Case Study

A Case Report of DiGeorge Syndrome from Pakistan

Dania A [1], Maira R [1], Meher N [1], Heera N [1], Syeda Q [1], Mohsina N [1]

Author's Affiliation:
1- National Institute of Child Health Hospital, Karachi, Pakistan.
Correspondence:
Syeda Qissa Zehra Zaidi, Email: qissazehra.zaidi@gmail.com

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DiGeorge Syndrome also known as velo-cardio-facial syndrome is an autosomal dominant disorder with incidence rate of 1/4000 live births. The Acronym CATCH 22 was given in 1993, it stands for Cardiac defects, abnormal facie, thymic hypoplasia, cleft palate, hypocalcaemia and 22q11 deletions. The Clinical presentation of DGS is extremely varied and often leads to missed diagnosis as not all patients have classical features of DGS. This case report presents you a 35 days old boy admitted with recurrent seizures since seventh day of life. Labs findings were suggestive of hypocalcemia, hyperphosphatemia and hypoparathyroidism. He also had Echocardiographic findings (VSD, TR and mild PAH) and was diagnosed as DGS on Fluorescence in situ hybridization (FISH). DGS should be considered in differential diagnosisof infants presented with recurrent hypocalcemic seizures secondary to hypoparathyroidism and cardiac defects even in absence of facial dysmorphism and signs of immunodeficiencies.

Keywords DiGeorge Syndrome, Recurrent Seizures, 22q11.2 deletion, case report

INTRODUCTION

DiGeorge Syndrome also known as velo-cardio-facial syndrome is an autosomal dominant disorder with incidence rate of 1/4000 live births. [1] Historically, it was first presented by Dr.Angelo M Digeorge in the mid 1960s. The Clinical spectrum classically embraced by the acronym CATCH 22 syndrome first proposed by wilson et al in 1993 and its stands for; cardiac defects (TOF, Interrupted aortic arch, isolated arch anomalies, VSD, PDA, and ASD), abnormal facies (occular hypertelorism, low set ear, microganathia and long philtrum), thymic hypoplasia(immunodeficiency), cleft palate, hypocalcaemia, resulting from 22.q11 deletions [2].

The diagnosis of DiGeorge Syndrome on clinical basis is quiet challenging due to its low incidence as well as broad and varied spectrum of the symptoms. Many patients die in neonatal period due to cardiac abnormalities and recurrent infections secondary to immunodeficiencies.[3][4]. Fluorescence in situ hybridization (FISH) is the common modality of diagnosis.[5]

We introduced you to 35 days old boy presented to us with chief complain of recurrent seizure since seventh day of life. He was admitted in multiple hospitals and extensive workup was carried out including septic screen to find out the cause of seizures but his diagnosis was not made until he was brought to National Institute of Child Health (NICH). The baby does not have obvious facial dysmorphism and characteristics features of DGS except Cardiac Involvement and Hypocalcemia secondary to Hypoparathyroidism.

Narrative

The case was a 35 days old baby boy presented to Endocrinology Department of National Institute Of Child Health (NICH), Pakistan, with complaints of recurrent seizures since seventh day of life. Seizures appeared to be recurrent subtle attacks with upward gaze of eyes. From seventh till thirty fourth day of life patient was admitted at four different tertiary care hospitals and was managed under the differentials of Sepsis, Meningitis and Hypocalcemic seizues. He was first born of consanguineous marriage, delivered at term gestation via SVD with normal APGAR score. His Anthropometric includes weight 4000 g, length 55cm, FOC 37cm lies at -0.56z score, -0.04z score and -0.50 z score respectively.

