



**MJF College of Veterinary**  
**&**  
**Animal Sciences, Jaipur.**

# Urolithiasis

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A large pile of small, light-colored, rounded objects, likely representing uroliths (urinary stones). The objects are numerous and densely packed, filling most of the frame. They have a slightly irregular, pebbly appearance. The background is a dark, solid color, possibly black or dark blue, which makes the light-colored stones stand out. A bright yellow rectangular box is overlaid on the lower portion of the image, containing the word "Urolithiasis" in blue text.

# Urolithiasis

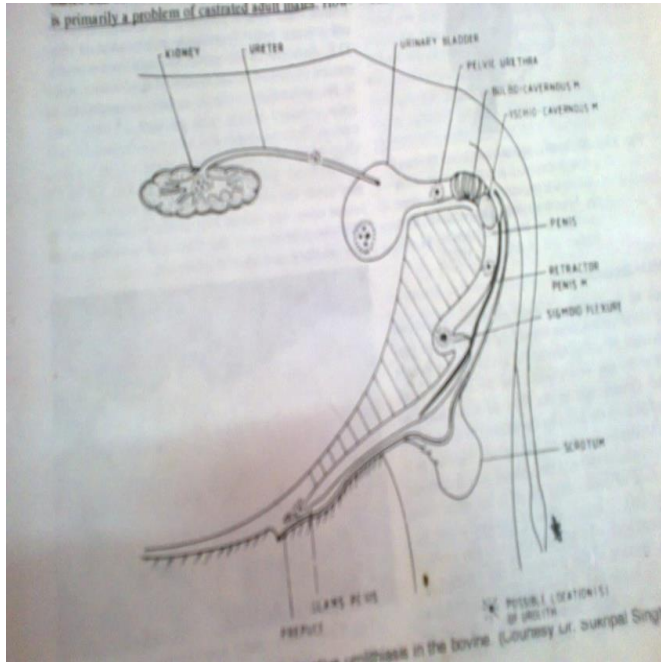
# Management of Urolithiasis in Domestic Animals

Urolithiasis- Partial or Complete obstruction in the flow of urine due to presence of calculi in urinary system

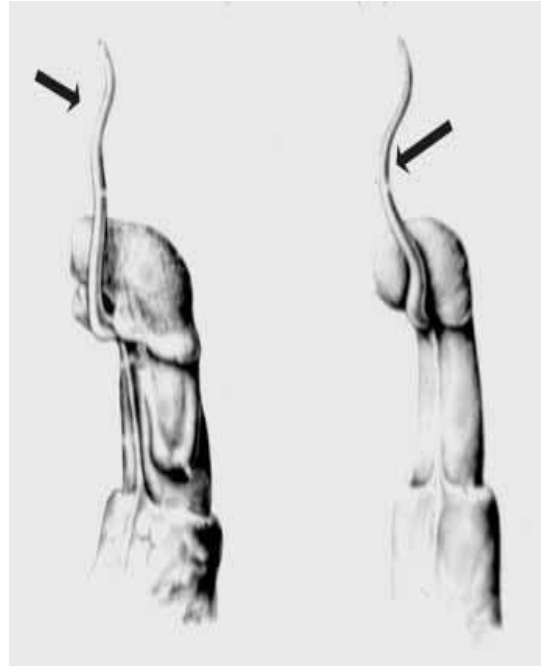
Mostly commonly affected species– Cattle > Sheep/Goat > Buffalo, Dog

Male > Female

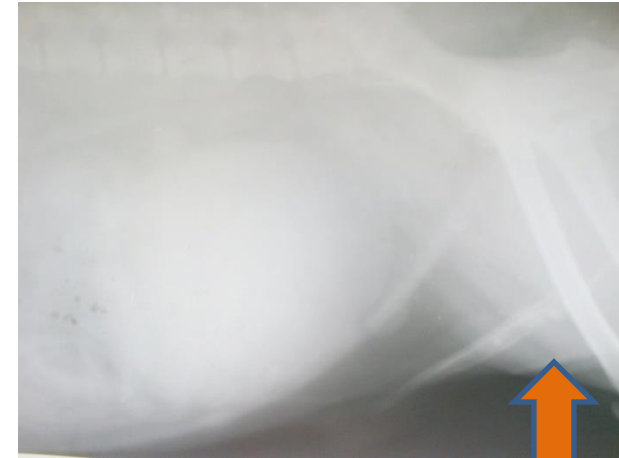
# Anatomy Of Urinary System & Common Sites Of Obstruction



**Bovine-Sigmoid flexur**



**Sheep/Goats: Urethral process**



**Dog: Proximal to Oспенis**

Bovine/Caprine: Post scrotal sigmoid flexure  
Camel: Pre- scrotal sigmoid flexure

# Factors Responsible For Uroliths Formation

- **Season-**

  - Winter-**Reduced water intake

  - Summer-** Less availability of water, dehydration

- **Diet-High concentrate/low roughages** with large amount of (P)

- **Low magnesium level-calcium phosphate crystal**

- **High silica containing Grasses** -Wheat, oat, barley straw.

