

4530097 (EP12.51). Early pregnancy ultrasound for diagnosing conjoined twins following in vitro fertilization-embryo transfer

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Introduction

Conjoined twins (CT) are a rare and complex anomaly of monozygotic twinning. While a systematic evaluation framework detailing the specific first-trimester ultrasound features of conjoined twins has not been established.

Objectives

This study aimed to identify and refine the key first-trimester ultrasound markers for diagnosing conjoined twins in an in vitro fertilization-embryo transfer (IVF-ET) cohort.

Methods

We conducted a retrospective analysis of patients who underwent IVF-ET at the Reproductive & Genetic Hospital CITIC-XIANGYA between 2013 and 2024. We identified 19 confirmed cases of conjoined twins diagnosed by first-trimester ultrasound. Maternal characteristics and specific sonographic findings were analyzed.

Results

The observed incidence of conjoined twins in this IVF-ET cohort was 0.011% (23/216,986). The positive predictive value of first-trimester transvaginal sonography (TVS) was 95% (19/20). The gestational age at diagnosis ranged from 8+3 to 12+4 weeks. Key sonographic markers included a "Y-shaped" embryonic structure in 73.7% (14/19) of cases, an "="-shaped connection in 21.1% (4/19), and a "V-shaped" blood flow pattern on color Doppler in 63.2% (12/19). Notably, 5 cases occurred in triplet pregnancies; 4 of these were dichorionic and resulted in the live birth of a healthy singleton following selective reduction or spontaneous cessation of the conjoined twins.

Conclusion

First-trimester TVS is a highly accurate method for diagnosing conjoined twins. Specific markers, particularly "Y-shaped" or "="-shaped fetal morphology, provide a reliable diagnosis. We recommend a standardized ultrasound evaluation for all MCMA pregnancies following IVF-ET.



Figure 1. Sagittal view of conjoined twins demonstrating a "Y"-shaped fusion of the thoracoabdomen



Figure 2. Sagittal view of conjoined twins demonstrating an "="-shaped fusion of the thoracoabdomen.

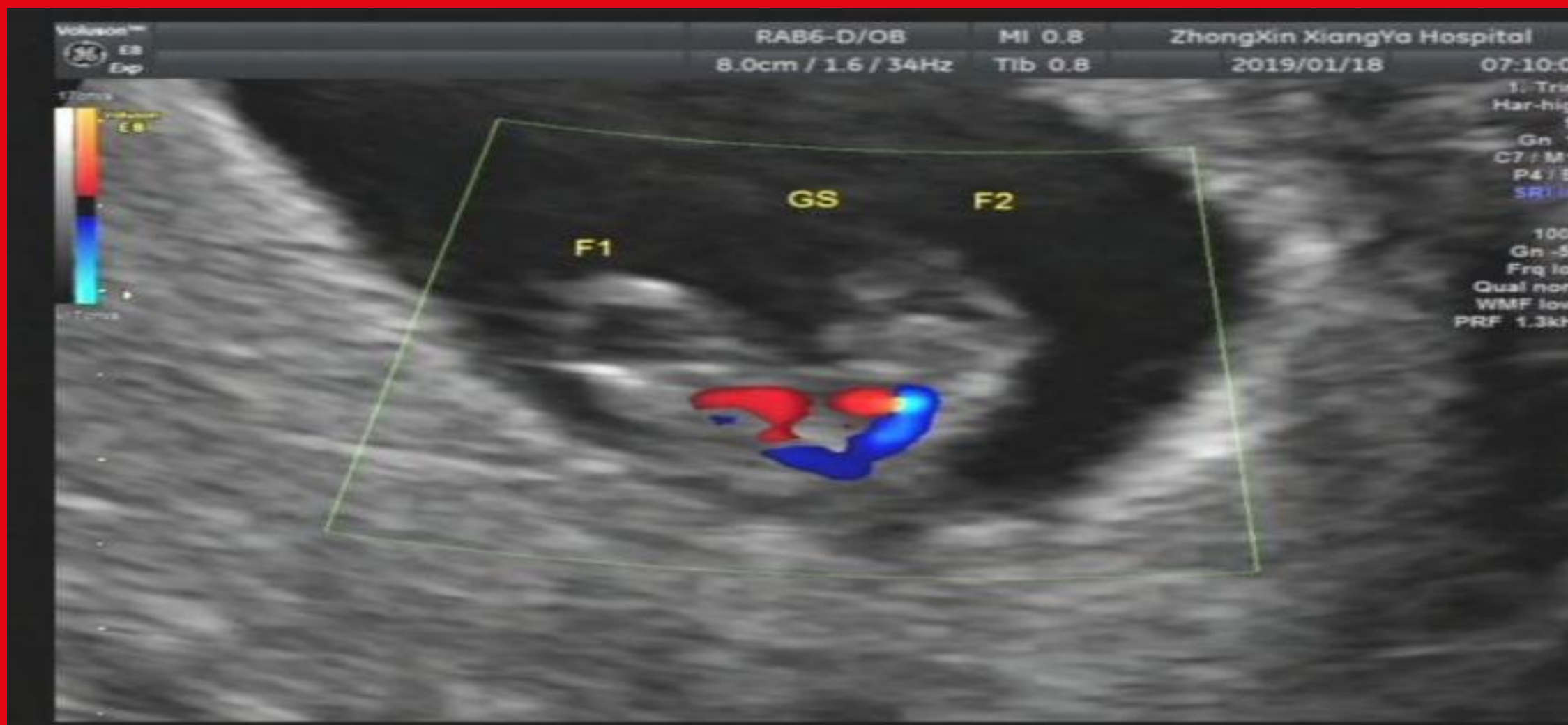


Figure 3. Color Doppler imaging shows a "V"-shaped blood flow signal at the conjoined site.