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AYURVEDIC MANAGEMENT OF BECKER'S MUSCULAR DYSTROPHY (BMD) – SINGLE CASE STUDY

***[1]Rakshitha Kumari, [2]Niranjan Rao and [3]Padmakiran C.**

[1]M. D. Scholar, [2]Professor and HOD, [3]Associate Professor
Department of PG Studies in Panchakarma, Shree Dharmasthala Manjunatheshwara College of Ayurveda Udupi, Kuthpady-574118, Karnataka, India.

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***Corresponding Author**
Rakshitha Kumari
M.D. Scholar, Department of PG Studies in Panchakarma, Shree Dharmasthala Manjunatheshwara College of Ayurveda Udupi, Kuthpady-574118, Karnataka, India.

ABSTRACT

The muscular dystrophies are group of hereditary disorders characterized by progressive degeneration of selective group of muscles without involvement of nervous system. BMD is one among the most common muscular disorders seen in age group between 5 and 25 years. The pelvic and pectoral muscles are predominantly affected. BMD is an X-linked recessive inherited disorder characterized by slowly progressing muscle weakness of the legs and pelvis. Vata is responsible for control of all the central nervous functions in the body. It is also responsible for all the movements in the body. Disease caused by vata in its vitiated condition is called vatavyadhi. In charaka samhita it mentioned that causes of vitiation of vata can be divided in two samprapti i.e, Dhatukshayajanya and Margavarodhajanya. After deciding avastha of vatavyadhi we can decide the treatment. There is not a cure for BMD, steroid medications helps individuals remain able to walk for as long as possible. Generally leads to slowly worsening disability, but the amount of disability can vary among affected people. The lifespan is often shorted due to heart disease and respiratory complications. Most people with BMD survive well into mid –to late adulthood. If the effects of the condition on the heart mild or if they are adequately controlled with medical intervension, a person can have a normal or nearly normal life span. With this basic concept, a male patient of 16years diagnosed as BMD was treated with Ayurvedic management 7 sittings in IPD level and 5 OPD level sittings. The treatment showed significant reduction in the level of CPK in every follow up and even improvement seen in the symptoms Hence it can be effectively practiced in the management of BMD.

KEYWORDS: Backer's muscular dystrophy, Creatine phosphokinase, Vata vyadhi, Dhatukshayajanya, Margavarodhajanya.

INTRODUCTION

BMD is a rare disease almost exclusively in males due to X-linked inheritance. The Worldwide prevelance of BMD ranges from 0.1 to1.8 per 10000 male individuals. BMD is three times less common than DMD.[1]

This is caused by mutations in the dystrophin gene, which endodes the protein dystrophin. This condition is less common and less severe than DMD. The onset of symptoms is late compare to DMD. Raised Serum creatine phosphokinase (CPK) level indicates muscle degeneration.[2] It is the most specific objective parameter for the diagnosis and assesement of severity of Muscular dystrophy.

In ayurveda consider this condition as adibala pravrit (disease that occurs by defects in shukra and shonita) with mamsagata vata[3] (vata dosha vitiation in mamsa dhatu due to srotorodha). There is depletion of dhatwagni(metabolism) paving the way of ama formation followed by vitiation of kapha dosha. while srotorodha produces hypertrophy in perticular region, vata is manifested first as prakopa and then depletion of its qualities.the complex pathogenesis may be responsible for progressive wasting and necrosis of the affected muscle fibres.

CASE REPORT

A male patient of aged about 16 years presented with complaints of weakness in both lower limbs, difficulty while walking, climbing stairs and running, unable to getting up from sitting position, difficulty in lifting heavy weight associated with decreased muscle bulk around pelvic and thigh region and increased muscle bulk in calf muscles since 5 years.

