Radiofrequency ablation for selective reduction in complex multifetal pregnancies: 33 cases report
Department of Obstetrics and Gynecology, Provincial Hospital Affiliated to Shandong University, Jinan, China

Objective
To investigate the safety and efficacy of selective fetal reduction with radiofrequency ablation (RFA) for complex multiple pregnancies.

Methods
33 consecutive cases received RFA from July 2011 to January 2015 at the Obstetrics Department of Shandong Provincial Hospital were included, the indication for RFA, details of procedure, and pregnancy outcomes were collected and analyzed retrospectively.

Results
21 MCDA twins, 1 MCMA twin, 2 MCTA, and 9 DCTA triplets cases chose to receive reduction of one of the monochorionic twins. The MCDA group include 6 TTTS patients (4 cases of stage III and 2 cases of stage IV), 2 cases of TRAP, 10 fetal malformation and 4 cases of sIUGR. The median gestational age at procedure was 27+1 (14+3 to 27+2). All surgery succeeded with one puncture. Four cases aborted (one retained fetus of MCMA died 10 hours after procedure; two MCDA cases experienced PROM of vaginal bleeding about three weeks after the procedure, and 1 case of a cephalic malformation aborted 4+4 weeks after procedure at 25w). 1 case of TRAP received rivanol abortion 2+3 weeks after the surgery at 25 weeks due to the exacerbation of asthma. 2 cases of DATA choose to ablate one of the MD twins experienced intrauterine demise of the co-twin 24 hours later and at 25w (9 weeks later) respectively, and each finally got one live birth at 37w and 37+6w. 5 cases were still in pregnancy (1 MCDA sIUGR 30w, 1 fetal limb deformities 28w, 1 fetal anencephalic 28w, 1 DCTA 118w, 1 DATA 35w). The overall live birth rate was 82.14% (23/28) at an average gestational age of 36+6 weeks (from 32 to 39+3 weeks), Sonography inspection for the reserved fetus, placenta, and middle cerebral artery peak systolic velocity, MRI with the fetal brain after the intervention, and the follow-up investigations about the development of the survivors indicated no abnormality.

Conclusion
RFA selective fetal reduction for complex multi-fetal pregnancy reduction is safe, effective and minimally invasive, which can effectively improve the quality of the fetus reserved. Comprehensive ultrasound examination and thorough evaluation before surgery and operation by an experienced group could increase the surviving rate of the cotwin.