A Congenital Conundrum: Chondrodysplasia in the setting of Maternal Mixed Connective Tissue Disease

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INTRODUCTION

Chondrodysplasia punctata (CP) is a heterogeneous condition caused by single gene disorders, teratogenic exposures and recently has been associated with maternal autoimmune diseases. It is characterized by abnormal development of bone and cartilage. Most common findings include mid-face hypoplasia and nasal depression. Here we describe a case where maternal autoimmune disease was the suspected pathogenesis of a fetus with chondrodysplasia punctata.

OBJECTIVES

- Demonstrate a link between maternal autoimmune disease and congenital chondrodysplasia punctata
- Provide evidence for routine screening genetic testing in women who have a child with chondrodysplasia punctata

CASE DESCRIPTION

- 32 year-old G2P101 with past medical history of mixed connective tissue disease (MCTD)
- Features of MCTD: Raynaud's phenomenon, interstitial lung disease, sclerodactyly and inflammatory arthritis
- During her first pregnancy she delivered a child with chondrodysplasia punctata (CP) at 32 weeks' gestation due to pre-eclampsia.
- Her child was diagnosed with CP clinically with a skeletal survey. Genetic screening was done with whole exome sequencing including mitochondrial DNA which found no pathologic variants linked to CP
- In her current pregnancy, she was managed by rheumatology and obstetric medicine. She was continued on hydroxychloroquine.
- At 18 weeks' gestation her anatomic survey demonstrated micrognathia, midface hypoplasia, flat nasal bridge, sacral appendage and polyhydramnios.
- At 31 weeks' gestation during fetal monitoring ultrasound, she was diagnosed with stillbirth.
- Fetal autopsy demonstrated stippling of calcanei consistent with CP
- Her post-partum course was complicated by a flare of her MCTD which was treated with azathioprine and a prednisone taper.

RESULTS

Labs	Results
ANA	1:10,240
Anti-RNP	>80
dsDNA	1:28
SSA	>80
SSB	>80
Anti-Smith	30

Table 1: Antibody profile of our patient with MCTD

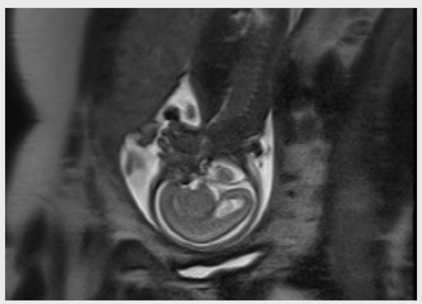

Figure 1: MRI pelvis at 21 weeks gestation. The midface subjectively flattened at the nose subjectively small without interval change. The previously reported vestigial tail is not discernible clearly by MRI.

Table 2: Complete blood count and metabolic panel prior to pregnancy loss with no significant abnormalities. ESR mildly elevated.

ESR 68, CRP 1.57

CONCLUSION

- Chondrodysplasia punctata has been associated with maternal autoimmune disease SLE and MCTD specifically in women with high RNP titers.
- This case illustrates the link between MCTD and offspring with CP, highlighting the importance of autoimmune disease control prior to conception.
- Further genetic counseling on the risk of CDP in future pregnancies for the SLE/MCTD patient if CDP has been diagnosed in one of her children should be performed

ACKNOWLEDGEMENTS

Thank you to the Brown Internal Medicine Program.
Special thanks to the Obstetric Medicine Department at Women and Infants Hospital who allowed me to spend a month with them and introduced me to the specialty of Obstetric Medicine .

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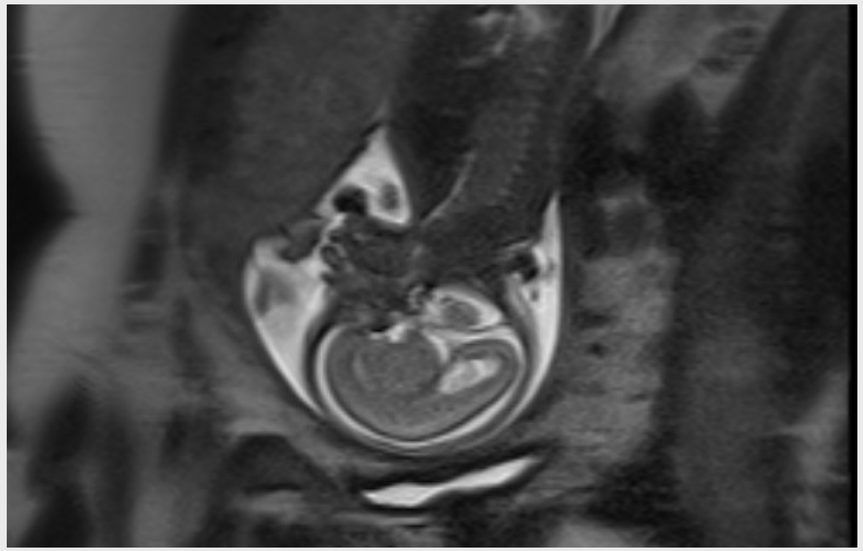

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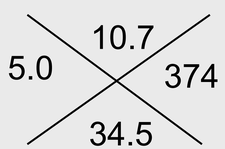

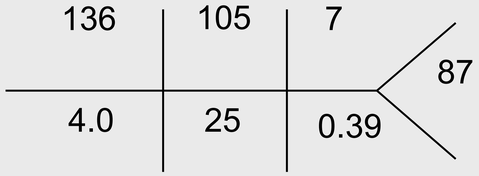

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