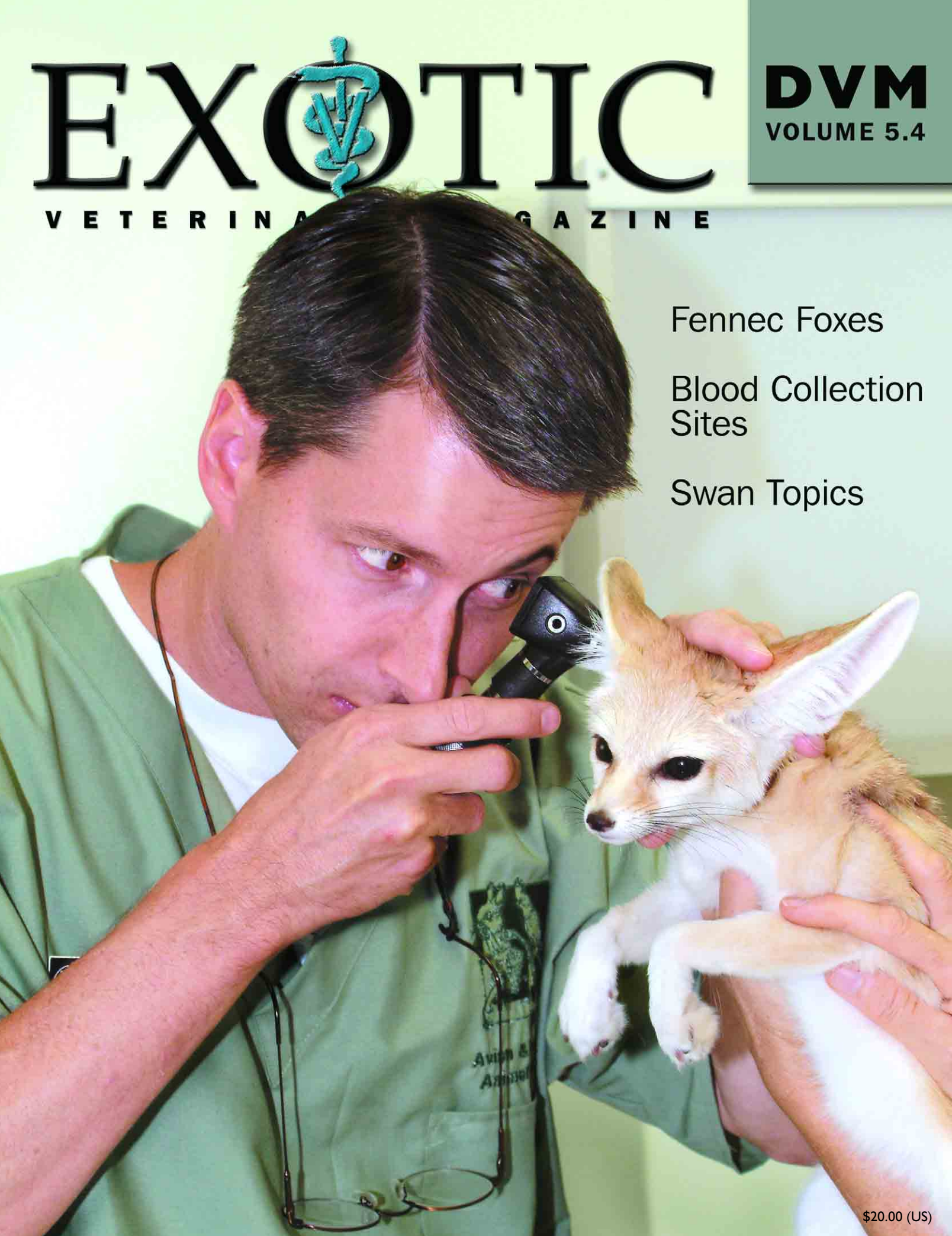
EXOTIC

VETERINARY MAGAZINE

DVM
VOLUME 5.4



Fennec Foxes

Blood Collection Sites

Swan Topics

$20.00 (US)

EXOTIC DVM
VETERINARY MAGAZINE
VOL 5.4

contents

Bruce S. Levine

Jan Gisle Sjøberg

Rebecca Webb Wilson

Dan Johnson

OBSERVATIONS FROM THE FIELD

PEER-REVIEWED CLINICIAN'S NOTEBOOKS

DEPARTMENTS

Techniques for Neutering Pet Hamsters

VITTORIO CAPELLO

Vittorio Capello, DVM
Clinica Veterinaria S. Siro
Clinica Veterinaria Gran Sasso
Milano, Italy
capellov@tin.it

Vittorio Capello graduated from the University of Milan, Italy, in 1989. He provides professional services relating to medicine and surgery of exotics (particularly for rabbits, rodents and other small mammals) for two clinics in Milan. He has lectured and published on these subjects throughout Italy. He recently produced the "Atlas of Medicine and Surgery of the Pet Hamster" CD-ROM.

