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AYURVEDIC MANAGEMENT OF LIMB GIRDLE MUSCULAR DYSTROPHY - A CASE REPORT

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ABSTRACT

Limb–girdle muscular dystrophies (LGMD) are muscular dystrophies that affect skeletal muscles, mostly proximal (hips and shoulder muscles). They are caused by a mutation in a gene encoding a protein, which is specific to each subtype. LGMD inheritance is autosomal. This is in contrast to Duchenne or Becker muscular dystrophies, which are caused by a mutation in the DMD gene located on the X chromosome. Some LGMD forms are dominant, and others are recessive. The available management of LGMD in biomedicine is unsatisfactory. Here we present a case of LGMD managed with combinations of Ayurvedic oral medicines and Panchakarma procedures. The Ayurvedic diagnosis of the condition was considered as Mansagata Vata (~neuromuscular diseases), a type of Vatavyadhi (~neuromusculo skeleton disorders). The patient was treated with Shashtikashali Pinda Swedana and Matra Basti for the duration of 16 days along with following Ayurvedic oral medicines: Brihatvata Chintamani, Balarishta, Ajamamsa rasayana with milk, Neurocare drops with milk, Cap. Ksheerabala with milk, Syp. Navashwagandha. Patient's condition was assessed for symptoms of walking distance, power and reflexes of both upper and lower limbs. There was symptomatic improvement in the patient's condition. The study suggests that LGMD can be satisfactorily managed though not cured with Ayurvedic oral medicines and Panchakarma therapy.

KEYWORDS: *Limb Girdle Muscular Dystrophy, Vatavyadhi. Mamsagata vata, Panchakarma therapy.*

INTRODUCTION

Muscular dystrophies (MDs) are genetically heterogeneous cluster of muscle disorders with progressive weakness and muscle wasting. Duchene muscular dystrophy (DMD), Becker muscular dystrophy (BMD), congenital muscular dystrophy (CMD), Myotonic muscular dystrophy (MMD), Facioscapulohumeral muscular dystrophy (FSMD) and Limb girdle muscular dystrophy (LGMD) are common MDs [1]. Each of these disorders differs in terms of age of onset, severity, affecting muscle groups and pattern of inheritance [2]. LGMDs are autosomal, heterogeneous neuromuscular disorders of progressive weakness and wasting of the limb girdle muscles [3]. The combined prevalence rate of the MDs range between 16-25.1 per 100,000 people per year [4]. Worldwide prevalence rate of LGMDs is 1 in 14,500-45,000[3]. MD patients are known to have mortality at younger age and there is lack of effective management [5]. There is need to explore alternative options for MDs managements. The primary focus of the management was to ameliorate the symptoms of the disease. The Ayurvedic diagnosis was made as *Mansagata Vata*, a type of *Nirupsthambhita Vatavyadhi*[6].

CASE REPORT

A 13-year-old male patient was apparently normal 10 years ago. However, when he was 3 years old, he began experiencing difficulties, initially manifesting as dragging his left leg and struggling to rise from a squatting position. Unfortunately, his parents dismissed these symptoms, asking him to walk properly. About a year ago, his grandfather observed the child having trouble climbing bus steps on his way to school. Subsequently, they noticed he had difficulty rising from a sitting position, started using his arms to assist his legs. Additionally, his gait exhibited abnormalities, walking on his toes on the left side while placing his right foot fully on the ground with less stability. There were no reported muscle pains, muscle wasting, speech, or swallowing difficulties noted. For the above-mentioned complaints, the patient was taken to a nearby allopathic hospital where relevant investigations were conducted, including CBC, serum chloride, MRI of the thoracolumbar spine, MRI of the brain, and CPK. All reports returned normal except for elevated CPK levels. Subsequently, the patient was referred to Apollo Hospital, where they consulted a pediatric neurologist, and a nerve conduction study (NCS) was done, yielding normal results. Where they adviced for genetic testing, undergoing genetic testing was denied by the patient as it was not feasible.Consequently, the patient was admitted to our hospital for further management.

CLINICAL FINDINGS

Patient was conscious, well oriented, and spoke normally. There was absence of pallor, icterus, cyanosis, clubbing and oedema. There were no any palpable lymph nodes. He had difficulty in walking (Waddling gait) and positive Gower's sign. Neurological examination revealed normal Cranial nerve

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functions, the tone of upper and lower extremities was normal and grade 4 power was observed in (Right) Elbow flexion and extension, Right Finger abduction, Right Hip extension, Right and left knee extension, Right and left ankle dorsiflexion. Deep tendon reflexes were diminished. The sensory functions like pain, touch and temperature were normal. Erythrocyte sedimentation rate, Complete blood count, Serum chloride, MRI of the thoracolumbar spine, MRI of the brain were within normal limits. Serum Creatine Phosphokinase (S. CPK) was elevated. Tenfold examination of patient suggested *Vatakapha Prakriti* (~physical constitution) *Madhyama Samhanana* (~medium body constitution), *Avara Sara* (~lowermost purest body tissue), *Avara Vyayam Shakti* (~lowermost capability to carry on physical activities), *Madhyama Abhyavarana* and *Jaranashakti* (~middlemost food intake and digestive power). *Mansavaha Srotodushti* was observed (Vitiation in micro-channels related to muscular tissues) in this patient. *Srotasa Pariksha* (examinations of other microchannels) revealed normal status of other *Srotasas*.

