021, at that time patient was free of chronic low back pain without any kind of medicine. He was performing all his daily activities including physical activities, related to agriculture without any trouble. We followed up with the patient for further 6 months. But there was no recurrence in the symptoms. However, it should be noted that the patient feels the low back pain occasionally, but it is very mild, and it often gets relieved by a local massage with sesame oil/Nirgudi oil and sudation with sand at home. The patient also consumes cod liver oil capsules as soon as the episode of low back

pain appears. He mentioned 2 -3 times the episodes of low back pain in these 6 months.

1. Sinhanad Guggul is a preparation useful in pain and edema in the joints. It contains Triphala, Amruta, Guggul, Gandhaka, and castor oil.
2. Ekangveer Rasa – It is indicated in paralysis, facial paralysis, and sciatica. It contains

Rasa Sindur, Abhraka Bhasma, Loha Bhasma, Tamra Bhasma, Nag Bhasma, Trifala and Trikatu.

3. Mahavatavidhvansa Rasa – it is useful for joint diseases, it contains Kajjali, Nag Bhasma, Vanga Bhasma, Loha Bhasma, Tamra Bhasma, Abhrak Bhasma, Tankan, Vatsanabha, and Trikatu.

### Timeline symptoms



Fig. 2. Timeline of symptoms

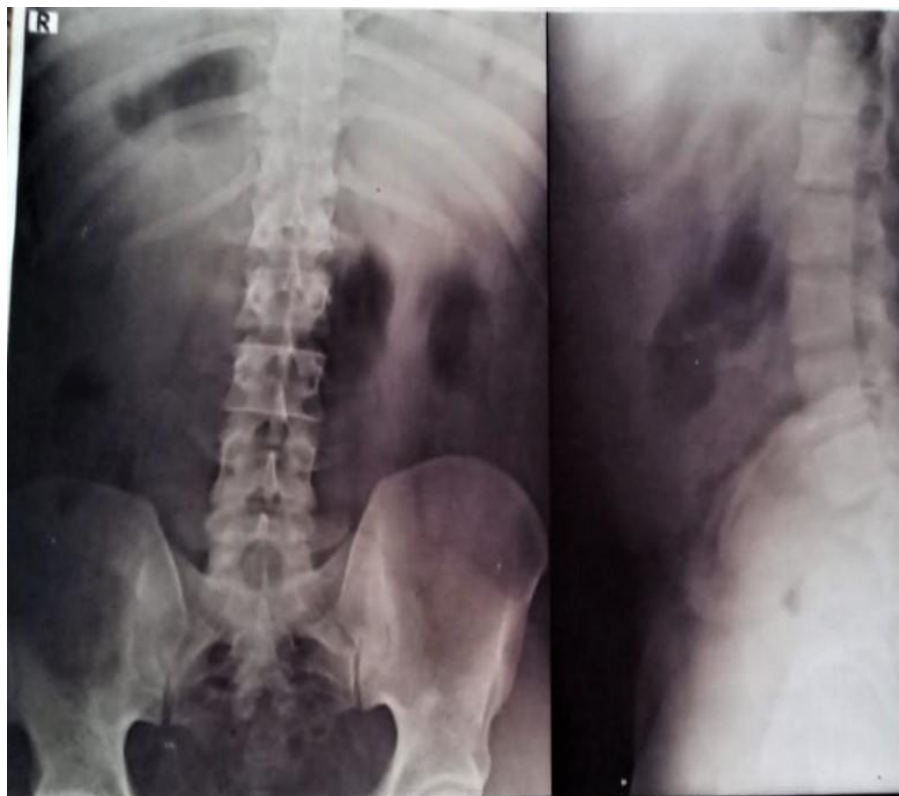


Fig. 3. X-ray LS

**Table 1. Treatment 1**

SR	Medicines	Dose	Anupana
1.	Sinhanada Guggul [9]	250 mg two times AD	Hot water
2.	Ekangveer Rasa [10]	125 mg two times AD	Honey
3.	Mahavatvidhvanas Ras [11]	125 mg two times AD	Honey
4.	sesame oil massage & hot fomentation [12]	-----	-----

**Table 2. Treatment 2**

SR	Medicines	Dose	Anupana
1.	Sinhanada Guggul	250 mg two times AD	Hot water
2.	Ekangveer Rasa	125 mg two times AD	Honey
3.	Mahavatvidhvanas Ras	125 mg two times AD	Honey
4.	Cod liver oil capsule	2 cap 2 times (415)	Hot water

### 3. RESULTS AND DISCUSSION

#### 3.1 Assessment of Chronic Low Back Pain

There are 28 different scales available for the evaluation of low back pain. Oswestry low back pain disability index was applied.