Acknowledgment

The author thanks **Maura Nardi**, DVM for contributions to this article.

Further Reading

1. Brown SA, Rosenthal KL: Self-assessment Colour Review of Small Mammals. Ames, Iowa State Press, 1997, p 146.
2. Capello V: Pet hamsters: Selected anatomy and physiology. Exotic DVM 3(2):23-27, 2001.
3. Capello V: Pet hamster medicine and surgery part II: Clinical evaluation and therapeutics. Exotic DVM 3(4):33-39, 2001.
4. Hoyt RF Jr: Abdominal surgery of pet rabbits (orchiectomy). *In* Bojrab MJ (ed): Current Techniques in Small Animal Surgery 4th ed. Philadelphia, Williams & Wilkins, 1998, p 784.
5. Johnson-Delaney C: Ovariohysterectomy in a rat. Exotic DVM 4(4):17-21, 2002.
6. Leck S: What every veterinarian needs to know about hamsters. Exotic DVM 2(5):38-41, 2000.
7. Mullen H: Soft tissue surgery. *In* Hillyer EV, Quesenberry KE (eds): Ferrets, Rabbits and Rodents: Clinical Medicine and Surgery. Philadelphia, WB Saunders Co, 1997, pp 329-336.

ORCHIECTOMY AND OVARIOHYSTERECTOMY can be performed in hamsters for preventive or therapeutic purposes.

Preventive neutering is recommended when a pair or more individuals are to be housed together without consequences due to overbreeding or fighting. Although neutering obviously prevents reproduction, there is some controversy about whether the procedure also reduces aggressiveness in golden hamsters. The best results occur when male hamsters are castrated prior to sexual maturity (10 weeks of age) or testicular descent into the scrotal sac and when the body weight is between 70 and 100 g. Preventive ovariohysterectomy is performed less frequently than castration.

For ovariohysterectomy, patients weighing more than 100 g are preferred. When the specific goal is to prevent breeding, simple ovariectomy can be performed. This technique reduces the anesthetic and surgical time, thereby limiting risks to the patient.

3 Reasons Preventive Ovariohysterectomies are Less Common than Castrations

- The risk factor is higher than for male castration.
- There is insufficient evidence that ovariohysterectomy prevents mammary or uterine tumors as it does in other rodent species.
- The surgery is considered very expensive by most owners.

The author has not performed a preventive ovariohysterectomy in a Russian hamster. For these very small species, the best choice for reproductive control is castration of the male. Because hamster clients become frustrated with the high number of litters, the risk to the female hamster's health and the necessity of separating a pair or giving away pups, they usually consider preventive neutering a positive option.

Products at a Glance

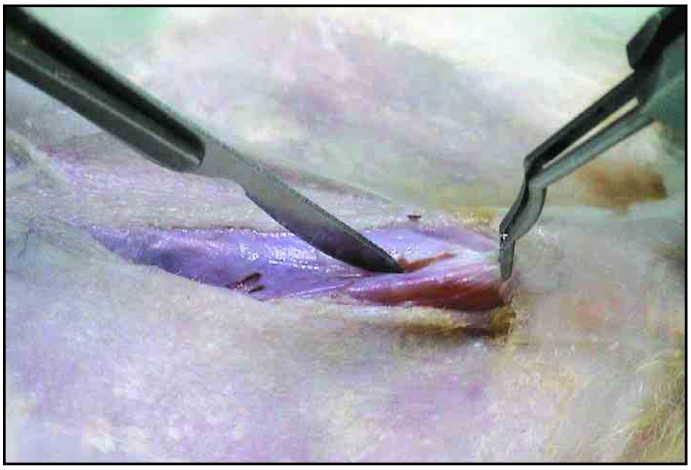
- Topical skin adhesive - Dermabond® www.ethiconinc.com
- Hemostatic clips - Ligaclip® www.ethiconinc.com and Hemoclip® www.weckclosure.com
- 5-0 absorbable suture - Monocryl® or Biosyn®

