

Healthy live births following intracytoplasmic sperm injection (ICSI) from HIV-1-seropositive men

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ABSTRACT

Introduction: We present two cases of successful conception and the delivery of a healthy, HIV-free baby through in-vitro fertilization with intracytoplasmic sperm injection (ICSI). **Case Description:** Two HIV-1-serodiscordant couples (seropositive men) sought infertility assistance at our clinic. Couple A, aged 40 (male) and 34 (female) and Couple B, both aged 39, met the criteria for IVF treatment, including ongoing antiretroviral therapy for seropositive men, a recommendation from an infectious disease specialist, undetectable viral loads and stable CD4+ T-cell counts for the past 6 months. Additionally, men usually needed at least 1x10⁶ total motile sperm with good progression. Female partners were required to be seronegative. IVF treatment was provided in a manner similar to the treatment provided to conventional patients undergoing IVF-ICSI. Patients provided informed consent before each cycle, including acknowledgment of the potential infection risk. Semen sample was processed using density-gradient-centrifugation, sperm washing and swim-up. **Discussion:** Couple A had 14 retrieved oocytes; 7 underwent ICSI and 6 were vitrified. From the 7 fertilized oocytes, 2 blastocysts (5AA, 3AB) were used for a fresh embryo transfer, resulting in a detected gestational sac but a miscarriage at 9+3 weeks. The remaining 6 frozen oocytes were subsequently thawed and all survived. Four fertilized, leading to 2 blastocysts (5AB, 3AB) for another embryo transfer. A positive Beta-hCG resulted in the birth of a healthy baby boy at 40+3. Couple B had 6 retrieved oocytes, 3Day0-MII and 2Day1-MII underwent ICSI respectively. All injected oocytes fertilized resulting in 4 blastocysts (3 from Day0, 1 from Day1) for PGT-A, revealing 1 euploid, 1 high-risk-mosaic and 2 aneuploid. Since the euploid blastocyst was derived from Day1 oocyte, a second IVF cycle was attempted. With 7 retrieved oocytes, 4Day0-MII and 1Day1-MII underwent ICSI respectively, 4 Day0 oocytes fertilized and 3 blastocysts (1 euploid, 2 aneuploid) were obtained. Following an endometrial-receptivity-assay of which patient was pre-receptive, an elective frozen embryo transfer at 143-hours post-progesterone resulted in a positive Beta-hCG and the birth of a healthy baby boy at 38+6. IVF-ICSI can be an alternative for HIV-1 serodiscordant couples who wish to conceive a child of their own while minimizing the risk of viral transmission.