

SPHINCTER-MECHANISM URINARY INCONTINENCE

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One of the most frustrating problems for owners and veterinarians is dealing with the urinary-incontinent dog. This column will address management of the incontinent female dog, where problems such as infection and congenital urinary tract abnormalities (i.e. ectopic ureter) have been ruled out. Urinary incontinence is diagnosed when the dog develops lack of control of voluntary urination. Sphincter-mechanism incontinence is a functional incontinence, which must be distinguished from anatomical and neurological causes of incontinence. Assuming these other causes of incontinence have been eliminated, then we are left with dealing either pharmacologically or surgically with this incontinence. Many times sphincter-mechanism incontinence is first diagnosed post-ovariohysterectomy. The incontinence may be seen immediately after the hysterectomy or may develop several weeks to months later. Why this occurs is poorly understood, but may be related to an underlying anatomical problem or to the removal of estrogenic stimulation. Anatomical problems and estrogen stimulation may be inter-related in the development of incontinence in a previously normal animal, and a diagnostic work-up should be developed to assure there is not a concurrent anatomical problem. From a practical standpoint, the most diagnostically rewarding procedures are the positive contrast cystogram, and the double contrast, or air cystogram. Animals in which a trial with drug therapy fails to correct the incontinence should be evaluated next with these techniques for the identification of an intra-pelvic bladder location or an abnormal bladder neck and proximal urethra. Drug therapy is designed to increase the smooth muscle tone of the proximal urethra. The smooth muscle is under alpha-adrenergic control, and to increase smooth muscle tone a drug trial with an alpha-receptor agonist should first be tried. Two drugs commonly used are phenylpropanolamine and ephedrine; phenylpropanolamine is preferred. Phenylpropanolamine should be tried at 1.5 mg/kg BID and at least two to three weeks given to assess effectiveness. If only partial improvement is seen, it may be beneficial to add estrogen to the phenylpropanolamine therapy; estrogen sensitizes alpha-receptors whereas phenylpropanolamine stimulates them directly. The two drugs in combination may be synergistic. If drug therapy is unsuccessful, then surgery may be an option, especially when a pelvic bladder or a large, dilated bladder neck and proximal urethra are seen on the contrast studies. The goal of surgery is to increase tone in the proximal urethra in order to maintain closure pressure and continence. Procedures described in the literature include a ventral fascial sling, artificial sphincter placement, intra-urethral injection of Teflon, and colposuspension, to name a few. None of these has proven to be totally effective and all have complications, which limit their use. Of all the techniques currently utilized, colposuspension as described by Holt is probably the most effective. This technique moves the bladder neck/proximal urethra into an intra-abdominal location so that changes in intra-abdominal pressure are transmitted to the bladder neck and urethra, rather than to the bladder alone. It also creates a mechanical increase in bladder neck and urethral tone. Colposuspension should be considered in dogs refractory to traditional drug therapy, or in dogs that become resistant to therapy.

1. Gookin, JL, Stone, EA.. Sharp NJ. Urinary Incontinence in dogs and cats. Part II. Diagnosis and Management. *Comp Cont Ed* 1996; 18:525-540
2. Holt PE Urinary incontinence in the bitch due to sphincter mechanism incompetence: Surgical treatment. *J. Sm Animal Practice* 1985; 26:281-282