CASE REPORT

Dysmorphic syndrome: case report of a severe diagnosis

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ABSTRACT

Introduction: Dysmorphic syndrome refers to patients presenting at birth with some physical, structural, and functional abnormality. It is estimated that annually, 6 % of children worldwide are born with a congenital anomaly, and more than 300,000 die during their first month of life. Diagnosis can be complicated and even subjective, especially when there are phenotypic variations, different degrees of severity and associated comorbidities, and maternal pathologies that are not adequately or timely evaluated. In addition, it is not uncommon to need genetic tests that are not necessarily easy to access.
Objective: To report the clinical manifestations and complications of dysmorphic syndrome.
Case presentation: We present the case of a newborn of 30 weeks, according to Capurro, born to a mother with a history of diabetes and inadequate prenatal control. The newborn presents multiple dysmorphic features in addition to esophageal atresia. A VACTERL association or trisomy 18 were suggested as possible diagnoses. The latter was confirmed by genetic testing, but after the patient's death, which occurred at the end of his third week of life.
Conclusions: The approach to the neonate with dysmorphic syndrome represents a real diagnostic, therapeutic, and social challenge. The lack of resources and deficiencies in the health system make early diagnosis difficult, even more so in these infrequent pathologies.

Keywords: Congenital, Hereditary, and Neonatal Diseases and Abnormalities; Congenital Abnormalities; Genetics; Abnormal Karyotype (Source: MeSH)

Síndrome dismórfico neonatal: reporte de caso de un diagnóstico severo

RESUMEN

Introducción: El síndrome dismórfico hace referencia a los pacientes que presenten al nacer alguna anormalidad física, estructural y/o funcional. Se estima que anualmente el 6 % de niños a nivel mundial nacen con una anomalía congénita y más de 300 000 mueren durante su primer mes de vida. Su diagnóstico puede llegar a ser complicado e incluso subjetivo, sobre todo cuando existen variaciones fenotípicas, diferentes grados de severidad y comorbilidades asociadas, y patologías maternas no evaluadas de manera adecuada ni oportuna. A esto se le suma que es necesario el uso de pruebas genéticas es que en muchas ocasiones, no son de fácil acceso.
Objetivo: Informar sobre las manifestaciones clínicas y complicaciones del síndrome dismórfico.
Presentación del caso: Se presenta el caso de un recién nacido de 30 semanas según Capurro, cuya madre tenía antecedente de diabetes e inadecuado control prenatal. El neonato presenta múltiples rasgos dismórficos, además de atresia de esófago. Se plantean como posibles diagnósticos una asociación VACTERL (defectos vertebrales, malformaciones anales, cardiopatías congénitas, alteraciones traqueo-esofágicas, malformaciones renales y alteración en extremidades) o una trisomía 18. Este último llegó a confirmarse mediante pruebas genéticas, pero posterior a la defunción del paciente, ocurrida al final de la tercera semana de vida.
Conclusiones: El abordaje del neonato con síndrome dismórfico representa un verdadero desafío diagnóstico, terapéutico y social. La falta de recursos y deficiencias en el sistema de salud hacen difícil un diagnóstico precoz, más aún en estas patologías infrecuentes.

Palabras clave: Enfermedades y Anomalías Neonatales Congénitas y Hereditarias; Anomalías Congénitas; Genética; Cariotipo Anormal (Fuente: DeCS)

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INTRODUCTION

Dysmorphic syndrome refers to patients who present at birth with some physical, structural, and functional abnormalities. It is also known as congenital anomalies (1). It is estimated that annually, 6 % of children worldwide are born with a congenital anomaly (2), and more than 300,000 die during the first month of life (3). In middle and low-income countries, the impact and consequences are more serious (2). Thus, in Peru, lethal congenital anomalies are the fourth leading cause of neonatal mortality (4).

Dysmorphic syndrome, depending on the etiology, usually has characteristic clinical patterns that should be recognized at the time of physical examination of the newborn (5). However, the clinical diagnosis can sometimes be complicated and subjective (6). This may be due to different factors, such as the presence of phenotypic variations among patients with the same disease (7), various degrees of severity and associated comorbidities (8,9), and maternal pathologies that are not adequately evaluated or treated promptly (10,11). In addition, the need for genetic testing is infrequent (1,12); however, it is only sometimes possible to perform it due to access, availability, and cost issues.

Clinical Case

Male newborn (NB), a product of gestation number three, was born to a 34-year-old mother with only three prenatal check-ups. On the day of birth, the mother went to the Emergency Department due to a fainting sensation, showing fetal bradycardia with 80 beats per minute. Approximately 30 minutes before her admission, she presented ruptured membranes with fetid and light yellow amniotic fluid. Additionally, she reported having presented gestational hypertension (HTG) in her previous pregnancy and urinary tract infection (UTI) at six months of the present pregnancy. She does not remember treatment for either case and denies having consumed substances such as alcohol and drugs, among others.

