Teaching NeuroImage: Intraventricular Fetus-in-Fetu With Extensive De Novo Gain in Genetic Copy Number

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Contributions:

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Li Ma: Study concept or design; Analysis or interpretation of data

Yuanli Zhao: Major role in the acquisition of data; Study concept or design
Chunde Li: Major role in the acquisition of data; Study concept or design

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The authors report no relevant disclosures.
Case and Discussion:

An intraventricular fetus-in-fetu, a malformed monochorionic diamniotic twin, was identified in a one-year-old girl with motor delay and enlarged head circumference (Figure 1). After surgical removal, whole-genome sequencing revealed identical single-nucleotide polymorphisms in the host child and fetus-in-fetu, with extensive de novo copy-number gains in the fetus-in-fetu (Figure 2, eMethods), suggesting significance of copy-number variation during embryogenesis.

The intracranial fetus-in-fetu is proposed to arise from unseparated blastocysts. The conjoined parts develop into forebrain of host fetus and envelop the other embryo during neural plate folding\(^1\). Fetus-in-fetu can be distinguished from teratomas based on the younger age of presenting patients and the presence of vertebrae or internal organs\(^2\).
Reference


Image:

**Figure 1. Imaging of fetus-in-fetu.** Head CT (A) and T1-weighted image (B) of an infant showing hydrocephalus, compressed brain and intraventricular mass with vertebral column, femur and tibia. T1-weighted image of the mass revealing spinal bifida (C). The fetiform mass with upper limb and finger-like buds (D).
Figure 2. Copy-number duplication in fetus-in-fetu. Red bands indicating copy-number gain.

monochorionic
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