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Case Study

CAUDA EQUINA COMPRESSION AN AYURVEDIC MANAGEMENT W.R.S TO *GRIDRASI* AND *PAKWASAYA GATA VATA*

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ABSTRACT

Cauda equina compression at the level of L4/L5 or L5/S1 level is a surgical emergency with potentially significant consequences, including motor and sensory dysfunction. The causes include disc herniation, spinal stenosis, cancer, trauma, epidural abscess. The common cause is usually a disc herniation which is most commonly due to trauma, age, connective tissue disorders and congenital disorders. Cauda equina syndrome a disorder caused by compression of the nerve roots in the cauda equina region. This can cause permanent loss of bladder and bowel control if not treated within time. The incidence of a herniated disc is about 5 to 20 cases per 1000 adults annually and is most common in people in their third to the fifth decade of life with a male to female ratio 2:1. If decompressive surgery is delayed, there can be catastrophic consequences for the patient in terms of bladder, bowel and sexual function. In the present case study, a 36 year old female patient who was diagnosed as a case of Cauda Equina compression due to an extruded L4-L5 disc refused to undergo surgery and opted for Ayurvedic treatment. She was admitted in the Kayachikitsa IPD for 45 days. She was treated with the principle of *Gridrasi* along with *Pakwasayagata vata*. *Deepana pachana* and *Vasti* or *Sodhana* is the main treatment choice. *Rooksha* and *Snigdha swedas* were done which also help to reduce the stiffness and pain. After the management her physical condition and quality of life improved.

INTRODUCTION

Cauda Equine Syndrome (CES) is a rare but potentially morbid condition which may cause severe permanent neurological or autonomic dysfunctions. Different pathological conditions lead to cauda equina, of which the main cause is a herniated lumbar disc at the level of L4- L5 or L5-S1[1]. The pain of herniated intervertebral disc varies in severity from a mild aching discomfort to severe knife like stab that radiates the length of the leg and is super imposed on a constant intense ache. Sciatic pain is usually perceived by the patient as originating deep in the buttock and radiating to the postero-lateral thigh; it may progress to the calf and ankle. Herniation of intervertebral disc occur most often between the fifth lumbar and first sacral vertebrae (compressing the traversing S1 or exiting L5 root) and between the 4th and 5th lumbar vertebrae (compressing the traversing L5 or exiting L4 root)[2]. In the present case study, a 36year old female patient who was clinically diagnosed as cauda equina compression due to an extruded L4-L5 disc and she denied to undergo surgical correction and preferred for Ayurvedic treatment, was admitted in to the Kayachikitsa department at Government Ayurveda medical college hospital Thiruvananthapuram. She was treated with the principle following *Gridrasi chikitsa* and *Pakwasyagata vata chikitsa* with oral medication and various types of *Shodana* & *Samana* procedure. Patient improvement noted using the Oswestry disability index after 1 month treatment.

The spinal cord terminates at L1. Below this level emerges a 'horse's tail' of rootlets (cauda equina) that supply not only the lower limbs, but also bladder,

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bowel and genitals. Anatomically, the term cauda equina comprises all the roots that emerge from the spinal cord where it terminates at around L2 [3]. CES is the pathological compression to the cauda equina fibers which affect the neurological or autonomic dysfunctions of related area. Less common causes are epidural hematoma, infections, primary and metastatic neoplasms, trauma, post-surgical, prolapse after manipulation, after chemonucleolysis, after spinal anesthesia and it has been reported in patients with ankylosing spondylitis, gunshot wounds and even resulting from constipation. The clinical diagnosis requires imaging support, usually by an MRI scan.

Cauda equina syndrome is usually characterized by the following red flag symptoms,

- Severe low back pain (LBP)
- Sciatica: often bilateral but sometimes absent, especially at L5/S1 with an inferior sequestration
- Saddle and/or genital sensory disturbance
- Bladder, bowel and sexual dysfunction.

Tandon and *Sankaran* classified CES into three types on the basis of presentation.

- Type 1 A rapid onset of CES symptoms with no history of back problems.
- Type 2 Acute bladder/CES symptoms with a history of back problems and sciatica
- Type 3 Longstanding back problems and gradually progressive CES often with spinal stenosis
- It is evident that the onset of CES may be either acute within hours or gradual over weeks or months, and within these groups CES may be complete with painless incontinence or incomplete with some sphincter function.

Types of Cauda Equina Syndrome according To Bladder Symptoms

There are two main commonly used classification of CES are: CES-R and CES-I. R is for retention, where there is established retention of urine, and CES- I is for incomplete, where there is reduced urinary sensation, loss of desire to void or a poor stream, but no established retention and overflow. Both need immediate referral for urgent surgery, but CES-R is less likely to be reversible. In CES-I, the time window from onset of cauda equina symptoms to surgical decompression should be <48 hours (some say 24 hours) to have a reasonable chance of reversal.[1]

CES cannot be directly correlated with a single disease entity mentioned in Ayurvedic classics. Considering its stages and different presentations, some clinical similarity can be observed with *Kateegraha, Gridhrasi, Khanja, Pangu* and *Pakwasayagatavata.* If we analyze the underlying pathology of the condition, then it is seen that *Vata* is the main *Dosha* in the pathology of the disease and *Kapha* remains as associated *Dosa.* Among five types of *Vata, Apana Vayu* and *Vyana Vayu* seem to be mostly involved, considering the site of pathology and clinical manifestation the *Snehaamsa* of the *Majjadathu* is depleted as it causes the herniation of the disc.

