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METACHROMATIC LEUKODYSTROPHY(MLD) IN A 6 YRS CHILD: A RARE CASE REPORT

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ABSTRACT A rare disease known as Metachromatic Leukodystrophy(MLD) in a 6 yrs old male child with history of elder sibling death for similar illness was reported to the Department of Paediatrics,M.K.C.G.Medical College,Berhampur,Odisha,India. Metachromatic Leukodystrophy or Scholzs disease is a Lysosomal Storage Disease caused by a deficiency in the enzyme activity of Arylsulfatase A (ARSA).This enzyme is responsible for the degradation of sulfatides commonly called cerebroside-3-sulfate.Its deficiency leads to pathological accumulation of sulfatides in the nervous system (myelin,neurons and glial cells) results in neurological,mental retardation,nervous disorders and blindness.

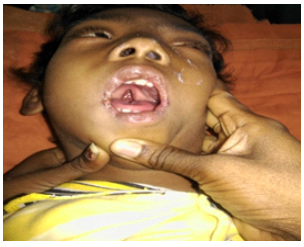
KEYWORDS : Infantile Metachromatic Leukodystrophy, Arylsulfatase deficiency

INTRODUCTION :

Metachromatic Leukodystrophy (MLD) is a rare autosomal recessive inherited disease,which is caused by a deficiency in the enzyme activity of Arylsulfatase A(ARSA). ARSA is required for the hydrolysis of sulfated glycosphingolipids,which are also known as sulfatides,and its deficiency results in excessive accumulation of sulfatides in myelin in nervous system,the bile ducts of the liver,and the distal tubules of the kidney (1-3).The accumulation of sulfatides triggers leukodystrophy. The incidence of MLD is reported as about 1 per 100,000 live births in European population and found at even lower rate in Asia (4,5).Based on the age of disease onset,MLD can be divided into three forms: [1] Late infantile which starts before the age of 2 or 3 yrs, [2] Juvenile form that starts between 2 or 3 and 16 years, [3] Adult form that presents its first symptoms after the age of 16 years (6).

CASE REPORT :

A 3yr old male child who born out of nonconsanguinous marriage came to us for the first time with chief complain of abnormal movements of body for 1yr.He had achieved all milestones as per his age till 10month there after regression of milestones occurred.There was no history of birth asphyxia,previous hospitalization or any eventful antenatal history.History of similar neuroregression in elder brother for which he died at the age of 4years.On examination vital was stable.Weight was 9kg with Head Circumference being 46cm.No pallor,icterus,cyanosis,clubbing.Pt was having facial dysmorphism like Hypertelorism,Low set ear,Bilateral pre-auricular sinus with cleft palate.No skeletal abnormality or coarse facies or nystagmus.Occasional crepitations on auscultation due to Aspiration Pneumonia.There was no hepatosplenomegaly.CNS Examination revealed generalized hypotonia,diminished reflexes without meningeal sign.All routine blood investigations was normal including electrolytes.Fundoscopy showed Macular Degeneration.EEG showed Epileptic Encephalopathy.Pt was discharged with Syp.Valproic Acid. After one month same patient came for tonic posturing with abnormal movements of limbs.CECT was normal.Nerve Conduction Study showed Demyelination.Absence of Coarse facies, Hepatosplenomegaly or Cherry red spot on fundoscopy ruled out the possibilities of Storage Disorder like Taysachs,Gaucher, Niemann Pick Disease etc.We diagnosed clinically it as a case of MLD,a type of Neuro Degenarative Disease as enzymatic study is not available in our setup.Prognosis was explained and Pt was discharged with higher dose of valproic acid with advised to do physiotherapy and referred to plasic surgeon for cleft palate repair.Again our case presented at 6yrs with Status epilepticus with Aspiration Pneumonia to our ward.Till date the child had not gone for any corrective measures for Cerebral Palsy.There was faster regression leading to complete inability to sit and move.He was not able to speak or hear.Immediately child was managed with Antiseizure medication,Antibiotic and IVF.After control of seizure that patient was put on NG Tube Feeding and AED by NG route.Subsequently the child was discharged with AED.A full counselling was done regarding the home care and outcome.



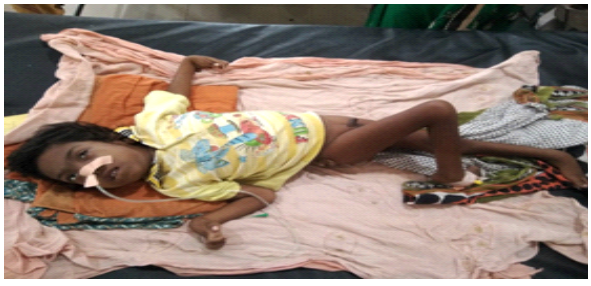


Figure 1 : Old picture of the child at 10m of age incomparision to Figure 2 : child having Posturing at 6 yrs
Figure 3 : Intra oral view showing Cleft Palate

DISCUSSION :

Metachromatic Leukodystrophy (MLD) belongs to a family of disordres identified as Lysosomal Storage Disorders.Here, lysosomal accumulation of sulfated glycolipids ,specially 3-O-sulfogalactosyl conataining glycolipids,as a consequence of defects in the lysosomal hydrolase,Arylsulfatase A(ARSA).The major site of 3-O-sulfogalactosyl-containing glycolipids is the myelin sheaths of central and peripheral neurons.Because of this location the clinical manifestations of MLD is predominately neurological in nature.Histopathologically ,MLD is characterized by demyelination of central and peripheral nerves.The accumulation of sulfated glycolipids in lysosomes results in the characteristics metachromatic staining of the tissues,hence the deviation of the name of the disease.

Evenif it is a autosomal recessive disease,history of similar disese in elder brother makes this case as a rare presentation.When two carriers have child,there is a 25% chance that the child will get both genes and have MLD.Children who inherit one defective gene from one parent will be a carrier,but usually willnot devlop MLD.

MLD is of 3 types according to the age of presentation i.e,Late infantile

within 2yrs,Juvenile from 2-16yrs,Adult form after 16yrs.Out of all 3 Late infantile is the most common i.e, 50% case with poor prognosis.

Clinical features of MLD include mental deterioration, hypotonia,developmental delay,speech abnormalities,lossofmental abilities,blindness,rigidity,convulsions,impaired swallowing, dementia, impaired school performances ,tremor, seizure,dementia.Our patient is a late infantile form as he achieved all milestone as per his age till 10m of life.After that he losses all achieved milestones with hypotonia.On follow up patient developed seizure and hypertonia gradually with blindness.Fundoscopy reveals Macular Degeration with Nerve Conduction Study reveals demyelination.There is no litreture suggesting any relationship of facial dysmorphism with MLD. Hence,it is a rare one and being reported.

There is no specific treatment for MLD to reverse the deterioration and loss of function that MLD causes.However,muscle relaxants,anti seizure medication,physiotherapy improves the quality of life.In addition to Bone Marrow transplantation, Gene Therapy is under development to correct the underlying genetic abnormality (7,8).

CONCLUSION :

MLD is a severe disease that gets worse over time.Eventually patients lose all muscle and mental function.Life span varies depending on what age the condition started,but the disease course usually runs over 3-20 years.Strict and regular regimen improves longterm disability.However, AdrenoLeukodystrophy (ALD) presents beyond 5yrs of age group which is having X-Recessive inheritance pattern.Any child presents with features of Neuroregression with onset below 1 yr one has to think the possibility of MLD not ALD.

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