



HEALTH ZONE

Foal Health

Seeing Double

BY HEATHER SMITH THOMAS

Twins are a novelty, especially the equine variety, and while we've all heard heartwarming stories about special cases in which both foals survived, the truth is less than one in 100 twin pregnancies results in such a fortunate outcome. Why the miserable odds? Simply, the mare's uterus is not designed to support two pregnancies simultaneously, says Dr. Juan Samper, an equine reproduction specialist located in Langley, British Columbia, Canada.

This is why conscientious horse breeders try to avoid this situation altogether, and it is also one of several reasons veterinarians should examine mares 14 days after breeding, according to Dr. Ahmed Tibary, professor of theriogenology in Washington State University's Department of Veterinary Clinical Sciences.

We visited with Samper and Tibary to understand why twin pregnancies occur, why they're dangerous, and how early detection and intervention can help avoid a two-for-one that could prove dangerous or even deadly.

Reasons for Twins

In a normal conception, a follicle from the mare's ovaries matures into an ovum

that is then fertilized by the stallion's sperm. Most twin pregnancies occur when sperm fertilize two eggs released from two different follicles as a mare double-ovulates.

Thoroughbreds and Warmbloods are notorious multiple ovulators and, thus, tend to conceive twins more frequently

Twins a dangerous proposition for broodmares

than other breeds. The percentage of twin pregnancies among Thoroughbreds is about 30%, depending on the mare's history and age, while in Quarter Horses, for example, it's only about 5%, said Tibary.

No matter the breed, double ovulations are more likely to occur in nonlactating mares (i.e., they don't have foals at their sides) at the peak of breeding season.

"A mare that has double-ovulated in one cycle has a 38% chance of double ovulation on the next cycle," Tibary said. "I recall working with three mares (two Thoroughbreds and a Warmblood) that double-ovulated on more than 80% of

their cycles." He added that the chances for double ovulation to result in twin pregnancies are highest in young mares when they are most fertile, which is from about ages 6 to 8.

"Recent studies with Thoroughbreds in Newmarket and Kentucky show that older barren (nonpregnant) mares are more likely to double-ovulate than young lactating mares," Tibary said. "Genetics and nutrition play important roles in whether a mare will double-ovulate."

If your mare does ovulate more than one follicle on a cycle that you hope to breed her, it's important to monitor her closely.

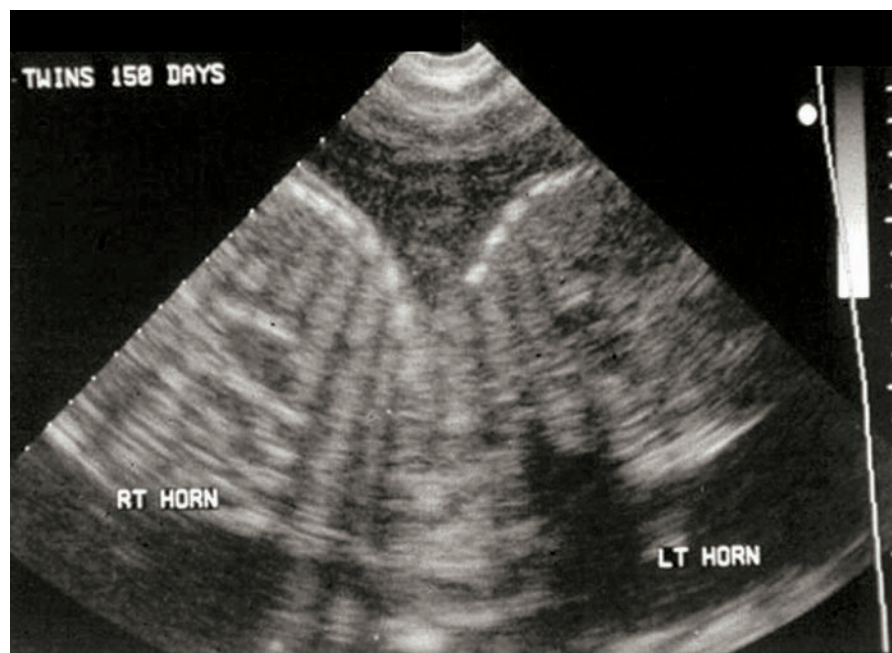
"It's also crucial to know whether she ovulates them at the same time or a few days apart," Samper said. "You have to decide when you will do the initial pregnancy exam on that mare. When two ovulations occur within the same day (and you breed the mare), it's best to check the mare at 14 or 15 days after the ovulations were detected. At that time it is a very simple procedure to manually reduce the twin pregnancy to a single embryo."

