



A CASE OF ADULT ONSET LIMB GIRDLE MUSCULAR DYSTROPHY SIVARANCHANI

Department of General Medicine, TIRUNELVELI MEDICAL COLLEGE

Abstract : Limb girdle muscular dystrophy is a heterogeneous group of rare disorders characterized by limb girdle weakness. The information on LGMD in India is still at an early stage, only few subgroups having been studied clinically and immunocytochemically. Here I report a sporadic case of LGMD in an adult female, who presented with late onset, symmetric, predominantly proximal muscle weakness, with calf muscle hypertrophy and scapular winging. She had notable hip girdle weakness, predominantly involving the hip adductors and knee flexors. Her CPK level was mildly elevated and muscle biopsy showed evidence of muscle dystrophy.

Keyword : proximal weakness, limb girdle, scapular winging, calf hypertrophy

INTRODUCTION

Muscular dystrophies are hereditary disorders associated with progressive weakness and atrophy of muscles. The current clinical classification of muscular dystrophies is based mainly on the distribution of the dominant muscle weakness⁽⁸⁾. Limb girdle muscular dystrophies constitute a major proportion of cases with adult onset muscular dystrophy⁽⁴⁾⁽¹³⁾, that do not fit into the classical phenotypes of Duchenne/ Becker, fascioscapulohumeral or scapuloperoneal dystrophies⁽⁸⁾. CPK, muscle biopsy, immunohistochemical and genetic studies establish the diagnosis⁽⁸⁾.

CASE REPORT

A 32 year old housewife, from Sivagiri, born of a non-consanguineous marriage, presented with progressive difficulty in getting up from squatting position and climbing up stairs for three years. Her weakness progressed gradually and one year later, she noticed difficulty in combing hair and raising the arms above head. At the time of admission, she had marked weakness of lower limbs and required support in getting out of chair and while walking. She had no difficulty in holding slippers or buttoning clothes. She did not experience any diurnal variations or episodic weakness and there was no history of muscle pain or cramps⁽¹⁾. She did not have any neck muscle weakness or nasal regurgitation or dysphagia or drooping of eyelids. She had no sensory disturbances; bladder and bowel habits were normal. She had no family history of similar illness. Her developmental history was normal. She was married with two healthy children and there was no history of recurrent abortions. She was not on any chronic medication⁽¹⁾.



PICTURE SHOWING CALF MUSCLE HYPERTROPHY

Examination revealed marked calf muscle hypertrophy and scapular winging with wasting of rhomboids and supraspinatus, infraspinatus muscles. She was unable to stand up from the chair without support. There was predominant lower limb weakness involving mainly the hip adductors (power-1/5) and knee flexors (2/5)¹⁶. The hip abductors (3/5), extensors (4-/5), knee extensors (4-/5) were relatively spared. Upper limb flexors (2/5) were more involved than extensors (4-/5). Her distal power was relatively spared and hand grip was normal. All deep tendon reflexes were absent. Plantar was bilaterally flexor. She had hyperlordosis of lumbar spine and had a waddling gait. There was no muscle tenderness. There was no facial or ocular or bulbar weakness. Beevor's sign was negative. Her sensory system and cranial nerves were normal; she had no cerebellar signs; intelligence and memory preserved⁽⁸⁾; autonomic system was normal. Cardiac and respiratory system examination was unyielding.

Her ECG; complete blood count, chest x ray, thyroid profile, liver and renal function tests were normal. Echocardiography was also normal. CPK levels were mildly elevated (530 IU/L). ANA and HIV screening were negative. Nerve conduction study was normal. EMG showed low amplitude,

short duration motor unit potentials, with presence of fibrillation potentials, reduced incremental activity and reduced recruitment pattern. We proceeded with muscle biopsy from the quadriceps muscle which showed fragments of muscle fibres with varying size composed of atrophic degenerated muscle fibres with interfascicular fibrosis and fatty tissue replacement, suggestive of muscular dystrophy. Molecular studies were not performed.

