

the fluid. On abdominal ultrasonography, there was no free abdominal fluid observed. Ultrasonography of the penis and urethra revealed a hyperechoic structure proximal to the glans penis, and the urethra was intact. The penis could not be extended for examination due to nonseparation of the penis from the prepuce as a result of early castration. The urine pH was 6.0 and specific gravity was 1.028. On microscopic examination of the urine sample urate crystals were observed. Serum chemistry had an elevated BUN (52.3 mg/dl; normal range 11 - 30), creatinine (7.6 mg/dl; normal range 1-2.3), AST (79 U/L) and serum iron (22 µg/dl). The diagnosis was obstructive urolithiasis. A tube cystotomy surgery was done in a 'cushed' position using the following intravenous anesthetic protocol: detomidine (0.03 mg/kg), torbugesic (0.06 mg/kg) and ketamine (2.5 mg/kg). The bladder was accessed with a blind stick using a scalpel blade. A Foley catheter with a stylet was inserted through the incision and the bladder was flushed with saline solution. The tube was sutured in place to allow for urine expression. Antibiotic therapy with ceftiofur crystalline free acid (6.6 mg/kg subcutaneous, daily) and sulfadimethoxine (55 mg/kg initial dose, 27.5 mg/kg subsequent doses, intravenously, daily) and an antiinflammatory (flunixin meglumine 1.1 mg/kg, intravenously, once every 12 hours) was started. Acepromazine (20 mg intravenously) to cause urinary tract relaxation and fluid therapy (5 liter bolus, once every 12 hours) were done. There was a continuous and steady urine dripping from the Foley catheter after the surgery and during the next 3 days, so the treatment plan was continued. However, on the fourth day after surgery, the animal was seen posturing to urinate and the bladder was lavaged with 5 liters of saline solution, during which bloody drops were noted in the prepuce. Urine had a pH of 7 and struvite crystals were seen. Hence, a total of 120 ml of Walpol's solution was placed in the bladder. Then, 30 minutes later, another 5 liters lavage was done. The next day, the Foley catheter had become occluded due to fibrin deposition. The animal was posturing more frequently, although the bladder was small on ultrasound. Animal was sedated in accordance with the previous surgery and an epidural was given with 3 ml of lidocaine. A perineal urethrostomy and penile amputation was performed while the animal was in a cushed position. The urethra was then spatulated at the level of the skin incision and a catheter was placed. The camel continued to urinate successfully, and treatment was discontinued. The animal was sent home on allopurinol to be given every other day to aid in reduction of uric acid and was instructed to receive a low grain diet. Early castration in camelids can predispose to a narrowed urethra that coupled with a high grain diet may lead to urolithiasis.

Keywords: Camelid, urogenital system, bladder, urethra

Evaluation of ovarian response to PG600 in alpacas

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The hormonal preparation PG600, a combination of equine chorionic gonadotropin (eCG) and human chorionic gonadotropin (hCG), is commonly used for swine estrus synchronization. However, it is often used off-label in sheep and goats to replace the eCG formulation not available in the US. In alpacas, eCG has been used alone or in combination with FSH to induce superovulation, with variable results. The aim of this preliminary trial was to investigate the effect of PG600 on follicular dynamics in alpacas. We hypothesized that a single treatment of PG600 (800 IU eCG and 400 IU hCG in 5 ml) 2 days after ovulation results in ovarian follicular superstimulation in alpacas. Adult multiparous alpacas (n = 9) were used in the experiment. Ovarian follicular activity was monitored by transrectal ultrasonography. Ovulation was induced with GnRH (100 µg) given intramuscularly when a dominant follicle reached at least 8 mm in diameter and uterine tone and edema were present. All females received 5 ml PG600 intramuscularly 2 days after induction of ovulation. Ovarian follicular response was assessed by transrectal ultrasonography on day 7 after PG600 treatment and the follicles were recorded and counted by 2 clinicians. Ovulation was induced with GnRH (100 µg) given intramuscularly. The mean number of follicles between 7 and 12 mm in diameter present in the ovaries after the treatment was 14.9 ± 13.8 (mean \pm SD). There was a large variation among females in the number of follicles, which ranged from 1 to 38. The ovulation rate (number of corpora lutea) following induction was very low 1.1 ± 1.6 (mean \pm SD). The maximum ovulation rate (5) was observed in a female that had 6 follicles after stimulation. All females presented anovulatory hemorrhagic follicles 2 days after induction of ovulation (10.0 ± 11.5 , mean \pm SD). In conclusion, PG600 induced ovarian follicular stimulation (> 2 mature follicles) in 7 out of 9 alpacas. However, the follicular response had large individual variability. The ovulation rate after ovarian superstimulation with PG600 was poor. However, this poor ovulatory response has been also observed with eCG and FSH. This preliminary trial suggests that PG600 may not be appropriate for ovarian superstimulation in multiple ovulation embryo transfer programs in alpacas but could be used for oocyte recovery within other advanced reproductive techniques.

Keywords: Ovulation, superovulation, camelids, anovulatory follicles