

**Benign Joint Hyper Mobility Syndrome in a Case of ADHD**Dr. Sk Ashik Uzzaman\*<sup>1</sup>, Dr. Saswati Nath<sup>2</sup>, Dr. Sumit Mukherjee<sup>3</sup>, Dr. Ranjan Das<sup>4</sup>, Dr. Arijit Mondal<sup>5</sup>, Dr. Marufa Bilkish<sup>6</sup><sup>1,3,5</sup>Junior Resident, Dept. of Psychiatry R.G. Kar Medical College, Kolkata, India<sup>2</sup>Associate Professor, Dept. of Psychiatry R.G. Kar Medical College, Kolkata, India<sup>4</sup>R.M.O Cum Clinical Tutor, Dept. of Psychiatry R.G. Kar Medical College, Kolkata, India<sup>6</sup>Junior Resident, Dept of Obst. & Gynaecology, Calcutta National Medical College, Kolkata, India**\*Corresponding author**

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**Abstract:** Attention deficit hyperactivity disorder (ADHD) is a neurodevelopmental psychiatric disorder. Benign joint hyper mobility syndrome (BJHS) is a connective tissue disorder in the absence of rheumatological diseases. Individuals with hyper mobility syndrome are at increased risks of being diagnosed with psychiatric disorders like ADHD, anxiety, depression etc. Many children with ADHD had joint hyper mobility syndrome reported now a days. A number of children have few or no problems related to their increased range of movement. Here we report a case of ADHD with benign joint hypermobility syndrome. The patient felt knee joint pain and reported to orthopedics opd for the first time at the age of 3.3years and attended psychiatry opd at the age of 4 years for hyper activity and inattention. He was diagnosed as ADHD.His joints were hyper mobile and he was very comfortable with various uncommon tough exercises. Encouragement and time bound exercises helped him to decrease hyperactive behavior as well as increased his concentrations. Further research needed on ADHD & hyper mobility association, therapeutic benefit in terms of non pharmacological management is practically present or not. There were many case reports, studies regarding associations BJHM and ADHD, though no established strong genetic association came out till date, still it is a strong research background of many researcher.

**Keywords:** Attention deficit hyperactivity disorder (ADHD), Benign Joint Hyper mobility Syndrome (BJHS).Non-pharmacological management

**INTRODUCTION**

Attention deficit hyperactivity disorder is a psychiatric disorder characterized by attention deficit, hyperactivity, distractibility, and impulsivity leading to functional impairment in social, school, and occupational life[1]. The signs of ADHD, for example hyperactivity or attention deficit, have been reported in diseases characterized by joint laxity in case reports[2,3]. Joint hyper mobility syndrome (BJHS) is a connective tissue disorder condition which includes the increased distensibility of joints in the absence of rheumatological disease [4].

The primary clinical manifestation of BJHS is hyper mobility and pain in multiple joints. Hyper mobility of the joints is also seen in Marfan's and Ehler-Danlos syndrome (EDS), hence the name "benign" to distinguish from the latter, particularly hyper mobility type of EDS (Type III), which shares many features of BJHS and clinical manifestations may overlap[5]. Patients should be made aware of the potential sequel of this condition such as acute ligament and soft tissue injury, joint instability, the possible increase in the risk of fractures, premature

osteoarthritis, and more serious complications such as uterine and rectal prolapse[6].

Many musculoskeletal findings have been reported in children with ADHD, including postural anomalies, chronic fatigue syndrome, widespread musculoskeletal pain, and fibromyalgia [7, 8]. Also, signs of ADHD have been reported in disorders associated with joint laxity. A study by Dogan *et al.* 2007 found BJHS was found in a ratio of 31.5% patients with ADHD and 13.9% of the control group. Many people with joint hyper mobility have few or no problems related to their increased range of movement. At the same time BJHS associated with various psychiatric illnesses like anxiety, depression, panic disorders, ADHD etc.

In literature, there are several publications about musculoskeletal disorders, which accompany ADHD, but no study was found evaluating the frequency of joint hyper mobility in patients with ADHD in Indian scenario. As per our knowledge, there was no such case report or study on the association between ADHD and BJHS in India till date. More

research needed on neurobiological and genetic associations in both the conditions.

Tab Atomoxetine - starting with 2.5 mg/day and gradually increased to 10 mg/day

by normal titers of antinuclear antibody—in direct fluorescent antibody and no musculoskeletal abnormality.