The assessment of the low back pain was done with the help of the Oswestry low back pain disability index [13].

It was done before the initiation of the therapy and the follow-up was taken 30/11/2021. The score was compared. The findings of the score have been summarized in Table 3.

For the assessment of low back pain working hours, work nature, the Roland -Morris disability questionnaire [14] was applied.

The improvement in Roland Morris's disability questionnaire score was 10 points of improvement (83%) which is statistically significant.

#### 3.2 Statistical Analysis

Since the obtained data is a scale, it is an ordinal type of data from one group. The before treatment value is 36 (median  $\bar{x}$  = 3.5) and score is 72 and after treatment value is 2 (median  $\bar{x}$  = 0) and the score is 4.

Mann-Whitney U test was performed at the level of 95% confidence interval using an online Mann-Whitney U test calculator. The Z score was

3.74185. the *p-value* was 0.00009. the result was significant at  $p < .05$ .

Thus, there is a statistically significant difference in the low back pain before and after the intervention.

#### 3.3 Probable Mode of Action of Cod Liver Oil in Chronic Low Back Pain

Cod liver oil has been used in a variety of the disorders like rickets, respiratory diseases, cardiac diseases, and lipid disorders. Cod liver oil contains omega-3 fatty acids in unsaturated form. oxidative stress and inflammation are two important causes of chronic low back pain due to lumbar spondylosis. The etiopathogenesis of chronic low back pain is partially known. Oxidative stress is an important factor in the pathogenesis of inflammatory or non-inflammatory chronic low back pains [15].

Omega-3 fatty acids probably reduce oxidative stress and thereby, give marked relief to the pain. They may act as antioxidants by regulating antioxidant signaling pathways.

We have been using conventional Ayurvedic preparations in mild pain. This case was having moderate to severe pain and when cod liver oil capsules were administered, there was marked relief in the low back pain.

Now the conventional Ayurvedic preparations are held and only cod liver oil capsules are administered, still, there is marked pain relief in chronic low back pain. Therefore, we concluded that cod liver oil capsules administration caused significant pain reduction in our case.

**Table 3. Oswestry low back pain index score**

SR		BT	AT
1.	Pain intensity	4	0
2	Personal care – washing/dressing	3	0
3	Lifting	6	1
4	Walking	3	0
5	Sitting	3	0
6	Standing	4	1
7	Sleeping	4	0
8	Sex life	2	0
9	Social life	4	0
10	Traveling	3	0
	<b>Total</b>	<b>36</b>	<b>2</b>
	<b>Score</b>	<b>72</b>	<b>4</b>

**Table 4. Other findings**

SR		BT	AT
1.	Working hours	0	8
2.	Roland-Morris Disability questionnaire	2	10

We also believe that cod liver oil capsules can be considered as Vasa Sneha in Ayurveda.

#### 4. CONCLUSION

From our study, it is concluded that cod liver oil can be successfully used as a representative to vasa Sneha, and it is very effective in relieving chronic low back pain in lumbar spondylosis along with other ayurvedic preparations. This intervention can be tried for a pilot study.

#### CONSENT

Written consent of the patient has been obtained for publication of the case report, x-ray, other findings, and investigations.

#### ETHICAL APPROVAL

As per international standards or university, standards are written ethical approval has been collected and preserved by the author(s).

#### DECLARATION

Since the patient had moderate to severe pain, he was advised to consume the pain killers as per the severity of the pain.

#### NOTE

The study highlights the efficacy of "Ayurvedic treatment" which is an ancient tradition, used in some parts of India. This ancient concept should

be carefully evaluated in the light of modern medical science and can be utilized partially if found suitable.

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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*Peer-review history:*  
The peer review history for this paper can be accessed here:  
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