CANINE SILICA

Available clinical data provides a strong link between canine silica uroliths and consumption of specific dietary ingredients. Diets that contain substantial quantities of corn gluten feed or grain hulls are especially suspect. Water in volcanic areas has also been implicated in the formation of silica uroliths. The inert ingredient in some tablet medications and antacids is silica.

PREVENTION

** DIAGNOSTIC CONSIDERATIONS **

Determine if owners are providing diets or medications containing silica, corn gluten feed, soybean hulls, and intact grains.

** MEDICAL CONSIDERATIONS **

Eliminate diets and medications with silica, corn gluten feed, soybean hulls, and intact grains.

** NUTRITIONAL CONSIDERATIONS **

Canned foods with moderate levels of animal proteins that do not overly acidify urine with little or no silica, corn gluten feed, soybean hulls, and intact grains (e.g., u/d, i/d sensitive canine). Avoid water from volcanic sources.

** MONITORING CONSIDERATIONS **

Urinalysis every 3 to 6 months to adjust pH to 7 to 8.0, and urine specific gravity to 1.020 and lower. Medical imaging every 6 to 12 months to detect recurrent stones when small to permit their easy removal without surgery.

** Review manufacturer’s therapeutic food literature to determine indications/contraindications. For pets with multiple health concerns, consult a veterinary nutritionist to select an optimal food.**

In depth recommendations and references are available on our website: urolithcenter.org under the resources tab.
CANINE SILICA UROLITHS

Available clinical data provides a strong link between canine silica uroliths and dietary ingredients. Diets that contain substantial quantities of corn gluten feed or grain hulls are especially suspect. Various urolith laboratories report the incidence of silica uroliths in dogs to be from 0.3 to 14.0%. The incidence of silica stones is significantly higher in male dogs than in females.

Effective medical protocols to induce dissolution of canine silica uroliths have not yet been developed. To minimize recurrence, select diets, dietary supplements, and medications without sources of silica. Water in volcanic areas has also been implicated in the formation of silica uroliths.

Consider These Facts:
- Prescription Diet® u/d® contains polished rice with hulls removed and therefore is one appropriate diet choice to consider for prevention. Likewise, Prescription Diet® i/d® Sensitive canine does not contain rice hulls, but contains a lower level of fat. Because of this, it may be an appropriate choice for patients with hyperlipidemia, a history of pancreatitis, or in breeds at risk for pancreatitis (e.g. miniature schnauzers).
- Silicon is the second most abundant element in soils (oxygen is the most abundant), and is the mineral substrate for most of the world’s plant life.
- Controlled studies evaluating silica urolithiasis have not been performed. Empirically, elimination of causative agents (silica-containing diet, dietary supplements, etc) should minimize recurrence.
Monitoring Silica Urolith Prevention: 
Perform Urinalysis and Medical Imaging

USG <1.020  
PH ≥6.5  
Identifiable silica crystals have not been observed in urine sediment

Uroliths

- Consider non-surgical techniques to remove small uroliths.
- Stones can be left alone in patients without clinical signs; these stones rarely cause obstruction.
- With persistent clinical signs, select appropriate method to remove uroliths.
- Submit retrieved uroliths for quantitative analysis.

- Repeat urinalysis monthly until desired SG and pH are achieved, then every 3 to 6 months.
- If urine is persistently acidic (pH<6), consider potassium citrate to achieve a more neutral urine pH.
- Repeat medical imaging every 4-6 months (urolith recurrence is variable).
- Repeat urinalysis and medical imaging when signs consistent with uroliths (urinating in house, stranguria, hematuria, etc.) recur.

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- Stones can be left alone in patients without clinical signs; these stones rarely cause obstruction.
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Further references:

11. www.hillsvet.com

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