OVARIOHYSTERECTOMY

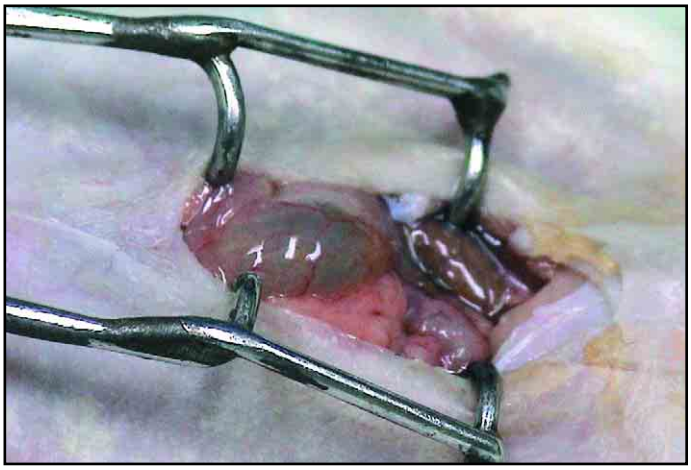
1 The hamster is anesthetized, shaved, aseptically prepared and draped with transparent adhesive drapes. A Doppler probe is placed on the chest to monitor the heartbeat.

2 A narrow strip of the adhesive drape is removed to expose the skin. The hamster's tissues are very delicate, and it can be difficult to safely incise both the drape and the skin with the scalpel blade.

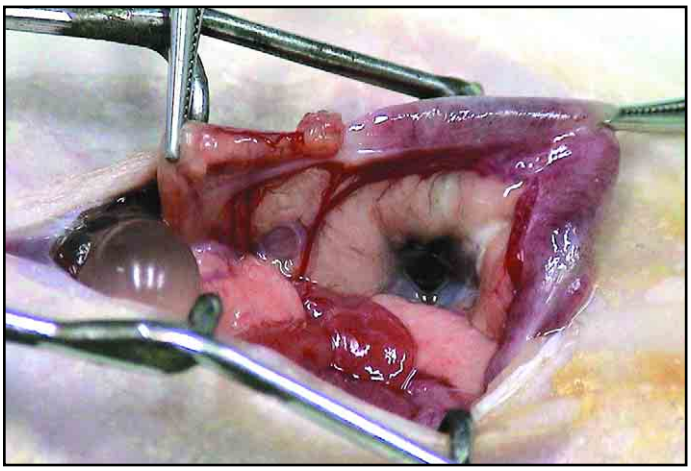
3 The skin incision is made directly on the ventral midline, starting immediately caudal to the umbilicus. Caution is necessary to prevent incision of the abdominal wall.



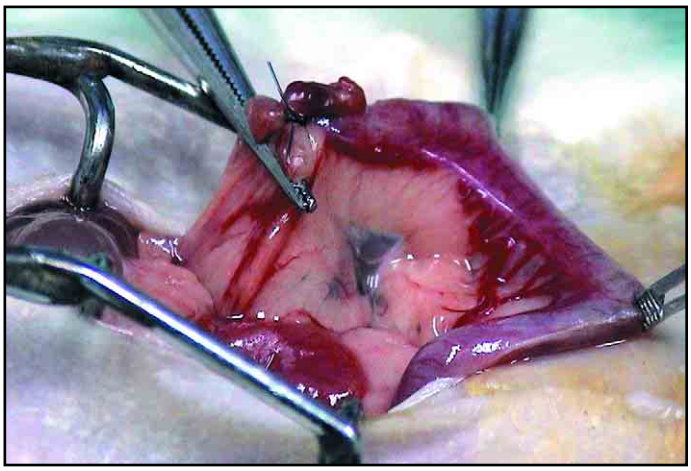
4 Prior to making the abdominal incision, the abdominal wall is grasped with forceps to prevent iatrogenic incision of underlying organs, such as the large cecum.



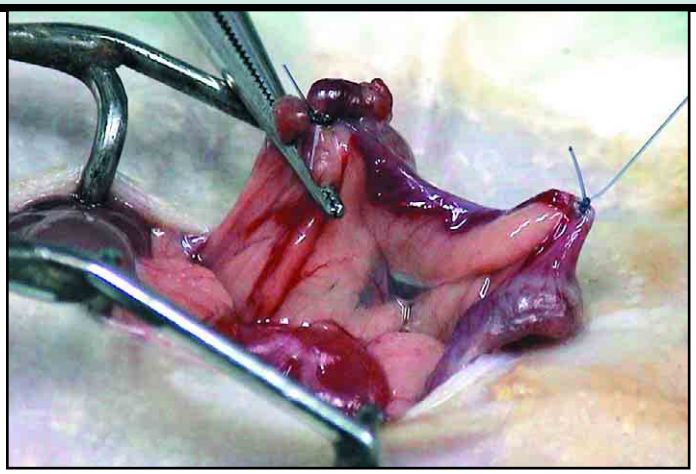
5 An eyelid retractor can be placed as a self-retaining retractor. The green-colored cecum can be seen in the abdominal cavity.



