Concordant myelomeningocele in dizygotic twins conceived by intracytoplasmic sperm injection, *in vitro* fertilization, and embryo transfer

Chih-Ping Chen a,b,c,d,e,f,*, Yuh-Ming Hwu a, Chen-Yu Chen a, Yi-Ning Su g,h, Tzu-Hung Lin h, Yu-Ling Kuo i, Schu-Rern Chern b, Wayseen Wang b,j

a Department of Obstetrics and Gynecology, Mackay Memorial Hospital, Taipei, Taiwan
b Department of Medical Research, Mackay Memorial Hospital, Taipei, Taiwan
c Department of Biotechnology, Asia University, Taichung, Taiwan
d School of Chinese Medicine, College of Chinese Medicine, China Medical University, Taichung, Taiwan
e Institute of Clinical and Community Health Nursing, National Yang-Ming University, Taipei, Taiwan
f Department of Obstetrics and Gynecology, Mackay Memorial Hospital, Taipei, Taiwan
g Department of Obstetrics and Gynecology, National Yang-Ming University College of Medicine, Taipei, Taiwan
h Department of Obstetrics and Gynecology, Dianthus Maternal Fetal Medicine Clinic, Taipei, Taiwan
i Department of Obstetrics and Gynecology, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan
j Department of Bioengineering, Tatung University, Taipei, Taiwan

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A 36-year-old, gravida 3, para 1 woman had suffered from secondary infertility. Her husband was aged 37 years. She and her husband were healthy and nonconsanguineous, and there was no family history of congenital malformations. The woman did not have diabetes mellitus. Her HbA1c and blood sugar were within the normal limits. She denied any recent infections or exposure to teratogens during this pregnancy. This was her third pregnancy, and it was achieved by intracytoplasmic sperm injection (ICSI), *in vitro* fertilization (IVF), and embryo transfer (ET). Two embryos were implanted, and a twin pregnancy was achieved. Prenatal ultrasound at 12 weeks of gestation revealed a dichorionic and diamniotic twin pregnancy. The pregnancy was uneventful until 20 weeks of gestation when level II ultrasound revealed ventriculomegaly, alimentary tract atresia; in addition, the odds ratios (ORs) with 95% confidence intervals (CIs) for anencephaly, spina bifida, and any NTD were 7.6 (95% CI: 2.5–7.7), 5.1 (95% CI: 3.4–7.8), and 4.8 (95% CI: 3.3–6.9), respectively. Källén et al [7] concluded that in infants born after IVF, a slightly increased risk for congenital malformation persists; for NTDs, cardiac septal defects, and esophageal atresia, they found an increased risk in their continuous series studies. Ben-Ami et al [9] reported an increased risk of anencephaly in twins. Ben-Ami et al [10] concluded that twin pregnancies conceived by assisted reproductive technology (ART) constitute a high-risk group for anencephaly because of the synergistic effect of twinning and any NTD.
ART. In a study of 1154 pregnancies diagnosed with severe fetal anomaly, Ben-Ami et al. [10] found that 43 fetuses (3.7%) had anencephaly, and anencephaly was diagnosed in 9/78 (11.5%) twin pregnancies of which 8/45 (17.8%) were ART conceived and 1/33 (3%) were spontaneously conceived. Ben-Ami et al. [10] calculated an OR of 6.6 (95% CI: 2.8–15.3, p < 0.01) for anencephaly in correlation with the combination of ART conception and twinning.

Our case additionally provides evidence that twinning and ART can be associated with concordant myelomeningocele in the twin fetuses born after ICSI and IVF—ET. We suggest careful perinatal investigations of birth defects in pregnancies achieved by ART, including a sonographic screening of fetal spine to exclude myelomeningocele.

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