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### Review Article

#### A CRITICAL REVIEW OF *KATI SHOOLA* W.S.R. TO ACUTE LUMBOSACRAL SPRAIN/STRAIN

Dr. Priyanka Yadav<sup>1</sup>

1. Ph.D (Ay.) Scholar, Department of *Kayachikitsa*, Shri Krishna Ayush University, Kurukshetra, Haryana. Assistant professor, Dept. of *Kayachikitsa*, MLR Ayurveda college, Charkhi Dadri, Haryana.

#### Address for correspondence:

Dr. Priyanka Yadav, Ph.D (Ay.) Scholar, Department of *Kayachikitsa*, Shri Krishna Ayush University, Kurukshetra, Haryana. Assistant professor, Dept. of *Kayachikitsa*, MLR Ayurveda college, Charkhi Dadri, Haryana.

E-mail- [pinkdeep55@gmail.com](mailto:pinkdeep55@gmail.com)

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#### ABSTRACT

**INTRODUCTION:** Low back pain (*kati shoola*) is one of the most common musculoskeletal problems in modern society. The majority general causes of lumbago are musculo-ligamentous sprains and strains, which take place mostly at the lumbo-sacral region resulting to a variety of injuries. As per Ayurveda Lumbo-sacral sprain/strain can be correlated to *kati shoola*. *Kati shoola* has not been described as a separate disease entity in any classics and it described as a symptom in various diseases especially in *Vata Vyadhi*.

**OBJECTIVES:** Aim of present study are to scrutinize the available literature for related conditions *kati shoola* in Ayurveda & Lumbo-sacral Sprain/strain in contemporary science. **DATA SOURCES :** Available Ayurvedic literature and contemporary science text books and journals. **REVIEW METHODS:** We review problem with the available literature for related conditions *kati shoola* in Ayurveda & Lumbo-sacral Sprain/strain in contemporary science, Regarding to anatomy, physiology, pathology and treatment modalities according to texts. **CONCLUSION:** Acute Lumbo-sacral strains are basically the tears, either incomplete or entire, of the muscle-tendon component, while lumbo-sacral sprains are the overstretching or tearing of ligaments of lower back. Patients with *Vata Pittaja prakirti* are more likely to suffer from Acute lumbo-sacral Sprain/Strain.

**KEY WORDS:** *kati shoola*, Lumbo-sacral Sprains and Strains, low back pain, spasm

## **INTRODUCTION:**

As per Ayurveda Lumbo-sacral sprain/strain can be correlated to *kati shoola*. *Kati shoola* has not been described as a separate disease entity in any classics and it described as a symptom in various diseases especially in *Vata Vyadhi*. Many related terms has been used in various ayurveda texts for the conditions having pain and discomfort around lower back as, *Katiruja*, *Katistambh*, *Katigrah*, *Katibhanjanam*, *Trikashoola* etc.

Most of the sports injuries, jobs involving pulling, lifting, or twisting with the low back, carrying an overstuffed briefcase, handbag, heavy backpack ,prolonged sitting in an awkward position, and prolonged standing can cause sprains of the ligaments or strains of the muscles surrounding the spine in Lumbo-sacral region. The sprains/strains results in overstretching & microscopic tears of varying degrees in muscles of lower back & ligaments present at the front , back, as well as in between the transverse processes of lumbar vertebrae , sacroiliac joints and Ilio-lumbar ligament. The diagnosis of lumbo-sacral sprain/strain is based on the history, the location of the pain, and exclusion of nervous involvement. Typical symptoms are pain and spasm, range from sharp and stabbing to a dull ache are presented over the posterior lumbar spinal muscles. The area may be tender to touch or there may be some swelling.

## **AIM:**

Aim of present study are to scrutinize the available literature for related conditions *kati shoola* in Ayurveda & Lumbo-sacral Sprain/strain in contemporary science.

## **KATI SHOOLA**

*Acharya Charaka* has clearly mentioned that *Shoola* in any part of the body or in any disease is always caused by ‘provoked and vitiated *vata*’<sup>[i]</sup>.Pain produced in a particular part of the body, caused by the vitiated *vata* is generally called as ‘*anga shoola*’<sup>[ii]</sup> related to that particular part. So as per this definition, the pain in the *Kati* region is considered as ‘*Kati shoola*’ and can be correlated with Acute lumbo-sacral sprain/strain.

