



## Case Report

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## EFFECT OF PANCHKARMA IN THE MANAGEMENT OF DUCHENNE MUSCULAR DYSTROPHY: A CASE STUDY

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Received on: 26/07/19 Accepted on: 10/09/19

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DOI: 10.7897/2277-4343.1005111

**ABSTRACT**

DMD is the most common X-linked recessive disorder affecting 30 in 100,000 live male births. The primary cause of this disease is mutations in dystrophin gene which is essential for the structural and functional integrity of muscle. It is progressive muscle wasting disease in which patients frequently develop contractures and lose the ability to walk. This is a genetic disorder we can consider it as *adhibala pravritta Vyadi*. There is usually delay in motor development and eventually wheelchair confinement followed by premature death from cardiac or respiratory complications. Treatment is corticosteroid therapy and use of intermittent positive pressure ventilation have provided improvement in function, ambulation, quality of life and life expectancy. A 16-year-old boy was presented for difficulty in walking and muscle weakness with difficulty in climbing stairs, running and particularly in vigorous physical activities, he also had decreased strength and endurance. In Ayurveda it has been classified under *Medomamsa dusti* further vitiates the *Vata doshas* occurs due to the *Bheejabagahaavyava Dusti*. In modern medicine there is no significant treatment available for this disease while in Ayurveda *Pañcakarma* procedures along with internal medication resulted in 30 - 40 % improvement in the overall effect of therapy.

**Keywords:** DMD, *Medomamsa*, *Vata dosh*, *Adhibala pravritta*, *Bheejabagahaavyava*, *Panchkarma***INTRODUCTION**

DMD was first described by French neurologist Guillaume Benjamin Amand Duchenne in 1860s. DMD is described as progressive myopathy leading to muscle weakness and eventually its degradation. Muscle weakness progresses from hip girdle muscles and neck flexors, the shoulder girdle and distal limb and trunk muscles. Usually boys are affected at the age of 3 to 5 years, present due to difficulty in climbing stairs or rising from sitting position, most patients using Gowers maneuvers and enlarged calf muscles are present classically, due to replacement of muscles by fats the age of 12 years. Patients can survive beyond 20 years of age in areas with advanced medicine but usually die due to respiratory failure or cardiac failure as about 95% patients with DMD develop cardiac abnormalities or both in absence of advanced support. Serum creatine kinase levels are grossly elevated above normal limit. DMD patient have on average IQ level<sup>1</sup>. Duchenne muscular dystrophy is a neuromuscular disorder. The estimated prevalence of Duchenne muscular dystrophy was 1 in every 7,250 males aged 5-25 years<sup>2</sup>. Duchenne muscular dystrophy was characterized by motor impairments, difficulties in walking, waddling, toe walking, difficulties in climbing stairs, running or lifting off the ground. In *Ayurveda* this pathogenesis occurs due to the *Bheejabagahaavyava Dusti* which leads to *Vata Prakopa* takes *sthana samshraya* in *Mamsa* and *medo Dhatu* vitiates and depletes them<sup>3</sup>. *Acharya Charaka* has clearly mentioned about the close relation of both *Mamsa* and *Medo Dhatu* Viz. to *Dhatukshayaj* vata pathogenesis which in term degrades and causes the *mamsa dusti*<sup>4</sup>. This *Ansha-ansha kalpana* of the *Dhatu* clearly signifies the involvement of the *Dhatuvagni Mandhya* causes *Kshaya*. This *Agnimandya* caused at the level of the *dhatu* leads to formation of *ama*. *Madhavkara* explained *Srotodusti* as type of *Ama* itself<sup>5</sup>. While *Srotorodha* a