Definition of *Gridrasi*

1. According to *Susruta* the condition in which *Vata* invading *Kandaras* (ligament) of the ankles and toes produces pain in the thighs this disease is known as *Gridrasi*.[4]
2. According to *Charaka* and *Bhavaprakasha* in *Gridrasi nitamba* (gluteal region), *Kati* (hip region), *Prushta* (gluteal region), *Uru* (thigh), *Jangha* (calf), and *Pada* (soles) are affected respectively. *Sthamba* (stiffness), *Ruk* (pain), *Toda* (pricking pain), and *Muhuspandanam* (twitching pain) these are found in *Vataja* type of *Gridrasi* where as in *Vatakaphaja* type there is *Tandra* (drowsiness), *Gourava* (heaviness), *Arochaka* (anorexia) along with the *Vataja* symptoms.[5,6]
3. According to *Vagbhata, Gridrasi* is defined as the difficulty in raising the leg.[7]

Case Report

A 36 year old female patient with no known comorbidity was reasonably well 6 years back she had a trauma hitting her low back. Since then she developed pain over low back region. The pain was insidious in onset which was radiating posteriorly to the left leg and associated with heaviness burning sensation, numbness. The pain was more on the night hours, during physical exertion, coughing, sneezing. After consulting a marma clinic and she got complete relief. The complaints re occurred after three months, affecting both lower limbs associated with heaviness of buttocks and thighs. The pain was pulsating in nature and there was pin pricking sensation over the lower limb but there was no associated sensory loss. She was bedridden for the past 15 days. So she consulted an allopathic physician MRI was taken findings were suggestive of cauda equina compression. She was treated with analgesics. But the complaints persisted. On examination movements of LS spine and Hip were painful and restricted and SLR Left-20* Right- 30*& Lasseuges sign were positive on b/l lower limb. No h/o bowel bladder incontinence/saddle anesthesia/ sensory disturbances/ infections/vaccination/ Tuberculosis. Blood investigations were in normal limit.

Personal History

- Diet: mixed
- Appetite: Adequate
- Bowel: Hard stools
- Micturition: clear urine, passing 6-7 times/day; 1-2 times/night
- Sleep: Disturbed due to pain 1 -2 hour

MRI Of Lumbosacral Spine on 20/02/2022

- Lumbar muscle spasm
- L5 sacralized
- L4- L5 spondylosis
- L3-L4 disc mild diffuse bulge indenting thecal sac
- L4- L5 desiccation large postero-central nucleus pulposus extrusion severely compressing cauda equina, bilateral existing nerve roots with ligamentum flavum thickening.

Intervention

Date	Treatment	Remarks
22/2/22 (4days)	▪ *Nirgundy ras kashayam* 48 ml BD before food ▪ *Nirgundy erandam tailam* 15ml with *Kashayam* ▪ *Lepam- Nagaradi lepachoornam + Marmavattu dhanyamlam*	Tenderness reduced Bowel consistency changed
26/02/2022 (4 days)	▪ *Nirgundy ras kashaya* 48ml BD before food ▪ *Nirgundy erandam tailam* 15ml with *Kashayam* ▪ *Upanaham* with *Nagaradi lepa choornam + Dhanyamlam+ Marmavttu +KM lepam+Induppu* ▪ Warming with IR	Tenderness reduced considerably Pain at night reduced Sleep improved She can turn over the be
02/03/2022 (5 days) c/o lower abdominal pain Bacteria (+)	▪ *Brihatyadi kashayam* (*Muhurmuhu*) ▪ Alka5 syrup 1tsp tds with ½ glass of water ▪ Same treatment continued	Muscle spasm reduced Pain at night reduced Patient got proper sleep for 4 – 5 hours at night Urinary tract infection got reduced in 5 days
12/3/2022 (7 days)	▪ *Nirgundy ras kashayam* 48ml BD before food ▪ *Nirgundy erandam tailam* 15ml with *Kashayam* ▪ *Sankara swedam* for 7 days with *Kolakulathadi choornam+Dhanyamlam* ▪ *Matravasthi* with *Eranda tailam* (90ml)+*Induppu* ▪ *Upanaham* stopped	Pain at night reduced SLR 50* and 70*
19/03/22 (7days)	▪ *Nirgundi ras* 48ml morning before food ▪ *Nirgundi erandam tailam* 15ml with *Kashayam* with morning *Kashaya* ▪ *Sahacharadykashayam* 48 ml evening before food ▪ *Sahacharady sevya tailam* 10ml with evening	She sit for 5 minutes

