Case Report

Unusual Presentation as an Adult Onset Painful Myopathy in a Thai Patient with Becker Muscular Dystrophy

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A Thai 37 years old man presented with adult onset progressive proximal muscle weakness and generalized myalgia. Family history showed similar symptoms in several male relatives, compatible with X-linked recessive inheritane. Electromyography suggested myopathic process. Serum creatine kinase was highly elevated. Diagnosis of Becker muscular dystrophy (BMD) was confirmed by genetic testing. His symptoms responded well to steroid treatment. This report is of the first Thai patient with atypical presentation of BMD.

Keyword: *Dystrophin, Myalgia, X-linked*

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Becker Muscular Dystrophy (BMD: MIM No. 300376) is one of the most common heritable progressive muscular dystrophies in human. The condition is inherited in X-linked recessive fashion. Affected individuals are almost exclusively male and female carriers are asymptomatic. The disease typically presents during the childhood period with progressive proximal muscle weakness, pseudohypertrophy of both calves and generalized muscle atrophy. Most affected individuals eventually become wheelchair-bound after 3th-4th decade of life. This presented a report, a Thai patient with unusual clinical manifestation of BMD.

Case Report

The patient was a 37 years old man who came to the outpatient department clinic at Siriraj Hospital due to progressive proximal muscle weakness and generalized myalgia. His symptoms began 2 years prior to the medical visit. His muscle aches and weakness were not associated with activity or exercise. His symptoms became slowly progressive in the past 2 years. He denied numbness and abnormal sensation of both arms and legs. He observed no muscle twitching, no unsteady gait and no abnormal movement. No definite diagnosis had been made after several medical visits previously. His medical history was significant only for hypertension. Family history showed similar symptoms in several male relatives including his maternal grandfather and sons of his aunt (Fig. 1). His

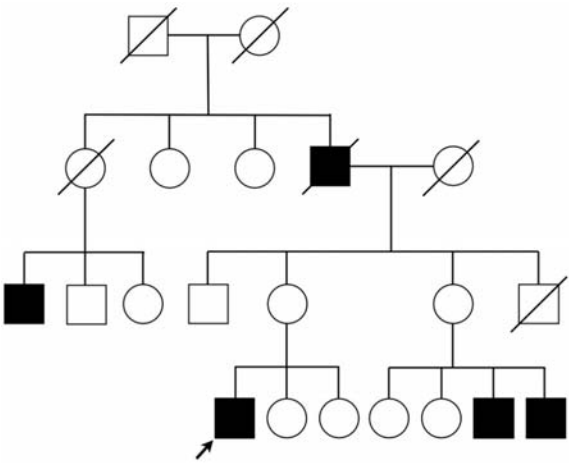

Fig. 1 Pedigree showing family tree of the patient. (Squared boxes represented male individuals, circle represented female individuals, affected individuals were shaded in black, diagonal lines represented deceased individuals, and arrow sign indicated the patient)

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parents and sisters had no symptoms. No medication besides antihypertensives and occasional analgesics was used. Physical examination revealed a Thai middle-aged male with mild wasting of proximal muscle groups. Muscle power was at grade 4 of 5 for shoulder and hip girdle muscles and grade 5 of 5 for distal limb muscles. Sensory system was not impaired and deep tendon reflexes were normal. No fasciculation, tremor and abnormal cerebellar signs were seen. Nerve conduction velocity study revealed normal nerve conduction latency and amplitudes. Electromyography revealed small, short duration of motor unit action potentials compatible with myopathy. Initial serum creatine kinase (CK) was 1,850 U/L (normal range 0-190 U/L). Mutation testing in DMD gene was done by multiple ligation-dependent probe amplification (MLPA) and showed deletion in exon 45-47, thus confirmed the diagnosis of BMD (Fig. 2). His symptoms responded well after corticosteroids (Prednisolone 30 mg daily) was given. Pain symptom subsided and his muscle power improved. Serial CK levels were also declining and returned to normal level in 6 months (Fig. 3).

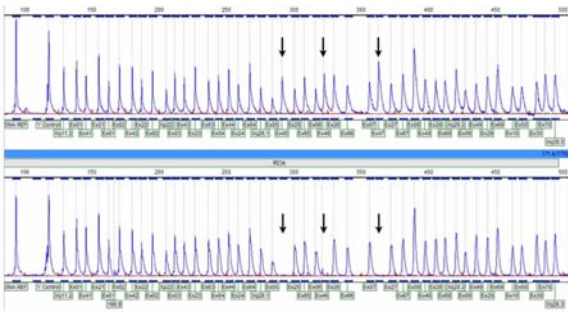

Fig. 2 Multiple ligation-dependent probe amplification (MLPA) showed absence of signal peak from exon 45, 46 and 47 (indicated with arrow signs) from the patient's DNA (lower tracing) compared with normal control DNA (upper tracing)

