

Urinary Incontinence

(Involuntary Passage of Urine)

Basics

OVERVIEW

- Loss of voluntary control of urination, usually observed as involuntary urine leakage while resting

SIGNALMENT/DESCRIPTION OF PET

Species

- Dogs
- Cats—rare

Breed Predilections

- Medium- to large-breed dogs most often affected

Mean Age and Range

- Most common in middle-aged to old, spayed female dogs; also observed in juvenile females and (rarely) cats or neutered male dogs

Predominant Sex

- May affect more than 20% of spayed female dogs, especially large-breed dogs

SIGNS/OBSERVED CHANGES IN THE PET

- Urine dribbling without the pet's control, frequently while resting or sleeping
- Wet hair coat on lower abdomen, area between rear legs and onto rear legs; inflammation of skin (known as “dermatitis”) in these areas; pet may lick affected areas; urine scald (skin condition that looks like a burn due to the irritation of urine on the skin); inflammation of the skin and moist tissues of the vulva or the prepuce (around the penis)
- Evidence of urine wet spots or puddles in bedding, where pet was sleeping or sitting, other locations in house
- May have signs of urinary tract infection (such as straining to urinate, blood in the urine, painful urination)

CAUSES

Nervous-System Disorders

- Disruption of nerves involved in storage of urine in the bladder or act of urination
- Lesions of the sacral spinal cord, such as a birth defects; cauda equina syndrome, a group of disorders in which the lumbosacral vertebral canal is narrowed, resulting in pressure on the nerve roots as they leave the spinal cord; lumbosacral intervertebral disk disease; or traumatic fractures or dislocation can result in a flabby, overdistended urinary bladder; urine retention and overflow incontinence develop
- Lesions in the brain may affect voluntary control of voiding, usually resulting in frequent, involuntary urination or in leakage of small volumes of urine

Urinary Bladder-Storage Disorders

- Poor accommodation of urine during storage or urinary bladder overactivity (so-called “overactive bladder” or “detrusor instability”) leads to frequent leakage of small amounts of urine
- Urinary tract infections; chronic inflammatory disorders, such as “chronic cystitis”; cancer involving the



bladder; pressure on the bladder from masses or fat; and chronic partial obstruction of the urethra (the tube from the bladder to the outside, through which urine flows out of the body)

- Underdevelopment of the bladder (known as “congenital urinary bladder hypoplasia”) may accompany other congenital (present at birth) developmental disorders of the urinary and reproductive tracts such as ectopic ureters (where the ureters empty into inappropriate outlet such as the urethra—rather than the bladder)
- The detrusor muscle acts to squeeze the bladder to expel urine; disorders of this muscle (known as “idiopathic detrusor instability”) has been associated with feline leukemia virus (FeLV) infection in cats and unknown causes in dogs

Urethral Disorders

- The urethra is the tube from the bladder to the outside, through which urine flows out of the body
- Intermittent urinary incontinence is observed if urethral closure provided by urethral smooth muscle, striated muscle, and connective tissue does not prevent leakage of urine during storage
- Examples—underdevelopment of the urethra (congenital urethral hypoplasia); acquired (develops during life/after birth) urethral incompetence (such as reproductive hormone–responsive urinary incontinence); urinary tract infection or inflammation; prostatic disease or prostatic surgery (male dogs)

Anatomic or Structural Disorders

- Developmental or acquired anatomic abnormalities that divert urine from normal storage mechanisms or interfere with urinary bladder or urethral function
- The ureters are the tubes from the kidneys to the bladder; during development, they may not attach to the bladder properly or may attach to reproductive organs instead; when this occurs, they are called “ectopic ureters” and one or both can terminate in the distal urethra, uterus, or vagina
- Patent urachal remnants divert urine outflow to the umbilicus; “urachal” refers to a fetus structure (the urachus) that normally closes at birth
- Abnormalities of the vagina, bladder or urethra
- Intrapelvic bladder neck location may contribute to urine leakage due to urethral incompetence (the inability of the urethra to prevent urine flow)
- Conformation abnormalities of the vulva or tissues around the vulva may contribute to urine pooling and intermittent urine leakage

Urine Retention

- Overflow observed when pressure within the bladder exceeds the ability of the sphincter and urethra to prevent urine flow

Mixed Urinary Incontinence

- Mixed or multiple causes of urinary incontinence probably occur in dogs and cats; combinations of urethral and bladder-storage disorders and combinations of anatomic or structural and functional disorders are most likely