- **Vit. A ↓** -promotes epithelial desquamation act as nidus.

# Composition Of Calculi Based On Urine pH.

- Calculi mainly consist salts of Ca, Mg,  $\text{NH}_4$  - Phosphate, Oxalate and Carbonate.
- Acidic urine: -Dog , Cat: Oxalate, Carbonate salt of Ca, Mg,  $\text{NH}_4$
- Alkaline urine: Cattle, Buffalo, Sheep/Goat- Phosphate salt of Ca, Mg,  $\text{NH}_4$

# Composition Of Calculi In Animals

- Dog- **Struvite** (Magnesium Ammonium phosphate), Calcium oxalate, Urate, Cystine, Silicate, Calcium Phosphate.
- Horse- Calcium Carbonate
- Ox- Struvite, Calcium Oxalate, Silicate, Calcium Phosphate.
- Sheep & Goat- Struvite, Calcium Oxalate, Silicate, Calcium Phosphate.

# Clinical Sign

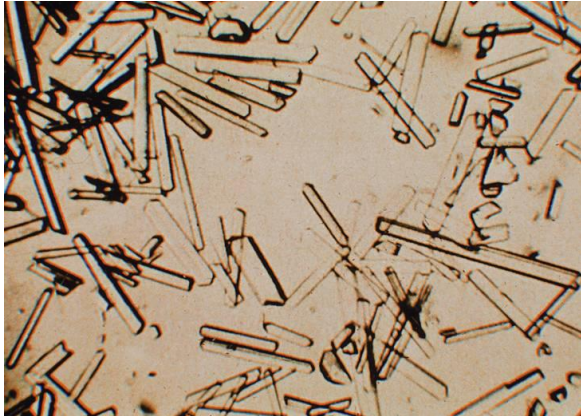
- Partial obstruction-  
    Uneasiness, Abdominal pain (Colicky),  
    Stranguria, Dribbling urine and haematuria
- Complete obstruction-  
    Colic sign-teeth grinding, Rear leg stamping,  
    Circling of tail, Distended urinary bladder ( Rectal  
    palpation)  
    Goat/ Sheep- Frequent bellowing



# Diagnosis

- Large animals- Rectal palpation Distention of urinary bladder
- Small animal- Palpation of belly
- Urinalysis-Presence of pus cells, blood cells, and different types of crystal.

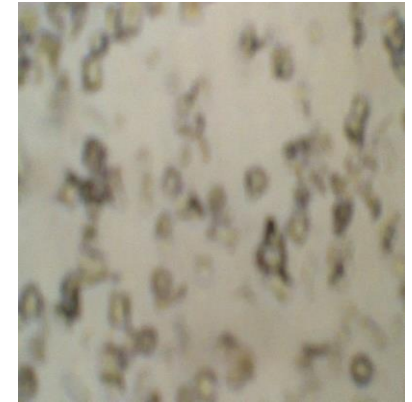
# Photomicrographs of different types of Urine crystal