Twin Position

About six days after conception the relatively motionless embryo descends into the uterus. It becomes more active about day nine and moves around the uterus from the tip of one horn to the tip of the other several times during the next few days. This transuterine migration is a signal to the mare to recognize that she is pregnant, triggering processes that will help her maintain the pregnancy and prevent her from coming into heat again. On about day 16 or 17 the embryo stops moving around and "fixes" at the base of one of the uterine horns. When there are two embryos, most of them fix in the same horn; only about 30% end up in different horns, Tibary says.

What dictates this grouping or separation is embryo size: Different-sized embryos tend to fix in the same horn, while those of similar size tend to fix in the opposite horns.

"This is due to the fact that fixation of one (usually the older, larger one) impairs the mobility of the other and tends



An ultrasound detecting twins at 150 days



OUR
EXPERIENCE
IS OUR
PEDIGREE

Whether an athlete in training or a beloved family member, every horse deserves the very best when it comes to veterinary treatment and care. And when treatment is necessary, experience matters most.

For more than 60 years, New Bolton Center has been an international leader in equine research, diagnosis and treatment. A long and rich history of excellence that has set the industry standard. This is where the finest equine care in the world is practiced. With unrivaled experience.



Penn Vet
New Bolton Center

BRED FOR EXCELLENCE

NewBoltonCenter.vet.upenn.edu | 610.444.5800



PHOTOS.COM

The percentage of twin pregnancies in Thoroughbreds is about 30%

to force it to fix on the same horn,” explained Tibary.

When twins fix in the same horn, more than 80% of those pregnancies are either lost or they resolve naturally, the latter meaning that “the larger one will grow and undermine the other one, and the smaller, weaker one will die,” said Samper. By day 30 to 35 this process will have finished.

When twins fix in opposite horns, the embryos often survive beyond day 40 and are aborted between five and nine months’ gestation or, in rare instances, are carried long enough to be born alive.

Dealing with Twins

It’s not the end of the world if your veterinarian detects twins early, but such cases do become more complicated the longer you wait.

“We know that the most dangerous twins (for the mare) are those that fix in different horns,” Tibary said. Besides the longer survival, generally resulting in late-term abortion, they can also be born prematurely with complications at birth.

Checking mares for pregnancy and twinning at 14 days post-ovulation becomes especially critical if you already know the mare tends to double-ovulate,

said Tibary. If you don’t know the mare’s exact ovulation date, have your veterinarian examine her 16 days after the last stallion cover.

“If twins are caught before 16 days, the common technique is to manually reduce them by squeezing one of the (embryonic) vesicles,” Tibary said. In the hands of an experienced equine theriogenologist, this method yields a success rate of almost 100%—safely maintaining one live fetus, especially in mares younger than 15 years.

In a recent Kentucky study in which practitioners assessed all the twins Rood & Riddle Equine Hospital had reduced, manual twin reduction had no negative effect on the pregnancy, if done correctly.

“With ultrasound we can monitor the uterus as we are doing this and know for sure that we have removed one of the embryos,” Tibary said.

After 25 days, he explained, veterinarians generally don’t try to squeeze or rupture one of the vesicles and, instead, try to disturb and dislodge it (in which case it will die).

“The problem at that stage of pregnancy is that the vesicle is larger, with more fluid,” he explained. The release of this fluid into the uterus can affect the remaining embryo’s development.

For that reason it’s good that the vesicle at this stage is also tougher and more resistant; however, this means the practitioner must apply more pressure and manipulation to disrupt it so it will not be viable.

“This (manipulation) creates more inflammation and may have an adverse effect on the other conceptus,” Tibary said. “At that point, additional treatments will be required to reduce inflammation and try to maintain progesterone levels so the pregnancy won’t be lost. The cost of maintaining the pregnancy is greater.”

Another technique veterinarians can use if the pregnancy is 25 to about 50 to 60 days is transvaginal ultrasound-guided aspiration (TUGA). “The practitioner places a special ultrasound probe into the mare’s vagina, and with one hand in the rectum the probe is directed to one of the vesicles,” Tibary said. “The rigid handle of the ultrasound probe has a channel for a very long needle. We can pop it through the vaginal wall and into the uterine cavity—into the embryonic vesicle—to aspirate it,” or draw it out. This process’ success rate ranges from about 40-70%, he added, depending on when you do it and the location of the

Dandy Products, Inc.