RISK FACTORS

- Neutering is the main risk factor for urinary incontinence; however, many spayed female dogs do not develop incontinence
- Early spay (surgical procedure is removal of ovaries and uterus; known as an “ovariohysterectomy”) in puppies less than 3 months of age has been shown to increase the risk of urinary incontinence in female dogs
- Conformational characteristics (such as bladder neck position, urethral length, and vaginal abnormalities) may increase the risk of urinary incontinence in female dogs
- Obesity may increase the risk of urinary incontinence in spayed female dogs
- Other possible risk factors for urethral incompetence include breed, large body size, increased urination (known a “polyuria”) and early tail docking

Treatment

HEALTH CARE

- Your pet's veterinarian will assess your pet for potential causes of urinary incontinence and contributing factors
- Most cases will be managed successfully with medication on an outpatient basis
- Some cases will require surgical correction of anatomic problems, or injection of bulking material (such as Teflon or collagen) into the urethra to prevent leakage

- Address partial obstructive disorders and primary nervous system disorders specifically, if possible
- Identify urinary tract infection and treat appropriately

DIET

- Weight management to prevent or treat obesity may decrease risk of urinary incontinence

SURGERY

- Developmental urinary tract disorders (such as ectopic ureters and congenital urethral hypoplasia) often can be corrected surgically; functional abnormalities of urethral competence or urinary bladder storage function may accompany the anatomic or structural disorder and require medical treatment
- Surgical procedures and prosthetic sphincter implantation have been described for the treatment of incontinence that is poorly responsive to medical treatment

Medications

Medications presented in this section are intended to provide general information about possible treatment. The treatment for a particular condition may evolve as medical advances are made; therefore, the medications should not be considered as all inclusive

URETHRAL INCOMPETENCE

- Manage with α -adrenergic agents (such as phenylpropanolamine, ephedrine) or reproductive hormones (such as diethylstilbestrol, conjugated estrogens, estriol, and testosterone)
- Reproductive hormones and α -adrenergic agents can be administered in combination for a synergistic therapeutic effect, where multiple medications have a better effect than the single medications alone
- Imipramine, a tricyclic antidepressant (TCA) with anticholinergic and α -agonist actions, provides an alternative method of treatment
- Deslorelin or leuprolide used in cases that respond poorly to other medications

DETRUSOR INSTABILITY

- Manage with anticholinergic or antispasmodic agents (such as oxybutynin)
- Tolterodine—has not been used widely in dogs

PROSTATIC DISEASE

- Antibiotics for the treatment of infection/inflammation of the prostate (known as “prostatitis”) or prostatic abscesses
- Drugs to treat benign prostatic hyperplasia (“enlarged prostate”) and to cause enlarged prostate gland to return toward normal size, such as finasteride

Follow-Up Care

PATIENT MONITORING

- Pets receiving α -adrenergic agents—the veterinarian will measure and observe during initial treatment period for adverse effects of the drug
- Pets receiving long-term estrogen—initial, in 1 month, and periodic complete blood counts
- Periodic urinalysis and urine bacterial culture (to check for possible urinary tract infection)
- Take your pet to the veterinarian if you notice an increase in frequency of urination, an increase in urine leaking, or blood in the urine
- Once a therapeutic effect has been observed, slowly reduce the dosage and frequency of administration of medications to the minimum required to control signs of incontinence; dosage and frequency of administration should be changed under the direction of your pet's veterinarian
- Consider combination treatment (α -adrenergic agents with reproductive hormones or anticholinergic agents), deslorelin or surgical options, if poor response to single-agent medication

POSSIBLE COMPLICATIONS

- Recurrent and ascending urinary tract infection
- Urine scald (skin condition that looks like a burn due to the irritation of urine on the skin)

- Inflammation of the skin (dermatitis) and moist tissues of the vulva
- Inflammation of the skin (dermatitis) on lower abdomen, area between rear legs and rear legs
- Unmanageable incontinence

EXPECTED COURSE AND PROGNOSIS

- Most dogs with urinary incontinence will respond well to medications and have complete resolution of incontinence (with rare lapses)
- Expect excellent response to medical treatment in 60–90% of treated pets
- Some dogs will require an adjustment in medication dose or type over time (years)
- A smaller percentage of dogs will not respond well to medication and will require combination medications, collagen injections or surgical procedures to improve continence; these dogs usually will be “improved,” but not “cured”
- The prognosis for improvement is less optimistic for cats and for male dogs

Key Points

- Loss of voluntary control of urination, usually observed as involuntary urine leakage
- Medium- to large-breed dogs most often affected
- Most common in middle-aged to old, spayed female dogs
- Obesity may increase the risk of urinary incontinence in spayed female dogs
- Urinary tract infection is a possible complication of urinary incontinence