### CASE REPORT

A 5 year old, Hindu boy from rural area of Dist (N) 24 parganas, west Bengal, came to child guidance clinic R.G.Kar Medical College in Nov 2016 with chief complaints of inability to concentrate in study, poor academic performance, and temper tantrum.

Patient was outcome of an unplanned pregnancy. Mother was under mental stress during antenatal period. He was delivered by forceps delivery and cried after birth. Postnatal period was uneventful. The motor, sensory and social developments were within normal limit.

He started going school at the age of 2 years and 9 months. As per parents his intelligence level was quite good and he learned anything quickly. In the initial exams he did well. At the age of 3 years he complained of knee joint pain without any history of trauma and was initially ignored by the family members. But the pain progressively increased day by day and associated with ankle joint pain. His parents took him to the orthopedics opd of our hospital at the age of 3 years and 3 months. Conservative management was given and the patient was referred to physical medicine department for further follow up.

On physical examination: the joints were found hypermobile, Brighton scale score 6/9 and full filled the both major criteria for joint hyper mobility syndrome No other physical deformity found. Available routine blood investigations were within normal limit, no evidence of rheumatological diseases as evidenced

X-ray of knee joint and echo-cardiography were normal. The patient neither had any significant family history suggestive of joint hypermobility, Marfan's syndrome or any musculoskeletal symptoms, nor symptoms of any other systemic illness. Any genetic testing could not be done due to lack of facilities. He was diagnosed as benign joint hyper mobility syndrome by the physical medicine department and was on regular follow-up and on conservative management.

His parents observed that he become extensively annoying day by day associated with restlessness, difficulty to concentrate in his studies. There was poor academic performances. He was then referred to psychiatry opd (child guidance clinic). Full psychiatric evaluation done. Clinically he was diagnosed as ADHD combined type as per DSM-5 diagnostic criteria. On Routine psychometric assessment ADHD-T (Attention Deficit Hyperactivity Disorder Test) was administered and hyperactivity and impulsivity both score were high and diagnosed as moderate combined type of ADHD.

Treatment started with non-stimulant medication Tab Atomoxetine 2.5mg/day mg the gradually increased to 10mg/day. Regular parental counseling, encouragement on regular aerobic exercise suggested. He was very comfortable with various exercises as well as gymnastic. As per parent reporting that exercise helped him to decrease hyperactive behavior as well as increased his concentrations.



Fig 1: Shows hyperflexion of the hip joints.





## DISCUSSION

ADHD is a neurodevelopmental disorder characterized by delayed, if not permanently stunted, cortical development and neurocognitive functioning. Currently employed evidence-based treatments for ADHD categorized as pharmacological interventions and behaviorally-based psychosocial treatments.

Pharmacological treatments, including stimulant and non-stimulant medications, are quite effective for reducing the inattention and hyperactivity/impulsivity as well as associated disruptive behaviors. Psychosocial treatments, which mainly comprise parent management training and school-based contingency management, have also been reported to improve behavior [9,10].

Treatment of BJHM is a multidisciplinary approach. Department includes for medical management are- rheumatology, paediatrics, psychiatry, orthopaedics. Therapies-physiotherapy, podiatry, psychotherapy etc. Average period of recovery is 12-18 months from the onset of corrective interventions- some will take longer.

These patients may have some advantages in some of the careers such as gymnastics, but in the long run, they may have serious musculoskeletal sequelae such as recurrent joint dislocations and premature osteoarthritis. So, patients have to be made aware of these consequences. Effective treatment may be accomplished by advising proper body mechanics and, in turn, conferring the joint protection[11]. Associated psychiatric symptoms or illness should always be taken care off.

Considerable treatment development has focused on cognitive training programs, compelling evidence indicates that intense aerobic exercise enhances brain structure and function, and as such, might be beneficial to children with ADHD [12].

This particular patient had ADHD with benign joint hypermobility. He was very comfortable with various exercises as well as gymnastics. As per parent report time bound exercise helped him to decrease hyperactive behavior as well as increased his concentrations. Practical feasibility of exercise and added benefit of hypermobile joint in ADHD patients needs further evaluation.

## CONCLUSION

Although there is no established strong genetic association came out till date, there were many case reports, studies regarding associations of BJHM and ADHD. A psychiatrist shouldn't overlook musculoskeletal symptoms of an ADHD patient as well as a rheumatologist, orthopaedician or consultant of physical medicine should consider the psychiatric comorbidities in a patient with BJHS. However, more studies are needed about this co morbid condition to create awareness amongst physician.

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