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How to tackle urinary incontinence in dogs
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Urinary incontinence (UI) occurs when the physiological process for storing and passing urine, therefore the ability to voluntarily retain urine, is disrupted. Of the multifarious causes of UI, canine urethral sphincter mechanism incompetence (USMI) is the most common diagnosis made; in the majority spayed dogs are affected. Other aetiologies in decreasing ordering are detrusor instability, neurogenic incompetence, bladder neoplasia, cystitis, uretero-/vesiculo-vaginal fistula and vaginal tumors. In contrast in female puppies and in male dogs UI is most common because of anatomic anomalies of the urogenital tract, e.g. ectopic ureters and disorders of sexual development.¹

When dogs are presented with presumed UI, firstly polydipsia/polyuria or dysuria, the use of drugs and the location as well as the position of the dog during episodes of UI has to be questioned to ensure the involuntary loss of urine and to exclude behavioural problems. Patient’s data, therefore gender, age, breed and reproductive status at the time of first occurrence of UI already reduces the number of differentials for UI. A mainstay of the diagnostic work-up is the observation of micturition, the measurement of residual bladder volume, along with urinalysis and urine bacterial culture.²

If the first occurrence of UI is after spaying and urine loss is mainly while lying down, the success of a diagnostic therapy with α-adrenergic agonists, i.e. phenylpropanolamine (1.5mg sid-tid PO) may support the diagnosis of USMI. Involuntary detrusor contractions of non-neurological origin may also contribute to UI. For reducing the spontaneous activity of the myocytes during the filling phase anticholinergic drugs may be used, e.g. oxybutynin (0.2mg/kg PO bid), the tricyclic antidepressant Imipramine (5-20mg PO bid) or the spasmyloytic Flavoxate (10mg/kg PO bid).

For decades estrogen deficiency has been discussed as contributing to UI in spayed dogs. However, in dogs where the highest estrogen levels are found in proestrus, cycle phases with lowest levels, such as early and late anestrus, showed comparable urethral closure pressure values. Nevertheless, estradiol replacement therapy restored continence in 60% of spayed dogs with UI. Adding estradiol to α-adrenergic treatment in dogs that were previously unresponsive may achieve continence because of its α-adrenergic receptor-sensitizing characteristic. As gonadotropin receptors are expressed in the lower urinary tract and spayed dogs also show a chronic increase in gonadotropin plasma levels, GnRH depot analogues or GnRH-vaccination were used to treat dogs with UI after gonadectomy. Indeed, continence was restored in about half of the patients, most likely due to an increase of the bladder compliance.

If UI reoccurs after the initial treatment was successful, the diagnostic work-up, including urine culture, should always be repeated as a low urethral closure pressure facilitates not only urine loss but also ascendant bacterial infections. In patients with UI presumed due to spaying, but not responding to the before mentioned treatment options, the work-up has to be critically scrutinised. In cases of USMI, where other differentials are excluded by clinical exam, including neurological exam, labwork, imaging and/or endoscopy there are also different surgical treatment options, i.e. urethropexy, colposuspension, different sling-techniques, a hydraulic urethral sphincter, and the submucosal endoscopic/laparoscopic/cystoscopic injection of Polyacrylamid Hydrogel.