Padding & Flooring Specialists



“Padding At Its Best”

Breeding Sheds, Stocks, Stalls, Trailers, Exercise & Training Areas,
Induction & Recovery Rooms Table & Surgical Pads, Neo-Natal Foal Beds

Non-Slip Safety Floors for All Areas

Pavesafe Bricks & Tiles, Trac-Roll & Vet-Trac Floors, Wash Stall, Grooming, Aisleway and Trailer Mats

Toll-Free 888-883-8386 • 513-625-3000 • FAX 513-625-2600

3314 State Route 131, Goshen, Ohio 45122 • www.dandyproducts.net

embryo (same horn or opposite horn from the other embryo).

"Success is mare-dependent," he said. "Some mares are more difficult because their uterus is larger and it's hard to stabilize the needle. This procedure requires sedation and, sometimes, drugs to relax the rectum so manipulation can be accomplished without injuring the mare."

Another technique, applied when the mare is 110 to 150 days pregnant, terminates the fetus using ultrasound guidance with the needle inserted through the abdomen rather than through the vagina—a more dangerous process for the mare.

"There is always risk to the other fetus; the success rate with this technique at this stage of pregnancy is 40-50%," Tibary said. "There is risk that both (twins) will die, or that the stab is not correctly done and the fetus survives longer. At this advanced stage the dead fetus will become a mummy. We end up with a fetus that's normal and one that's mummified and remains small," delivered in a small sac separate from the live foal.

There is another method veterinarians use when it's too late for traditional techniques: "This method is surgical, using a flank incision," said Tibary. "The surgeon reaches inside the abdomen, finds the fetus (feeling through the uterine wall) and grasps the head between the thumb and index finger. With a rocking motion, the neck is snapped. The fetus will die a few days later. This can be done at some point between 60 to 150 days of pregnancy with 50-60% success rate."

Importance of a Pregnancy Exam

There is always a chance that a veterinarian might miss detecting the younger, smaller second embryo upon examining the mare at 14 days.

"There are synchronous (occurring less than 24 hours apart) and asynchronous (occurring more than 24 hours apart) double ovulations," Tibary said. "If they occur within 24 hours of each other, there's a good chance we'll see both embryos at 14 days. But if the second ovulation occurs three to four days later, the second egg can still be fertilized, especially if you are using a very fertile stallion."

Therefore, a veterinarian should perform a more thorough examination than just determining whether the mare is pregnant.

"Every millimeter of the uterus should be examined," Tibary said. "The second embryo may be hidden, or a different size,

or in the other horn. If we find only one, we shouldn't end the exam; we need to check the ovaries and make sure the mare did not have two ovulations."

Another reason veterinarians have historically missed picking up on twins is that it's difficult to see two fetuses when they are so close together. "Now with Doppler ultrasound (which shows blood flow) we can pinpoint where the heart is," Tibary said. "If we see two heartbeats, we know there are twins."

Risks to the Mare

While we've focused mainly on saving one foal of a twin pregnancy, remember that your mare's life also is at stake: If she retains both fetuses and is set to deliver two foals, you risk losing all three horses.

"If you're lucky, the mare will deliver the two foals with no problem, one after the other," said Samper. "But there's the chance both foals are trying to come

through the birth canal at the same time, and this creates a terrible dystocia," or difficult birth.

"The mare that foals twins will often retain the placenta(s)," said Samper, setting off a potentially deadly metabolic cascade of events. "These mares may end up with laminitis if you're not careful."

Even though some twins survive and do well, they are the exception. Most breeders don't want to risk the mare's well-being to find out if they're one of a select few.

Take-Home Message

Early pregnancy diagnosis 13-15 days after ovulation is important, along with ovary evaluation, to determine whether a mare ovulated twice and could be harboring twins. If your veterinarian detects twin embryos, discuss with him or her the various appropriate management options, for the stage at which they are discovered. **BH**

the **HORSE** *Excerpted from The Horse: Your Guide to Equine Health Care.*
Free weekly newsletters at www.TheHorse.com

Classics Never Age...



They Only Improve With Time!

- The original hoof supplement
- The only product of its kind subjected to independent scientific research and published in a refereed journal
- Vacuum packed and nitrogen flushed to remain 'fresh' three years from manufacture date

800-624-1873 • www.lifedatalabs.com • cservice@lifedatalabs.com • <http://fb.me/lifedatalabs>