Patient had no significant facial dysmorphic features. He was vitally stable with Pediatric GCS15/15 with good primitive reflexes. On Precordium Examination he had grade III Pansysytolic Murmur at Left Sternal Border. At Presentation His Septic Screen was negative and Corrected Serum Calcium was 6.6mg/dl (normal range 8.5 to 10.5mg/dl), serum phosphorus levels were9.94mg/dl (normal range 3.4-4.5mg/dl), serum Albumin 3.3g/dl (normal range 3.4 - 5.4g/dl),serum magnesium 1.71mg/dl (normal range 1.6 - 2.5mg/dl) , Serum 1,25 Dihydroxy Vitamin D61.8pg/ml (observed range 19.9-79.3pg/ml) and Serum PTH levels were 3pg/ml (normal range16-18pg/ml).His TLC counts were 10,500/mm3 with 33% Lymphocytes and Acute Lymphocytic Counts were 3432.

Echocardioghrapic findings were suggestive of small membranous VSD with left to right shunt, mild Tricuspid Regurgitation with mild PAH. Fluorescence in situ hybridization (FISH) was used as diagnostic modality, its result showed ish del (22) (q11.2q11.2) (TUPLE 1-) Interpretated as 'deletion of DiGeorge Critical Region (22q11.2) is detected in the 20 metaphases examined'.

Patient had normal Chest Xray with normal Thymic Shadow, Absolute Lymphocytic Counts were also in normal range and no other signs of Immunodeficiency noted. MRI Brain and EEG was done to rule out other causes of seizures, both were unremarkable. Seizures were characterized as hypcalcemic seizures secondary to hypoparathyroidism caused by DiGeorge Syndrome. Seizures frequency improved with IV calcium gluconate and magnesium sulphate and serial monitoring of serum calcium, serum magnesium and serum phosphate levels were done. Patient was discharged to home after 48 hours of seizures free interval and on normal lab parameters. Oral calcium carbonate 65mg/kg/day, sevelamer 100mg/kg/day and active form of vitamin D given for daily use and close follow up is advised for regular monitoring.

Patient Perspective

Patient guardians were satisfied with the treatment their child had received as the child became seizure free and discharged to home. They were able to understand the medical condition of their child and its spectrum. This Case was reported after Informed Written consent taken from the Guardians.

Discussion

DGS most commonly presents with cardiac defects (75%) and hypocalcemia secondary to hypoparathyroidism (60%) [6]. These both findings were present in our case, although no facial dysmorphism and signs of immunodeficiency were noted. The diagnosis was confirmed with Fluorescence in situ hybridization (FISH) which has been the method of choice for microdeletions.[7]. The diagnosis DGS should be suspected in infants presented with seizures and cardiac defects along side other differentials as this disease has varied and broad clinical presentation. Early Diagnosis will help in early cardiac interventions and in the prophylactic treatment in case of immunodeficiencies and vaccination according to CD4 counts of the patient. these patients should be provided multidisciplinary approach for disease management in order to prevent comorbidities and improve their long term clinical outcomes.

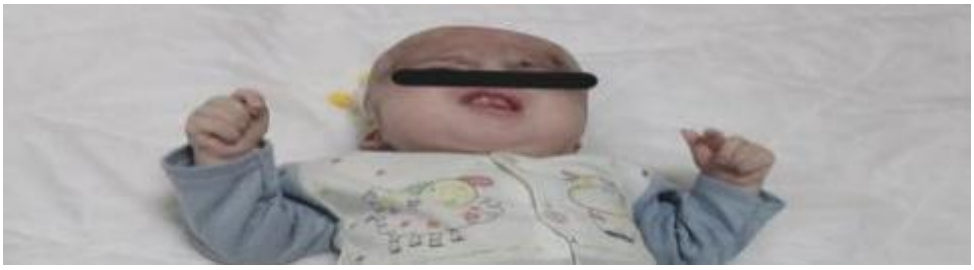

Figure 1

Conclusion

DiGeorge Syndrome should be considered in differential diagnosis of infants presented with recurrent hypocalcemic seizures secondary to hypoparathyroidism and cardiac defects even in absence of facial dysmorphism and signs of immunodeficiencies.

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