Research Paper Medical Science

Microcephaly, ptosis, strabismus, syndactily toes, global development delay in an Indian child- Probable Smith Lemli Opitz Syndrome (SLOS).

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ABSTRACT

We report a 22 month old male patient with global developmental delay with Developmental Quotient (DQ) of 43, microcephaly, narrow forehead , right eye ptosis and superomedial strabismus, high arched narrow palate, depressed right angle of mouth, slight micrognathia, irregular upper gum with misaligned teeth, neck showing right torticollis, glandular hypospadias, syndactily 2nd to 5th toe in left and 2nd and 3rd toe in right feet, weight of 9 kg(< 5th percentile) and failure to thrive, convulsion. MRI head demonstrates gray matter heterotopias with dysplasia of overlying cortex of bilateral parieto-occipital region with mild ventriculomegaly. To our knowledge this anomaly reported previously as Smith Lemli Opitz Syndrome (SLOS). We consider our patient as a case of SLOS and he may need close follow up because over time there may be severe mental retardation and seizure.

Keywords : Microcephaly, syndactily toes, Global developmental delay, ptosis, strabismus

Smith Lemli Opitz syndrome (SLOS) is multiple congenital anomalies (MCA) and mental retardation (MR) syndrome. It is an autosomal recessive metabolic and developmental congenital disorder due to mutation in DHCR7(7-dehydrocholesterole-7 reductase) gene on chromosome11 resulting in deficiency of enzyme 7DHCR(7-dehydrocholesterole reductase) which is necessary for final step 7-dehydrocholesterole to cholesterol in cholesterol synthesis pathway. This results in decreased production of cholesterol in body and accumulation of cholesterol precursor 7-dehydrocholesterol (7DHC). Its incidence is 1 in 20,000-60,000 in white births and lower in Africans and asians[2].Clinical features varies and may vomiting, recurrent respiratory infection, constipation, convulsion, developmental delay, failure to thrive, cyanosis, photosensitivity. On physical examination microcephaly, broad based nasal tip and anteverted nostrils, cleft palate, retrognathia, tooth malposition, blepharoptosis[3],hypospadisis, syndactily 2nd and 3rd toes, torticollis and other craniofacial disfiguration.

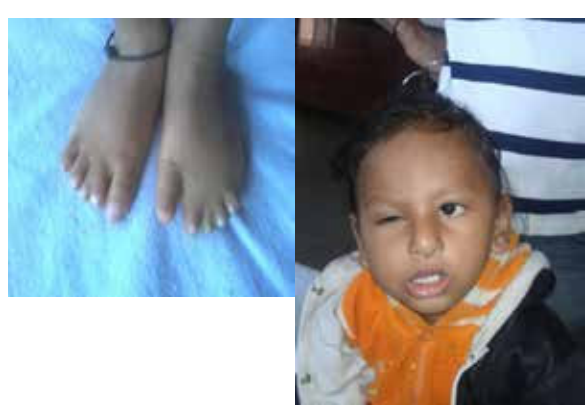
Case report

A22-month-old male patient, 3rd in birth order of nonconsanguinous parent living in KotaKhurd,Indragarh,Bundi, Rajasthan(India) with 2.6 kg weight and 32.10cm head circumference, right lid ptosis, depressed right angle of mouth, high arched palate at birth after term CS delivery with birth asphyxia and four day NICU stay with no maternal drug intake and bad obstetric history admitted in our institute with vomiting, fever, 2 episode of convulsion 6hrs apart from 16hr and global development delay.

Past history-1year back hospitalisation for pneumonia for 7days and evaluated for developmental delay. They took MRI head demonstrating nodular gray matter heterotopias with dysplasia of overlying cortex of bilateral parieto-occipital region and mild ventriculomegaly, EEG suggestive of abnormal generalised activity in background, BERA showing Normal study. There is no family history of such illness and mental retardation.

Examination-

Patient has global developmental delay with Developmental Quotient(DQ) of 43, standing with support, nonmeaningful bisyllable speech, head circumference of 42cm (<5th percentile), weight=9kg(<5th percentile),length=81.60 (5th percentile), closed anterior fontanele, narrow forehead, upper lid ptosis and superomedial strabismus of right eye, anteverted nostrils, depressed right angle of mouth, slight micrognathia, irregular upper gum with malaligned teeth with eight upper and eight lower teeth, high arched palate, right torticollis of neck, glandular hypospadias, syndactily 2nd to 5th toes in left and 2nd, 3rd toe in right foot. Extremities, joints, cardiorespiratory system, spin did not show any abnormality.



Investigations-

USG abdomen-normal study, serum cholesterol = 60mg/dl (lower normal range)

Management-

Dietary cholesterol supplementation1,2, HMG CoA inhibitor

Simvastatin2, anticonvulsant phenytoin sodium, audiovisual and psychomotor stimulation with close follow up.

Discussion

We report a 22-month-old male patient with microcephaly with global developmental delay, syndactily and some anomalies of craniofacial features in favour of SLOS. Craniofacial features as microcephaly, narrow forehead, right eye upper lid ptosis and strabismus[4], syndactily toes feet, hypospadias, high arched palate, anteverted nostrils with developmental delay (DQ 43) are supported by William A. Neal[2] and Battaili KP[1]

Our case suffered from severe birth asphyxia and later microcephaly and global developmental delay with seizure and MRI brain shows neuronal migration defect (heterotopias). Our findings are close to Stephan L. Kinsman et al. Showing that SLOS is a cause of primary syndromic microcephaly due to neuronal migration defect and these children may be asphyxiate at birth and later may be suffer developmental delay and severe mental retardation with seizures[3].

In reported case of SLOS severe mental retardation and agenesis of corpus callosum is seen. CNS congenital anomalies (corpus callosum agenesis) and MR is proportional to serum level of 7-dehydrocholesterol and inversely proportion to serum cholesterol level. In our case MR is moderate (DQ 43) and corpus callosum is normal as serum cholesterol is 60mg/dl(lower normal) severely affected[2,5].

In our case serum cholesterol is in normal range. Cunnif C et al. Showed that in 10% cases serum cholesterol may be normal[5].

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