

Rett Syndrome: A Case report

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Abstract:

Rett syndrome (RS) is a severe neuro-developmental disorder leading to severe intellectual disability in females all around the world. A four-year-old girl from Kathmandu presented with classic features of Rett syndrome (RS), including developmental regression with dementia, loss of acquired speech and hand function, and stereotypic hand movements along with generalized tonic clonic convulsion.

Key words: Rett Syndrome, Developmental Regression

Case Report:

A four year old girl presented at development assessment clinic of Self Help Group for Cerebral Palsy (SGCP), with chief complaints of abnormal movements of whole body since age of two years which was not controlled even with anti epileptic drugs like phenobarbitone and sodium sodium valproate. Detailed history revealed that she was the first issue without any history of pregnancy loss along with an uneventful antenatal, intra-partum and postpartum periods. She weighed 2700gms at birth. Her developmental milestones till the age of two years were satisfactory. At two years of age she could climb up stairs, speak a few words with meaning, had good bowel and bladder control and could eat by herself.

After the age of two years, she developed a generalized tonic clonic convulsion that lasted for about 10 minutes. It was frequently recurring with 2-3 episodes in a month. She was started on tab phenobarbitone but was subsequently switched to sodium valproate in the dose of 40 mg/kg because of poor response to the former drug, after which convulsions were under control.

After the onset of seizure, she gradually started losing her previously attained milestones. She was unable to use her hands for purposeful movements along with stereotypic movements of her hands that included slapping her own face and wriggling type of movements. She also showed social withdrawal, problems with communication and regression of acquired motor and language skills. She even failed to

recognize her parents and became totally aloof with the environment. There was also drooling continuously and biting toys and spitting at objects. She started having ataxic gait with repeated falls. She lost her bowel and bladder control as well.

On examination, she did not have any dysmorphic features but was micro cephalic (OFC: 45cm) and weight and height were both below the 5th percentile. Detailed neurological examination could not be performed, as she was very uncooperative except that her deep tendon jerks were normal and the systemic examination was unremarkable.

CT scan of brain was normal and EEG showed generalized epileptic discharges.

Discussion:

Rett syndrome (RS) was first described as a clinical entity in the German literature in 1966¹. The incidence is 1 in 15,000 to 20,000 females. It is considered to be the second most common cause, after Down's syndrome, of severe mental retardation in females². The association of RS with mutations in the methyl-CpG binding protein 2 gene (*MECP2*) was recognised in 1999³. Rett syndrome is characterized by profound cognitive impairment, problems with communication, stereotypic hand movements, and pervasive growth failure that follow a normal period of development during the first six to 18 months of life⁴.

Essential	Supportive	Exclusion
Apparently normal prenatal and perinatal history	Breathing disturbances while awake, Bruxism	Organomegaly or other evidence of a storage disorder
Psychomotor development normal during the first 6 months (may be delayed from birth)	Impaired sleeping pattern from early infancy	Retinopathy, cataract, or optic atrophy
Normal head circumference at birth	Abnormal muscle tone accompanied by muscle wasting and dystonia	History of perinatal or postnatal brain damage
Postnatal deceleration of head growth (most individuals)	Peripheral vasomotor disturbances	Identifiable inborn error of metabolism or neurodegenerative disorder
Loss of purposeful hand skills between 0.5–2.5 years	Progressive scoliosis or kyphosis	Acquired neurological disorder due to severe infection or head trauma
Stereotypic hand movements	Growth retardation	
Evolving social withdrawal, communication dysfunction, loss of acquired speech, cognitive impairment	Hypotrophic small and cold feet and/or hands	
Impaired or deteriorating locomotion		

Clinical features of RS are classified into four stages⁶. *First stage* is the stagnation period with onset between six and 18 months of age. It lasts for weeks to months and is characterized by developmental delay without regression. *Second stage* starts between one and four years of age and is characterized by regression of motor and language milestones. *Third Stage* or pseudostationary stage may last for several decades and is seen in girls with preserved ambulation. Communication may even improve but the motor functions worsen. *Forth Stage* is characterized by loss of ambulation. The transition from one stage to the next does not occur abruptly. Our patient is in 2nd to 3rd stage.

Seizures have been reported in 30-94% of patients with RS. In a series of 53 females with RS, 94% had a history of epilepsy, focal epilepsy being twice as common as generalized⁷. The mean age of onset of epilepsy was significantly higher as compared to the onset of cognitive impairment (4 years versus 0.8 years). Bruxism is one of the most common manifestations in RS⁸. The prevalence of sensorineural and conductive hearing loss was reported in 17% and 10% respectively⁹.

Rett syndrome is frequently misdiagnosed as cerebral palsy¹⁰. Clinical features distinctive for RS, however, includes normal antenatal and perinatal periods, a normal period of development for the first 6-18 months of life and regression of acquired milestones. RS is also misdiagnosed as autism. Autistic children lack social skills and prefer objects to people, whereas RS girls prefer affection and company of people¹¹. Though autistic features may be present initially in RS, they tend to decline with age.

Neuro-imaging studies in RS have shown generalized cerebral atrophy predominantly affecting the frontal lobes¹². EEG abnormalities are reported in almost all cases and findings vary with the age of the patient and the clinical stages of RS⁴.

Management is symptomatic and supportive. Long-term management involves physical and occupational therapy, speech therapy, nutritional support, seizure control and orthopedic intervention. Patients need scoliosis surveillance and surgery is recommended when the curve passes 40 degrees, which is associated with good outcome¹³. Feeding problems may benefit with changing the food texture and may require alternate routes of feeding in some cases.

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