	Kashaya ▪ JPS for 7 days *Abyangam* with *Kottamchukkadi tailam* *Talam –Nirgundi erandam+Rasnadi choornam* ▪ *Matra vasthi* with *Sahacharadi tailam* (90ml) + *Induppu*	
25/03/2022	▪ *Nirgundi ras kashayam* 48ml BD ▪ *Nirgundi erandam tailam* 15ml with *Kashayam*	Heaviness of buttock region
26/03/2022 (5 days)	• *Vaitharana vasthi* for 5 days • Medicines *Amlika* (*Tamarindus indica*)- 48gms *Guda* (jiggery)- 24 gms *Saindava* (rock salt)-12gms *Dhanyamla* – 192ml *Sahacharadi taila mezhukupaka*- 100ml	Heaviness reduced
31/03/2022 (5 days)	• *Gandhrvahasthadi kashayam* 90ml morning • *Sahacharadi kashyam* 90ml evening • *Sindhuvara erandam* 15ml with morning *Kashaya* • *Sahacharadi sevya tailam* 10ml with evening *Kashaya* • *Kayasekam* for 5 days with *Prabhanjana vimaradana tailam + Murivenna*	She walked (5 minutes), pain relieved
6/04/2022	• *Virechanam* with *Nirgundy eranam tailam* 25ml morning before food	

The oswestry disability index before treatment was 64% and after treatment it improved and the score were 48%.

Advice on discharge

1. *Sahacharadikashayam* 90ml BD
2. *Sahacharadisevyatailam* 5ml BD with *Kashayam*
3. *Dasamoolahareethakilehyam* 10gm HS
4. *Dhanwantharamtailam* –External application

Assessment of pre post symptoms and their improvement are as follows

Pre	**Post**
1. Patient was not able to get up from bed and sit on her owm	1. The patient was able to get up from bed and she can sit on her own (15 minutes)
2. Patient cannot stand up and walk	2. The patient can stand up and walk (5 minutes)
3. Patient had heaviness over the buttock and thigh region	3. The heaviness got reduced
4. SLR Left-20* Right- 30*	4. SLR Left- 50* Right- 70*
5. Oswestry Disability index Before treatment- 64%	5. Oswestry Disability index After treatment- 48%

DISCUSSION

In Ayurveda, cauda equina syndrome can be correlated as *Gridrasi*, since it is mentioned as the difficulty to raise the leg and the symptoms of which include pain and stiffness of leg starting from the waist and which radiating through the *Kati* (hip region), *Prishta* (gluteal region), *Janu* (knee) and *Janga* (thigh) associated with *Stambha* (stiffness), *Toda* (pain) and *Spandana* (tingling sensation). In cauda equina syndrome also there is severe low back pain (LBP), Sciatica: often bilateral but sometimes absent, especially at L5/S1 with an inferior sequestration, Saddle and/or genital sensory disturbance, bladder, bowel and sexual dysfunction. The condition can be correlated with *Gridrasi* mentioned in Ayurvedic classics. *Gridrasi* is divided into two; *Vata* and *Vatakapha* predominant according to the presentation. In this case, the chief complaints are low back pain radiating to bilateral lower-limb which indicates the

significant role of *Vata*. As the patient complaints of heaviness of bilateral lower limb there is an associated *Kaphadosa*, the *Dathus* involved in the *Samprapthi* are *Rasa*, *Raktha*, *Asthi* and *Majja*. On assessing the disease course the *Udbhavasthana* of the disease is in the *Katipradesha*, due to *Abhigata* the *Vata* gets vitiated and *Srotorodha* (canal stenosis) obstructs the *Chala guna* of *Vata*, despite the pain she continued her daily activities it causes further aggravation of *Vata* which results in the *Soshana* of *Majjasaramsa* and the resultant *Dathukshaya* causes impairment in the function of *Kandara* and obstruction to the normal *Vata karma* which produces *Gridrasi*. The MRI results are suggestive of cauda equina compression. According to the Ayurvedic treatises the management of *Gridrasi* comprises of first *Deepana pachana* and *Sodhana, Avarana* got removed and *Vata* got its normal *Gati. Anuloma vayu* relieves pain and it will help in the muscle relaxation. In *Sodhana*, *Vasthi* has got more importance. *Erandaswarasa* and *Erandataila* is the drug of choice which helps to alleviate the pain of sciatica which is also mentioned in our classics. The *Bahya prayogas* primarily remove *Sopha* and *Ama avasta*. The *Snehasweda* procedures help to pacify the *Kaphavatadosa* which in turn help to reduce the pain and stiffness. With *Snehasweda* the spinal canal joints become more softened and flexible which leads to the reversal of stenotic spinal canal.

CONCLUSION

CES is a rare disease that leads to varying complication including autonomic dysfunctions, sensory deficits which require a surgical correction. If not properly managed will progress to severe neurological quandaries. Surgical management is expensive and intricate. In Ayurveda the symptoms are correlated with *Gridrasi* and the treatment helps to relieve the condition and improve the Quality of Life (QOL) of patients. This case study elaborates the role of *Sodhana* and *Samanachikitsa* in the management of Cauda Equina Compression.

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