

Endometritis, Orchitis and Pyometra

Esther van Praag, Ph.D.

Warning: this file contains pictures that may be distressing for people.

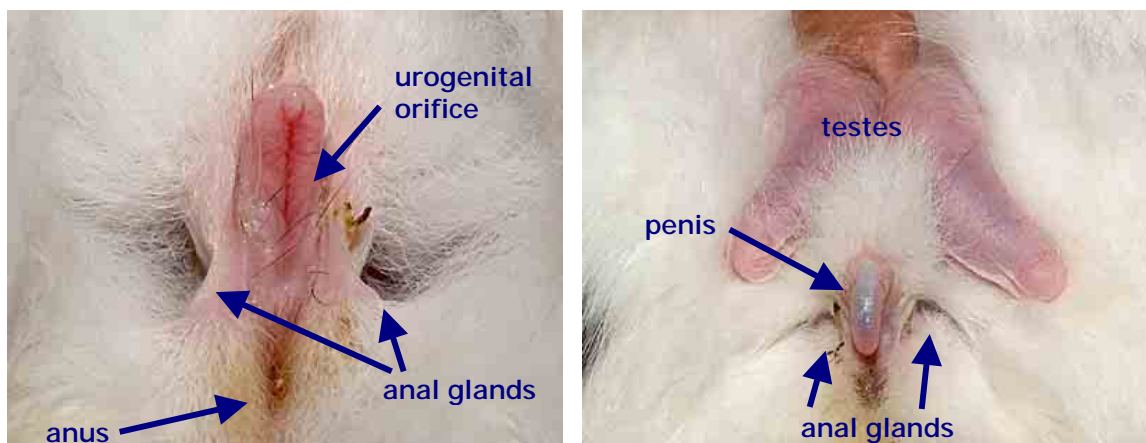
Endometritis = inflammation of the endometrium, the mucous membrane lining the uterus.

Orchitis = inflammation of the testis.

Pyometra = literally meaning "pus in the uterus", or purulent inflammation of the uterus.

Both female and male rabbits can be affected by infections of the urogenital tract. The causing agents are generally *Pasteurella multocida*, and *Staphylococcus aureus*, though other bacteria should not be ruled out. The development of the disease depends on the general resistance of the host, and the virulence of the bacteria.

Endometritis, orchitis, and pyometra are disorders commonly found in rabbits. Generally, the affections are chronic; this is due to the dough-like nature of the exudates, which the uterus is unable to drain properly. This leads to a massive enlargement of the uterus, and the risk of rupture.



VEIN (Veterinary Exotic Information Network) System, Copyright © 2002 Shinkichi Tsuruno and Akira Yamanouchi

Left: Genital area of the female rabbit; vulva and the adjacent anal glands
Right: Genital area of the mature male rabbit; penis, testes and adjacent anal glands



Pyometra often relates to the presence of *Pasteurella multocida*. It leads to the formation of abscesses in the ovaries. The uterus is dilated, and generally filled with pus. Acute infections are often accompanied by a vaginal discharge. Both breeding and virgin does can be affected. Three possible ways of transmission are possible:

- retrograde transmission from the nasal cavity to the genital area, by a female rabbit, infested by *P. multocida*, during coprophagy,
- transmission during the kindling (birth) procedure,
- venereal transmission, when an infected female mates with an uninfected male rabbit, or vice-versa.

In males, the testicles and epididymis are often swollen during the acute phase of the infection; in a later stage, external or internal abscesses appear in the testicle. In rare cases, the infection limits itself to the membrane covering the penis, a condition called balanoposthitis. The membrane is inflamed, and covered with pus. The infection can be transmitted to female rabbits, during attempts to mount or copulate.

Clinical Signs

The rabbit is often depressive, lethargic, anorexic, and shows general weakness. Typically, the abdomen is enlarged, the uterus is distended, and vaginal discharge may be observed. Sometimes it is accompanied by polydipsia (excessive intake of water), and/or polyuria (excessive excretion of urine).

Male rabbits generally are feverish, show irregular appetite, lose weight, and are infertile.

Diagnosis

In the female rabbit, an enlarged uterus should be examined carefully, as the distended membrane is fragile. Palpation of the uterus helps determine its consistency: smooth or doughy.

If an enlarged abdomen is diagnosed, X-ray radiographs of the lower abdomen may provide additional information. Ultrasound imaging help to rule out other uterine disorders like polyps, masses, and cystic changes.

