

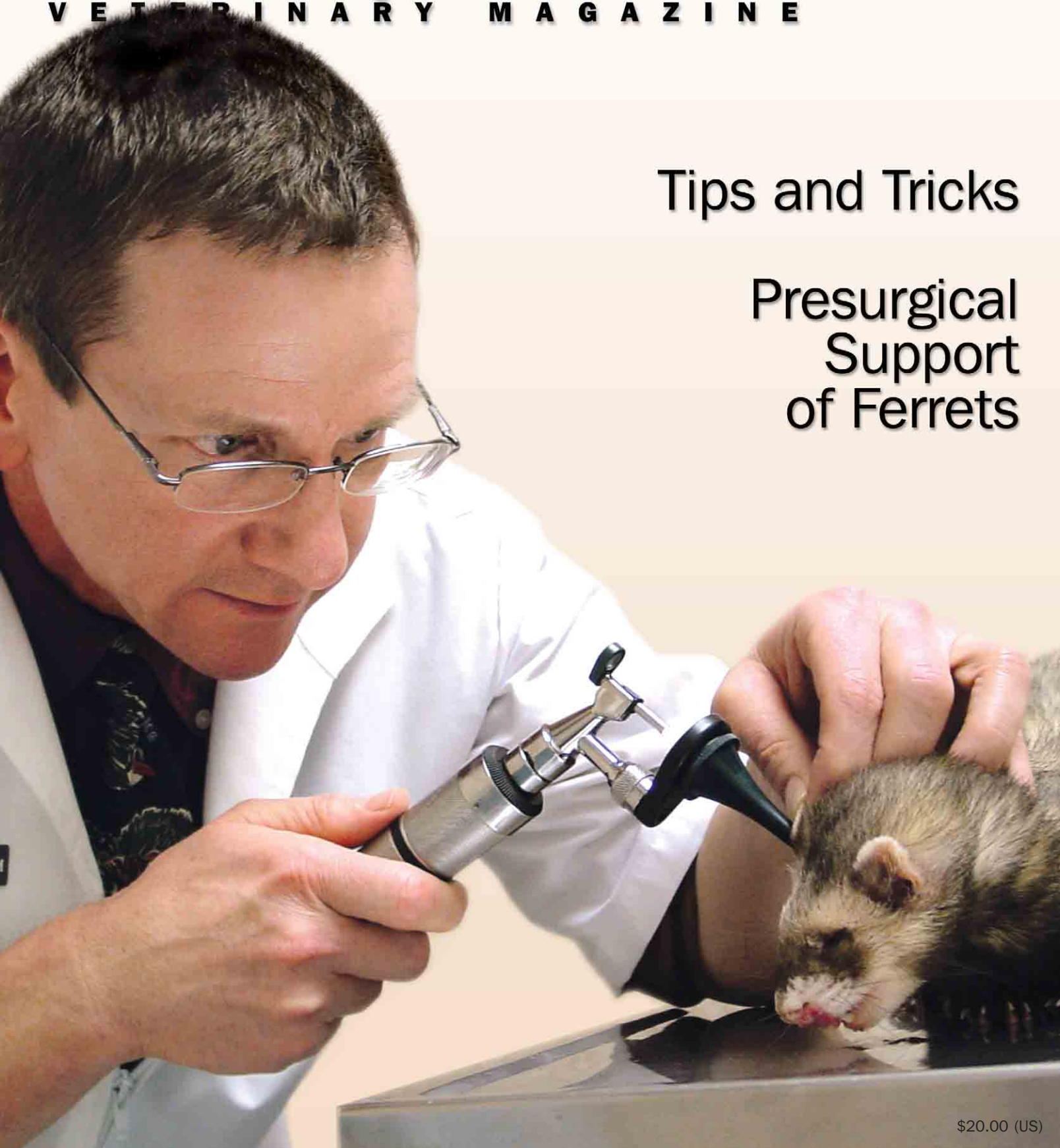
# EXOTIC

V E T E R I N A R Y M A G A Z I N E

**DVM**  
VOLUME 6.6

Tips and Tricks

Presurgical  
Support  
of Ferrets



\$20.00 (US)

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# Prescrotal Open Technique for Neutering a Degu

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For in-depth comprehension of the proper techniques for neutering rodents, it may be useful to review some anatomic features. Because the inguinal canal of lagomorphs and rodents remains open throughout life, there is not a true scrotum, but rather two separate hemiscrotal sacs. In lagomorphs, these are positioned cranial to the penis; in rodent species, they are caudal to the penis, as they are in other species of placental mammals except rabbits. The term “canal” is not appropriate for rodents, because this communication with the abdominal cavity is so wide.

