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Review Article

PANCHAKARMA'S SYNERGISTIC SYMPHONY: HARMONIZING HEALTH IN DUCHENNE MUSCULAR DYSTROPHY (DMD)

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ABSTRACT

Duchenne Muscular Dystrophy (DMD) is a rare genetic disorder characterized by progressive muscle degeneration. This article explores the Ayurvedic concept of Beeja dosha and its relevance to DMD management. By incorporating Panchakarma, a traditional Ayurvedic bio-purification protocol, into treatment plans, individuals with DMD may experience improved muscle strength, function, and overall quality of life. This study aims to deepen understanding of DMD from an Ayurvedic perspective, laying the groundwork for future research into Ayurvedic management strategies. A personalized and holistic approach to care, integrating Ayurvedic insights with conventional treatments, may offer new hope for individuals affected by this condition.

INTRODUCTION

Muscular Dystrophies are the diseases of muscle membrane or supporting proteins, which are generally characterized by pathological evidence of ongoing muscle degeneration and regeneration. Diagnosis of these disorders is based on clinical presentation, genetic testing, muscle biopsy and muscle imaging. Dystrophinopathies are the group of disorders resulting from mutations in the dystrophin gene (located on the short arm of X-Chromosome).

Duchenne Muscular Dystrophy is the most common Dystrophinopathies with an incidence of 1 in 3500 live births. Children with DMD usually become symptomatic before the age of 5 year and may even have history of delayed walking. Gait disturbances often become apparent at 3-4 years of age. Subsequently there is increasing gait difficulty, development of contractures (initially dynamic then fixed) and increased lumbar lordosis.

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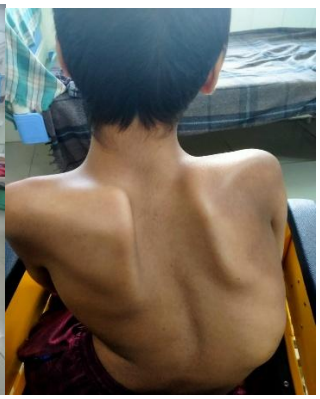
Waddling gait, Gower's sign and Pseudohypertrophy (regenerative capacity of the muscles appears to be exhausted, and connective and adipose tissue gradually replaces muscle fibers) are the classical findings of DMD. Aside from the calves, hypertrophy of the tongue and muscles of the forearm may be seen but are less classical. Natural history studies have shown, the age at loss of independent ambulation in untreated DMD to be between 8.8 and 10.5 yr. After loss of ambulation, there is worsening kyphoscoliosis and increasing upper limb weakness (Fig 1 & 2).

(Figure 1)

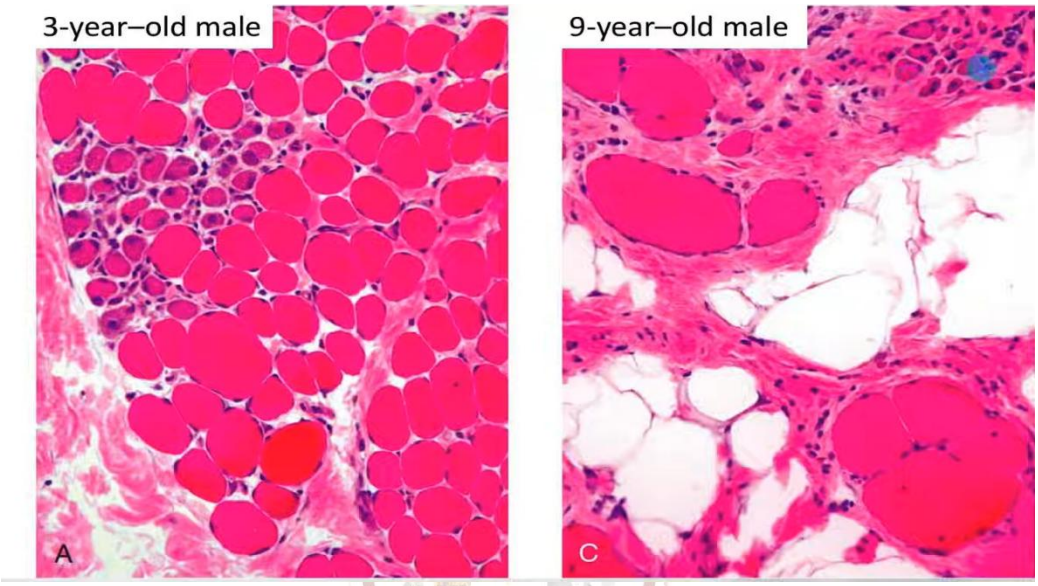


(Figure 2)

Weakness of intercostal and diaphragmatic muscles with spinal deformity affects the respiratory function. The cause of death in Duchenne muscular dystrophy patients is usually a combination of respiratory insufficiency and cardiomyopathy.

