

# Vulvar Discharge in a Puppy

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**An apparently healthy Labrador retriever puppy presented with a mucoid vulvar discharge.**

## History

The owners reported that the patient, an intact female 8 weeks of age, was mostly housebroken, but they were uncertain if her urinary behaviors were abnormal, as the puppy would urinate outdoors and then again in the house. The patient had been acquired a week previously and had received a single DA<sub>2</sub>PP vaccination; she received no medications.

## Physical Examination

The puppy appeared normal at presentation (101.2°F, heart rate 130 bpm, panting respiratory rate). Tan mucoid vulvar discharge and some matted fur were evident in the perivulvar area. Perivulvar dermatitis was not apparent (**Figure 1**). Urination was observed and appeared normal. There was no evidence of pollakiuria, dysuria, stranguria, or gross hematuria.

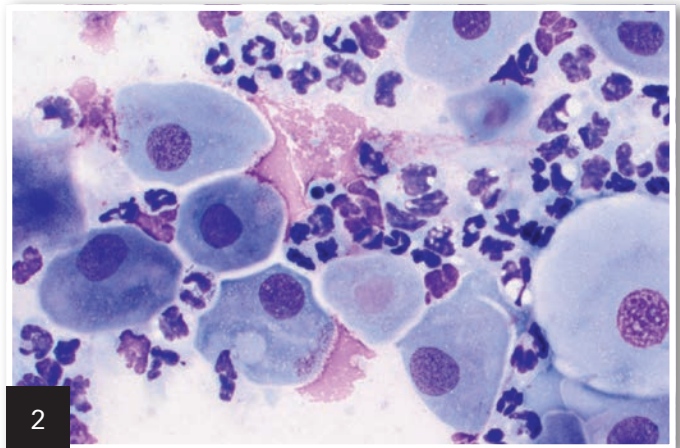
## Laboratory Diagnostics

Urine (obtained via cystocentesis) was submitted for urinalysis and urine culture pending evidence of cystitis on sediment examination. Urine-specific gravity was 1.023, urine sediment was benign, and culture was not indicated nor submitted. Cytology of the vulvar discharge was suppurative, revealing numerous nondegenerate neutrophils (**Figure 2**).

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At examination, a tan mucoid vulvar discharge was noted, along with matted fur in the perivulvar area.



Cytology of vulvar discharge was suppurative with numerous nondegenerate neutrophils. (Modified Wright stain; 40× original magnification)

## Ask Yourself



1. What are the differentials for purulent vulvar discharge in a prepubertal puppy?
2. What diagnostics are indicated?

## Diagnosis

### Puppy Vaginitis

#### Causes

The cause of puppy vaginitis is currently unknown, although an imbalance of juvenile vaginal glandular epithelium is postulated. The condition can resolve at puberty or after ovariohysterectomy, but both represent different endocrine-mediated events and neither is likely to result in resolution. Puppy vaginitis, however, does diminish with maturity.

The term *puppy vaginitis* is a misnomer, as it is asymptomatic and not an inflammatory process causing clinical signs.

#### Presentation

The discharge, usually white to yellow or green and sometimes copious, can be accompanied by mild perivulvar dermatitis. Typically, a puppy is not attentive to the discharge, and although no associated change in urinary behavior (eg, dysuria,

stranguria, pollakiuria) was reported in this case, clients often have difficulty deciding whether a puppy with vaginitis is exhibiting normal urinary behavior. Age of onset ranges from 6 weeks to puberty; the duration ranges from days to months and is often intermittent.

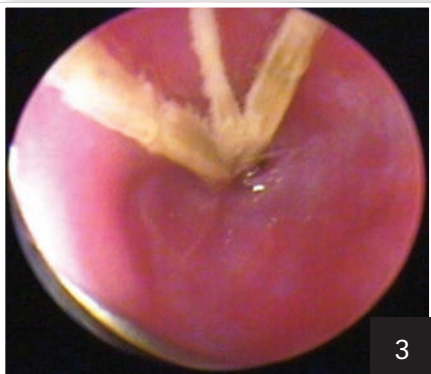
#### Treatment

Cleansing the perivulvar area with a gentle solution (eg, non-alcoholic otic preparation) or gentle wipes (eg, baby wipes) to prevent accumulation of discharge was advised. Adding a probiotic such as *Enterococcus faecium* (eg, FortiFlora, purinaveterinarydiets.com) may be beneficial.