## **Probable Aetiology of Kati Shoola:**

### ***Nidanadi Panchaka of Kati shoola***

By the study of *Nidana*, *Purvarupa*, *Rupa*, *Upashaya*, and *Samprapti* which is termed as *Nidanadi Panchaka* is supply the way to enrich the knowledge of the disease.

## ***Nidana***

The word 'Nidana' carries two meanings in Ayurvedic classics, viz - causative factors and diagnosis. The former one will be discussed here. *Acharya Charaka* defines *Nidana* as under:-

तत्र निदानं कारणं । र्छाप,

As *Acharya Sushruta* and *Acharya Madhava* have clearly mentioned that *shoola* in any part of the body is always caused by vitiated *vata*. Thus causative factors that causes *vata prakopa* at *katipradesha* will cause *Kati shoola*.

#### **Vata prakopaka nidana by Acharya Sushruta:**

तत्र बलवद्विग्रह.....विशेषैर्वायुः प्रकोपमापद्यते ।

स पीताभ्रप्रवाते ऽधुर्मान्ते च विशेषैः ।

प्रत्यूहस्यपराहे तु जीर्णोऽन्ने च प्रकुप्यति ।। र्छाप,

#### **Purvarupa**

*Purvarupa* indicates the disease which is going to occur in the future. *Acharya Charaka* has mentioned *purvarupa* as-

पूर्वरूपंप्रागुत्पत्ति लक्षणव्याधेः ।। र्छाप,

It has been cleared already that *Kati shoola* is caused by aggravated *vata* so the *purvarupa* of *kati shoola* will be same as the *purvarupa* of *vatavyadhi*.

#### **Rupa**

Being a *Vatavyadhi*, *Lakshana* or *Rupa* of *Kati shoola* will be same as that of *vata vyadhi* that is-

आत्मरूपंतु तद्व्यक्तमपायोलघुतापुनः । र्छाप,

Means when *Avyakta lakshana* of *Vatavyadhi* become *Vyakta* then they are known as *Rupa*. But according to other anatomical structure involved and progression of pathology some other symptoms are also found along with *shoola* (pain). These symptoms can be categorized as follows:

- ❖ Spine related symptoms i.e. *Stambha*, *Deha vakrata*, *Sprasha ashishnuta* etc
- ❖ Legs related features i.e. *Pada Suptata*, *Pada Harsha*, *Pada Daurbalya*, *Bala and Mansa kshaya*, *Gamane Kashtata*.

#### **Upshaya- Anupshaya**

#### **Upashaya-**

*Acharya Charaka* defined *Upashaya* as-

“उपशयः पुनर्हेतुव्याधिविपरीतानां विपरीतार्थकारिणां

चौ धाहारविहारणामुपयोगः सुखानुबन्धः ।। र्छाप,

means the appropriate use of medicine, diet and activities which are opposing to the aetiology of disease or which generate special effects opposing to them.

*Upashaya* of *Katishoola* are as follows-

- ❖ **Ahara** : *Godhuma*, *Masha*, *Puranashali*, *Patola*, *Kilata*, *Rasona*, *Taila*, *Ghrita*, *Kshira*, *Tila*, *Draksha*, *Dadima* etc.

- ❖ **Vihara** : *Nirvatasthana, Atapa sevana, Agnisantapa, Gurupravarana, Mridu Sayya, Brahmacharya etc.*
- ❖ **Aushadha**: *Abhyanga, Tarpana, Swedana, Nirvata sthana, Nasya, Ushna-pravarana, Basti etc.*

**Anupshaya-**

On the other hand *acharya vagbhata* defined *anupshaya* just opposite to *upashaya*.

