COMPLICATIONS OF URETHROSTOMIES
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Key points:
• The most common cause of stricture after perineal urethrostomy is failure to adequately
dissect the ischiourethralis muscles from the pelvis.
• Primary revision of the original stoma is the treatment of choice for failed PU.
• If primary revision is not possible, subpubic and transpelvic techniques may allow for
preservation of urethral length during salvage procedures.

This session will involve an interactive discussion of troubleshooting problems with failed
urethrostomies in companion animals, using case material and clinical experiences to highlight
the pertinent literature. The following notes will provide some background on the literature that
will be covered during the discussion.

Perineal Urethrostomy:
The feline perineal urethrostomy (PU) procedure has been performed with few alterations
since the original description by Wilson in 1971. A minor modification of the technique was
proposed by Agrodinia and others1, in which two continuous suture patterns were applied using
absorbable suture material (polydioxanone). This modification allows for decreased operative
time, minimizes the volume of suture material in the wound and obviates the need for suture
removal, which can often require sedation. No strictures or dehiscences were noted in the 18
cases that were reported, and overall complication rate was similar to previous reports. Despite
the widespread success of PU in accomplishing patent urinary diversion in cats, a number of
complications have been reported, including stricture of the urethrostomy, subcutaneous urine
leakage in the perineal region, hemorrhage, urinary tract infection and incontinence. Although
some of these complications can be managed conservatively, many require surgical revision to
restore urinary function. Thus, almost since the inception of the PU procedure, there has been a
need for revision methods.

Revision techniques:

Prepubic urethrostomy:
One of the original methods for salvage of failed PU surgery is prepubic urethrostomy,
transecting the urethra and transposing the stoma to a caudal abdominal location, cranial to the
pubis. Unfortunately, subsequent experience with this technique showed a high rate of
postoperative complications, including urinary incontinence (6/16 cats) and urine scalding (7/16
cats).2 Six cats were euthanized within 6 months of surgery and mean survival was only 13
months.

Subpubic urethrostomy:
A simple extension of the antepubic urethrostomy technique was presented by Ellison, et
al in 1989,3 in which the pelvic urethra was preserved and then transposed to a subpubic
position. This technique avoids the urine scald associated with pre-pubic urethrostomy in cats by
placing the stoma caudal to the abdominal fat pad. Preservation of more urethral length may also contribute to improved continence with this technique and improved resistance to UTI, although no large studies have been published to date.

*Primary revision:*

In 2006, Phillips and Holt described the results of primary revision of the perineal urethrostomy by revised dissection and mucosa to skin apposition. In this study, 8 of 11 cats had inadequate dissection to the level of the bulbourethral glands and 3 had poor apposition of skin to mucosa during initial surgery. Primary revision of the stoma was effective in 8 of 9 cats available for long-term follow-up.

*Transpelvic urethrostomy:*

Another recent study described transpelvic urethrostomy (TPU) as an alternative salvage procedure for cats with distal urethral trauma or failed PU surgery. The caudal aspect of the ischium is removed through a ventral approach and the urethral stoma is translocated to a subpubic position. The advantage of this technique is that it avoids the high rate of incontinence and urine scalding that is seen in prepubic urethrostomy by preserving the intrapelvic urethra and urethral sphincter. Only 1 cat developed temporary incontinence, which resolved by 4 weeks after surgery.

*Conservative therapy:*

As many clinicians have learned, conservative therapy with urethral catherization or urinary diversion can provide an acceptable long term solution in selected animals with urethral tears and urine leakage. A recent clinical retrospective study evaluated prognostic factors for animals with urethral trauma in 20 dogs and 29 cats. Urethral rupture was more common in males of both species, with etiology being most commonly related to vehicular trauma in dogs, and to iatrogenic injury during catheterization in cats. The presence of multiple traumatic injuries served as the only negative prognostic indicator in this series, with location of rupture, clinicopathologic findings, treatment method (surgery vs catherization) and etiology having no significant effect on outcome.

*Tube cystostomy:*

Tube cystostomy is an accepted method for short or long-term urinary diversion. A landmark experimental study performed in an experimental model of intrapelvic urethral transection and primary repair in normal dogs showed that there was no difference in healing of urethral wounds when tube cystostomy was compared to transurethral catheters or both techniques combined. A recent follow up study on tube cystostomy in 76 animals showed that complications were common (49%), although most were treatable through non-surgical intervention. Urinary tract infection was nearly universal (16 of 17 animals that had urine culture checked after tube implantation cultured positive). Inadvertent tube removal was the most common major complication and occurred in 12/76 animals, but was typically handled conservatively (8 animals) or by tube replacement (4 animals). Only 1 animal required surgical revision due to uroperitoneum after tube removal. The most common minor complication was irritation around the tube site (7/76) or urine leakage around the tube (7/76). Complication rate was not associated with species, tube type or duration of tube retention.