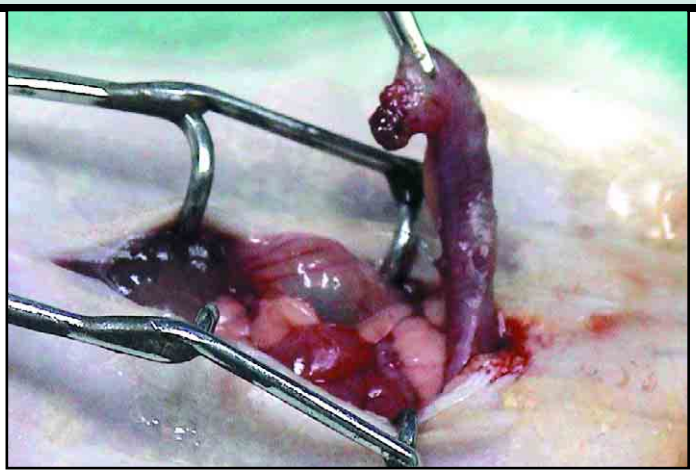
6 A uterine horn is very gently exteriorized with forceps or cotton-tipped applicators. The ovary and vascular supply are visible. It may be necessary to handle the intestines with cotton-tipped applicators.



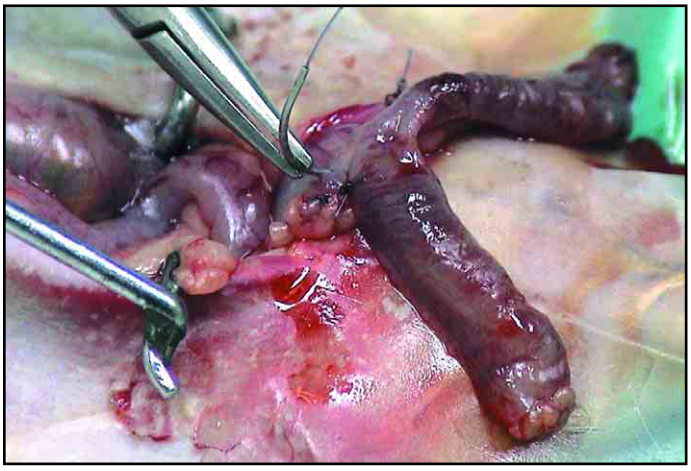
7 The ovarian pedicle is ligated with 5-0 absorbable suture (e.g., Monocryl® or Biosyn®). Alternatively, hemostatic clips (Ligaclips® or Hemoclips®) may be used.



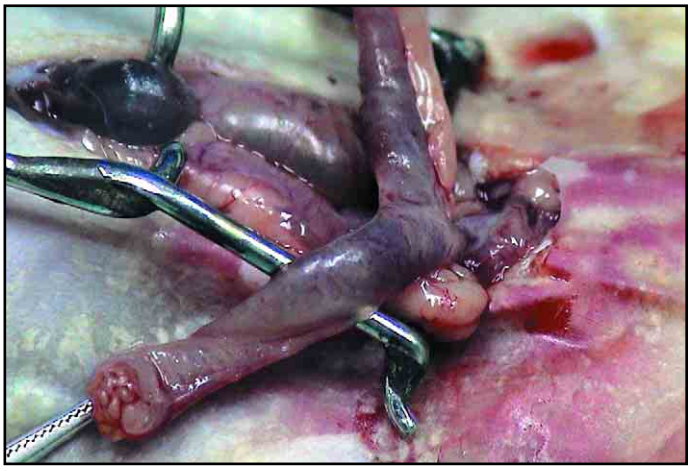
8 The uterine artery is ligated with the same suture or hemostatic clips.



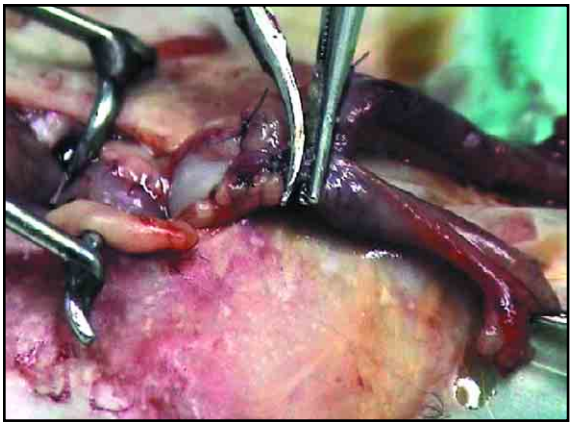
9 The ovary and uterine horn are dissected from other tissues to the level of the cervix.