TIMELINE

AGE	PRESENTING COMPLAINTS
3 YRS	Dragging of left leg and struggle to raise from squatting position
11 YRS	Grandparents observed the child having trouble in climbing the steps and assisting his arms to support his legs while getting up from the sitting position
30/03/2024	Consulted apollo hospital Bangalore Adviced for MRI (thoracolumbar spine), MRI brain, thyroid profile, NCS which reported normal Serum CPK was significantly raised 3162 mg/dl
19/04/2024	Genetic evaluation was adviced which was denied by the patient party

TREATMENT PLAN

Table 1 showing the oral medications prescribed

Name of the medicine	*Anupana* and dose	Days
Brihatvatachintamani rasa	1-0-1 after food	05/05/2024-09/10/2024
Balarishta	10ml-0-10ml after food with equal quantity of hot water	05/05/2024-09/10/2024
Ajamamsa rasayana	0-0-1/2 tsp with milk after food	05/05/2024-09/10/2024
Neurocare drops	10 drops-0-10 drops with milk after food	05/05/2024-09/10/2024

Table 2 showing the *Panchakarma* procedures

Name of the procedure	Drugs used	Days of treatment
Abhyanga	*Ashwagandhabala Lakshadi Taila*	05/05/2024 - 19/05/2024 14/10/2024 – 21/10/2024
Swedana	*Shashtika Shali Pinda Sweda*	05/05/2024 - 19/05/2024 14/10/2024 – 21/10/2024
Basthi Karma	*Matra Basthi* with *Ashwagandha Ghritha* – 40 ml	05/05/2024 - 19/05/2024 14/10/2024 – 21/10/2024

OUTCOME

- Mild improvement was observed from parents and patient in waddling gait.
- Difficulty to stand and to sit reduced.
- Difficulty to walk and climbing upstairs reduced.
- Walking ability of the patient increased.
- The Functional motor assessment scale score improved from 23 to 31 out of a total 54.

DISCUSSION

Limb girdle muscular dystrophy is the autosomal recessive heterogeneous hereditary disorder. The genes associated with LGMD normally encode protein that play vital roles in muscle function, regulation, and repair. When one of these genes contains a mutation, cells cannot produce the proteins needed for healthy muscles. In the present case the Creatine phosphokinase is valued about 3162 U/L and the normal levels in males ranges from 55 to 170 U/L. Considering the symptoms in Children with LGMD, it may be due to *Bheejabhagavayava Dushti* due to *Adibala Pravrutta* cause[7].This *Bheejabhagavayava Dushti* further leads to *Tridosha Dushti.* The vitiated *Vata* vitiates the *Mamsa Dhatu* and causes *Mamsa Kshaya* leading to this disease. There is no definite treatment protocol for the diseases which are caused due to *Beeja Dosha*, but the present condition can be treated symptomatically by treating the *Vata Dosha* to increase the quality of life. Even though it is an *Adibala Pravrutta Vyadhi*, it can be taken as *Mamsagata Vata* based on the presentation of the disease. *Mamsagata Vata* is a type of *Vatavyadhi* so in the present case *Samanya Vatavyadhi Chikitsa* is adopted.

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***Abhyanga* with *Balashwagandha Lakshadi Taila* [8]**
This Taila contains:
Kashaya - Bala, Ashwagandha, Laksha
Kalka - Rasna, Chandana, Manjista, Durva, Yastimadhu, Choraka, Sariva, Ushira, Musta, Kushta, Agaru, Devadaru, Haridra, Kumuda, Harenuka, Shatapushpa, Padmakeshara.

Tila Taila
This *Taila* is used in different types of *Vatavyadhi* and this *Taila* is considered as *Atyanta Pustikara*, in the present study the patient is having *Vata Vruddi* and *Mamsa Kshaya* so this *Taila* is used for the *Abhyanga* to regain the strength by doing *Vata Shamana*.