Hemiscrotal sacs have anatomic peculiarities among different groups of rodents. Rat-like rodents (rat, mouse, hamster, gerbil) have well-developed hemiscrotal sacs. The most common procedure for castration in these species is scrotal or prescrotal access, both with an open (uncovered) or closed (covered) technique. Porcupine-like rodents (guinea pig, chinchilla, degu) have less developed hemiscrotal sacs, which are more similar to “diverticula” of the abdominal cavity, but the technique for castration can be similar to that of rat-like rodents (see Exotic DVM 6[5]:27-30 for a scrotal technique for neutering chinchillas). Squirrel-like

rodents, like prairie dogs, do not have well-developed hemiscrotal sacs because the testicles are located caudally in the inguinal canal or in the abdomen, depending on the season. They could be defined as “functional cryptorchids.”

On the basis of these features, castration in prairie dogs (usually done when they are young) is easier when performed with the abdominal approach, because it is easier to locate the testicles (see Exotic DVM 2[5]:19-23, 2000). In fact, bilateral orchietomy from an abdominal approach is feasible in all small mammal species having a relatively large vaginal process (open inguinal canal). This technique has also been described in rabbits. In adult prairie dogs, the prescrotal technique is possible, because under anesthesia it is easy to push the testicles caudally.

Being a porcupine-like rodent, the scrotal technique is feasible in degus, but the prescrotal is recommended.

In all rodent species, it is recommended or mandatory to perform ligation of the vaginal process (inguinal canal) to prevent herniation of fat, seminal vesicles, urinary bladder or bowel. This is more difficult in squirrel-like rodents, since the hemiscrotal sacs are not well developed.





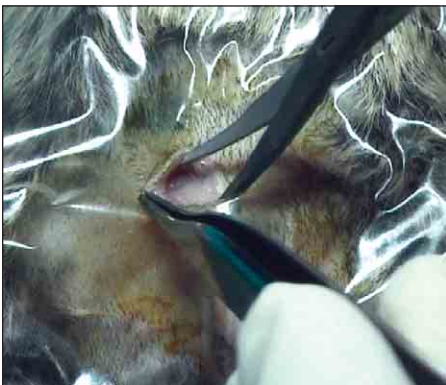
**1** The degu is anesthetized using a combination of ketamine (20 mg/kg) and medetomidine (70 µg/kg) both injected intramuscularly. Butorphanol (0.3 mg/kg) is administered subcutaneously. General anesthesia is maintained with isoflurane (1.5%) and oxygen delivered by facemask. The degu is placed in dorsal recumbency, and the periscrotal region is widely shaved.



**2** The area is scrubbed and aseptically prepared using povidone iodine diluted 1:10 with sterile water or saline. Otherwise, 0.1% chlorhexidine solution may be used.



**3** The surgical area is isolated with a self-adhesive transparent drape. The prescrotal skin is incised 2-3 mm lateral to the prepuce.



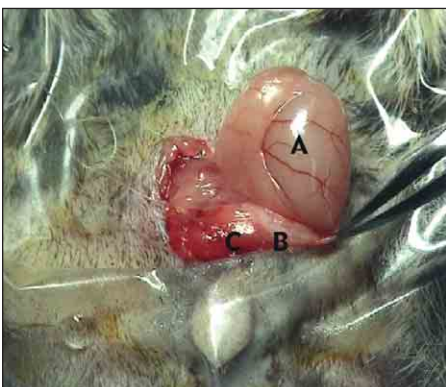
**4** Subcutaneous tissue is bluntly dissected to expose the vaginal process. The vaginal process is very large in porcupine-like rodents.