Detailed history

Patient was apparently healthy before 5 years. Patient had normal growth and development till 10 years of age. Milestones achieved at normal time. He noticed the feeling of tiredness after walking for a few of 50 mtr distance, later he noticed feeling of tiredness even without doing any work. In a span of 5 months his parents noticed that he was taking more time than usual to reach home from school. They also noted that there was a slight change in curvature of his spine, i.e, a mild backward bending. There were no episodes of fall or impairment of memory after 2 months, he found it difficult to get up from sitting position i.e, he was using

arms to climb up the legsin attempting to get up from the floor. Along with that they noticed there was change in the GAIT i.e, he was walking on the toes on right side and on left he was placing the foot completely on the ground with less balance. associated with decreased muscle bulk around pelvic and thigh region and increased muscle bulk in calf muscles. They consulted physician at KMC hospital for these complaints and diagnosed with MD on 2012. He was prescribed with medication along with physiotherapy for about 5 years. But improvement not seen as much. They were advised to go for ayurveda tratment. So approached to our hospital for further management on 2018. Patient used to get occsional episodes of cold and fever on seasonal change before the onset of chief complaints. Negative history of breathlessness or difficulty in swallowing.

PAST HISTORY

-Patient used to get occasional episodes of cold and fever on seasonal changes before the onset of chief complaints.

-Patient had normal growth and development till 10 years of age.

-Milestones achieved at normal time.

FAMILY HISTORY

Grand father and mother-Consagenous marriage.

Mother and father- Consagenous marriage- 1 Child delivered FTND.

TREATMENT HISTORY

-Vaccination were given periodically in time.

-Medications prescribed for the complaints details are not available.

- He was advised to take nutritious food and regular exercise.

Examination finding and Investigations during first visit are given in Table 1 and 2.

Table 1: General Examination.

Nadi	*84/min*
Mutra	*Samyak,5-6 vega/day*
Mala	*Katina, once in two days*
Jihva	*Upalepatwam*
Shabdha	*Prakruta*
Sparsha *Druk*	*Ruksha* *prakruta*
Aakruti	*Prakruta*
Prakriti	*vata-kapha*

Sara, satva, saatmya, samhanana, pramana	*Avara*
Aharashakti,vyayamashakti	*Alpa*
Vaya	*Baala*

General examination		
Built	Moderate	Pulse -72 BPM
Nourishment	Under	B.P -120/80mm of hg
Pallor	Abesent	Temp -98.6
Icterus	Absent	Rs -18 times/min
Cyanosis	Absent	Height -145cm
Clubbing	Absent	Weight-35kg
Lymphnodes	Not palpable	BMI- 16.65
Oedema	Absent	

Table 2.

Systemic Examination		
RS	NVBS Heard	
CVS	S1S2 Heard	
CNS	HMF Intact, Fully conscious,oriented to time,place,person,memory intact,intelligence good,speech disturbance absent Cranial nerve examination- NAD	
P/A	Soft and non tender no organomegaly	
MOTOR SYSTEM		
1)Involuntary movements- Absent		
2)Muscle bulk	RT	LT
Biceps	11 inch	11 inch
Forearm	8 inch	8 inch
Mid thigh	15 inch	15 inch
Calf muscles	10 inch	10 inch
3)Muscle tone		
Right hand	Hypotonia	
Left hand	Hypotonia	
Right leg	Hypotonia	
Left leg	Hypotonia	
4)Muscle strength		
Upper limb	RT	LT
Elbow –Flexion	5/5	5/5
- Extension	4/5	5/5
Wrist –Flexion	5/5	5/5
-Extension	4/5	5/5
Finger abduction	4/5	5/5
Opposition of thumb	5/5	5/5
Test of Grip	5/5	5/5
Lower limb		
Hip –Adduction	4/5	3/5
Abduction	4/5	3/5