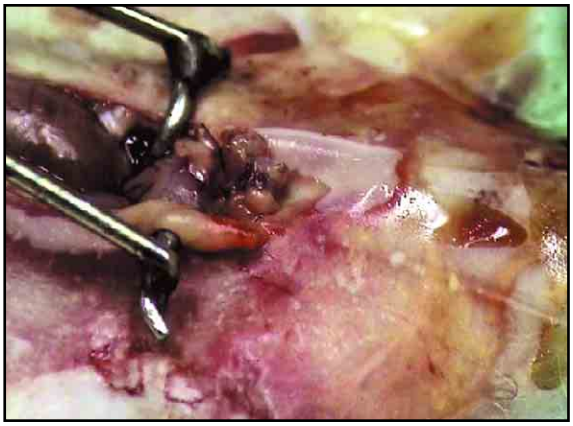
10 The contralateral uterine horn and ovary are exteriorized and removed as described previously. The uterine cervix is firmer than other tissues. A transfixing suture is placed at the level of the cervix. Alternatively, hemostatic clips may be used.



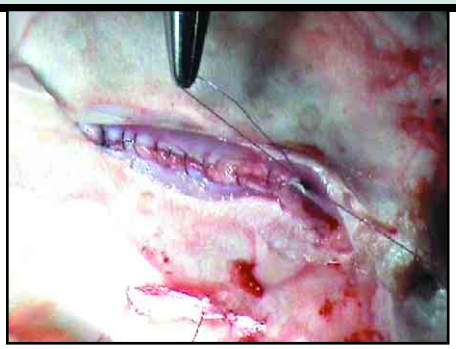
11 The uterus is reflected cranially to reveal the urinary bladder. In this image, the bladder is hidden under the incision.



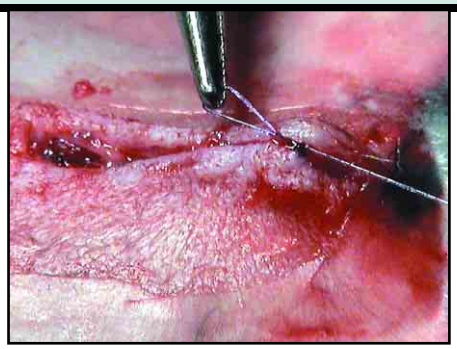
12 The cervix is clamped with a hemostat and transected with scissors between the hemostat and the transfixing suture.



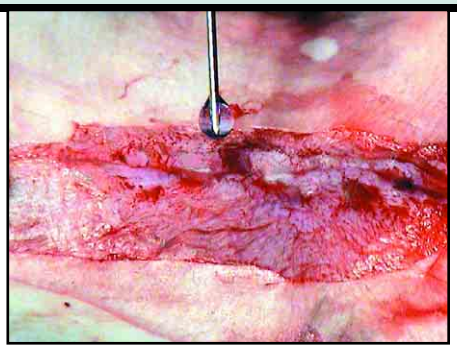
13 The uterine stump is replaced in the abdomen. Before suturing the abdominal wall, organs are moistened with warm saline and the abdominal cavity is checked carefully for hemorrhage.



14 The abdominal wall is closed with 4-0 or 5-0 absorbable suture in a continuous pattern. An interrupted pattern can be used but is more time consuming. If the hamster has a calm demeanor and is not prone to self-trauma, the skin can be sutured with absorbable or nonabsorbable 4-0 or 5-0 suture in an interrupted pattern.