Diagnosis

- The **Serum creatine kinase** levels are greatly elevated (> 10 times of normal).
- **Multiplex PCR** and the more sensitive multiplex ligation-dependent probe amplification **(MLPA)** are commonly employed genetic techniques for detection of mutations.
- The **Muscle biopsy** shows features of muscular dystrophy which include necrosis and attempted regeneration of individual muscle fibers, increased variability of muscle fiber diameter with both hypertrophic and small fibers, and central nuclei. In an end-stage biopsy, almost the entire muscle is replaced by fibrofatty tissue (Fig 3).
- To confirm the clinical diagnosis **Immuno-histochernical Analysis** of the muscle biopsy is usually performed. Absence of dystrophin staining is seen in DMD whereas it is reduced and patchy in BMD.



(Figure 3)

Differential Diagnosis-

- **Beckers Muscular Dystrophy (BMD)**

BMD has a later onset, and the length of survival is longer. Patients typically have higher concentrations of dystrophin protein.

- **Intermediate form of Muscular Dystrophy**

Patients with this form of dystrophy have dystrophin levels between DMD and BMD.

- **Myotonic Muscular Dystrophy**

Inherited as an autosomal dominant disorder, distal muscles are more commonly affected. The ability to walk is often preserved.

- **Limb-Girdle Muscular Dystrophy**

This inherited dystrophy primarily affects muscles of the hip and shoulder girdles.

Management

- Management of a child with Duchenne muscular dystrophy requires a multidisciplinary team.
- The mainstays of management are maintenance of strength and joint range of motion by exercise, physiotherapy and avoidance of prolonged immobility.
- Corticosteroids (prednisone and deflazacort) are the only therapies proven to improve strength and prolong ambulation in children with Duchenne muscular dystrophy.
- Low dose prednisolone may be started with aim of preserving upper limb strength, reducing progression of scoliosis and delaying the decline in respiratory and cardiac function.
- Other supportive management includes pulmonary and cardiac care, nutrition, calcium homeostasis, appropriate immunization and orthopedic care.

MATERIALS AND METHODS

Ayurvedic understanding of DMD –

- DMD is *Adibala Pravritta Vyadhi* and there is certainly involvement of *Beejabhagaavyava* (Genes) leading to *khavaigunya* of *mamsavahastrotas* causing *dhatvagni* impairment which further lead to *Aama* instead of proper *Mamsadhatu.*
- यस्य यस्य ह्यङ्गावयवस्य बीजे बीज भाग उपतप्तो भवति, तस्य तस्याङ्गावयवस्य विकृतिरुपजायते|| (Cha Sha 3)
- *Acharya Charaka* has given the concept of ***Matrija*** and *Pitrija Bhavas* and different organs develops

due to dominance of these *Bhavas*. These *Matrija* and *Pitrija Bhavas* are responsible for different organogenesis like- *Twak, Rakta, Mamsa, Meda, Majja, Nabhi, Hridayam, Kloma, Yakrit, Pleeha, Vrikka, Basti, Purishadhanam, Amashaya, Pakvashaya, Uttara Guda, Adhara Guda, Kshudrantra, Sthulantra, Vapa, Vapavahanam* are deriverd from *Matrija bhavas* and *Sukra, Kesha, Smasru, Nakha, Loma, Danta, Asthi, Sira, Snayu, Dhamani* are derived from *Pitrija Bhavas.*

- मातृजश्चायं गर्भः| तद्यथा -
  त्वक्च लोहितं च मांसं च मेदश्च नाभिश्च हृदयं च क्लोम च यकृच्च प्लीहा च वृक्कौ च बस्तिश्च पुरीषाधानं चामाशयश्चपक्वाशयश्चोत्त रगुदं चाधरगुदं च क्षुद्रान्त्रं च स्थूलान्त्रं च वापा च वपावहनंचेति| | (मातृजानि) (Cha Sha 3)
- Meanwhile organogenesis is controlled by gene or chromosomes. In human being half of chromosome come from maternal and half from paternal chromosomes or genes, that is similarly to *Matrija* (maternal) and *Pitrija* (paternal) *Bhavas*. If any changes in these factors they resulted congenital deformities or *Adibala Privratta Rogas.*

➢ Samprapti -

Beeja Bhaaga avayava Dusti

↓

Kha Vaigunya in Mamsavaha Srotas (Loss of Dystrophin protein)

↓

Sroto Dusti (Sroto Rodha/ Sroto Sanga) ⟶ Pseudohypertrophy?