#### Outcome

The discharge resolved with time. ■ **cb**

#### Did You Answer?



Foreign bodies (eg, grass awn) can cause vulvovaginal discharge.

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Excessive vulvar hooding can cause purulent vulvar discharge.

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1. Important differentials to rule out for purulent vulvar discharge:
  - Bacterial cystourethritis, which can result in pyelonephritis if not recognized and treated effectively
  - Vulvovaginal foreign body (eg, grass awn; **Figure 3**)
  - Urine pooling and perivulvar dermatitis resulting from anatomic problems, especially urinary incontinence secondary to an ectopic ureter, excessive vulvar hooding (**Figure 4**), or disorders of sexual differentiation (uncommon) causing clitoral hyperplasia (**Figure 5**)
  - Vestibulovaginal strictures, which, if present, are usually not contributory, as they are cranial to the urethral papilla and do not cause urine pooling.
2. Diagnostics need to be performed to rule out more significant causes of vulvar discharge and generate comfort with the diagnosis of benign puppy vaginitis (a diagnosis of exclusion). The physical examination should detect anatomic defects or evidence of incontinence. A finding of suppurative inflammation on cytological examination of the discharge can be alarming. Vaginal cultures (aerobic) generally fail to grow anything except normal flora in small, mixed numbers. Similar organisms could



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Clitoral hyperplasia caused by sexual differentiation condition

be cultured from an asymptomatic littermate. Urinalysis acquired via cystocentesis is characteristically normal (decreased urine-specific gravity is typical for young dogs, as they lack adult renal concentrating ability). Urine culture, if performed, is characteristically negative.

See Aids & Resources, back page, for references & suggested reading.

## Advantage Multi® for Dogs and for Cats

(imidacloprid + moxidectin)

**BRIEF SUMMARY:** Before using Advantage Multi® for Dogs (imidacloprid+moxidectin) or Advantage Multi® for Cats (imidacloprid +moxidectin), please consult the product insert, a summary of which follows:

**CAUTION:** Federal (U.S.A.) Law restricts this drug to use by or on the order of a licensed veterinarian.

### Advantage Multi for Dogs:

#### WARNING

- **DO NOT ADMINISTER THIS PRODUCT ORALLY.**
- For the first 30 minutes after application ensure that dogs cannot lick the product from application sites on themselves or other treated animals.
- Children should not come in contact with the application sites for two (2) hours after application.

(See Contraindications, Warnings, Human Warnings, and Adverse Reactions for more information.)

#### INDICATIONS:

**Advantage Multi for Dogs** is indicated for the prevention of heartworm disease caused by *Dirofilaria immitis* and the treatment of *Dirofilaria immitis* circulating microfilariae in heartworm-positive dogs. Advantage Multi for Dogs kills adult fleas and is indicated for the treatment of flea infestations (*Ctenocephalides felis*). Advantage Multi for Dogs is indicated for the treatment and control of sarcoptic mange caused by *Sarcoptes scabiei var. canis*. Advantage Multi for Dogs is also indicated for the treatment and control of the following intestinal parasites species: Hookworms (*Ancylostoma caninum*) (*Uncinaria stenocephala*), Roundworms (*Toxocara canis*) (*Toxascaris leonina*) and Whipworms (*Trichuris vulpis*).

**Advantage Multi for Cats** is indicated for the prevention of heartworm disease caused by *Dirofilaria immitis*. Advantage Multi for Cats kills adult fleas (*Ctenocephalides felis*) and is indicated for the treatment of flea infestations. Advantage Multi for Cats is also indicated for the treatment and control of ear mite (*Otodectes cynotis*) infestations and the intestinal parasites species Hookworm (*Ancylostoma tubaeforme*) and Roundworm (*Toxocara cati*). **Ferrets:** Advantage Multi for Cats is indicated for the prevention of heartworm disease in ferrets caused by *Dirofilaria immitis*. Advantage Multi for Cats kills adult fleas (*Ctenocephalides felis*) and is indicated for the treatment of flea infestations in ferrets.

**CONTRAINDICATIONS:** Do not administer this product orally. (See WARNINGS). Do not use the Dog product (containing 2.5% moxidectin) on Cats.