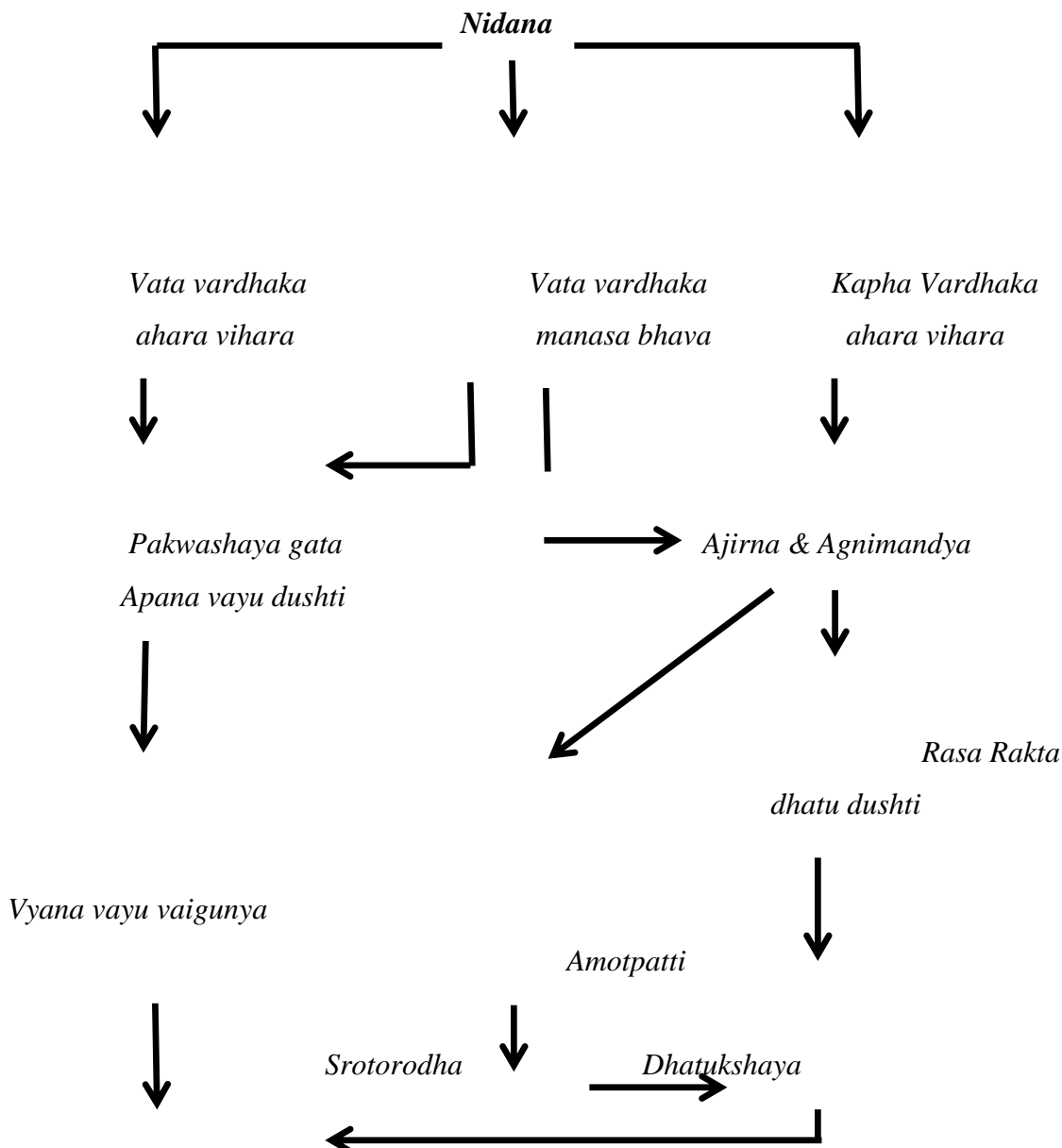
*Anupshaya* of *Katishoola* are –

- ❖ **Ahara**: *Mudga, Kalaya, Brihatshali, Yava, Rajmasha, Kodrava, Kshara*, bitter & astringent taste etc.
- ❖ **Vihara**: *Chinta, Bhaya, Shoka, Krodha, Vegavidharana, Chankramana, Ativyavaya, Ratrijagarana* etc.

**Samprapti**

*Acharya Vagbhata* has told that, the way in which the *Dosha* gets Vitiated and the course it follows for menifestation of disease is known as *samprapti*.