↓

Mamasa Dhatvagni maandya ⟶ Production of Ama/Kleda ⟶ High CPK levels

↓

Mamsa Dhatu Kshaya + Vitiation of Vyana vaata

↓ ↓

Muscle bulk reduced ⟶ Reduced muscle power & ROM

DISCUSSION

Although an exact correlation of DMD is not found in Ayurveda, it can be considered as: *Aadibala Pravrutta Vyadi* or *Sahaja Vyaadhi* due to its genetic origin.

Pathophysiological Correlations:

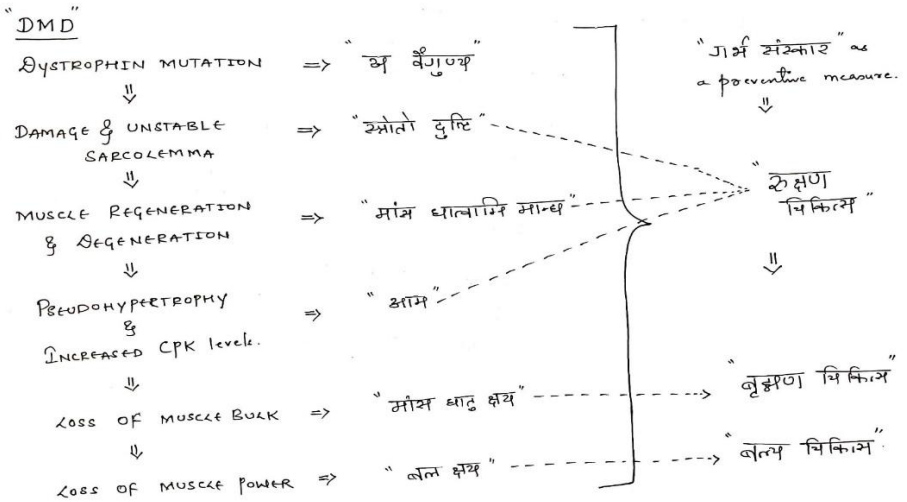
1. *Khavaigunya*: Mutation in the dystrophin gene leads to the absence of dystrophin protein, destabilizing the sarcolemma (muscle cell membrane).

2. *Srotodusti* (*Mamsavaha Srotodusti*): Loss of dystrophin protein causes damage and instability to the sarcolemma.

3. Accumulation of *Aama*: Muscle tissue undergoes regeneration and degeneration, leading to fat accumulation inside the muscle tissue, causing pseudohypertrophy and elevated CPK levels.

4. *Mamsa Dhatu Kshaya*: Loss of muscle bulk due to muscle degeneration.

5. *Bala Kshaya*: Loss of muscle power due to muscle degeneration.



To prevent genetic disorders, adhering to *Garbha Samskaaras* before and during pregnancy is crucial.

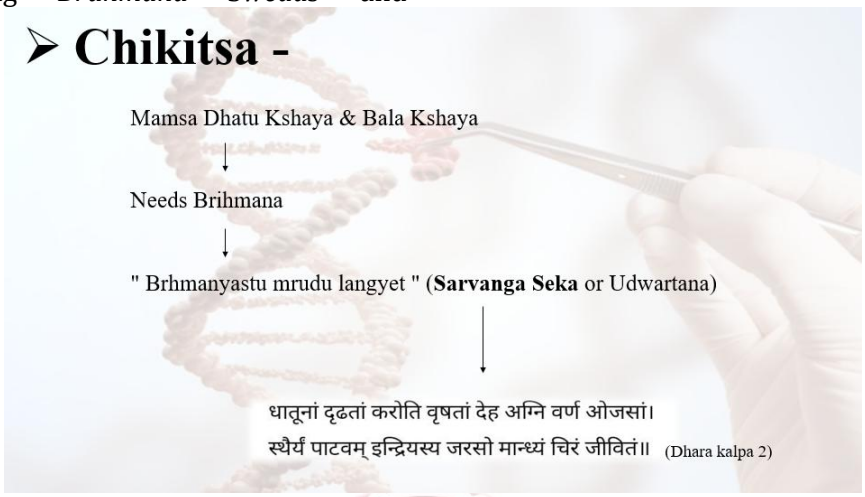
In managing Duchenne Muscular Dystrophy (DMD), a multi-step approach can be employed:

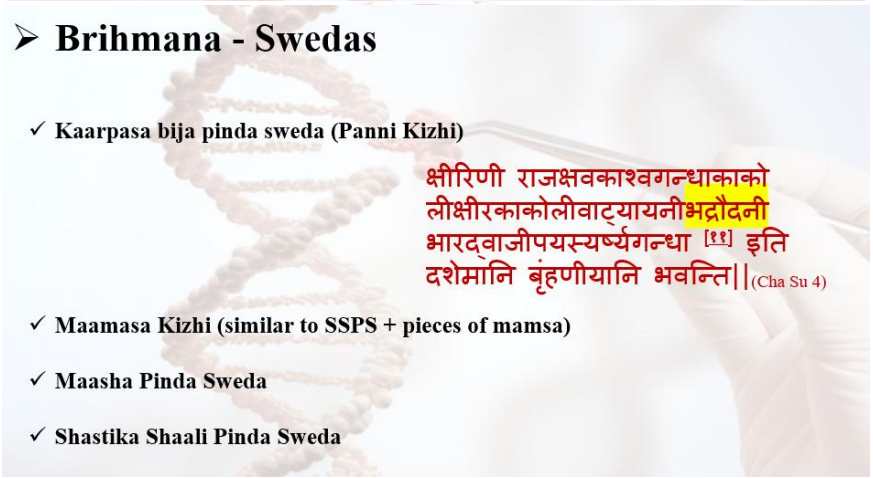
1. *Rukshana Chikitsa*: Implement therapies like *Parisheka* and *Udwartana* to eliminate accumulated *Aama* and purify the channels (*Srotoshodhana*).

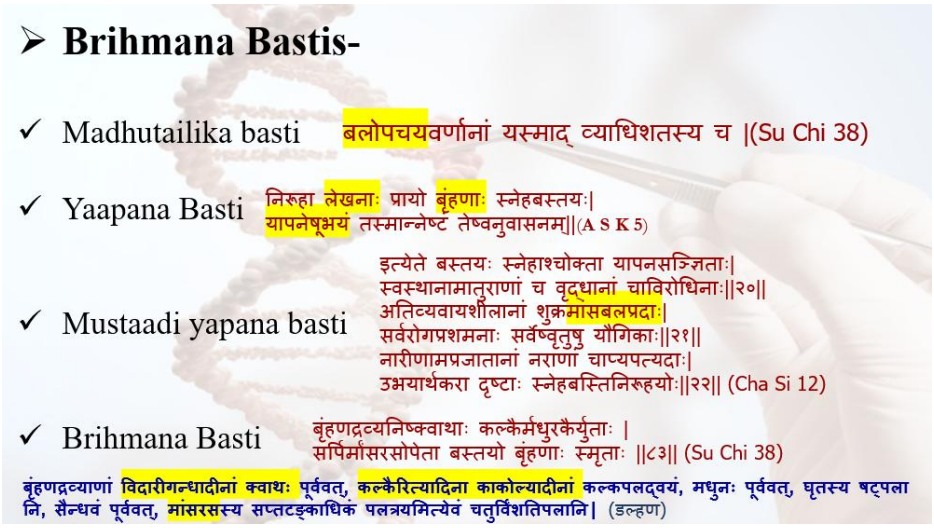
2. *Bruhmana Chikitsa*: Administer nourishing treatments, including *Bruhmana Swedas* and ***Bruhmana* Bastis**, to promote muscle growth and strength.

3. *Rasayana* Therapy: Utilize *Rasayanas* with *Balya* properties to enhance muscle power and overall well-being.

4. Physiotherapy: Integrate physiotherapy to complement Ayurvedic treatments and optimize muscle function.







By adopting this comprehensive approach, individuals with DMD can potentially experience improved muscle strength, function, and overall quality of life.

CONCLUSION

The strategic integration of Ayurvedic principles, particularly *Panchakarma* and *Rasayana,* presents a promising adjunctive approach to mitigating the progression of Duchenne Muscular Dystrophy. By leveraging the synergistic potential of these traditional therapies, we may uncover novel avenues for enhancing muscle function, strength, and overall quality of life for individuals affected by this debilitating genetic disorder.

Ultimately, a multidisciplinary approach that harmoniously blends the ancient wisdom of *Ayurveda* with the advances of modern medicine holds the key to transforming the lives of DMD patients and their families.

Notably, the *Acharyas*, recognizing the limitations of treatment, classified *Kulajavikaras* (genetic disorders) as *Asadhya*. In the absence of therapeutic options, adhering to the *Acharyas'* recommended precautions can contribute to a society with fewer genetic or inherited issues, underscoring the importance of preventive measures in addressing genetic disorders.

Declaration of patient consent:

The authors certify that they have obtained all appropriate consent from the Patient.

REFERENCES

1. Ghai OP. Textbook of Pediatrics. 8th ed. New Delhi: CBS Publishers & Distributors; 2018. Chapter 19, pp. 595-597.

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