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Urolithiasis in Goats

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Current recommendations for goat urolithiasis

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Urolithiasis literally means stones at any location of the urinary tract. Regardless of their location, uroliths always represent danger. Clinical signs are variable but include lethargy, anorexia, dysuria, anuria, and abdominal distension. If untreated, they can result in fatal water and electrolyte derangements.

The composition of uroliths is variable. In USA, goats are most commonly affected by struvite (magnesium or ammonium phosphate) or apatite (calcium phosphate) uroliths. These are typically formed within a urinary pH range of 6.5-8.8. Prevention, therefore, mainly relies on enhancing acidification of urine without compromising the goat's metabolic status (i.e. avoiding metabolic acidosis). Other types of uroliths contain calcium carbonate, oxalate or silica.

Urinary pH and urine oversaturation with calculogenic materials are the main factors for the formation of uroliths, and both are influenced by diet. Testosterone, likewise, affects the incidence of urolithiasis. Studies performed in bovines have shown that the urethral diameter is smaller in those animals castrated at an early age.

Current management of urolithiasis involve medical and/or surgical approaches. Several surgical techniques have been described for correcting urolithiasis. Post-surgical complications, however, are often reported due to reoccurrence of urolithiasis, formation of urethral strictures, etc. A modified proximal PU technique was recently described to reduce the incidence of post-surgical strictures by emphasizing the importance of performing a longitudinal urethrotomy, a thorough dissection of the penile attachments to the ischium, and urethral catheterization until the mucosa is healed.¹

Finally, it is of extreme importance to mention that surgical treatment may temporarily relieve urolithiasis, but concurrent preventive management is crucial for success. Emphasis should be oriented on educating owners for preventive management of urolithiasis. Current recommendations are simple:

- Ensure that goats have clean, fresh water available at all times. Check for ice formation during winter.
- Avoid early castration (<6 months of age).
- Goats with previous urolithiasis should never have grain in their diets.
- Encourage water intake by gradual addition of NaCl at 3-5% DMI
- If possible, target a urinary pH within 5.5-6.5.

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