ABSTRACT
Muscular dystrophy is a group of disorders characterized by a progressive loss of muscle mass and consequent loss of strength may affect up to 1 in 3500 males. The most common form of muscular dystrophy is Duchenne Muscular Dystrophy (DMD)—typically affect young boys, but other variations can strike in adulthood. Other type is Becker Muscular Dystrophy (BMD)–similar symptoms to Duchenne but with a later onset and slower progression. Patient usually becomes wheelchair bound by the age of 8 to 10 years, and a proportion of patients have mental sub-normality and cardiac abnormalities. Among which some die of cardio-respiratory complications in their late teens to early twenties. Currently there is no cure for muscular dystrophy, but certain physical and medical treatments can improve symptoms and slow the disease progression such as corticosteroids, physical therapy, respiration assistance, gene therapy and heart medication such as beta blocker.

KEYWORDS: Duchenne Muscular Dystrophy (DMD), Becker Muscular Dystrophy (BMD), Ayurved treatment, Shosha, Mamsagata vata.

INTRODUCTION
Muscular Dystrophy – It is a group of inherited, progressive, primary diseases of muscle, with unique phenotypic and genetic features. In late stages of muscular dystrophy fat and connective tissue often replace muscle fibre.
Duchenne muscular dystrophy (DMD) is inherited disorder without involvement of nervous system, by progressive degeneration of group of muscles. Pseudohypertrophy of calf muscles takes place and Gower’s manoeuvre is seen in children, they use their hands to straighten up, while getting up from the ground. There is no such curative management in modern medicine, so patients prefer to come for Ayurvedic management if any.

DMD cannot be directly co related with any single disease in Ayurveda. All major neuromuscular disorders are identified with vata dosha. In Ayurveda this pathogenesis can be clearly understood by Adi bala pravrutta vyadhi. Here the pathogenesis occurs due to Beeja bhagavayav dushti which leads to mamsa -vata dushti. Treatment mainly concentrate 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. Treatment includes mainly Rasayana therapy and specified Panchakarma therapies.

CASE REPORT
Basic information of the patient is as following:

Age: 15 years
Sex: Male
Religion: Hindu
Socioeconomic status: Lower middle class

Pradhan vedana vishes (chief complaints)
- Udbhaya pada karmahani (Unable to walk)
- Udbhaya hasta-pada dourbalya (Weakness in both lower and upper limb)
- Aasane- uttishte kashtata (Difficulty in waking up)
- Karshyata (Thin)
- Udbhaya Janu, kurpara sandhi sthabdhata (Stiffness in both knee and elbow joint)
- Udbhaya pada kandu (Itching over both legs)

Vartamana vyadhi vruttanta (History of present illness)
Since childhood patient had a history of delayed milestone. At the age of 7 years DMD had been diagnosed. Since then patient was suffering from above complaints. For this patient had taken allopathy treatment, since there is no improvement in symptoms patient came to Dr. D.
Y. Patil Ayurvedic College and Hospital for supportive treatment so as to improve the quality of life.

**Purva vyadhi vruttanta (History of past illness)**

- **2 yrs** - Frequent falls while standing and walking, difficulty in getting up from floor and would need assistance for the same.
- **At 3 yrs** – Difficulty in climbing stairs
- **At 4 yrs** – Toe walking with waddling gait
- **At 7 yrs** - Delayed milestones, frequent falls while walking, abnormal gait and frequent cough.
- Parents get doctors advice.
- After clinical examination and investigations doctor diagnose DMD and started further treatment with physiotherapy.
- **At 9 yrs**: weight- 17.6 (8/8/11)

C/O – Difficulty in walking, can’t squat/sit, get up with support  
O/E – Exaggerated lumbar lordosis, Gower’s sign positive, calves/ deltoid muscles hypertrophy, EMG suggestive of myopathy  
- Neuro regenerative rehabilitation therapy was done which improves his condition slightly.  
- Physiotherapy was done for 1 year.
- **At 10 yrs** – Was admitted in NeuroGen hospital for 5 days (27/7/13) - Had same complaints
  - Neurologically – hypotonic, hyporeflexic, fair voluntary control in B/L upper extremities, B/L flexor tightness, good sitting balance with kyphotic posture in sitting
  - Dependant for transfer and mobility; independent for eating, grooming and dressing
- **At 11 yrs** – wt – 20.90 kg (20/12/12)
  c/o – Weakness, breathlessness since few months
  - Doctors suggested cardiac evaluation
- **At 12 yrs** – wt – 24 kg (21/3/13)
  c/o – loss of ambulation, can’t sit well, increasing scoliosis
- **At 13 yrs** – Seizure disorder started. (25/12/16)
- Patient started taking Ayurvedic treatment since december 2016 on and off, now admitted in male Kayachikitsa ward on 21-2-18 of Dr. D.Y. Patil Ayurvedic College and Hospital, Pimpri, Pune.
Table no. 1: Chikitsa vruttanta (Treatment history).