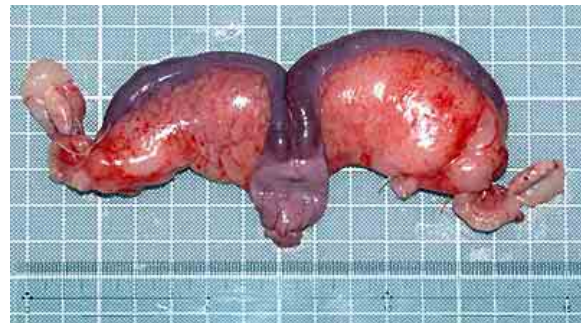
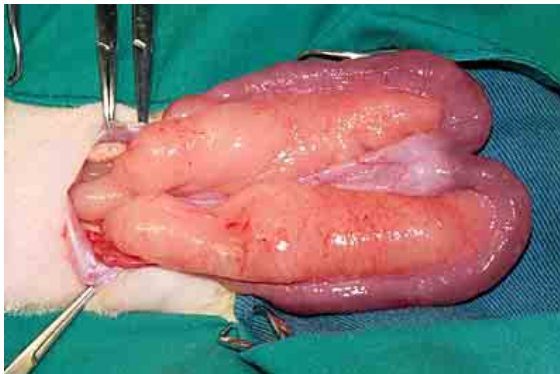
Analysis of serum biochemistry; amyloid deposition in the kidney is often a consequence of chronic infection of the uterus. Blood analysis can reveal mild normocytic anemia, hypercholesterolemia, heterophilia (the presence of granular leukocytes), and monocytosis (presence of mononuclear phagocytic leukocyte).

See: [Blood biochemistry of rabbits](#)



Cervical/mucus drainage can be used for a Gram stain. When in the presence of open endometritis, a guarded deep vaginal/cervical swab can be taken in order to determine the causing agent of the infection. *Pasteurella multocida*, and *Staphylococcus aureus*, more rarely *Listeria* spp, are often involved.

Confirmation of the diagnosis can be done through laparotomy (incision through the abdominal wall) or ovariohysterectomy.



VEIN (Veterinary Exotic Information Network) System, Copyright © 2002 Shinkichi Tsuruno and Akira Yamanouchi

Upper Left: Induction of anesthesia prior to ovariohysterectomy surgery,
 Upper Right: Anesthetized rabbit and preparation for surgery,
 Lower Left: Removal of the uterus, and the ovaries, after incision in the skin,
 Lower Right: Removed female reproductive organ.

In females, the diagnosis must differentiate from other causes such as uterine adenocarcinoma, hydrometra, endometrial venous aneurysm (sac formed by abnormal dilatation of the vein wall), and dystocia (abnormal labor).

In males, a differential culture should be made to differentiate between a bacterial infection, a viral infection (e.g. myxoma virus), spirochetosis or rabbit syphilis.



Treatment

For female rabbits, ovariectomy is recommended. It is, however, important to stabilize the animals before the operation; treatment includes the administration of antibiotics, and fluid therapy. During the removal of the uterus, samples should be collected for bacterial culture, and antibiotic sensitivity should be determined. After the operation, IV fluid therapy, broad-spectrum antibiotics, and pain medication must be administered.

Finally, it is important to check the animals for abscesses located elsewhere. In males, the treatment of choice is castration, and post-surgical administration of pain medication, and antibiotics.



VEIN (Veterinary Exotic Information Network) System, Copyright © 2002 Shinkichi Tsuruno and Akira Yamanouchi

Upper Left: Intact male prior to castration surgery,
Upper Right: Anaesthetized rabbit and preparation for surgery,
Lower Left: Removal of the testes, after small incision in the skin,
Lower Right: Removed testes.

Acknowledgement

Thanks are due to Akira Yamanouchi, for the permission to use the papilloma pictures from VEIN (Veterinary Exotic Information Network, <http://vein.ne.jp/>).



Further Information

1. Bjoetvedt G, Bertke EM, Hendricks GM. Peritonitis due to *Pasteurella multocida* in a rabbit. *Vet Med Small Anim Clin.* 1979; 74(2):215-6.
2. Flatt RE. Pyometra and uterine adenocarcinoma in a rabbit. *Lab Anim Care.* 1969; 19(3):398-401
3. Flecknell PA *BSAVA Manual of Rabbit Medicine and Surgery, British Small Animal Veterinary;* 2000.
4. Fountain S, Holland MK, Hinds LA, Janssens PA, Kerr PJ. Interstitial orchitis with impaired steroidogenesis and spermatogenesis in the testes of rabbits infected with an attenuated strain of myxoma virus. *J Reprod Fertil.* 1997; 110(1):161-9.
5. Hobbs BA, Parker RF. Uterine torsion associated with either hydrometra or endometritis in two rabbits. *Lab Anim Sci.* 1990; 40(5):535-6.
6. Hofmann JR Jr, Hixson CJ. Amyloid A protein deposits in a rabbit with pyometra. *J Am Vet Med Assoc.* 1986; 189(9):1155-6.
7. Hoffmann JA. Orchitis and epididymitis of traumatic origin in a male rabbit. *Dtsch Tierarztl Wochenschr.* 1963; 70(18):524.
8. Johnson JH, Wolf AM. Ovarian abscesses and pyometra in a domestic rabbit. *J Am Vet Med Assoc.* 1993; 203(5):667-9.
9. Peters M, Scheele G. Listeriosis in a rabbitry. *Dtsch Tierarztl Wochenschr.* 1996; 103(11):460-2. German.
10. Schmidt S, Schrag D, Giese B. Ultrasonic diagnosis in gynecology in small animals. *Tierarztl Prax.* 1986; 14(1):123-41.
11. Tumboh-Oeri AG, Roberts TK. Immunological and morphological consequences of vasectomy in the rabbit. *Experientia.* 1979; 35(5):675-6.

The information and pictures on these pages may not be reproduced, or republished on another webpage, website, or elsewhere.

JUNE 2003