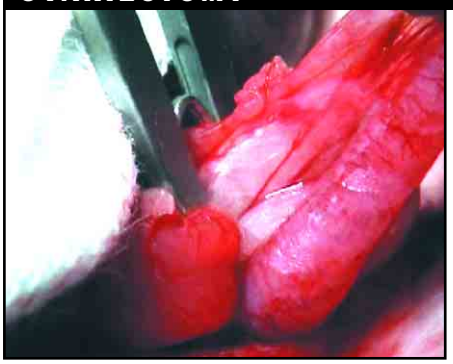


15 Alternatively, a subcuticular continuous suture should be performed.

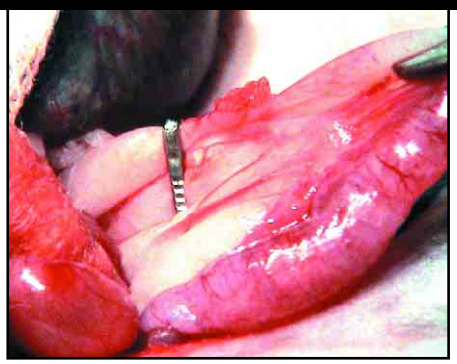


16 The skin incision is then sealed with tissue adhesive, which helps prevent tissue and suture trauma by the hamster.

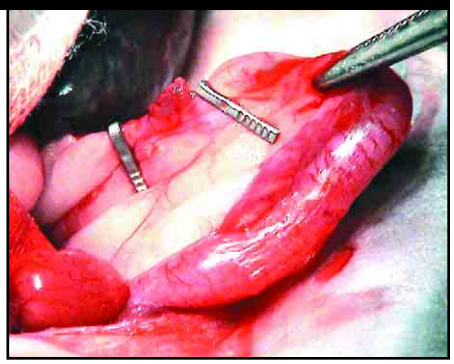
OVARIECTOMY



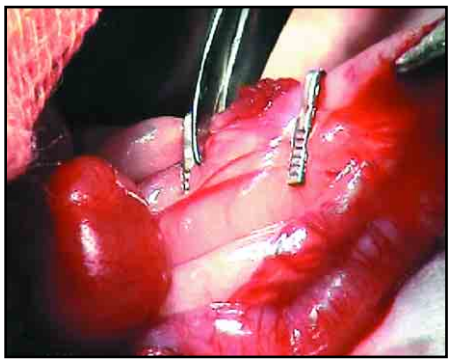
1 A simple ovariectomy, involving less time and patient risk, may be performed instead of a full ovariohysterectomy. Using hemostatic clips (Ligaclips® or Hemoclips®), the first clip is positioned cranial to the ovary to provide hemostasis for the ovarian pedicle.



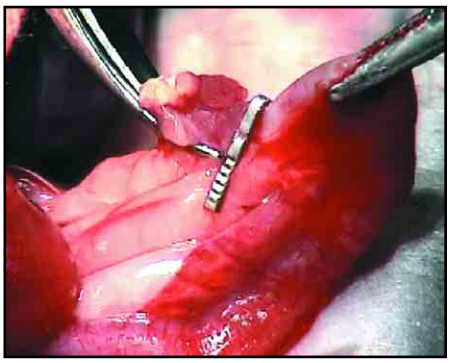
2 Attention must be paid to avoid inclusion of the intestines when placing the hemostatic clip on the ovarian pedicle.



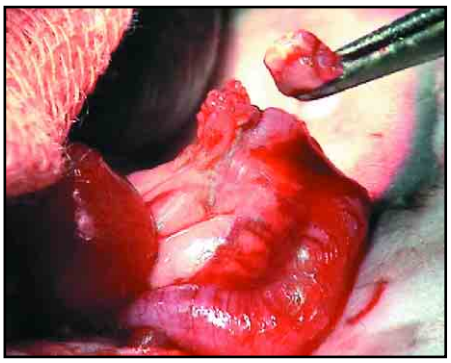
3 A second hemostatic clip is placed caudal to the ovary and cranial to the apex of the uterine horn.



4 Vessels are transected with scissors, and the ovary is removed.



5 Hemorrhage does not occur if hemostatic clips are placed correctly.

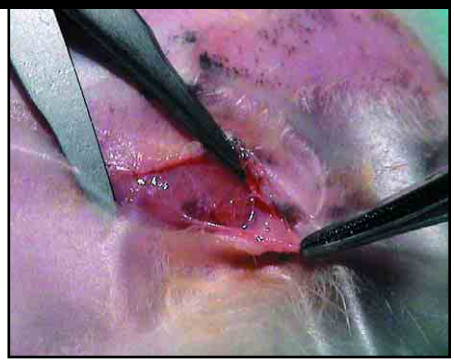


6 The ovary is checked for hemorrhage and removed. The uterine horn is replaced into the abdominal cavity, and the procedure is repeated on the opposite side.

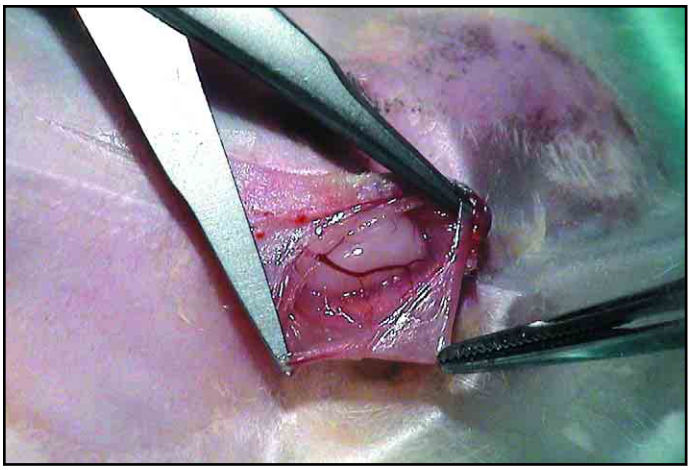
CASTRATION

1 The hamster is anesthetized, shaved, aseptically prepared and surgically draped. A Doppler probe is placed on the chest to monitor the heartbeat.

