

An Ayurvedic Management of Tumefactive demyelination of Spinal cord w.s.r to Pangu - A Case Report

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ABSTRACT

BACKGROUND: Pangu is a disease caused by vitiated Vata. It is described among 80 Vata rogas. The normal role of Vata is to regulate motor and sensory systems, and its imbalance leads to a decline in these functions. Pangu originates in the Kati region, possibly involving Katyasritavata i.e Apana Vayu along with Vyana Vayu. Paraplegia involves the paralysis of the lower extremities. Although weakness in the lower limbs may arise from peripheral nerve or muscle diseases, the terms paraparesis and paraplegia are typically used to describe manifestations resulting from lesions in the dorsal and lumbosacral region of the spinal cord.

OBJECTIVE: To evaluate the impact of Ayurveda treatment, comprising of external Panchakarma therapies and internal medications in management of Pangu (Paraplegia)

METHODOLOGY: Here is case report of patient, 26 years old female presented with complaints of loss of balance while walking and with reduced muscle power and sensation over her both lower limbs, who was diagnosed with Tumefactive demyelinating lesions of spinal cord. She underwent D11 D12 Laminectomy & Subtotal excision of SOL (Space occupying lesions) under GA. Post-surgically weakness of both lower limbs got aggravated, she was unable to walk without support. She was admitted and treated in lines of Pangu.

RESULTS: Significant improvement was observed in complaints of weakness of both lower limbs. Initially Muscle power was 3/5 in right lower limbs, 4/5 in left lower limb. At the time of discharge power was 5/5 and could able to walk without support.

CONCLUSION: This case highlights the potential of Ayurveda Panchakarma therapies and internal medications, as effective interventions in managing Pangu w.s.r to Tumefactive demyelination of Spinal cord.

INTRODUCTION

Tumefactive means swelling or tumor like. Tumefactive demyelinating lesions are solitary large demyelinating lesions (greater than 2 cm) present with significant mass effect and surrounding edema, that occurs in the central nervous system including spinal cord.⁽¹⁾ They are most commonly associated with multiple sclerosis (MS). However, Tumefactive demyelinating lesions are also seen in other conditions, including neuromyelitis optica spectrum disorder (NMOSD), Baló concentric sclerosis (BCS), myelinoclastic diffuse sclerosis (Schilder disease), acute disseminated encephalomyelitis (ADEM), acute hemorrhagic leukoencephalitis, and autoimmune-mediated encephalitis. Furthermore, its pathophysiology remains poorly understood, Tumefactive demyelinating lesions have been described by several names in the literature, including pseudotumoral demyelinating lesions, tumefactive or tumorlike MS, and tumor like demyelinating lesions,⁽²⁾ these terms have often been used interchangeably, which may reflect both the diagnostic challenge of tumefactive demyelination and its relationship to associated conditions. Radiologic and histopathological signs (axonal sparing, foamy macrophages, reactive astrocytes, and perivascular lymphocytes), Biopsy that can be helpful in diagnosis.⁽³⁾ Clinical presentations vary by the size and location of the lesion and the degree of mass effect, A tumefactive demyelinating lesion (TDL) in the spine can cause paraparesis, or partial paralysis of the lower extremities along with sensory disturbance.⁽⁴⁾ The surgical excision of space occupying lesions without harming the spinal cord is the choice of intervention for big or aggressive recurrent lesions. After surgery patient may continue to have low back pain or loss of strength in both lower limbs. Even patients may develop these features as postsurgical complications. In this case, paraplegia was present before surgery but post-surgically the symptoms got aggravated, which in Ayurveda can be contemplated to Pangu. Pangu have been enumerated among the eighty main disorders of Vata.⁽⁵⁾ It originates at Kati due to the vitiated Vata, probably the Katyasritavata-that is, Apana Vata.⁽⁶⁾ The manifestations like disturbance in urination and motion, loss of function and sensation of lower limbs, could be attributed to both Vyana Vayu and Apana Vaigunya. If vitiated Vata affects the kandara, snayu of lower limb leading to paralysis, it is termed as khanja(monoplegia), whereas the same in both lower limbs are called as Pangu(paraplegia).⁽⁷⁾

CASE DESCRIPTION: A 26 year old female patient approached JSS Ayurveda hospital on 27/09/23 with the complaints of loss of balance while walking with reduced muscle power and sensation over her both lower limbs and was diagnosed as Tumefactive demyelinating lesions of spinal cord. She underwent D11 D12 Laminectomy & Subtotal excision of SOL (Space occupying lesions) under GA.

