OVARIAN TUMORS

Patrick M. McCue
DVM, PhD, Diplomate American College of Theriogenologists

Mares can develop one of several different types of tumors of the ovary, but by far the most common ovarian tumor is called the granulosa cell tumor. These tumors almost always involve one ovary, are slow growing, and do not spread to distant sites in the body. Presence of a granulosa cell tumor may be suspected if a mare exhibits behavioral changes, such as aggressive or stallion-like behavior or if a mare exhibits markedly prolonged periods of heat or estrus. As a reminder, stallion-like behavior can also be observed occasionally in normal mares in the middle of pregnancy due to production of testosterone from the fetus. Prolonged or irregular estrus periods are routinely associated with the spring transition period in normal mares. Consequently, not every behavioral change is indicative of the presence of an ovarian tumor. If an unusual behavior persists or is unexplained, please consult with your equine veterinarian.

The presence of a granulosa cell tumor can usually be diagnosed by an ultrasound examination. An affected ovary will be enlarged and will often have a classic 'honeycombed' internal structure. However, the tumor may also present as a solid mass or as a single large cyst. The opposite ovary will typically be small and inactive. The presence of one enlarged ovary and one small inactive ovary in the presence of classic behavioral changes is usually sufficient for a diagnosis. If additional 'proof' is needed, a blood sample can be collected for hormone analysis. A sample can be submitted to a diagnostic laboratory for assessment of the hormones inhibin, testosterone and progesterone. In the United States the only laboratory currently measuring inhibin levels in the blood of horses is the University of California, Davis.

Inhibin levels are higher than normal in approximately 90% of mares with known granulosa cell tumors. Testosterone levels are elevated in only 50 to 60% of affected mares and usually only in mares exhibiting stallion-like behavior. Testosterone will only be elevated if a large number of a second cell type (theca cells) is present in the tumor, making it a granulosa-theca cell tumor. Progesterone levels are not normally elevated in mares with granulosa cell tumors, since the tumor does not produce progesterone and mares with granulosa cell tumors do not usually continue to cycle. If blood progesterone levels are high, it suggests that the ovarian enlargement is caused by something other than a tumor.

Mares with granulosa cell tumors do not commonly continue to develop follicles and ovulate from either the affected ovary or the opposite ovary. In fact, the opposite ovary becomes inactive due to the production of hormones from the tumor.

Granulosa cell tumors are usually surgically removed since the tumor may be a source of colic, may cause behavioral abnormalities and will certainly affect follicular development on the opposite ovary. The entire ovary containing the tumor may be removed by a ventral midline surgery, flank surgery or, with small tumors, through a vaginal incision. At some veterinary facilities, the tumor may be removed by use of a laparoscope.

It may take 6 to 8 months or more for significant follicular development and ovulation to occur on the opposite ovary following removal of the tumor. The good news is that following surgery the vast majority of mares will resume normal reproductive function, cycle every 21 days, become pregnant and carry foals to term with just one ovary.

Photo of an ovarian tumor

Photo of a mare exhibiting stallion-like behavior