subtype of *srotodusti* produces the hypertrophy in the particular region, it also manifests as first *parkopa* then depletion i.e. due to *vata*. This complex variety of pathogenesis indeed is responsible for the progressive wasting and necrosis of muscle fibers. Therefore, it was well understood thousands of years back with its severity and termed as *Asadhya*<sup>6</sup>. *Acharya* have mentioned specific *chikitsa sootra* for the condition by considering its severity and importance which can easily be understood by the *Vaidyas*<sup>7</sup>. *Acharyas* while explaining the *dhatupaka avastha* clearly signifies the importance of *Agni* which is whole and sole responsible for the formation of the next *dhatu*. Thus, correction of *Agni* should be done by administration of *deepana* and *pachana dravyas* in order to strengthen the process, *doshas* must be balanced and metabolic toxins must be eliminated from *dhatu* through *panchakarma*<sup>8</sup>. The pre-operative process quoted by *Acharyas* has the concept of *Rukshana* for better *brihana* treatment modalities<sup>9</sup>. For example, *udvartana* which helps in the removal of *srotorodha* and does *Sthiri karana* of *angas*. *Pachana* medicines are also explained as a mode of *Rukshana chikitsa* and it is also must in the treatment of DMD initially with *deepana*, like *parishekha* with *Dhanyamla*<sup>10-11</sup>. In contrast *Abhyanga* a variety of *bhaya sneha* with *Ksheerabala* oil helps in subsiding the *vata dosha*, improves the tonicity of the muscle and compacts the body<sup>12-13</sup>. Whereas *swedana* like *Shastikashaali pinda swedana* also improves the tone of the body<sup>14</sup>. *Swedana karma* increases the metabolic activity which in turn increases the oxygen demand and blood flow. This vasodilatation stimulates the superficial nerve ending causing a reflex dilatation of the arterioles. Due to the effect of heat on the sensory nerve ending there will be a reflex stimulation of sweat glands in the areas exposed to heat. This rise in temperature induces muscle relaxation and increases the efficacy of muscle action as the increased blood supply ensures the optimum condition for the

muscle contraction<sup>15</sup>. *Swedana* also acts by the mechanism of thermoregulation regulated by skin and coordinated with the functions of the other excretory organs. These Ayurvedic treatments are used for the management of DMD.

## MATERIAL AND METHODS

- *Ruksha udvartan* with *aswagandha* and *sunthichurna*
- *Abhyangam* with *ksheerbala taila*
- *Matra vasti* with *Dhanwantaram taila*
- *Sastika sali Pinda swedan*
- *Dhanyamla sarvang dhara*

### Case report

A 16 yr boy patient was asymptomatic before 6 year then he felt pain and weakness in whole body except left hand. He was unable to stand without support along with weight gain and muscle power is decreases. He also complaints of difficulty in walking, climbing stairs, running. After some time, symptoms are progressive, then he takes allopathic treatment and done surgery of both leg in allopathic hospital but not get much relief then he came to Rishikul campus, UAU Haridwar for better management.

**Past history** – No H/O any significant family history

NO H/O HTN, DM, History of surgery of leg

### On examination

General examination

Pulse – 70/min

B.P. -110/70 mm/Hg

Temp –98<sup>o</sup> F

Weight – 56 kg

Pallor – not present

Icterus – not present

Clubbing – not present

Cynosis and Edema – not present

### Systemic examination

Respiratory system –Normal

Cardiovascular system – Normal

Digestive system – Normal

Central nervous system –Patient are well oriented to time, place, and person.

Cranial nerve – All cranial nerve is intact with their normal function.

Speech – Normal

Higher function –Appearance and behavior, memory, orientation and intelligence all are intact.

Deep tendon reflexes –

**Tables 1: Reflexes**

	Right	Left
Biceps	Normal	Exaggerated
Triceps	Normal	Exaggerated
Knee jerk	Normal	Exaggerated
Ankle jerk	Normal	Exaggerated
Planter	Extension	Extension

### Diagnosis

Already diagnosed cases were taken and also repeated serum creatine kinase muscle enzyme, which is sensitive indication of active muscular dystrophy.

### Study design

All were subjected to *Abhyangam* with *Kshererbala taila* and *Pinda swedana* with *Rakta shali* as per classical method prior to *Vasti* therapy for 30 days. *Dhanyamla sarvang dhara* is also done. During this period oral medication is also given which is continued between the sittings also.

### Observation

Follow up after 1-month treatment. The patient's parents said and felt their son displayed moderate improvements in his condition. They were satisfied with treatment and also felt their son was still continuing to make improvements after one month. They stated, He is improving in a daily basis. His posture has improved, his writing is more precise, better coordination, he does not get tired as fast.

### Post-treatment assessment

Walking - Moderate improvement

Standing up - Small improvement

Walking upstairs - No improvement

Falls - Significant improvement

Loss of muscle mass - Not applicable

Enlarged muscles - Significant improvement

Muscle stiffness - Not applicable Loss of muscle mass Not applicable

Enlarged muscles - Significant improvement

Muscle stiffness - Not applicable

**Table 2: Interventions**

Treatment	Dose	Duration
1. <i>Ruksha udvartan</i> with <i>aswagandha</i> and <i>sunthichurna</i> (40 minutes)		15 days with interval of 15 days
2. <i>Abhyangam</i> with <i>ksheerbala taila</i> (20 – 25minutes)	30- 40 ml	30 days
3. <i>Pinda swedan</i> (10 – 25 minutes)		15 days with interval of 15 days
4. <i>Matra vasti</i> with <i>Dhanwantaram taila</i>	40 ml	30 days
5. <i>Dhanyamla sarvang dhara</i>	5 litre/ day	15 days with interval of 15 days