#### WARNINGS:

**Advantage Multi for Dogs:** For the first 30 minutes after application: Ensure that dogs cannot lick the product from application sites on themselves or other treated dogs, and separate treated dogs from one another and from other pets to reduce the risk of accidental ingestion. Ingestion of this product by dogs may cause serious adverse reactions including depression, salivation, dilated pupils, incoordination, panting, and generalized muscle tremors. In avermectin sensitive dogs<sup>a</sup>, the signs may be more severe and may include coma and death<sup>b</sup>.

<sup>a</sup> Some dogs are more sensitive to avermectins due to a mutation in the MDR1 gene. Dogs with this mutation may develop signs of severe avermectin toxicity if they ingest this product. The most common breeds associated with this mutation include Collies and Collie crosses.

<sup>b</sup> Although there is no specific antagonist for avermectin toxicity, even severely affected dogs have completely recovered from avermectin toxicity with intensive veterinary supportive care.

**Advantage Multi for Cats:** Do not use on sick, debilitated, or underweight cats. Do not use on cats less than 9 weeks of age or less than 2 lbs. body weight. Do not use on sick or debilitated ferrets.

**HUMAN WARNINGS:** Not for human use. Keep out of the reach of children. Dogs: Children should not come in contact with the application sites for two (2) hours after application. Cats: Children should not come in contact with the application site for 30 minutes after application.

Causes eye irritation. Harmful if swallowed. Do not get in eyes or on clothing. Avoid contact with skin. Wash hands thoroughly with soap and warm water after handling. If contact with eyes occurs, hold eyelids open and flush with copious amounts of water for 15 minutes. If eye irritation develops or persists, contact a physician. If swallowed, call poison control center or physician immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or physician. People with known hypersensitivity to benzyl alcohol, imidacloprid or moxidectin should administer product with caution. In case of an allergic reaction, contact a physician. If contact with skin or clothing occurs, take off contaminated clothing. Wash skin immediately with plenty of soap and water. Call a poison control center or physician for treatment advice. The Material Safety Data Sheet (MSDS) provides additional occupational safety information. For a copy of the Material Safety Data Sheet (MSDS) or to report adverse reactions call Bayer Veterinary Services at 1-800-422-9874. For consumer questions call 1-800-255-6826.

**PRECAUTIONS:** Do not dispense dose applicator tubes without complete safety and administration information. Use with caution in sick, debilitated or underweight animals. The safety of Advantage Multi for Dogs has not been established in breeding, pregnant, or lactating dogs. The safe use of Advantage Multi for Dogs has not been established in puppies and dogs less than 7 weeks of age or less than 3 lbs. body weight. Advantage Multi for Dogs has not been evaluated in heartworm-positive dogs with Class 4 heartworm disease.

Cats may experience hypersalivation, tremors, vomiting and decreased appetite if Advantage Multi for Cats is inadvertently administered orally or through grooming/licking of the application site. The safety of Advantage Multi for Cats has not been established in breeding, pregnant, or lactating cats. Use of this product in geriatric cats with subclinical conditions has not been adequately studied. Ferrets: The safety of Advantage Multi for Cats has not been established in breeding, pregnant, and lactating ferrets. Treatment of ferrets weighing less than 2.0 lbs. (0.9kg) should be based on a risk-benefit assessment. The effectiveness of Advantage Multi for Cats in ferrets weighing over 4.4 lbs. (2.0 kg) has not been established.

**ADVERSE REACTIONS:** **Heartworm Negative Dogs:** the most common adverse reactions observed during field studies were pruritus, residue, medicinal odor, lethargy, inappetence and hyperactivity. **Heartworm Positive Dogs:** the most common adverse reactions observed during field studies were cough, lethargy, vomiting, diarrhea, (including hemorrhagic), and inappetence. **Cats:** The most common adverse reactions observed during field studies were lethargy, behavioral changes, discomfort, hypersalivation, polydipsia and coughing and gagging. **Ferrets:** The most common adverse reactions observed during field studies were pruritus/scratching, scabbing, redness, wounds and inflammation at the treatment site, lethargy and chemical odor.

For a copy of the Material Safety Data Sheet (MSDS) or to report adverse reactions call Bayer Veterinary Services at 1-800-422-9874. For consumer questions call 1-800-255-6286.

Advantage Multi is protected by one or more of the following U.S. patents: 6,232,328 and 6,001,858.

NADA 141-251,141-254 Approved by FDA

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