DISCUSSION

LGMD was first described by in 1954 by Walton and Natrass⁽⁸⁾⁽¹¹⁾. But only after 1990, the heterogeneity of LGMD was identified through linkage studies. Due to the lack of diagnostic specificity, estimates of prevalence has ranged from 1 per 14,500 to 1 per 1,22,000⁽¹²⁾. It can occur in both males and females¹⁵. The incidence of LGMD in India is not precisely known. Khadilkar et al has reported 54 cases from India¹².

LGMD usually occurs in an autosomal dominant or recessive pattern of inheritance but may also occur sporadically⁽⁷⁾. Individuals with no family history may have a de novo dominant mutation. In a hospital based study of 15 years from Mumbai, only 30% of the LGMD cases had a family history⁽¹²⁾. To date 19 LGMD genes have been mapped, among them 13 are recessive and 7 are dominant (1A to G)⁽¹⁴⁾. Autosomal recessive forms are the most common⁽⁹⁾ (2A to 2M) and have higher CPK levels when compared to autosomal dominant forms. LGMD 2A is the most common type⁽³⁾⁽⁸⁾. Autosomal dominant forms usually occur later in life and progress at a much slower rate when compared to the recessive forms.

In our case, there is selective involvement of hip adductors, which is a classical sign of LGMD, especially sarcoglycanopathies⁽¹²⁾⁽¹⁶⁾. Similarly the hamstrings are more affected than the quadriceps⁽¹⁶⁾. Khadilkar et al demonstrated the hip abductor sign⁽⁴⁾⁽¹²⁾ in about 54% of the LGMD cases. This is due to splaying of thighs as they squat, due to preserved abductors. Waddling appears late in the course of disease¹². Scapular winging was noted in 44% of patients⁽¹²⁾.

The female carriers of Becker phenotype may present with similar features and calf muscle hypertrophy⁽¹⁵⁾, but here the iliopsoas, quadriceps and glutei⁽⁸⁾ are the main muscles affected. Fascioscapulohumeral dystrophy can be ruled out due to absence of facial weakness⁽¹⁵⁾. Polymyositis and dermatomyositis may present in a similar way, but usually they are associated with rapid evolution, pharyngeal weakness and response to immunosuppressive therapy⁽¹⁵⁾. Muscle biopsy is confirmatory. Calf muscle hypertrophy is commonly associated with sarcoglycanopathies (LGMD 2C to F)¹¹ but may also occur in autosomal dominant forms¹⁴.



PICTURE SHOWING SCAPULAR WINGING

The level of CPK elevation helps to differentiate between various types. It may be normal or mildly raised in LGMD 1A and 1B, moderately raised (5- 10 times the upper limit of normal) in LGMD 1C, 2A 2C-F and 2I, and grossly raised (>10 times) in LGMD 2B⁽¹¹⁾. In our case, there is only a mild rise of CPK and hence probably comes under autosomal dominant form. Further immunohistochemical and gene analysis are required to establish a specific type. Biochemical testing (i.e., protein testing by immunostaining or immunoblotting) performed on a muscle biopsy can establish the diagnosis of LGMD types: sarcoglycanopathy, calpainopathy, dysferlinopathy and dystroglycanopathy⁽⁹⁾⁽¹⁰⁾.

Cardiomyopathies and arrhythmias, frequently conduction blocks are seen in LGMD patients⁽¹¹⁾. Our patient was advised frequent monitoring with ECG and echocardiography and she also needs regular respiratory assessment⁽¹¹⁾, though there is no involvement of cardiorespiratory systems till now. She has been advised regular physiotherapy to prevent contractures⁽⁶⁾ and genetic counselling has been advised for her children. In an autosomal dominant pattern of inheritance, the chance is fifty-fifty that the child of an affected parent will inherit this disease.

CONCLUSION

LGMD has to be thought of in patients presenting with adult onset muscular dystrophy with hip girdle weakness⁽⁴⁾. The reported cases from India are few and a lot of genetic and immunohistochemical studies are going on in this subject. Various drugs like coenzyme Q⁽¹¹⁾ and corticosteroids⁽⁶⁾⁽¹¹⁾ and stem cell therapy⁽⁶⁾ are under trial and may be proved beneficial in these patients.



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