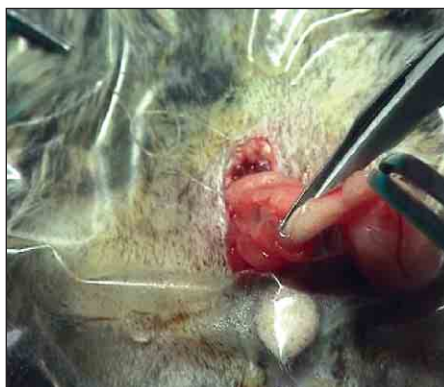
**5** The vaginal process is bluntly isolated.



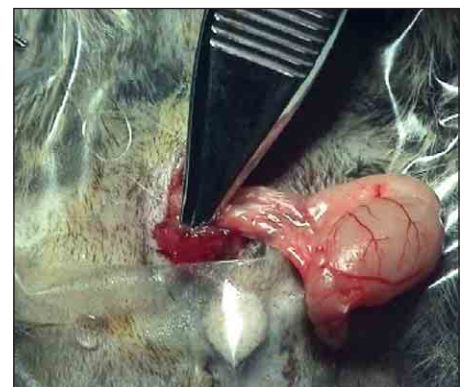
**6** Using absorbable suture (Monocryl 4-0), a knot is placed around the vaginal process but is not tightened. After the testicle is removed, this knot will be used to ligate the vaginal process.



**7** The vaginal process is incised, and the testicle (A) is exposed up to the tail of the epididymis (B). During this procedure, the hemiscrotal sac (C) is everted.

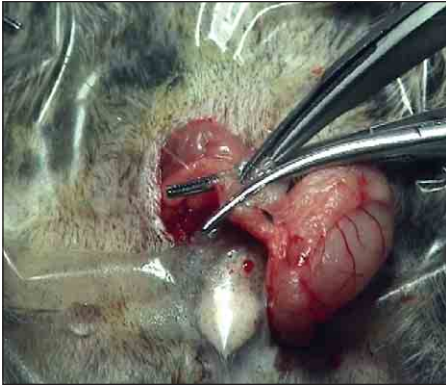


**8** The tail of the epididymis is dissected from the base of the everted hemiscrotal sac.

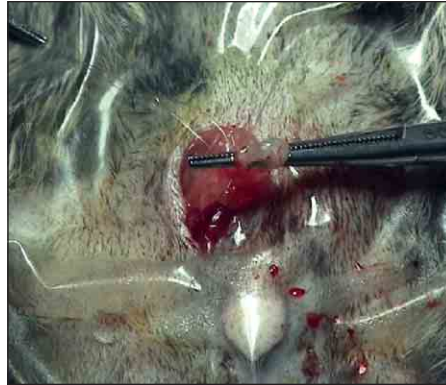


**9** The everted hemiscrotal sac is replaced in the normal position using the tip of the forceps.

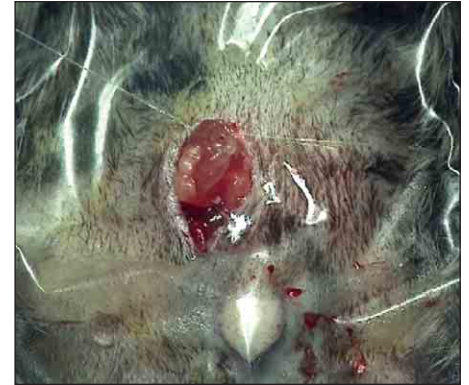




**10** The spermatic cord is double clamped and transected, removing the testicle.



**11** The spermatic cord is ligated using Monocryl 4-0. Alternatively, the spermatic cord can be ligated prior to transection.



**12** The knot previously placed around the vaginal process is tightened. Ligation of the vaginal process is easier when performed as far proximally as possible and is also more effective at that site in closing the abdominal cavity. This step is very important in preventing herniation of intraabdominal tissues. Herniation is not a common complication if a large portion of the abundant fat pad surrounding the testicle is left in place.



**13** Subcutaneous tissues are sutured in a continuous pattern using Monocryl 4-0.



**14** The intradermal layer is sutured in a continuous pattern.



**15** A thin film of tissue glue is applied to the incision line.



**16** The procedure is repeated on the other side through another para-preputial skin incision. Shown is the appearance of the two skin suture lines.

#### References and Further Reading

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