**Samprapti of Katishoola**



*Vata dosha vriddhi*



*Stahanasamshraya of  
Vata  
at Katipradesha*



*Rachnatmaka & Kriyatmaka vikrati  
at Kati Pradesha*



***Kati shoola***

### ***Samprapti Ghataka:***

The main *Samprapti Ghatakas* involved in the disease are described here:

- ❖ ***Dosha*** : *Apana & Vyana vayu , Sleshaka kapha*
- ❖ ***Dushya*** : *Rasa, Rakta, Mamsa, Meda, Asthi, Majja*
- ❖ ***Srotasa*** : *Rasavaha, Raktavaha, Mansavaha,  
Medavaha, Asthivaha, Majjavaha,*
- ❖ ***Srotodushti*** : *Sanga*
- ❖ ***Roga Marga*** : *Madhyama Rogmarga*
- ❖ ***Vyakti Sthana*** : *Katipradesha, Adha sharira*

### ***Chikitsa***

*Katishoola* is a disease in which Vitiated *vata* lodges in its *adha shthana* i.e. *Katipradesha*. As *Katipradesha* and *vata* have *Ashraya ahsrayee bhava sambandha* so in this disease *dosha dushya sammurchhana* is of *prakriti samsamveta* type and in such type of *dosha dushya sammurchhana doshapratyaneeka chikitsa* is done. Therefore in *Katishoola Chikitsa* of *vata dosha* i.e. *Vatavyadhi chikitsa* will be applicable.

### ***Bahiya Parimarjan Chikitsa***

- *Snehan*<sup>[viii]</sup>
- *Swedan*<sup>[ix]</sup>
- *Avgahan*

***Antah Parimarjan Chikitsa******Samshodhan***

- *Anuvasan vasti*<sup>[x]</sup>
- *Niruh vasti*<sup>[xi]</sup>

***Samshaman Chikitsa****Sneh paan (internal oleation)**Aoushadh Sevan*

*Madhura, Amla, Lavana rasa, Ushan, Snigdha, Guru guna, Madhur vipaka and Ushan virya pradhan, aoushadh sevan.*

**Anatomical Description of Lumbo-sacral Region**

Centuries and centuries succeeded in the struggle between the man and the disease. Mankind has suffered from many types of physical and mental changes which may lead to diseases. Acute Lumbosacral Sprain/Strain is a condition which results ultimately due to any physical strain or faulty altered postures of bio mechanism of spine. However there are many etiologies related low back pain (LBP).

**Vertebral column<sup>[xii]</sup>:**

Vertebral column can be compared as a pillar which bears the whole body weight. The vertebral column generally consists of thirty three vertebrae, twenty four presacral vertebrae (seven cervical, twelve thoracic and five lumbar vertebra) followed by the sacrum (five fused sacral vertebrae) and coccyx (4 often fused coccygeal vertebrae). Twenty four presacral vertebrae permit movement and hence turn into the vertebral column stretchy. Stability of vertebrae column is provided by ligaments, muscles, and bones.

**Curvatures:**

The adult Human being have four type of antero-posterior curvatures in vertebral column : cervical and lumbar, are concave posteriorly, thoracic and sacral, are concave anteriorly.

**Primary curvature:**

The thoracic and sacral curvatures, term as primary curvature, develop during the embryonic phase appropriately.

**Secondary curvature:**

The cervical and lumbar curvatures, termed secondary, appear later (although before birth) and are accentuated in infancy by support of the head and by the adoption of an upright posture.

**Paraspinal muscles<sup>[xiii]</sup>:**

The paraspinal muscles are the "action" muscles of the back. When they work, the result is the obvious movement of your spine. They course down your back and spine and help to move your spine into extension, rotation, and side bending.

The paraspinal muscles are presented on the left and right side of spine and are a combo of three muscles. These contains:

- Iliocostalis
- Longissimus
- Spinalis

### **Lumbo-sacral sprain/strain<sup>[xiv]</sup>:**

Acute lumbo-sacral sprain/strain is a condition which occurs in case of any Trauma to the back Region. The trauma usually marks due to rapid and vigorous movements of the lower back and is the major cause of the Acute lumbo-sacral sprain/strain in most cases.

### **Epidemiology <sup>[xv]</sup>**

Exact statistics regarding the international incidence of low back injuries are not well-known, though, a recent French study result over 50% of French individuals of middle aged had minimum 1 day of lumbago over the last 1 year, and 17% had lumbago for more than 1month in last 1 year.