Flexion	4/5	3/5
Extension	4/5	3/5
Knee- Flexion	4/5	3/5
Extension	4/5	3/5
Ankle – Dorsiflexion	5/5	5/5
Plantarflexion	5/5	5/5
5) Co- ordination		
Sensory –Sterognosis	Present	Present
Point discrimination- UL	Present	Present
- LL	Present	Present
Graphestesia	Present	Present
Motor UL – Finger nose test	Co – ordination present	
Finger nose finger		
LL – Knee heel test		
6)Reflexes		
Superficial –corneal	Present	
Abdominal	Absent	
Deep -	RT	LT
Biceps jerk	Diminished	Diminished
Triceps jerk	Diminished	Diminished
Knee jerk	Diminished	Diminished
Ankle jerk	Diminished	Diminished
Clonus- patella	Diminished	Diminished
Ankle	Diminished	Diminished
Babinski reflex	Absent	Absent
Abdominal	Absent	
LOCOMOTORY EXAMINATION ON 2/2/2018		
Inspection Palpation Range of movement	Calf muscle Pseudohypertrophy +, Mild atrophy of pelvic and thigh muscles . Mild lumbar lordosis seen Waddling gait seen Toe walking seen Tenderness L3-4 No warmth Forward bending-restricted Backward bending-not restricted Left lateral and right lateral- not restricted	
Test : Tendelenburg test- positive left limb Schobers test- Negative SLR active and passive –Negative Femoral nerve stretch- Negative		
Sign : Gowers sign- positive		
Investigations on first visit on 2/2/2018 EMG showed myopathic changes- endomysial connective tissue proliferation - Scattered degenerating and regenerating myofibres - Foci of mononuclear inflammatory cell infiltrates. Laboratory tests showed CPK value as 4276 U/L, LDH value 340 U/L ECHO,MRI Brain showed no significant abnormalities.		

INTERVENTION: 7 sittings of admission and 5 sittings of follow up.

Patient visited opd on 2/2/2018- Advised Investigations and reports are got after 3 days

Table 3.

DATE	DIAGNOSIS BASED ON AVASTHA	OPD	IPD	DISCHARGE MEDICINE
5/2/2018	complaints of weakness in both lower limbs, difficulty while walking,climbing stairs and running, unable to getting up from sitting position,	1)Aravindasava 3tsp tds 2)Kooshmanda rasayana 1tsp bd 3) Rasarajeshwara rasa 1-0-0 A/F With ushna jala anupana		
6/2/2018		----------	1)Alpea 2)Rajayapana basti (kaala)for 7 days Matra basti with Dhanwantara taila 60ml	
13/2/2018				Discharge medicine given for 2 month same as previous
26/4/2018	complaints of weakness in both lower limbs, difficulty while walking,climbing stairs and running, unable to getting up from sitting position slightly improved	----------	1)Alepa 2)Rajayapana basti(kaala) for 7 days	
3/5/2018				1)Aravindasava 4tsp bd 2)Kooshmanda rasayana 2tsp bd 3) Rasarajeshwara rasa 1-0-0 for 2 months
7/8/2018	Pain in the calf region while walking some distance	----------	1)Alepa 2) Manjistadi ksara basti(kaala) 3)Dhanyamladhara	
14/8/2018				1)Ajamamsa rasayana 1-0-1tsp 2)Brahatvata chintamani rasa

				with gold 1-0-1 for 2 months
15/10/2018	Pain in the calf region while walking some distance. After taking rest pain will be subside.	1)Balarista 3tsp tds 2)Kooshmanda rasayana 3tsp tds 3)Ekanga veera rasa 1-1-1 for 1 month	----------	
14/11/2018	Pain in the calf region reduced but weakness in both the lower limb persist.difficult in getting up from sitting position.	----------	1)Alepa 2)Dhanyamladhara 3)Rajayapana basti (kaala)for 7 days	
21/11/2018				1)Balarisra 3tsp tds 2)Kooshmanda rasayana 3tsp tds 3)Neo 1-1-1 for 2 months
16/1/2019	C/O pain in the lumbar region, weakness in both lower limb, Indigestion	1)Aravindasava 3tsp tds 2)Kooshmanda rasayana 1tsp bd 3)Rasarajeshwara rasa 1-0-0 for 3months		
20/4/2019	complaints of weakness in both lower limbs, difficulty while walking,climbing stairs and running, unable to getting up from sitting position	----------	1)Alepa 2)Dhanyamladhara 3)Rajayapana basti (kaala) for 7 days	
27/4/2019				1)Aravindasava 3tsp tds 2)Kooshmanda rasayana 1tsp bd 3) Rasarajeshwara rasa 1-0-0 for 2months
1/7/2019	C/O pain in the lumbar region, weakness in both lower limb, Indigestion	1)Aravindasava 3tsp tds 2)Kooshmanda rasayana 1tsp bd 3) Rasarajeshwara rasa 1-0-0 for 2months		
23/9/2019	complaints of weakness in both	----------	1)Alepa 2)Dhanyamladhara	