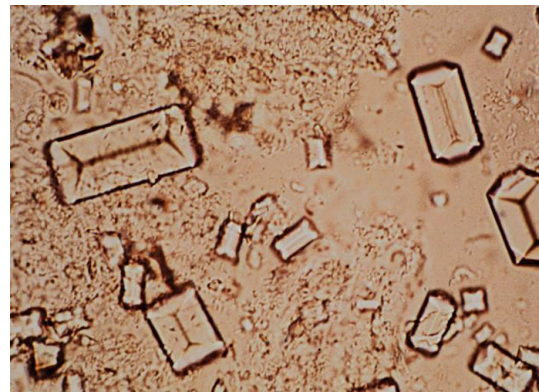
Calcium Phosphate-  
columnar structure



Oxalate- envelope-shaped

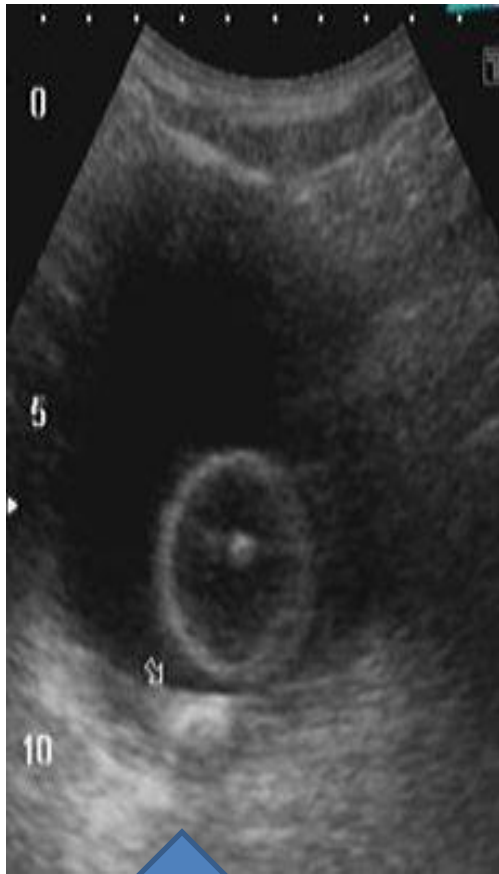


Mixed Crystaluria

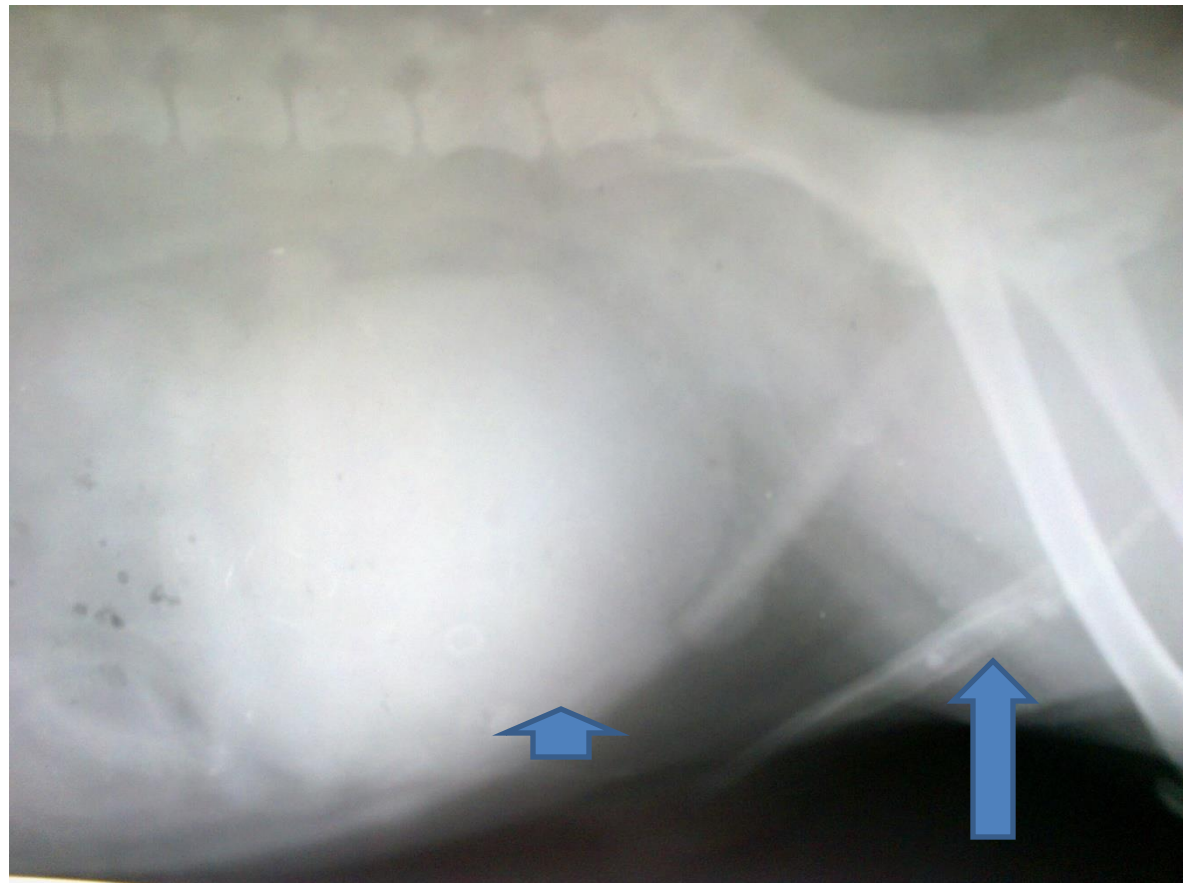


Struvite Calculi- coffin-lid shaped

# Ultrasonography/ Radiography



Calculi in Urinary Bladder



Distended Urinary Bladder

Calculi in urethra proximal to Os penis

# Electrolyte Imbalances

- Hyperkalaemia,
- Hyperphosphataemia,
- Hyponatraemia,
- Hypochloraemia
- Hypocalcaemia

Within 48-72 hr- either urethra or bladder ruptured ,  
colic sign disappeared.



