First Brazilian Case of SADDAN Syndrome: A Diagnostic Challenge in Skeletal Dysplasias

Salti, G. Y. G.[1]; **Dias Jr.**, D. D.[1]; **Machado**, E. P.[1]; **Castralli**, H. A.[1]; **Machado**, R. A.[1]; **Bueno**, G. Z.[1]; **Leal**, M. I. C.[1]; **Fernandes**, A. C.[1]; **Sias**, C. T. M. M.[1]; **Pagotto**, M. V. C[2]; **Francisco**, R.P. V.[2]; **Castro**, M. A. A.[1]; **Honjo**, R. S.[1]; **Kim**, C. A.[1]; **Bertola**, D. R.[1]

1. Instituto da Criança – Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo, Universidade de São Paulo, São Paulo, Brasil.
2. Divisão de Clínica Obstétrica – Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo, Universidade de São Paulo, São Paulo, Brasil.

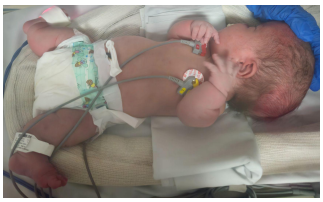
gabriela.salti@hc.fm.usp.br

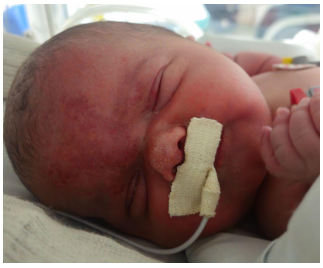
INTRODUCTION

FGFR3-related disorders comprise a continuum of skeletal dysplasias, ranging from mild (e.g., hypochondroplasia) to lethal conditions such as thanatophoric dysplasia (TD). Due to overlapping clinical features, in some situations, definitive diagnosis may rely on molecular testing. One condition that presents an intermediate phenotype between TD and achondroplasia is SADDAN syndrome. Here, we report the first case of SADDAN syndrome in Brazil.

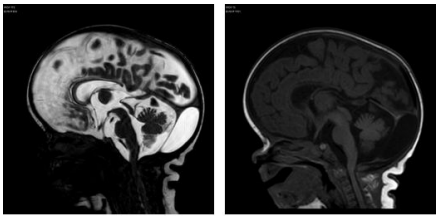
CASE REPORT

A female patient was born to non-consanguineous parents. A morphological ultrasound detected short tubular bones at 21-week of gestation. A 29-week ultrasound at our institution showed shortened tubular bones, femoral curvature, macrocephaly, bell-shaped chest and temporal lobe dysplasia. Chest-to-abdomen ratio was 0.59. Type I TD was suspected and a poor prognosis was communicated. Cesarean delivery occurred at 37w2d. BW was 3430g (Z +1.09), L 43cm (Z -1.96), OFC 40.5cm (Z +5.12) and thoracic perimeter 29.5cm. Apgar scores were 5, 7 and 7 at 1, 5 and 10 minutes, respectively. The newborn had a weak cry and hypotonia. Comfort measures were initiated, but clinical improvement was noted at 10 minutes of life.

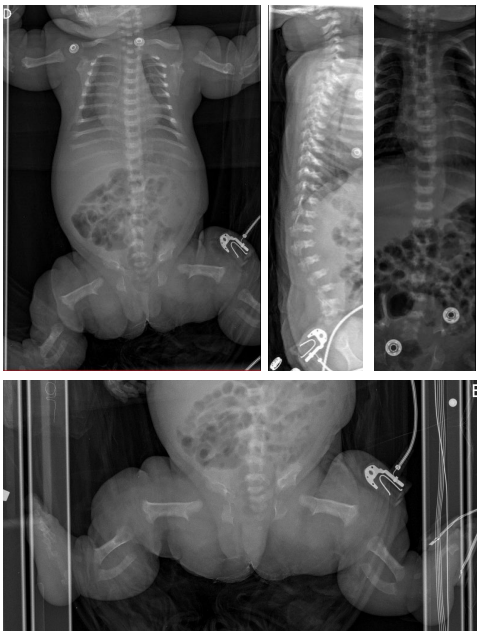




Physical exam on the 2nd day of life showing macrocephaly with frontal bossing, midface hypoplasia, rhizomelic limb shortening, trident hands and posterior tibial bowing. No acanthosis nigricans.



Cranial MRI showing ventriculomegaly, widening of sulci and fissures, foramen magnum stenosis with bulbomedullary junction compression, dysgyria, incomplete hippocampal rotation and an arachnoid cyst. No craniosynostosis was observed.



Radiographs taken on the 5th day showing long bone shortening, posterior tibial curvature, femoral head radiolucency and platyspondyly.

The patient initially remained on room air, but later required oxygen after a respiratory infection, with no need for intubation. She was discharged at 27 days.

FGFR3 sequencing identified the p.Lys650Met variant, confirming SADDAN syndrome.

DISCUSSION

TD and SADDAN are *FGFR3*-related disorders with considerable overlap, yet the latter has a more favorable prognosis. In the perinatal period, distinguishing signs of SADDAN such as acanthosis nigricans may be absent. Thus, other physical features, radiographic assessment and genetic analysis play a key role in establishing the correct diagnosis. A radiological sign that is suggestive of this diagnosis is posterior tibial bowing, which was present in our case. The molecular testing confirmed our clinical hypothesis.

This case highlights the challenge of differentiating TD from SADDAN in the prenatal and early postnatal period, underscoring the importance of a meticulous physical examination and radiological analysis, along with the molecular testing for accurate diagnosis, aiming to improve patient care and family counseling regarding prognosis.

REFERENCES