***Swedana* with *Shastika Shali Pinda Swedana*[9]**
Shastika Shali Pinda Sweda is a form of *Sankara Sweda* where the ingredients like *Shastika Shali (Tridoshahara, Balya, Pushtikara), Bala Mula Kwatha (Brumhana), Ksheera (Balya)* are used. Over all *Shastika Shali* is a type of *Swedana* which also gives *Snigdhata* to the body and increases the *Bala* by controlling the vitiated *Vata Dosha*.

***Matra Basthi* with *Ashwagandha ghritha*[10]**
Ashwagandha Ghrita is a medicated ghee formulation prepared with *Ashwagandha (Withania somnifera*) as the chief ingredient, processed with various *Balya, Brumhana and Rasayana herbs.* It is considered highly effective in pacifying aggravated *Vata and* nourishing the *Dhatus. Ashwagandha* possesses *Medhya, Rasayana,* and *Balya* properties, while *Ghrita itself is Snigdha, Sukshma, Rasayana and Yogavahi,* thereby enhancing the absorption and efficacy of the ingredients. Supporting herbs included in the formulation such as *Trikatu, Triphala, Shatavari, Yashtimadhu, Chandana and others contribute to Agnideepana, Dhatu Poshana* and *overall vitality.* In the present study, as the patient is having ***Vata Vruddhi*** and ***Mamsa Kshaya***, *Matra Basti* with *Ashwagandha Ghrita* is selected. The Basti acts directly on the *Pakvashaya,* the main site of *Vata,* thereby controlling the aggravated *Vata Dosha*. The *Snigdha and Brumhana* properties of *Ashwagandha Ghrita* help in nourishing the *Mamsa Dhatu,* providing strength, stability and improving neuromuscular coordination. It also functions as a *Rasayana,* promoting *Ojas* and *immunity,* thus preventing further progression of *Vatavyadhi. Overall, Matra Basti with Ashwagandha Ghrita is considered* ***Balya, Brumhana, Vatahara and Rasayana***, making it highly beneficial for regaining strength and vitality in conditions of *Vata* predominance with *Mamsa Kshaya.*

***Brihatvata Chintamani*[11]**
It is a classical herbo-mineral formulation containing *Svarna Bhasma, Rajata Bhasma, Abhraka Bhasma, Loha Bhasma, Pravala Bhasma, Mukta Bhasma,* and *Suta Bhasma*, processed with suitable *Bhavana Dravyas*. This unique combination acts as a potent *Rasayana* and *Balya*, pacifies aggravated *Vata*, and nourishes depleted Dhatus. Being *Ojovardhaka* and *Medhya,* it is especially indicated in *Dhatukshaya*, chronic neurological disorders, and debilitating conditions to restore vitality and enhance overall strength.

***Balarishta* [12]**
This Arishta mainly contains Bala (Sida cordifolia) as the chief ingredient, along with other supportive herbs such as Dhataki, Gokshura, Eranda, Rasna, Ashwagandha, Atibala, Prasarini, Kantakari, Sunthi, Musta, Haritaki, Amalaki, and Guduchi. This formulation is specially indicated in all kinds of Vatavyadhi due to its Vata-shamaka, Balya, and Rasayana properties. Balarishta is also beneficial in Dhatukshaya, where it helps in restoring strength and vitality by nourishing the Dhatus and improving Ojas.

Ajamamsa rasayana[13]
This Rasayana mainly contains Ajamamsa (goat's meat) as the chief ingredient, processed with ghee, milk, Bala, Ashwagandha, Shatavari, Vidari, and other Rasayana dravyas. This formulation is highly nourishing and strengthening due to its Balya and Brimhana properties. It pacifies Vata Dosha and is especially useful in Vatavyadhi such as weakness, emaciation, neuromuscular disorders, and degenerative conditions.

Neurocare drops[14]
This herbal formulation contains ingredients such as *Kshira* (Milk), *Taila* (Sesamum indicum / Sesame oil), *Bala* (Sida cordifolia) in both *Kwatha* (decoction) and *Kalka* (paste) form, processed in a decoction prepared from *Ashwagandha*, *Rasna*, *Shatavari*, *Pippali*, *Guduchi*, *Kushta* and *Erandamula*. This combination helps in all kinds of *Vatavyadhi* by controlling aggravated *Vata,* alleviating neuromuscular pain, strengthening nerves, muscles, ligaments and connective tissue; and used in *Dhatukshaya* to increase strength and improve repair of damaged tissue.

CONCLUSION
In this case, therapies like *Sashtika shali piṇḍa svedana, matra basti* with *ashwagandha ghṛita* and *rasayana* medicines improved gait and muscle strength. The protocol focused on *vata samana, bṛṃhaṇa* and *rasayana,* nourishing dhatus and enhancing neuromuscular function. This case suggests *ayurveda* can improve quality of life in LGMD and merits further clinical evaluation.

CONFLICT OF INTEREST
There is no any conflict of interest.

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