INJECTABLE BULKING AGENTS FOR CANINE URINARY INCONTINENCE:
COLLAGEN AND BEYOND
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Key Points
- Injectable bulking agents have been successfully used for treatment of urinary incontinence in dogs for 15 years
- Bulking agents should be reserved for use in dogs which cannot tolerate or fail medical therapy
- The procedure is less invasive and requires less hospitalization than most other surgical procedures for correction of urinary incontinence
- The major disadvantages of using injectable bulking agents are the lack of durability and poor predictability of which dogs will have success with the procedure

Urinary incontinence has been estimated to affect 20% of all neutered female dogs, and primarily is due to urethral sphincter mechanism incompetence (USMI). Traditional therapy includes α-agonist drugs, estrogen compounds, or surgical procedures that improve intra-abdominal pressure transmission to the proximal urethra. For patients that fail medical or surgical intervention, there are no effective alternative treatments. For the past 15 years, transurethral bovine cross-linked collagen (GAX) implantation has been an option for patients that remain incontinent despite medical therapy.

GAX is an acellular bovine dermis-derivative primarily consisting of type I collagen cross-linked with glutaraldehyde. The material is injected through a 5 Fr, 23 g needle passed through the operating channel of a rigid cystoscope. Injections are made submucosally in a pattern that results in improvement of urethral coaptation. GAX has been used to treat stress urinary incontinence in women and men for nearly 20 years in patients failing surgical therapy or in patients with high surgical risk. Sixty to 80% of human patients are continent in the short-term post-operative period and 40% are continent at 2 years post-treatment.

A previous European study of long-term outcome of GAX implantation in incontinent female dogs reported that 68% of 40 dogs were continent for 1 to 64 months after 1 injection. The same study reported that an additional 25% of dogs had improved incontinence. A recent study performed by the author showed similar results in a group of 31 dogs, 10 of which had ureteral ectopia. Dogs had a significant increase in continence score after the procedure. Mean (SD) duration of continence in dogs without addition of medication was 16.4 (15.2) months, and 5.2 (4.3) months in dogs needing additional medical therapy. While client satisfaction was high for all procedures, the unpredictable nature of the duration of clinical improvement emphasizes the need to adequately manage client expectations for the outcome of the procedure.

GAX collagen has recently been discontinued by the manufacturer (CR Bard, Inc.) and investigations into other alternatives have begun. Recently, preliminary data was reported on using a polydimethylsiloxane urethral bulking agent in 22 female incontinent dogs (Bartges, 2011). At 3 months post-procedure, 18/22 dogs were continent and at 6 months 16/22 were continent. Although preliminary, this data indicates a potential successor to GAX as an injectable bulking agent and alternative therapy for refractory urinary incontinence. The nature of the agent, which promotes fibrin integration to stabilize its placement, suggests a more durable material which will have longer lasting results than GAX.