## DISCUSSION AND RESULT

Effect of Panchakarma procedure in DMD is good. *Abhyanga* stimulates skin receptor and improves circulation, enhancing cell activity, increases blood flow, vasodilatation result in

nourishment and strengthening of the muscles, assisting in reducing connective tissue thickening and provides flexibility by decreasing fibrous adhesions from muscle tissue injury. Due to *Abhyanga* progress is seen in reduction of toe walking, improvement of atrophied muscles, increasing muscle power and

good muscle tone<sup>16</sup>. Heating the skin has been demonstrated to produce a decrease in gamma activity. With a decrease in gamma activity, the stretch on the muscle would be less, thus reducing stretch receptors. This indirect method ultimately results in decreased alpha motor neuron and thus less muscle spasm. Elevating muscle temperature can also alter strength and endurance. Heating can result in decreased joint stiffness and increased tissue extensibility and improve range of movements<sup>17</sup>. *Vasti* is having main two actions, expelling the *dosa* and nourishing the body as it is indicated in *Gambhiragata vata* also<sup>18</sup>. First, potency of the *Vasti* drugs gets absorbed to have its systemic action. Its second major action is easily excretion of mala which are responsible for the disease process into the colon. *Matra basti* promotes strength, without any strict regimen of diet, and also cause easy elimination of *mala* and *mutra*. It improves function of *brimhana* and cures *vataroga*. *Swedana* like *Shastika Shali Pinda Sweda* brings relief to the tensed muscles while toning the body. Basically, it improves the metabolism in a body by increasing the blood circulation and oxygen flow. This stimulates the sweat glands and nerves of the area exposed to the heat. It further, increases the blood circulation leading to muscle relaxation. This, in turn, cures the muscle stiffness and stimulates them for mobility<sup>19</sup>. This vasodilatation stimulates the superficial nerve ending causing a reflex dilatation of the arterioles. Due to the effect of heat on the sensory nerve ending there will be a reflex stimulation of sweat glands in the areas exposed to heat. This rise

in temperature induces muscle relaxation and increases the efficacy of muscle action as the increased blood supply ensures the optimum condition for the muscle contraction<sup>20</sup>. *Swedana* also acts by the mechanism of thermoregulation regulated by skin and coordinated with the functions of the other excretory organs. It is supplied with many groups of nerves, which conduct various stimuli. The secretion of sweat is under nervous system control; especially autonomous. The secretion of sweat is under nervous system control, especially autonomous. The hair of the skin is tactile sense organs and their secretion produces some nervous changes. Thus, *swedana* can bring about changes indirectly on the autonomic nervous system and the heat can bring about changes in conduction of nerve stimuli, by changing sodium-ion-concentration<sup>21</sup>. Due to *ushna guna* and *ushna veerya*, *dhanyamla dhara* destroys the vitiated *vata* or *kapha* or *vatakapha*. *Dhanyamla* corrects metabolism. It is also a remedy of weakness of muscle. This happens owing to properties like *jeevan*, *bala prada*, *veerya prada*, *shramhara*. *Ushna guna* and *ushnaveerya* removes the blocks in the cells and channels of transportation and nutrition. Then cells turn enhances the strength and immunity of the body<sup>22</sup>; improvement in difficulty in walking and climbing stairs. Toe walking also shown considerable reduction. The muscle power in upper limbs improved significantly which was expressed by raising hands above the shoulder without difficulty.

Table 3: Muscle power

S. No.	Before treatment		After treatment	
	Extremities	Grades	Extremities	Grades
1.	Rt. Upper limbs	5/5	Rt Upper limbs	5/5
2.	Rt. Lower limbs	2/5	Rt. Lower limbs	3/5
3.	Left Upper limbs	3/5	Left Upper limbs	4/5
4.	Rt. Lower limbs	2/5	Rt. Lower limbs	3/5

## CONCLUSION

The present study was undertaken to increase functional and physical capabilities, minimizing disability to delay further progression of disease and to maintain the ambulation for longer time and to improve quality in the activities of daily living. In this patient, the overall effect was found near 30-40 %. As this disorder is incurable, this percentage of improvement also helps the patient to improve the quality-of-life.

