EMPHASIS:
Urinary incontinence in the dog is a frustrating challenge for both the owner and the veterinarian. Although many patients will respond to medical management, other cases will remain refractory, and surgery must be considered. Numerous surgical techniques have been devised, none of which have met with consistently successful results.

Currently, we feel that colposuspension is the most straightforward and effective surgical option. In this paper we will describe the surgical technique for colposuspension.

PREOPERATIVE CARE:
1. Physical examination.

AXIOM: It is imperative that all other contributing factors be identified and treated: Urinary tract infection, calculi, ectopic ureters, structural abnormalities of the bladder, urethra, or vulva which could create persistent inflammation or ascending infection, neurologic disorders, etc.

3. Radiography:
   a. Two-view abdominal radiographs.
   b. Double contrast cystouretrogram.
   c. Excretory urography.
4. Cystoscopy and urethroscopy, if warranted.
5. Urethral pressure profile, if warranted.

AXIOM: All possible medical options should be exhausted before considering surgery for these patients.

AXIOM: As you will see below, a certain amount of subjective judgment is required to place the colposuspension sutures tightly enough to improve continence, while not creating dysuria. In your preoperative discussion with the clients, make sure they clearly understand that some cases may require reoperating the site during the first two weeks, to adjust suture tension.

PREOPERATIVE CARE:
1. Indwelling cephalic catheter.
2. Intravenous anesthetic induction protocol (Ketamine/Valium, Propofol, etc.)
3. Endotracheal intubation and inflate cuff.
4. Isoflurane inhalant anesthesia to effect.
5. Lead II ECG and pulse oximetry monitoring during prep and surgery.
6. Clip and prepare the abdomen for aseptic surgery.
7. Place the patient in dorsal recumbency.
8. Cephalexin 20mg/kg IV immediately preoperatively.
9. Place an indwelling urinary catheter: 14 French for large (>90 lb) patients; proportionately smaller for smaller patients.

AXIOM: The presence of this catheter, when the compressive colposuspension sutures are tied, helps ensure that the urethral lumen will not be excessively occluded.

SURGICAL PROCEDURE:
1. Ventral midline abdominal incision from pubis, to the level of the trigone.
2. Delicately clear away the periurethral fat to expose the urethra and the ventral surface of the vagina.
3. Place two or three mattress sutures through the body wall, into the vaginal muscularis, on each side of the urethra (See Figure 1).

**AXIOM:** Place the cranialmost of these sutures at the level of the cranialmost extent of the urethra, with the bladder under gentle cranial retraction (See Figure 1).

**AXIOM:** The sutures should be placed in the vagina quite close to the urethra, rather than at the far edges of the vagina (See Figure 2).

**AXIOM:** Use gauge 0 monofilament non-absorbable suture such as polypropylene or polybutester.

4. Snugly tie each of these sutures.

**AXIOM:** When the abdomen is closed, the urethra will now be compressed between the vagina and the body wall, increasing outflow resistance and thereby improving continence. The presence of the urinary catheter prevents complete occlusion of the urethra.

5. Routine closure of abdomen, subcutaneous and skin layers.

**POSTOPERATIVE CARE:**

1. Cephalexin 20 mg/kg PO TID for 5 days postoperatively.
2. Pain management using oral, injectable or transdermal analgesics.
3. Remove urinary catheter immediately postop.

**AXIOM:** Closely monitor the patient during the next week for dysuria.

a. If dysuria occurs, replace the urinary catheter and maintain it

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**Figure One:** This schematic drawing depicts a patient in dorsal recumbency looking down into the caudal abdomen. **1A** The bladder is gently retracted cranially. Two allis tissue forceps have stabilized the uterus. **1B** The sutures have been placed through the body wall and into the vaginal muscularis.
for five days; then, remove it and determine whether dysuria recurs. If so, replace the catheter for another 5-7 days.

b. If dysuria persists once the catheter is again removed, we advise reopening the incision, and replacing the colposuspension sutures (tying them slightly less tightly than before) to decrease the outflow resistance.

c. Conversely, if persistent urinary dribbling is seen during the first 2-3 days postop, reoperate the patient and place the sutures more tightly.

PROGNOSIS:
The prognosis for resolving or substantially diminishing the incontinence is cautiously optimistic, with between 50 and 75% of patients showing a good response.

Figure Two: This schematic drawing depicts a magnified view of: 2A) the improper placement of the sutures. The sutures are too far lateral and will not apply any restriction to the urethra when the abdomen is closed. 2B) The proper placement of the sutures close to the urethra. This will insure adequate diminution of the urethral lumen.

AUTHOR’S NOTE
If you have any questions concerning this paper, additional references, surgical supplies or sources of products mentioned or used in this protocol, please FAX us at 1-310-479-8976. We will answer your questions promptly.
**Coming Attractions**

The hip is the most commonly luxated joint in small animals. Hip luxations are usually due to trauma from a motor vehicle accident. The trauma results in tearing of the joint capsule as well as the ligament of the head of the femur. Occasionally, an avulsion fracture of the insertion of the ligament at the fovea capitus occurs. Usually, the direction of the luxation is craniodorsal due to the contraction of the gluteal muscles. Caudoventral luxation may occur subsequent to a fall. Medial luxation is usually associated with acetabular fractures.

Next month, we shall outline our updated protocol for closed and open reductions of coxofemoral luxations.

*See you then!*