An emergency cesarean section was performed under epidural anesthesia. The product was a male NB with APGAR of 2 at one minute and five at five minutes, requiring neonatal cardiopulmonary resuscitation (CPR). He was intubated one minute after initiating CPR with a 2.5fr TET and used a bag and mask for 10 minutes, responding satisfactorily. Capurro's result was 30 weeks gestation, with a weight of 994 grams (below the p10 for her gestational age), the height of 32 cm (below SD -3), head circumference of 26 cm (below the 3rd percentile), and thoracic circumference of 23 cm (below the p10). She was admitted to the Neonatal Intensive Care Unit (NICU). During hospitalization, he was kept on mechanical ventilation, and after a few hours of birth, an umbilical catheterization was performed.

Physical examination

On physical examination, the NB had an HR of 137 bpm, FR of 36 breaths per minute, and O2 s: 100 % with a FiO2 of 50 %. The newborn had pink skin and capillary filling <3 seconds, microcephalic skull, wide fontanels, dysmorphic fascia: micrognathia, macroglossia. Bilateral auricular pavilions, right and left external auditory canal, winged neck, and adenomegaly were not detected. Symmetrical thorax with pectus excavatum, vesicular murmur passes well by cardiopulmonary auscultation, no aggregate sounds were auscultated (post administration of surfactant 4cc), the precordium presented rhythmic heart sounds of good intensity, with a murmur. The abdomen was excavated, hydroaerial sounds were absent, no visceromegaly. In genitalia, there were no palpable descended testicles, nor anorectal malformation; lower extremities had the presence of both feet and polydactyly.

Complementary tests

The result of the hemogram was found to be within normal ranges for a newborn (Table 1). However, the coagulation profile showed thrombocytopenia, with prothrombin time (PT) and activated partial thromboplastin time (aPTT) and thrombin time (TT) higher than expected for a patient of his age. Glucose and urea levels were also found within normal ranges, while aspartate aminotransferase (TGO), creatine kinase (CK), and lactate dehydrogenase (LDH) levels were above normal values. Electrolytes were within normal values, and the thoracoabdominal radiography (Figure 1) showed a chest with free parenchyma and a not-very-marked hilar pattern. An age-appropriate cardiomegaly was evidenced. No hydro-aerial levels or gastric bubbles were observed at the abdominal level, and the whole abdomen was radio-opaque.

Post cesarean section, the screening performed on the mother showed an increase in glucose values above average, giving her the diagnosis of Diabetes Mellitus (DM). It is not known if this pathology started during pregnancy due to the lack of PNC.

The final confirmed diagnoses were hyaline membrane disease due to pulmonary immaturity related to prematurity, esophageal atresia, perinatal asphyxia, and dysmorphic syndrome: microcephaly, micrognathia, macroglossia, bilateral absence of auricular pavilions and external auditory canal, bilateral club feet, neonatal sepsis, and coagulation disorder. Due to the evidence collected, the presumptive diagnoses were VACTERL association (vertebral defects, anal malformations, congenital heart disease, tracheoesophageal alterations, renal malformations, and alterations in extremities) and Edwards syndrome.

The patient remained under permanent monitoring while referral to a more complex hospital was arranged. However, he died at the end of his third week of life. The karyotype result arrived after his death, confirming the diagnosis of Edwards syndrome.

Table 1. Laboratory results of the neonatal patient

Examen	Valores
Complete blood count	
Hemoglobin	15,9 g/dL
Hematocrit	0.49
Leukocytes	8800 cells/mm^3
Segmented	0.59
Abastomatous	0.02
Eosinophils	0.05
Lymphocytes	0.29
Monocytes	0.09
Coagulation profile	
Platelets	100000 cells/mm^3
PT	21,7 seg
TTPa	73,3 seg
TT	30,3seg
Fibrinogen	1,2 g/L
Electrolytes	
Na^+	142 mmol/L
K^+	4,42 mmol/L
Ca^{2+}	1,10 mmol/L
Cl^-	101 mmol/L
Others	
Glucose	80,7 mg/dL
Urea	27 mg/dL
Creatinine	0,70 mg/dL
TGO	158,5 U/L
TGP	10 U/L
CK	1218 U/L
LDH	2152 U/L
CRP	0,1 mg/dL

PT: Prothrombin time, **aPTT**: Activated partial thromboplastin time, **TT**: Thrombin time, **TGO**: Aspartate aminotransferase, **TGP**: Alanine aminotransferase, **CK**: Creatine kinase, **LDH**: Lactate dehydrogenase, **CRP**: C-reactive protein.