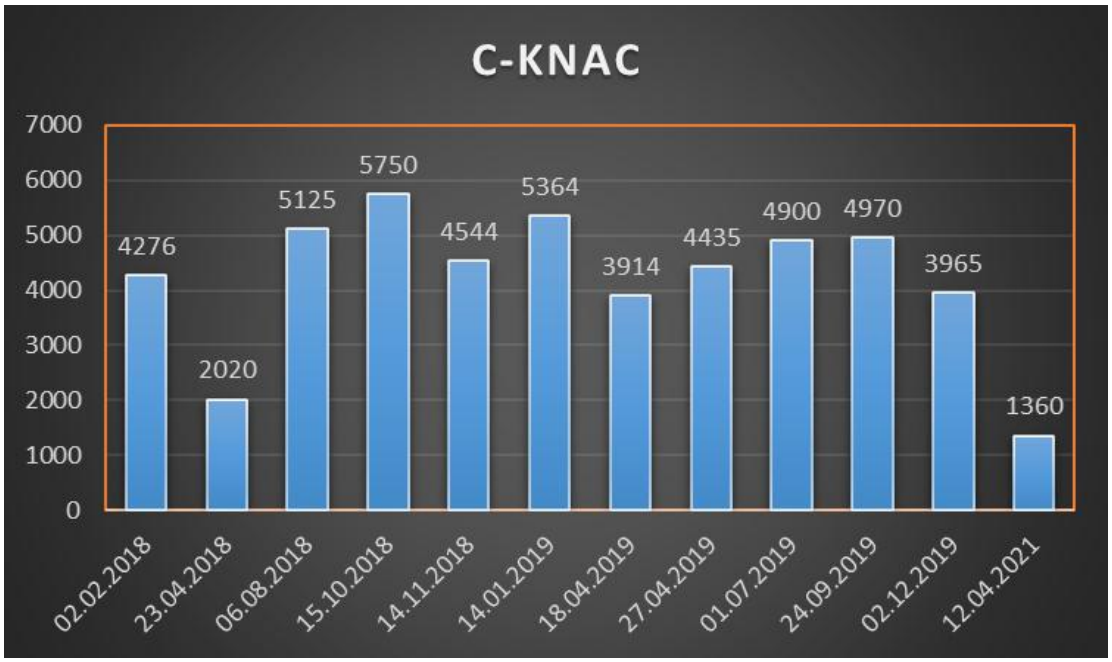
	lower limbs, difficulty while walking,climbing stairs and running, unable to getting up from sitting position,		3)Rajayapana basti(kaala) for 7 days	
30/9/2019				1)BVC with gold(DKS) 1-0-0 2)Ajamamsa rasayana 1-1-1tsp 3)Ashwagandarista 3tsp tds for 2 months
2/12/2019	C/O Body pain, Muscle pain	1)BVC with gold(DKS) 1-0-0 2)Ajamamsa rasayana 1-1-1tsp 3)Ashwagandarista 3tsp tds for 4months patient did not visit our hospital for 1 year continued same medications		
12/4/2021	complaints of weakness in both lower limbs reduced, walking,climbing stairs and running possible, able to getting up from sitting position with support.	----------	1)Alepa 2)Dhanyamladhara 3)Rajayapana basti (kaala) for 7 days	
18/4/2021				1)Ajamamsa rasayana 2tsp tds 2)Ashwagandarista 6tsp bd 3)Palsinuron 1-1-1 4)Matra basti with maha masha taila 60ml after food (patients mother was trained to administer matra basti at home)

