Autogenous Transfer of Intracytoplasmic Sperm Injection–Produced Equine Embryos Into Oocyte Donor Uteri

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Oocytes can be collected from late-estrous mares for intracytoplasmic sperm injection (ICSI); the resulting embryos can be transferred back into the uterus of the oocyte donor to establish pregnancy. Authors' address: Colorado State University, 3103 Rampart Road, Equine Reproduction Lab, Fort Collins, CO 80521–3003; e-mail: elaine.carnevale@colostate.edu. *Corresponding and presenting author. © 2013 AAEP.

1. Introduction
Intracytoplasmic sperm injection (ICSI) has been used to produce embryos from stallions with poor-quality sperm or limited sperm availability, but the procedure is expensive and typically requires a recipient to carry the ICSI-produced embryo. The aim of this project was to establish pregnancy by transfer of ICSI-produced embryos into the uteri of oocyte donors.

2. Materials and Methods
Oocytes were collected from estrous mares (n = 9) during 17 cycles (one to three cycles per mare). When a follicle >33 mm was present, an ovulation-inducing agent was administered, and oocytes were collected 22 to 27 hours later. Oocytes were matured and injected with sperm 44.5 to 50.5 hours after collection. Resulting embryos were cultured until blastocyst development. Embryos were transferred into their respective oocyte donor's uterus at 6 to 7 days after ICSI. Pregnancy was diagnosed by transrectal ultrasonography at 5 and 9 days after embryo transfer.

3. Results and Discussion
Twelve oocytes were collected, and 10 embryos were produced. Two embryos failed to develop past the early morula stage, and eight embryos developed into blastocysts. Five pregnancies resulted from the 12 oocytes (5/12, 42% pregnancy per oocyte) and from the eight transferred blastocysts (5/8, 62.5% pregnancy per transferred blastocyst).

4. Conclusions
Pregnancy was established after the transfer of ICSI-produced embryos into the uteri of the respective oocyte donors.