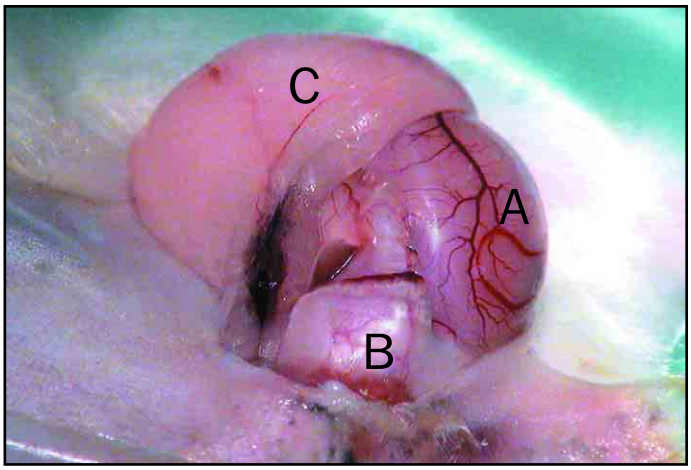
2 A skin incision several millimeters long is made at the base of the scrotal sac approximately 1 cm lateral to the prepuce.



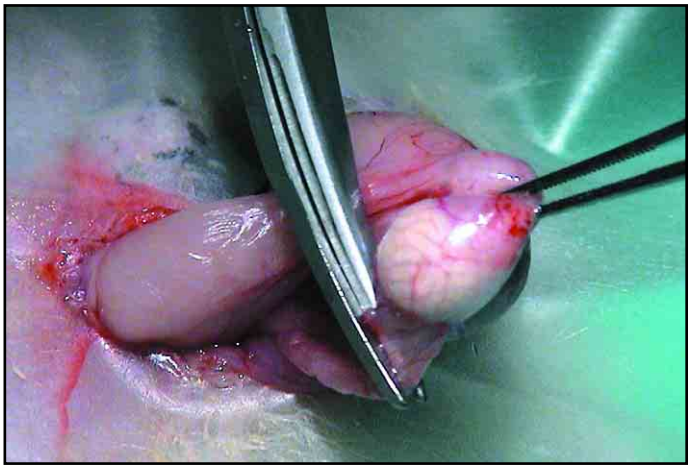
3 The delicate subcutaneous connective tissue is carefully dissected, and the vaginal tunic is exposed. The testicle is visualized under the transparent tunic.



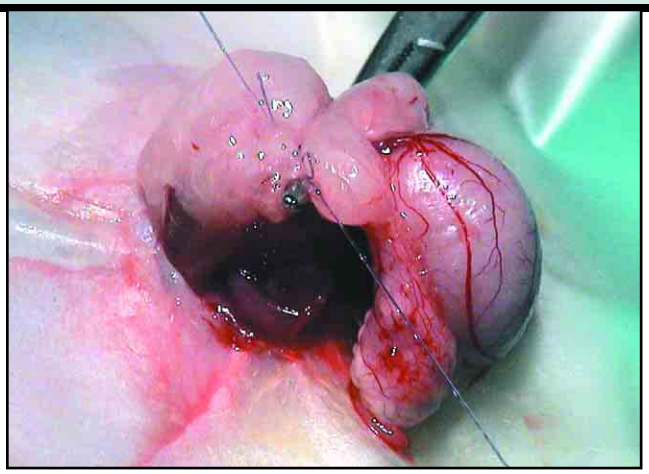
4 The inguinal rings remain open throughout life in hamsters (testicles are not always located in the scrotal sac but are sometimes retracted into the abdominal cavity). To functionally close the inguinal ring, the testicle can be exteriorized and the spermatic cord ligated inside the intact tunic. Using this technique, ligation of the spermatic cord along with the surrounding fat may be less secure, or the cord might not be able to be clamped without disrupting the tunic. Open castration, subsequent to incision of the vaginal tunic with scissors, allows for direct ligation of the spermatic cord. The risk of scrotal herniation is lessened by leaving as much fat as possible in place.