History A female patient aged 26 years was said to be apparently healthy before 4 months. Later she developed numbness in the anal region, calf muscles of both lower limbs and was not able to evacuate bowels completely. For which she took laxative with no much relief. Then she consulted neurophysician and was advised to get MRI of spine. As per the MRI reports the impression was Enlarged Cauda Equina and Terminal Spinal Cord with heterogeneously enhancing altered signal intensity mass lesion within it from the lower border Of T11 Vertebra to upper border of L1 Vertebra as described? Neoplastic? Spinal Pnet(Primitive Neuro-Ectodermal Tumor)? Astrocytoma. On August 13th she underwent D11 D12 Laminectomy & Subtotal excision of SOL (Space occupying lesions) under GA. The excision biopsy is suggestive of Tumefactive demyelinating lesion. Post operative care was provided for 7 days and was discharged when her condition was stable. She approached JSS Ayurveda hospital later for further management of weakness and sensory loss of lower limbs.

Past History

N/K/C/O Hypertension, Diabetes mellitus, IHD, Thyroid disorders.

Personal History

Bowel: once in 2 days (Constipated)

Micturition: 3-4/1-2 times D/N

Sleep: Sound

Diet: Mixed diet

General Examination

BP - 110/70mm Hg

PR - 78 bpm

RR - 18times/min

Height - 168 cm

Weight - 58 kg

Ashta Sthana Pariksha

Nadi - 78bpm

Mala - once in 2 days (Constipated)

Mutra - 3-4/1-2 times D/N

Jihva - Alipta

Shabda - Prakruta

Sparsha - Prakruta

Drik - Prakruta

Akriti - Madhyama

CNS Examination

Higher Mental Function

Consciousness - Intact.

Orientation - Well oriented to time, place and person

Behaviour - Cooperative

Attentiveness - Very attentive

Memory - Immediate - Intact, Recent - Intact, Remote - Intact

Cranial Nerve Examination

Cranial nerve examination - Intact

Sensory System Examination - Both lower limbs

Light Touch: Reduced

Vibration sense: Reduced

Temperature sense: Reduced

Superficial Pain: Reduced

Joint Position Sense: Reduced

Two point discrimination- Absent

Motor System Examination

1. Tropical changes - No Pressure sores.

2. Atrophy / hypertrophy - Absent

3. Fasciculation and irritability - Absent.

4. Contraction and Contracture - Absent.
 5. Involuntary movements - Absent.
 6. Muscle power: (BT)

	Right Limb	Left Limb
Upper Limb	5/5	5/5
Lower Limb	3/5	4/5

7. Muscle tone (BT)

Right lower limb	Spastic
Left lower limb	Normotonic

8. Reflexes

	Right lower limb	Left lower limb
Knee Jerk	+3	+2
Ankle Jerk	+2	+1
BABINSKI'S SIGN	Positive	Positive

9. Co-ordination test

Finger nose test: Possible.

- Knee heal test - Not possible in right leg
- Gait – Imbalance.

10. Clonus - Absent

Treatment

SN	Duration	Treatment	Medicine
1	1 st -5 th day	Sarvanga Dhanyamla Seka	Dhanyamla(Ruksha
2	1 st -2 nd day	Anulomana	Tab Anuloma DS 2at night before food
3	6 th -10 th day	Sarvanaga kashya seka	Dashamoola Kashaya with application of Ksheera bala taila
4	3 rd -10 th day	Anuvasana Basti	Ashwangandha gritha 60ml

Oral Medicines

SN	Medicines	Dose	Duration
1	Tab BVC with gold	(1-0-1)1 tablet morning and night after food with luke warm water	30 days
2	Vidaryadi Kashaya + Dhanwantara Kashaya	20ml-0-20ml morning and night after food with luke warm water	30 days
3	Tab Rasa Raja Rasa	(1-0-1)1 tablet morning and night after food with luke warm water	30 days

After 1month Rasaraja rasa and BVC were stopped and advised to continue the Kashaya for next 2 months.

ASIA SCALE (American Spinal Injury Association (ASIA) Impairment Scale)

Table 1: Sensory Assessment of both right and left lower limb

Gradation		
A	Complete	Both Motor and Sensory
B	Incomplete	No motor sensory only
C	Incomplete	50% of muscles LESS than grade 3 (Cant raise arms or leg off bed)
D	Incomplete	50% of muscles greater than grade 3 (Can raise arms or leg off bed)
E	Normal	Motor and sensory function are normal

Both Right and left Upper extremities has normal Sensory score (i.e had 224/224). The effected was both lower extremities.