<table>
<thead>
<tr>
<th>No.</th>
<th>Medicine</th>
<th>Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Syp. Calcimax</td>
<td>5 ml ------------------------5 ml</td>
</tr>
<tr>
<td>2</td>
<td>Syp. Maximin forte</td>
<td>5 ml ------------------------5 ml</td>
</tr>
<tr>
<td>3</td>
<td>Tb. Omnacortil 10 mg</td>
<td>1 and half OD</td>
</tr>
<tr>
<td>4</td>
<td>Tb. Shelcal</td>
<td>1 OD</td>
</tr>
<tr>
<td>5</td>
<td>Syp. Gelusil</td>
<td>1 tsf ------------------------1 tsf</td>
</tr>
<tr>
<td>6</td>
<td>Polybion</td>
<td>0------5 ml ------ 0</td>
</tr>
<tr>
<td>7</td>
<td>Syp. zincovit</td>
<td>0------5 ml ------0</td>
</tr>
<tr>
<td>8</td>
<td>Tb. Vit C 500 mg</td>
<td>0 ------------------------0</td>
</tr>
<tr>
<td>9</td>
<td>Tb. Co Q energizer 100 mg</td>
<td>0------1--------0 (alternate day)</td>
</tr>
<tr>
<td>10</td>
<td>Tb. levera (250 mg)</td>
<td>1--------------------------1</td>
</tr>
</tbody>
</table>

Kulaja vruttanta (Family history)

Grand father + Grand mother

Father + Mother | Uncle + Aunt | Aunt + Uncle

15 yr male | 13 yr male | 9 yr male | 7 yr male | 7 yr female | 6 months male | 11 yr female | mentally retired | (Death)

(patient) (DMD) (Normal) (DMD) (DMD)

Examination

Dashavidha pariksha

- Prakriti: Sharir –Vata-kaphaj
- Manas- Satvik
- Vikriti: Tridoshaj
- Sara: Avara
- Samhanana: Avara
- Pramana: Avara
- Satva: Madhyam
- Satmya: Avara
- Ahara: Madhyam
- Vyayamshakti: Heen
- Vaya: Avara
Ashtavidha pariksha

1. Nadi: Gati – Manduk gati (vata kaphaj)
2. Mutra: Samyak
3. Mala: Samyak
4. Jivha: Saam
5. Shabda: Spasta
6. Sparsha: Samshitoshna
7. Druka: Avishesh
8. Akruti: Krush
   • **Dosha:** Vayu – Saman vayu, vyan vayu
     Kapha – Shleshak kapha
   • **Dushya:** Mamsa dhatu
   • **Strotasa:** Mamsavaha strotasa
   • **Strotas dusti:** Mamsavaha strotasa dushti
   • **Agni:** Jatharagni mandya, Dhatvagni mandata (Mamsadhatvagni mandya)
   • **Adhishtana:** Mamsa dhatu

Central nervous system examination

Higher functions

• Consciousness : Well conscious
• Behaviour : Obeys verbal command
• Intelligence : Normal
• Memory : Past and present – Normal
• Oriented for time, place and person
• Speech : Normal

Cranial nerves: Normal

Motor system

• Nutrition : Wasting of muscles of lower and upper limb specially calf muscles
• Tone : Hypotonic
• Power : Both upper limb – 2/5

Both lower limb – 1/5
• Coordination :
  Finger nose test - Negative
Knee heal test – Positive
Dysdiadochokinesia - Negative
- Involuntary movement : Absent

Sensory system
- Superficial sensation : Touch, temperature and pain – Normal
- Calf tenderness : Absent
- Calf wasting -Present

Table no. 2: Deep Reflexes – Absent.

<table>
<thead>
<tr>
<th></th>
<th>BJ</th>
<th>SJ</th>
<th>TJ</th>
<th>KJ</th>
<th>AJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>RIGHT</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>LEFT</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

Treatment protocol: Regarding the weakness of muscles and atrophy in muscles this case was correlated with Shosha vyadhi (Mamsashosha) and also Mamsagata vata.

Total duration: 30 days

Table no. 3: Internal medicines.

<table>
<thead>
<tr>
<th>Sr.no.</th>
<th>Tablet</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Cap. Rasayana (500 mg)</td>
<td>1--0--0--1</td>
</tr>
<tr>
<td>2.</td>
<td>Tab. Ashwagandha (250mg)</td>
<td>2--0--0--2</td>
</tr>
<tr>
<td>3.</td>
<td>Tab. Mahavatavidhvansa rasa (125mg)</td>
<td>2--0--0--2</td>
</tr>
<tr>
<td>4.</td>
<td>Mahamanjistadi kadha</td>
<td>4 tsf--4tsf with leukewarm water BD After food</td>
</tr>
<tr>
<td>5.</td>
<td>Gandhakadi malahara</td>
<td>For local application</td>
</tr>
<tr>
<td>6.</td>
<td>Bala-ashwagandhadi oil</td>
<td>For local application on all joints</td>
</tr>
</tbody>
</table>

Table no 4: Panchakarma therapy.

