Case Reports

Subtle seizure in the form of recurrent apnoea beyond the neonatal period as initial presentation of DiGeorge syndrome

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Background
Di-George syndrome (DGS), associated with 22q11.222 deletion, presents with a wide range of features[1]. It is really part of the CATCH 22 syndrome (Cardiac anomaly, Abnormal facies, Thymic hypoplasia, Cleft palate and Hypocalcaemia)[2]. Hypocalcaemia secondary to hypoparathyroidism in DGS presenting late in infancy is rare. Though symptomatic hypocalcaemia in newborn with DGS can present as poor feeding, lethargy, jitteriness, seizure and apnoea, subtle seizure in the form of recurrent apnoea secondary to hypocalcaemia beyond the neonatal period as presentation is rare.

Case report
A one and a half month old male infant, product of a non-consanguineous marriage with normal natal and postnatal events, presented with multiple episodes of bluish discolouration of face lasting less than one minute since one month of age. He is a 2nd birth order, term baby with a birth weight of 2.6kg, delivered by the normal vaginal route with no perinatal complications. His weight was 3.38kg (3rd centile), length 51cm (<3rd centile) and head circumference 37cm (25th to 50th centile). On examination, baby had a syndromic facies (retrognathia, bulbous square shaped nose, telecanthus), hypo-nasal cry, umbilical and bilateral inguinal hernias (Figure 1). His heart rate was 142/min, respiratory rate 44/min, capillary refill time <3 seconds, oxygen saturation 92% in room air and blood pressure 86/50mmHg. Cry, reflex and activity were poor, Tone was normal. Other systemic examination was normal.

Figure 1: ***Baby with retrognathia, bulbous square shaped nose and telecanthus***
**Permission given by parents to publish photograph*

The haemoglobin level was 11.2g/dl, the total leucocyte count 4670/mm^3 (neutrophils 62%, lymphocytes 28%), absolute lymphocyte count 1307/mm^3 and the platelet count 275,000/mm^3. The C-reactive protein, cerebrospinal fluid study, blood culture and antibiotic sensitivity were normal. Arterial blood gas analysis revealed a low level of ionized calcium (0.44 mmol/L) with no other abnormality. Chest x-ray was suggestive of absence of thymic shadow which was later confirmed on ultrasonography of chest.

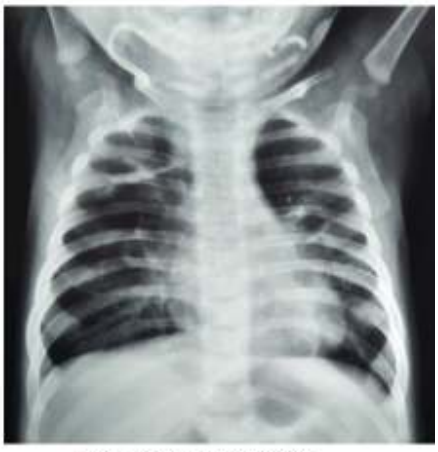

Figure 2: ***Chest x-ray***

Ultrasonography of abdomen, echocardiography and magnetic resonance imaging of brain were normal. His routine biochemical tests were

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suggestive of hypocalcaemia (serum total calcium 3.81mg/dl) which was refractory to injection calcium gluconate. He was evaluated for refractory hypocalcaemia and found to have hyperphosphataemia (serum phosphate 7.2mg/dl), hypoparathyroidism (serum parathormone 16.7pg/ml) with normal random blood sugar, renal function tests, liver function tests and thyroid profile. Maternal serum calcium, phosphorous and alkaline phosphatase were normal. In view of the clinical and laboratory evidence, the possibility of DGS was considered and was confirmed by multiplex ligation-dependent probe amplification (MLPA). Heterozygous deletions were detected, within the detection limits of MLPA, in the genes located on the chromosome 22q11.2 of this subject (Figure 2).

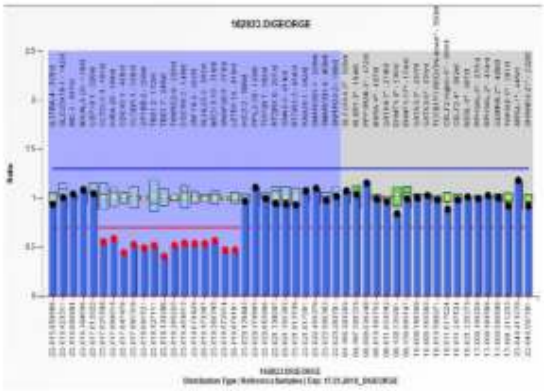

Figure 2: MLPA ratio chart; 90% of 22q11.2 deletions are 3Mb size occurring between low copy repeat sequences (LCR A and LCR D)

He was treated with 10% injection calcium gluconate loading at 20mg/kg followed by 80mg/kg/day for 48 hours and then maintenance with oral calcitriol at 0.25mcg/day and calcium at 50mg/kg/day. He was monitored regularly with spot calcium-creatinine ratio, serum calcium and serum phosphorous level. He was operated for bilateral inguinal hernias at 1 year of age and is on regular follow up.

Discussion

DGS has an incidence of 1 in 4000 newborns[3]. Hypocalcaemia secondary to hypoparathyroidism can occur transiently in the newborn period and recur at a later age[4]. Neonatal hypocalcaemia, a feature in around 60% of cases, can be associated with recurrent courses[5]. Symptomatic hypocalcaemia in newborn can present as poor feeding, lethargy, jitteriness, seizures and apnoea[6]. Hypocalcaemia in children may be asymptomatic or there may be a wide range of signs and symptoms. However, recurrent apnoea secondary to hypocalcaemia beyond the neonatal period in DGS is less common. So, while evaluating a case with any form of subtle seizures beyond the neonatal period, in a syndromic child, DGS should be kept in mind.

References

1. Kobrynski LJ, Sullivan KE. Velocardiofacial syndrome, DiGeorge syndrome: the chromosome 22q11.2 deletion syndromes. *Lancet* 2007; **370**(9596):1443-52. https://doi.org/10.1016/S01406736(07)61601-8

2. Wilson DI, Burn J, Scambler P, Goodship J. DiGeorge syndrome: Part of CATCH 22. *Journal of Medical Genetics* 1993; **30**: 852-6. https://doi.org/10.1136/jmg.30.10.852 PMid: 8230162 PMCid: PMC1016569

3. Di George AM, Lischner HW, Dacou C, Arey JB. Absence of the thymus. *Lancet* 1967; **1**: 1387. https://doi.org/10.1016/S01406736(67)91808-9

4. Taylor SC, Morris G, Wilson D, Davies SJ, Gregory JW: Hypoparathyroidism and 22q11 deletion syndrome. *Archives of Disease in Childhood* 2003; **88**:520–2. https://doi.org/10.1136/adc.88.6.520 PMid: 12765920 PMCid: PMC1763111

5. McDonald-McGinn DM, Kirschner R, Goldmuntz E, Sullivan K, Eicher P, Gerdes M, et al. The Philadelphia story: the 22q11.2 deletion: report on 250 patients. *Genetic Counselling* 1999; **10**(1): 11-24.

6. Koo WWK, Tsang RC. Calcium and magnesium homeostasis. In: Avery GB, Fletcher MA, MacDonald MGJB, editors. Neonatology: Patho-physiotherapy and management of the newborn. 4th ed. Philadelphia: J.B. Lippincott Company, 1994: 585-600.