RESULTS AND OBSERVATIONS

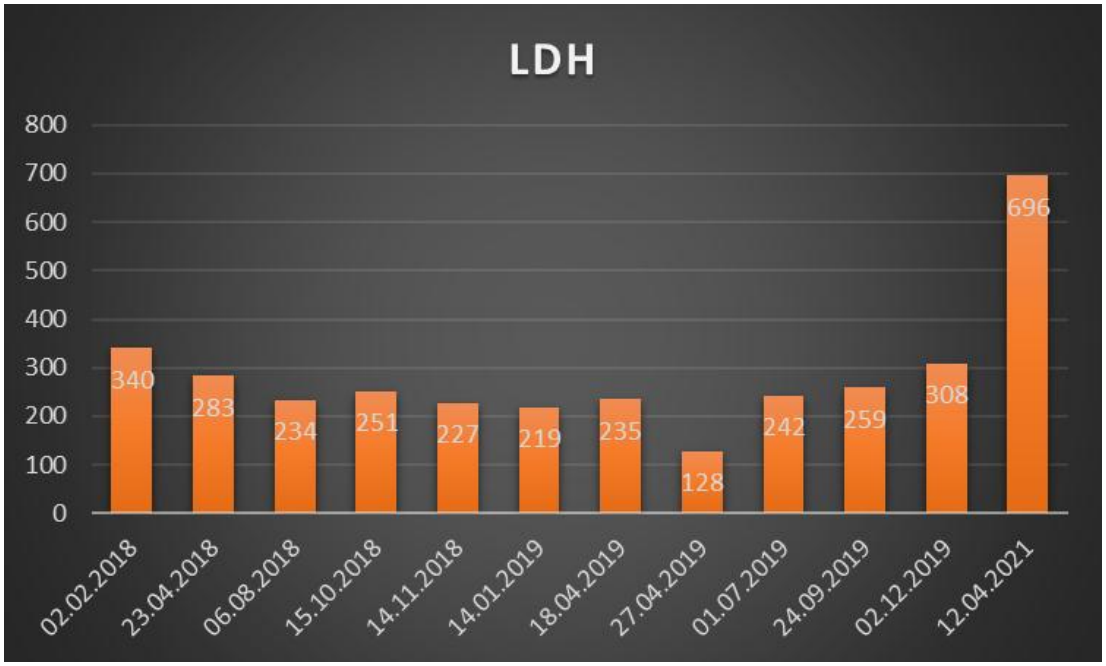
Table 4.

Date	CPK (U/L)	LDH (U/L)	OBSERVATIONS	
2/2/2018	4276	340	BEFORE TREATMENT	AFTER TREATMENT
23/4/2018	2020	283	Weakness in both lower limbs, difficulty while walking, climbing stairs and running, unable to getting up from sitting position, difficulty in lifting heavy weight associated with decreased muscle bulk around pelvic and thigh region and increased muscle bulk in calf muscles	-Patient was able to stand for longer duration than earlier. -Frequency of fall reduced -Able to walk without support for longer distance -climbing stairs and running possible easily.
6/8/2018	5125	234		
15/10/2018	5750	251		
14/11/2018	4544	227		
14/1/2018	5314	219		
18/1/2019	3914	235		
27/4/2019	4435	128		
1/7/2019	4900	242		
24/9/2019	4970	259		
2/12/2019	3965	308		
12/4/2021	1360	696		

Graphical representation



Graph no 1.



Graph no 2.

DISCUSION

Muscular dystrophies according to ayurveda has many correlations and we can consider this patient with mamsagatavata and snayugatavata where symptoms like tiredness and pain in little walk (saruk shramitamatyartham) and khalli[4] (pain in the calf region). Muscular dystrophies are genetic disordersand this patient also shows past history of it, we can consider it as Adibala-pravrita Vyadhi(disease that occurs by defects in shukra i.e, spermatozoa and shonita i.e, ova) viz, sushruta's vyadhi vargikarana[5] (i.e, classification of diseases). Here pathogenesis occurs due to beejbhagavayavaadusti (i.e, sex- linked disease). As vata dosha is the primal constituent of the living body and is responsible for functions of central, autonomic and peripheral nervous system.[6] Here due to some mutation in X-Chromosome there will be pathetic functioning of vata which further leads to its vitiation and Sthanasamshraya (occupying) in Manas and Medo dhatu and vitiates and depletes these Dhatus (X-linked progressive degenerative disorder of muscle tissue).[7] simultaneously there will be formation of Ama(toxins) which leads to srotorodha (obstruction) and vata dosha vitiation. There will be hypertrophy in particular region and wasting in other region due to vata dosha vitiation. In that case there is no satisfactory treatment in any system of medicine because of progressive degeneration nature of disease. In ayurveda, treatment like Alepa was advised when there is association of samadoshavastha. Dhanyamladhara indicated in vata disorders having an association of morbid kapha or ama. Acharya charaka has mentioned basti as ardha chikitsa(half treatment) and best treatment for vitiated vata.[8] Yapana basti acts