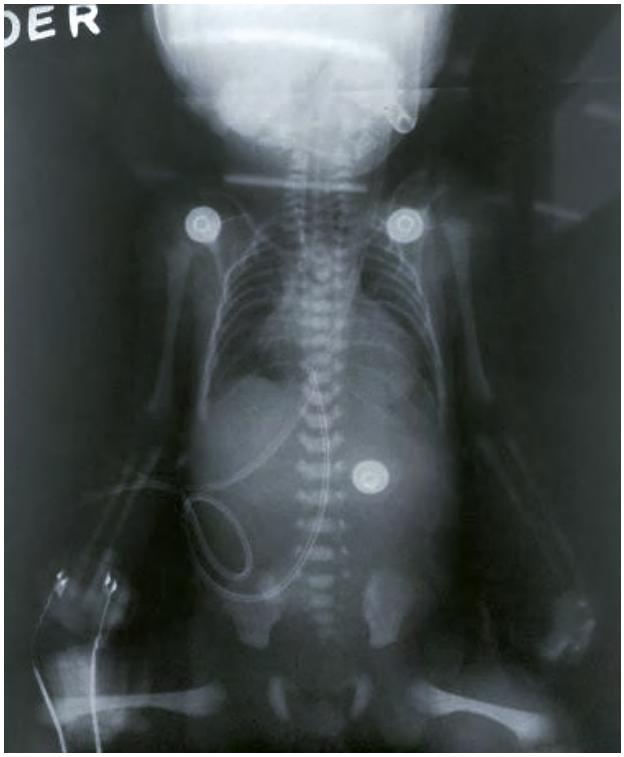

Figure 1. Thoracic-abdominal radiography of the neonatal patient

DISCUSSION

We report the case of a newborn diagnosed with dysmorphic syndrome and Edwards syndrome. It is known that dysmorphic syndrome has an incidence of 1 in 10,000 to 40,000 live newborns and is more frequent in males (13). Our report showed esophageal atresia, polydactyly, and club feet. Additionally, two conditions were suspected: the first, a ventricular septal defect (VSD) due to the presence of the murmur and prematurity (14); the second, a tracheoesophageal fistula which, although of relatively low incidence, is usually associated with esophageal atresia (15). However, its confirmation requires specialized diagnostic tests, which are unavailable at the health center. Despite this, it has been described that a VACTERL-type association (vertebral defects, anal malformations, congenital heart disease, tracheo-esophageal alterations, renal malformations, and alterations in extremities) is usually frequent in children with esophageal atresia and tracheo-esophageal fistula, which in turn are associated with the presence of congenital heart defects (16,17). The maternal diagnosis of diabetes may have been one of the factors related to poor fetal formation, which led to early birth (11). This has been reported previously with cases of newborns diagnosed with VACTERL from mothers with diabetes mellitus (11,18).

The newborn was diagnosed with Edwards syndrome, also known as chromosome 18 trisomy. This condition is caused by an autosomal chromosomy, which generates an extra chromosome in chromosome pair number 18 (19). It has a prevalence of 1 in 6,000 - 8,000 newborns, and it is estimated that approximately 50 % of newborns live more than one week, while only 5-10 % live beyond one year (19,20). In the case of our patient, this syndrome was suspected because it was the second most frequent (Down syndrome was initially ruled out) and because of the presence of clinical features that usually coincide in trisomy 18, such as cardiac defect (occurring in approximately 75 % of cases) and esophageal atresia with tracheoesophageal fistula (in 5-25 %) (19,21).

A final diagnosis in cases of dysmorphic syndrome usually requires specialized tests, which, in our reality, are difficult to access for the population, mainly for those with low resources. On the other hand, the importance of adequate prenatal care is emphasized since it is not only effective in reducing maternal and perinatal mortality but also in the timely diagnosis of congenital disabilities. Finally, it should be remembered that

the approach to the newborn with dysmorphic syndrome also includes the psychological aspect of the parents, which represents a real diagnostic, therapeutic, and social challenge.

Authors' contribution

Conceptualization: FIC, RJRG; Collection, management and data curation: FIC, RJRG; data analysis: FIC, RJRG; visualization: FIC, RJRG; writing of original version: FIC, RJRG; writing and revision of final version: FIC, RJRG; funding: FIC, RJRG.

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Ethical aspects

The authors declare that they have obtained consent from the patients' parents or guardians to use their patient information.

Conflicts of interest

The authors have no conflict of interest associated with the material presented in the manuscript.

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