

OUR LATEST ENDEAVOR – TRANSVAGINAL ASPIRATION

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Just this spring, ERC purchased a specialized piece of equipment designed to pass within the vaginal cavity and help visualize the main internal parts of the reproductive tract, most notably the uterus and ovaries. This transvaginal probe is made up of a 5.0 MHz, curvilinear transducer and a long, specially-molded handle with a needle-guide. Similar to rectal ultrasonographic exams, ultrasonic waves are emitted from the end of the probe and used to visualize the structure(s) of interest. Once identified, a 22-inch needle is guided down the handle and through the vaginal wall for either fluid or tissue aspiration. Transvaginal aspiration (TVA) can help us address so many challenging issues in today's breeding industry.

A good example of when to use this equipment is with the older, subfertile mare. Often times, we are faced with trying to get one last foal out of a horse that has significant compromise to her uterine environment. Cysts, fluid accumulation, repeated infections can all be issues within the uterus that prevents either pregnancy maintenance or recovery of a viable embryo for transfer. A possible solution is to bypass the uterus completely and focus attention on taking the unfertilized egg (oocyte) directly from the follicle of the ovary. By doing this, we can harvest oocytes and transfer them to the oviducts of mares with healthier reproductive tracts. These recipients will have been bred from a stallion of choice just hours before and/or after the oocyte transfer. Any resulting offspring will be genetically linked to the aged donor mare even though she is not carrying the embryo nor allowing fertilization in her reproductive tract. This procedure is called GIFT or *Gamete Intrafallopian Transfer*, and has proven to be a great avenue for some mares that no longer have

a proper uterine environment for embryo growth and development.



Figure 1 (Above). Aspiration of a preovulatory follicle utilizing TVA. **Figure 2 (Right).** Needle puncturing follicle to aspirate fluid and potential oocyte.



An alternative use for this piece of equipment is in management of twin pregnancies. In most breeds, there is a 10 to 20 percent occurrence of double ovulations that may result in twin conceptuses. Since it is undesirable to have more than one pregnancy go to term, a common protocol is to manually reduce one by pinching it through rectal manipulation. This usually occurs between 14 and 28 days of gestation. Periodically however, we are faced with cases whereby twin pregnancies are not diagnosed until later in gestation (>35 days) when pinching is no longer possible. A viable option may then be to use the transvaginal probe to either aspirate the fluid from one embryonic vesicle or terminate a fetus through tissue disruption or pharmacologic

infusion. There has been some precedence reported for successfully terminating pregnancies between 35 and 170 days and still have the remaining fetus develop to full gestation. This season through transabdominal reduction, we were able to inject the heart of a 150-day twin fetus with 20 ml of procaine penicillin. The heart stopped beating with 5 minutes but unfortunately both fetuses did abort within 30 days following the procedure. Just recently, we successfully aspirated a 26-day vesicle in order to allow an



Figure 3 (Above). and Figure 4 (Right). Visualization of twin fetuses via transabdominal ultrasonography in preparation for cardiac puncture.

adjacent embryo to continue growth and development. An examination 2 days later showed that the remaining pregnancy was growing and still had a healthy heartbeat.

Reduction of uterine cysts seems to be another avenue by which transvaginal aspiration could be of use. It is not uncommon for multiparous (having multiple pregnancies) or aged mares to have cysts within the endometrium of the uterus. These are fluid-filled structures that develop most notably as a result of lymphatic blockage. Unfortunately, when in large-enough size or number these cysts can be a hindrance for developing pregnancies. If circumstances are warranted, aspiration of certain cysts can be done in an effort to reduce the size and optimize pregnancy maintenance. Recently, a case was referred to ERC whereby a mare was diagnosed with a single, 52 mm uterine cyst at the bifurcation of the two horns. After 2 or 3 cycles of optimum breeding, the mare failed to have a detectable pregnancy by Day 14. Historically, this mare was easy to get in-foal but this cyst had markedly increased in size from the previous year and the referring veterinarian felt it could be the reason for this mare's failure to become pregnant. Therefore, as the mare started coming into heat on her subsequent cycle we aspirated the



cyst via transvaginal aspiration. The size of the cyst went from 52 mm at its longest axis down to 25 mm. Although full reduction was the goal, the location of this cyst made it difficult to maintain placement for aspiration. Three days later the mare was bred and subsequently ovulated. Much to everyone's delight, a pregnancy was confirmed on her 14-day pregnancy exam.