as lekhana and Brumhana. It is medohara and increases agni.[9] The Herbo-mineral drugs works on Dhatvagni hence giving nutrition to subsequent Dhatus. We have noticed muscle bulk increase in pelvic region and decrease hypertrophy in calf region. How the lack of sarcolemma protein dystrophin gives rise to the final disease status is not clear. It should be investigated in the light of possible influence on sarcolemma membrane. There is further need of controlled studies and multi center clinical trials on large scale with improved study design and assessment techniques.

CONCLUSION

In the condition like myopathies where progression of disease is very fast and fatal and no cure is available in modern medicine the ayurvedic treatment proved to show down the progression of disease and bring out a mild improvement.

REFERENCES

1. Romitti Pa, Zhu Y, Puzhankara S, James Ka, Et Al; Prevalence of Duchenne and Becker Muscular Dystrophies, Pediatrics, 2015, Mar; 135(3): 513-21.
2. Update on Ayurvedic Research web 2009; http://talk. newa-medi-cal. net/profile/Ayush Muscular Dystrophy Society.
3. Kaviraj Ambikadutta Shastri, editor. Sushrutha samhitha of Sushruta, with Ayurveda Tattva Sandipika commentary by Kaviraj Ambika Shastri; published by Chaukamba Sanskrit series, Varanasi; Sustra Sthana 24 sloka no, 6: 130.
4. Pt. Rajeswaradatta Sastri, Pt. Yadunandana Upadhyaya Pt. Ganga Sahaya Pandeya, Dr. Banarasidasa Gupta, editor. Charaka samhitha of Agnivesha, with Vidyotini Comentary by Pt. Kashinath Shastri and Dr. Gorakhnath Chaturvedi; Published by Chaukhambha Bhari Academy, Varanasi; Chikitsa Sthana28 Sloka no. 32, 35: 782-783.
5. Kaviraj Ambikadutta Shastri, editor. Sushrutha samhitha of Sushruta, with Ayurveda Tattva Sandipika commentary by Kaviraj Ambika Shastri; published by Chaukamba Sanskrit series, Varanasi; Sustra Sthana, 24 sloka no. 6; pp 130.
6. Pt. Rajeswaradatta Sastri, Pt. Yadunandana Upadhyaya Pt. Ganga Sahaya Pandeya, Dr. Banarasidasa Gupta, editor. Charaka samhitha of Agnivesha, with Vidyotini Comentary by Pt. Kashinath Shastri and Dr. Gorakhnath Chaturvedi; Published by Chaukhambha Bhari Academy, Varanasi; Sutra Sthana 12 Sloka no, 8: 246.
7. Chaturvedi Ashuthosh, Rao Prasanna N, U Shailaja, M Ashvini Kumar, Role of Panchakarma in Duchene Muscular Dystrophy, IJRAP, Mar-Apr 2013; 4(2): 1-4.

8. Pt. Rajeswaradatta Sastri, Pt. Yadunandana Upadhyaya Pt. Ganga Sahaya Pandeya, Dr. Banarasidasa Gupta, editor. Charaka samhitha of Agnivesha, with Vidyotini Comentary by Pt. Kashinath Shastri and Dr. Gorakhnath Chaturvedi; Published by Chaukhambha Bhari Academy, Varanasi;Siddhi Sthana 1 Sloka no, 38-40: 971.
9. Agnivesha, Charaka Samhita With Chakrapanidatta, ayurveda Deepika, Commentary Reprint Ed, new delhi, Chaukhambha surabharati prakashan, 2008; 12/1-17: 731-32.