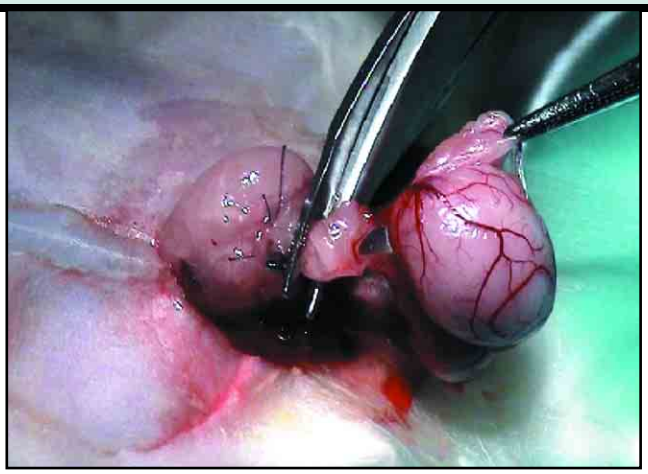
5 The testicle is grasped and exteriorized up to the tail of the epididymis. Shown are the testicle (A), epididymis (B) and fat including the spermatic cord (C).



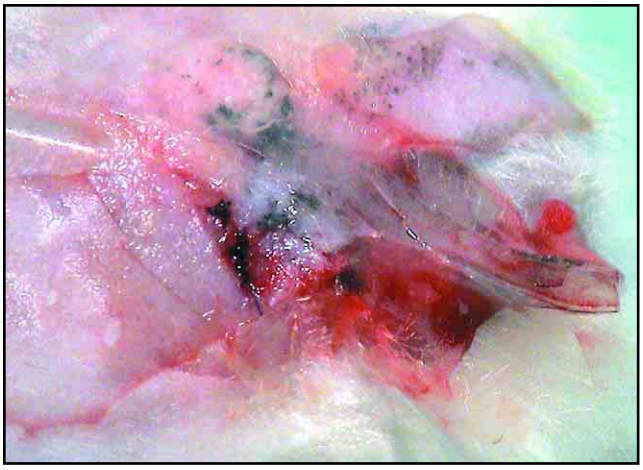
6 The tail of the epididymis is dissected from the apex of the scrotal sac, and the everted scrotal sac is repositioned.



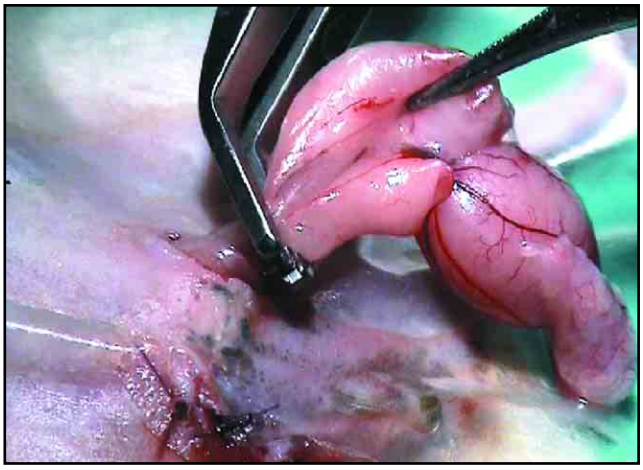
7 The spermatic cord is clamped close to the cranial pole of the testicle and ligated with a 4-0 or 5-0 absorbable suture. Due to fat around the spermatic cord, the knot must be tied securely.



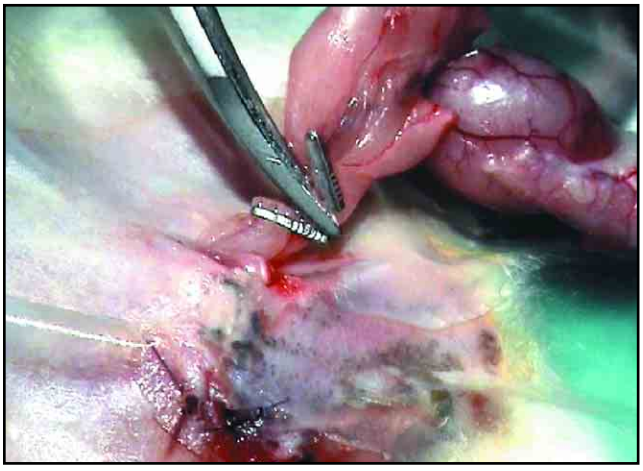
8 The spermatic cord is dissected caudally to the ligation, and the testicle is removed. Retention of a substantial amount of fat prevents the risk of intestinal herniation into the scrotal sac.



9 The fat is replaced into the abdominal cavity. The vaginal tunic and the thin muscular fascia are sutured with absorbable material in an interrupted pattern.



10 The procedure is repeated on the opposite side. In this photo, hemostatic clips (Ligaclips®) are used to ligate the spermatic cord.



11 Two hemostatic clips are applied, and the spermatic cord is dissected between them. Hemostatic clips should only be applied directly on the spermatic cord (via an open castration).

12 An interrupted suture pattern has been performed on the first incision (left); tissue adhesive has been used to close the second incision (right). The author prefers the second option.