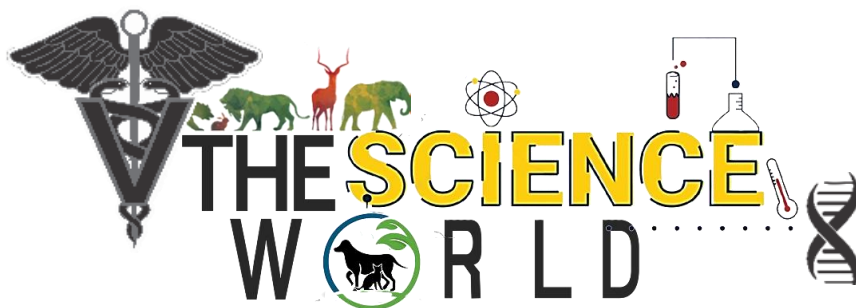




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Surgical Management of Feline Urethral Obstruction: An Overview of Urethrotomy and Urethrostomy

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Abstract

In cats, urethral obstruction can be fatal, especially in males because of their narrow distal urethra. Urethral plugs, uroliths, oedema, spasm, inflammatory debris, and strictures are among the causes. Electrolyte imbalances and azotaemia can be quickly brought on by total blockage. Stabilization, analgesia, and the restoration of urine flow with catheterization and mild flushing are the first treatments. When obstruction cannot be resolved conservatively, recurs, or is linked to a structural illness, surgery is taken into consideration. A permanent urine outlet is created by urethrostomy, while access to the urethral lumen is made possible by urethrotomy. The main urethrostomy technique for male cats with recurring distal obstruction is perineal urethrostomy (PU). A successful outcome requires careful case selection, atraumatic treatment, and precise mucosa to skin apposition.

Keywords: cat, urethral obstruction, urethrotomy, urethrostomy, perineal urethrostomy, feline lower urinary tract disease

Introduction

Feline urethral obstruction, which can be brought on by urethral plugs, uroliths, inflammatory material, oedema, spasm, or structural narrowing, is a dangerous urological emergency, particularly in male cats. It is crucial to identify a complete blockage as soon as possible because it might rapidly result in renal dysfunction and severe metabolic problems. Restoring urine flow and stabilizing the patient are the goals of initial treatment. Surgery may be necessary if catheterization is unsuccessful, blockage reappears, or urethral disease is irreversible. While urethrotomy involves creating a surgical incision in the urethra, urethrostomy leaves a persistent gap between the urethra and the skin.



Causes and Clinical Recognition

Obstruction is often multifactorial. The lumen may be physically blocked by urethral plugs and uroliths, and its diameter may be further decreased by inflammation, edema, and spasm. Obstruction may be recurrent or persistent due to strictures.

Frequent urination attempts, frequent trips to the litter box, vocalization, and excruciating straining are characteristic symptoms of affected cats. Severe cases may result in weakness, vomiting, dehydration, depression, and haematuria. Frequent straining without the generation of urine should be regarded as an emergency.

Initial Management

Urine flow restoration and stabilization are the immediate goals. When necessary, analgesia, hydration therapy, and correction of significant electrolyte imbalances should be given. Flushing and mild catheterization are typically tried after stabilization and the proper anaesthesia. Avoid using forceful catheterization as it may result in urethral damage or the creation of false passages. Surgery should be taken into consideration when catheter-based therapy is ineffective or structural illness is suspected.

Urethrotomy

- An incision made into the urethra to provide direct access to its lumen is known as a urethrotomy.

Indications

- Foreign objects or obstructing calculi that cannot be removed by catheterization or flushing
- Urethral lesions that are localized and require direct access

Technique

A direct incision is made into the urethra at the site of obstruction, which is typically in the penile or perineal region. The urethra is flushed to restore patency after the obstructive substance is removed.

Advantages and Limitations

- **Advantages:** Immediately relieves pain and eliminates the blockage.
- **Limitations:** Stricture development and fibrosis may result from healing. Urethrotomy is seen as a short-term solution because recurrence is frequent.

Urethrostomy

A permanent stoma is made between the urethra and the skin during a urethrostomy in order to avoid a constricted or blocked section.



Indications

- Severe urethral injury
- Stricture development
- Persistent blockage that doesn't improve with conservative treatment

Types of Urethrostomy

- **Pre-pubic urethrostomy:** Used in cases of pelvic trauma or severe urethral injury, this procedure exteriorizes the urethra cranial to the pubis.
- **Trans-pelvic urethrostomy:** Because of its difficulty, this procedure is rarely used to reroute the urethra through the pelvis.
- **Perineal urethrostomy (PU):** In male cats, this procedure broadens the urine outflow by avoiding the constricted penile urethra. It is the gold standard for severe distal urethral illness or recurring blockage.

Technique (PU)

- The patient was prepared aseptically and placed in dorsal recumbency.
- A curvilinear incision made around the base of the penis beneath the anus
- The penile urethra is isolated by careful dissection; if necessary, the penis may be removed.
- A wide lumen is exposed by incise the urethra at the level of the bulbourethral glands.
- To create a permanent stoma, the urethral mucosa is sutured to the skin using fine interrupted sutures.

Advantages and Limitations

- **Advantages:** Enhances quality of life, offers a long-term cure, and considerably lowers recurrence.
- **Limitations:** Possible risk of bleeding, infection, stomal stricture, or urine incontinence. It requires dietary control and lifelong observation. The underlying lower urinary tract condition cannot be cured.

Complications and Postoperative Care

Stomal stricture, urinary tract infection, hemorrhage, dysuria, wound issues, and skin irritation from urine are all potential concerns. The development of strictures is especially significant since they may obstruct the flow of urine. Analgesia, preventing self-trauma, and monitoring the surgery site and urination are all part of postoperative care. Urinary difficulties following surgery must be promptly assessed.



Does every cat that is obstructed require surgery?

No, many acute blockages can be treated with careful catheterization, analgesia, and stabilization. Only in cases of irreversible structural disease, blockage recurrence, or failure of conservative treatment is surgery necessary.

How does urethrotomy differ from urethrostomy, and is it permanent?

Although urethrotomy provides instant relief, it is frequently complicated by fibrosis and stricture, which might result in recurrence. For chronic situations, urethrostomy offers a more conclusive long-term approach by making a permanent stoma that avoids the obstruction.

What makes perineal urethrostomy (PU) the best option?

Bypassing the narrow penile urethra, PU is the most common urethrostomy in male cats, improving quality of life and lowering recurrence.

How crucial are nutrition and long-term care, and is obstruction likely to recur?

Dietary management is essential. Increased water consumption and prescription urinary diets lower the chance of recurrence. Cats are still susceptible to urinary tract disease even after surgery, so lifelong observation is crucial. Although PU significantly lessens blockage, stomal stricture and other issues may still arise, necessitating immediate assessment and continuous care.

Conclusion

Feline urethral blockage must be identified quickly and treated appropriately. While urethrostomy, especially perineal urethrostomy, offers a permanent outlet in cases of severe or recurrent obstruction, urethrotomy has a selective role in acute cases. PU provides outstanding long-term results and enhanced quality of life with precise approach, careful case selection, and continuous nutritional and environmental management.

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