The incidence of lumbago in India is also shocking with almost 60% of the people in India have lumbago at throughout their life.<sup>[xvi]</sup>

### **Cause and Risk factors for Acute lumbo-sacral sprain/strain:**

- Less physical exercise can be a risk factor of Acute lumbo-sacral sprain/strain.
- Any Specific occupation which have lifting heavy stuff, recurrent movements, long sittings, continuous vibrations etc.
- Over weight is the also cause of many inconvenience and it can also raise probability of Acute lumbo-sacral sprain/strain as additional weight place more tension on at lower back region .
- Bad posture bearing can also raise probability to Acute lumbo-sacral sprain/strain. so it is significant to keep fine Posture which way to having ears, shoulders and hips in a single straight line .

### **Signs and Symptoms Acute lumbo-sacral sprain/strain:**

symptoms are vary from mild to severe for Acute lumbo-sacral sprain/strain. commonly a pain that affects the back is the sign of the Acute lumbo-sacral sprain/strain. The pain typically increases during any strenuous work or move of back and relaxing helps in decreasing the pain. It can be related by a muscle contraction and limited range of motion of vertebrae. and tenderness over paravertebral area.

### **Tests to Diagnose Acute Lumbo-sacral Sprain/Strain**

- The detailed information about the Acute lumbo-sacral sprain/strain and its source of origin.
- The accurate site of the Acute lumbo-sacral sprain/strain.
- Any type radiation of pain to lower extremities.
- Any type of specific activities that may raise or reduce the pain.

**Investigations:**

No any type of lab tests are that needful in diagnose the Disease associated to Acute lumbo-sacral sprain/strain. But certain common hematological & biochemical investigations were carried out for differential diagnosis, to rule out other associated conditions and also to know the general status of patients.

**Imaging Studies**

- even though sprain and strain injuries are simply engage only the soft tissue, generally anteroposterior and lateral radiographs of the lumbar sacral spine have to be usually taken to:-
  - (1) Exclude a fracture and other chronic diseases; and
  - (2) To assess pathological joint disease and vertebral column alignment.
- Computed tomography (CT) scan or magnetic resonance image (MRI) for assess any type of disc herniation and association of the spinal nerve roots.

**TREATMENT MODALITIES:**

- **Acute Phase**

Ice for reduce pain and swelling. In the acute phase of Lumbago, complete rest for a short period (less than 48 h).

muscle relaxants or nonsteroidal anti-inflammatory drugs (NSAIDs)

- **Recovery Phase**

Physical therapy by a variety of therapies (eg, heat, ice, ultrasound, electrical stimulation massage)

**Maintenance Phase:**

Physical therapy may require to be continue for 7 -14 days, or quite a few months.

**Surgical Intervention:**

Normally not need for treatment of lumbo-sacral spine sprains or strains.

**Prognosis:**

**usually (90%) lumbosacral trauma subside within 6 weeks without any treatment. The left 10% of this type injuries may change into chronic lumbosacral pain without any proper treatment.**

**DISCUSSION:**

In Ayurveda , Acute lumbo-sacral sprain/strain can be related to one of the condition included under *Kati shoola*, *Kati ruja*, *Kati toda*, *Kati stambha*, *Kati bhanjanam*, *Kati graha* and *Kati ruk*, No detailed description of this disease is available in ancient text. However there is no doubt that the disease must have existed in the past as well, though not in the same form, incidence and severity. Change in eating habits, life style, physical and mental stress has led to increased incidence of such conditions.



In case of Acute lumbo-sacral sprain/strain, generally para-spinal muscles which perform support and strengthen for vertebral column. During any strenuous activity paravertebral muscles injured. Usually that is common to develop sprains or strains in back throughout the day by day activities.

## CONCLUSION:

Lumbo-sacral strains are basically the tearing of the muscle-tendon unit, while lumbo-sacral sprains are the overstretching or tearing of ligaments of lower back. Acute lumbo-sacral Sprain/Strain can be correlated as *kati shoola* under *vataj vayadhi*. Patients with *Vata Pittaja prakirti* are more likely to suffer from Acute lumbo-sacral Sprain/Strain.

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