## REFERENCES

- Nussbaum R, McInnes RR, Willard HF, Thompson and Thompson genetics in medicine. Elsevier Health Sciences. <https://www.researchgate.net/publication/276606782>; 2007.
- cdc.gov –centers for disease control and prevention. [www.cdc.gov.in](http://www.cdc.gov.in).
- Acharya Yadavaji Trikamaji's Agnivesa, Charaka Samhita, with Chakrapaanidatta. In: ed Ayurved Dipika, Commentary. Reprint ed. New Delhi: Chaukhambha Surbharati Parkashan; 2008. p. 32122.
- Agnivesa, Charaka Samhita, with Chakrapaanidatta. In: Acharya Yadavaji Trikamaji, ed Ayurved Dipika, Commentary. Reprint ed. Varanasi: Chaukhambha Orientalia; 2009. p. 617.
- Sharma A. Madhavanidanam with Madhav vimarshini Commentary. 1st edition, Varanasi: Chaukhambha Sanskrit Pratishthan; 2007. p. 198-99.
- Agnivesa, Charaka Samhita, with Chakrapaanidatta. In: Acharya YT, ed. Ayurved Dipika, Commentary. Reprint ed. Varanasi: Chaukhambha Orientalia; 2009. p. 368.
- Shastri K, Chaturvedi G. Charaka Samhita with Vidyotini Commentary. Edition, Varanasi: Chaukhambha Bharati Academy; 2011 reprint. p. 793.
- Agnivesa, Charaka Samhita, with Chakrapaanidatta. In: Acharya YT, ed. Ayurved Dipika, Commentary. Reprint ed. Varanasi: Chaukhambha Orientalia; 2009. p. 620.
- Vagbhata, Astanga Hridaya, with Arundatta. In: Kunte AM, ed. Sarvangasundari, Commentary. Reprint ed. Varanasi: Chaukhambha Orientalia; 2011. p. 225.
- Vagbhata, Astanga Hridaya, with Arundatta. In: Kunte AM, ed. Sarvangasundari, Commentary. Reprint ed. Varanasi: Chaukhambha Orientalia; 2011. p. 28.
- Vagbhata, Astanga Hridaya, with Arundatta. In: Kunte AM, ed. Sarvangasundari, Commentary. Reprint ed. Varanasi: Chaukhambha Orientalia; 2011. p. 223.
- Chakarapani Datta, Chakra Datta, In: Jagdishvara prasad Tripathi, ed. Bhavarthasadipani fifth ed. Varanasi: Chaukhambha Sanskrit series; 1983. p. 199.
- Agnivesa, Charaka Samhita, with Chakrapaanidatta. In: Acharya YT, ed. Ayurved Dipika, Commentary. Reprint ed. New Delhi Chaukhambha Surbharati Parkashan; 2008. p. 90-91.
- Agnivesa, Charaka Samhita, with Chakrapaanidatta. In: Acharya YT, ed. Ayurved Dipika, Commentary. Reprint ed. New Delhi: Chaukhambha Surbharati Parkashan; 2008. p. 89.
- Martini FH. Fundamentals of Anatomy and Physiology chapter 5. 4th ed. New Jersey: Prentice Hall Inc. Simon and Schuster; 1998. p. 148-155.
- Principles and Practice of Therapeutic massage by Akhoury Gourang Sinha, Jaypee brothers medical publishers, Edition: 2<sup>nd</sup>. p. 243.

17. Martin FH. Fundamentals of anatomy and physiology chapter 5. 4th ed, New Jarsy. Prentice hall inc. Simon and Schuster; 1998. p. 148-149 and 162.
18. Agnivesa, Charaka samhitha, with chakrapanai data: In, acarya Yadavji Trikamji, ed, Ayurveda dipika, commentary, reprint ed. New Delhi: Chaukamba Surabharati Parkashan; 2008. p. 731732.
19. <https://www.quora.com/Which-is-the-best-ayurvedic-clinic-in-India-for-Muscular-Dystrophy-treatment>.
20. Martini FH. Fundamentals of Anatomy and Physiology chapter 5. [https://quizlet.com/166737104/martinis...4th ed](https://quizlet.com/166737104/martinis...4th-ed). New Jersey: Prentice Hall Inc. Simon and Schuster; 1998. p. 148-155.
21. Martini FH. Fundamentals of Anatomy and Physiology chapter 5. 4th ed. New Jersey: Prentice Hall Inc. Simon and Schuster; 1998. p. 148-155.
22. <https://easyayurveda.com>dhaArticle> by Dr. Raghuram Y.S.MD [Ay]

**Cite this article as:**

Vandana *et al.* Effect of Panchkarma in the management of Duchenne Muscular Dystrophy: A Case Study. Int. J. Res. Ayurveda Pharm. 2019;10(5):82-85 <http://dx.doi.org/10.7897/2277-4343.1005111>

Source of support: Nil, Conflict of interest: None Declared

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