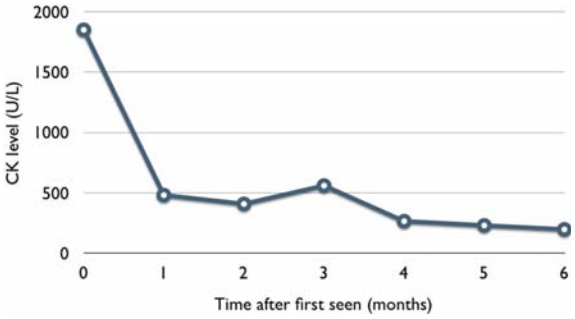

Fig. 3 Serum creatine kinase (CK level) at the time of diagnosis (month 0) and each month of follow-up period after steroid treatment (month 1-6)

Discussion

Besides careful medical history and physical examination, investigation for diagnosis of BMD includes serum creatine kinase (CK), electrodiagnosis, muscle biopsy and genetic testing[1]. Patients with BMD have marked elevation of CK even in asymptomatic childhood period and the CK level may gradually decrease at the later stage when all muscles are atrophic several years later. Electromyography shows classic myopathic pattern; short-duration, low-amplitude, polyphasic, rapidly recruited motor unit potentials. Findings of skeletal muscle biopsy depend on clinical stage. Conventional muscle histology reveals widespread muscle dystrophic change, including multifocal muscle necrosis, regeneration and hyalinization, with inflammation around muscle fascicles. Fatty and fibrous infiltration will be more evident at the late state.

Previously, diagnosis of BMD has been based on patient's history of progressive muscle weakness, generalized muscle wasting and striking family history of multiple affected male compatible with X-linked recessive condition. Reduced and patchy immunohistochemical staining of dystrophin is diagnostic for BMD. Definite diagnosis of BMD however requires the demonstration of mutations in DMD gene; its product, called dystrophin, is an essential protein in skeletal muscles. Since the introduction of immunohistochemical staining of dystrophin in skeletal muscle biopsy and genetic testing in DMD gene, a number of atypical clinical phenotypes in Becker muscular dystrophy have been reported, including dilated cardiomyopathy[2], muscle cramping, myalgia[3] and exercise-induced myoglobinuria[4]. It is interesting that deletion in exon 45-47 of DMD gene causes in-frame deletion of dystrophin protein and was found in patients with great clinical variability. Most of them have fairly slow progression of the disease[5]. This report is of the first Thai patient with atypical presentation of BMD.

With improved diagnostic techniques, it has been recognized that the mild end of the spectrum includes men with onset of symptoms after age 30 years who remain ambulatory even into their 60s. BMD should be considered a differential diagnosis in any males with these symptoms[6].

Potential conflicts of interest

None.

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การอ่อนแรงของกล้ามเนื้อแขนขาส่วนต้นร่วมกับอาการปวดกล้ามเนื้อในวัยผู้ใหญ่ การแสดงออกทางคลินิกที่พบน้อยในชายไทยที่เป็นโรคกล้ามเนื้อเสื่อมเบคเกอร์: รายงานผู้ป่วย

มานพ พิทักษ์ภากร

รายงานผู้ป่วยชายไทยอายุ 37 ปี ซึ่งมาพบแพทย์ด้วยปัญหากล้ามเนื้อส่วนต้นของแขนขาอ่อนแรงร่วมกับอาการปวดของกล้ามเนื้อทั่วร่างกาย การซักประวัติครอบครัวพบว่าสมาชิกในครอบครัว เพศชายหลายคน มีอาการเช่นเดียวกับผู้ป่วยและมีลักษณะการถ่ายทอดทางพันธุกรรมแบบจีนด้อยบนโครโมโซมเอกซ์ การตรวจทางห้องปฏิบัติการเพิ่มเติมพบว่าผู้ป่วยมีระดับเอนไซม์ครีอาตินไคเนสสูงมาก และมีความผิดปกติของกล้ามเนื้อจากการตรวจกล้ามเนื้อด้วยไฟฟ้า การตรวจทางพันธุศาสตร์พบการกลายพันธุ์ของจีนดีเอ็มดี ยืนยันการวินิจฉัยโรคกล้ามเนื้อเสื่อมเบคเกอร์ อาการผู้ป่วยทุเลาลงมากหลังได้รับการรักษาด้วยยาสเตียรอยด์ รายงานนี้เป็นการรายงานผู้ป่วยโรคกล้ามเนื้อเสื่อมเบคเกอร์ชาวไทยรายแรกที่มีอาการแสดงทางคลินิกไม่เป็นไปตามแบบแผนปกติ