<table>
<thead>
<tr>
<th></th>
<th>Sthanik snehan (both hands and foot)</th>
<th>Kshirabala oil</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Sthanik swedana (both hands and foot)</td>
<td>Shashti shalik Pinda sweda</td>
</tr>
<tr>
<td>2.</td>
<td>Bhruhan basti</td>
<td>Ashwagandha+shatavari+vidari = kshirapaka (150 ml) + mamsarasa 50 ml + jivantyadi yamak sneha 20 ml = total 220 ml</td>
</tr>
</tbody>
</table>

RESULT
Symptomatic relief occurred after ten days and gradually patient felt better.
Table no 5: Symptomatic relief.

<table>
<thead>
<tr>
<th>Symptoms before treatment</th>
<th>Symptoms after treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Karshya (Weight loss)</td>
<td>Weight gain with mamsabalavruddhi at both upper and lower extremities</td>
</tr>
<tr>
<td>Stiffness in knee and elbow joint</td>
<td>Stiffness was decreased and patient was able to move knee joint</td>
</tr>
<tr>
<td>Agnimandya (Lowering appetite)</td>
<td>Agnivruddhi (Appetite increase)</td>
</tr>
</tbody>
</table>

Table no. 6: Change in muscle thickness.

<table>
<thead>
<tr>
<th>Changes in muscle thickness</th>
<th>At the time of admission</th>
<th>After 30 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joint</td>
<td>Right</td>
<td>Left</td>
</tr>
<tr>
<td>Knee joint</td>
<td>30 cm</td>
<td>34 cm</td>
</tr>
<tr>
<td>Above knee joint</td>
<td>32 cm</td>
<td>33 cm</td>
</tr>
<tr>
<td>Below knee joint</td>
<td>24 cm</td>
<td>26 cm</td>
</tr>
<tr>
<td>Elbow joint</td>
<td>22 cm</td>
<td>22 cm</td>
</tr>
<tr>
<td>Above elbow joint</td>
<td>21 cm</td>
<td>19 cm</td>
</tr>
<tr>
<td>Below elbow joint</td>
<td>17 cm</td>
<td>18 cm</td>
</tr>
</tbody>
</table>

After the treatment patient was able to move his stiffed joint freely, his appetite was increased, patient gain weight. Concentration in study was better. As poor family condition we didn’t refer for CPK level but patient improves symptomatically.

DISCUSSION

Action of drug and other procedure in management of muscular dystrophy

1) **Cap. Rasayana:** It contains all balya drugs like amalaki, guduchi and gokshura which improves the thickness of muscles and acts as a rasayana.

2) **Tab. Ashwagandha:** It is balya, bruhaniya, kapha vata shamak therefore it is used in the diseases induced by kapha and vata. It acts on mamsa, meda (as do nourishment) and majja vaha strotasa.

3) **Tab. Mahavatavidhwansa rasa:** It acts on vitiated vata and gives strength to mamsa and asthi dhatu as well as it contains abhraka bhasma which acts as balya (which gives strength)

4) **Mahamanjishtadi kadha:** It was given for raktashuddhi (blood purification), as patient having complaints of itching on both legs. It contains manjistha which is best tonic as blood purifier.

5) **Gandhakadi malahara:** It was given for local application on both the legs as the patient was complaining of itching. Improvement in itching was in the next day.

6) **Bala ashwagandhadi oil:** It was given for local application as it contains bala and ashwagandha which gives strength to muscles and subsides the vitiated vata.
7) Panchakarma Therapy

- **Snehana** – It gives strength, enhance enzymes responsible for digestion and metabolism, plumpness of the body is achieved. Snehana is given by kshirabala oil which subside the vitiated vata and gives strength to the stiffed joints.

- **Swedana** – It suppresses any type of ache, contraction, stiffness of body, pricking and tingling sensation. We have given shashti shali pinda sweda. Twaka (skin) is having mamsadhara kala, so bruhan (nutrition) to mamsa dhatu can be best achieved with shasthi shali pinda sweda, as well as it subside the vitiated vata dosha.

- **Basti** – It is called as ardha chikitsa. Whatever is to be nourished can be best achieved with basti. According to samanya vishesh sidhanta if we have to increase muscle mass, we have to provide the same via any other route. We have given bruhan basti which includes mamsarasa which helps as Vata shamak (subside vata dosha) and Mamsa bruhan (nourishment of muscles).

CONCLUSION

There are many diseases which are not described in ancient treatises and also not possible for us to give any specific name. But it is mentioned that on the basis of Dosha- Dushya karya karanbhava, we can diagnose as well as treat the patient by keeping basic principles of chikitsa (treatment), and it is possible for us to treat successfully.

The absence of specific treatment for muscular dystrophy in modern medicine demands the role of contemporary and alternative approaches especially Ayurved treatment. Administration of Rasayana group of Herbo-mineral composition with Panchakarma treatment and use of Suvarnakalpa will definitely show protective influence.

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