Table 2: Motor Assessment of both right and left lower limb

ASIA Assessment of LOWER EXTREMITY	BT		AT	
	R (max.56)	L (max.56)	R (max.56)	L (max.56)
LIGHT TOUCH(LT)	32	40	40	50
TOTAL LT UE (max.112)	72		80	
PIN PRICK (PP)	36	48	48	52
Total PPUE (max.112)	84		100	
SENSORY SCORE of UE (max.224)	156/224		180/224	
PERCENTAGE	69.6%		80.3%	

Both Right and left Upper extremities has normal Motor score (i.e had 50/50). The effected was both lower extremities.

ASIA Assessment of LOWER EXTREMITY	BT		AT	
	R (max.25)	L (max.25)	R (max.25)	L (max.25)
LOWER EXTREMITY	15	20	25	25
TOTAL LOWER EXTREMITY MOTOR SCORE (LEMS) (max.50)	35/50		50/50	
PERCENTAGE	70%		100%	

Based on score the grades attained were: Before treatment it was Grade C improved to Grade E.

RESULTS

Subjective improvements

1. Patient's muscle power of both right and left lower limb got improved.
2. Initially there was imbalance while walking and after treatment patient regained balance while walking and was able to walk without support.
3. Bowel control got improved and patient able to pass motion daily without any difficulties.

DISCUSSION

Pangu is a disease of vata nanatmaja vyadhi.⁵ It is a Snayugata vata vyadhi where "Sakthno dwayo vadhaath" refers to loss of power of both lower limbs.⁶ If both lower limbs are affected it is known as Pangu and if one limb is affected it is known as Khanja.⁽⁷⁾

Initially Sama Vata chikitsa was adopted with Dhanyamla seka, which is a type of Ruksha Drava Sweda, Tab. Anuloma DS was administered during that period which ensures Koshta Shodhana as well as Vata anulomana so as to control Vata which may aggravate by Ruksha therapy

After Ama nirharana, Vata shamana line of management was adopted by Dashamoola Kashaya Pariseka with application of Ksheera bala taila, Dashamoola Kashaya seka being Snigdha Saagni Drava Sveda helps in removing Sanga and does Stambhahara. It has beneficial impact on rasa, mamsa and asthi dhatu. Overall, it has neuroprotective, anti-inflammatory, analgesic, antispasmodic. Ksheerabala Taila contains Bala, Ksheera, Tila Taila and has Snehana Vatapittashamaka & Balya effects.

Later Brimhana chikitsa was done with administration of Matrabasti with Ashwagandha Ghrita which is Balya, Brimhana and Rasayana. Ashwagandha helps in reducing the inflammation in the nerve. After this treatment patient could able to walk with minimal support. ⁽⁸⁾

Rasaraja Rasa mainly contains Shuddha Parada, Abhraka Satva, Swarna Bhasma, Loha Bhasma, Rajata Bhasma and Vanga Bhasma and is indicated in Sarva Vatavyadhi and it is Balya. ⁽⁹⁾

Brihatvata Chintamani Rasa contains Swarna, Rajata, Abhraka, Loha, Bhasma, Praval Bhasma etc., helps in balancing Vata and Kapha Dosha, having the properties of medhya, Rasayana, balya, kshayagna, ojovardhaka & yogavahi which has targeted effect for the management of Vataroga. The formulation also helps in protein scavenging, anti-inflammatory and arrests neurodegenerative activity with the added benefit of crossing the blood brain barrier. ⁽¹⁰⁾

Dhanwantharam kashayam contains Bala, Yava, Dashamoola, Meda, Mahameda, Kakoli, ksheerakakoli etc..., which helps in Sarva vata rogas, Suptata, Shoola, Shotha, it can be used in Neurological disorder, Degenerative disease, Demyelinating disease and to regain the strength and mobility. ⁽¹¹⁾

Vidaryadi Kashayam is beneficial in several conditions where *Vata and Pitta dosha* is predominantly deranged. It contains nourishing herbs like *Vidari, Jeevanthi*, Devadaru Shatavari etc., it is hridya and brahmana. It is indicated in Shosha, Gulma Anga marda and to help relieve muscle weakness. ⁽¹²⁾

This unique Ayurvedic treatment protocol made patient happy as she was able to stand, walk and resume regular activities of daily living without support within the period of 90 days.

CONCLUSION:

This case study demonstrates the successful management of a case of Post operative Paraparesis due to Tumefactive demyelination of Spinal cord / Pangu using Ayurvedic protocol of treatment.

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