Urethra ruptured ventral  
edema



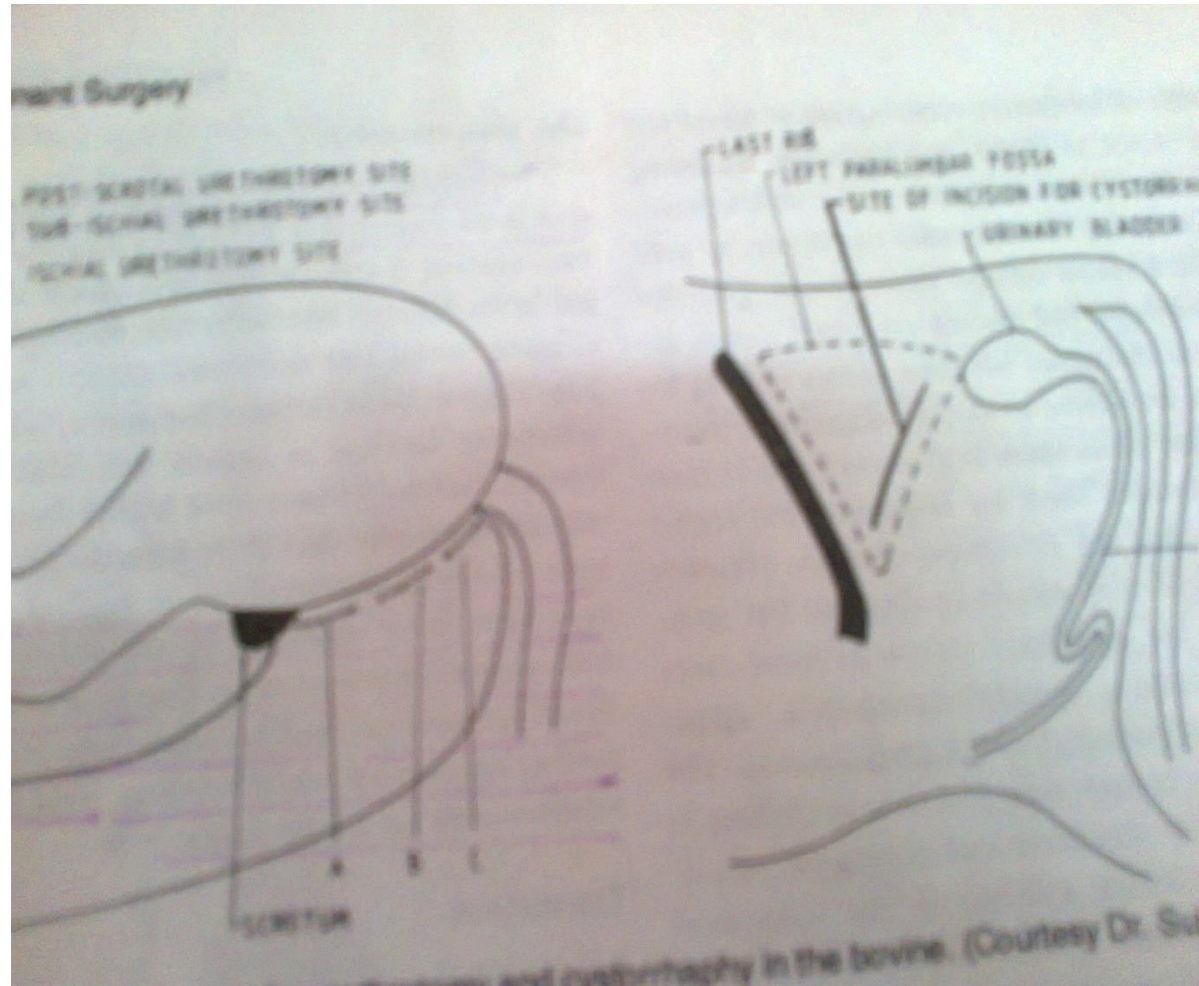
Bladder ruptured- Water belly  
condition

Dry and mucous coated dung ball

# Prognosis

- Severe dehydration, laboured breathing, arched back and protuded rectal mucosa indicate poor prognosis
- Cases of nephroliths and atonic bladder have little chances of recovery

# Surgical Correction



# UROLITH IN BULLOCK



RUPTURED URINARY BLADDER



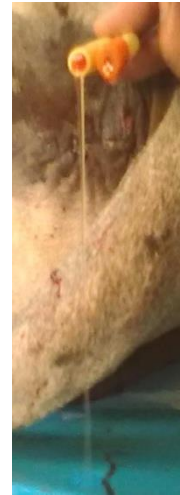
## Uroabdomen/Uroperitonium: Accumulation of urine in the peritoneal cavity



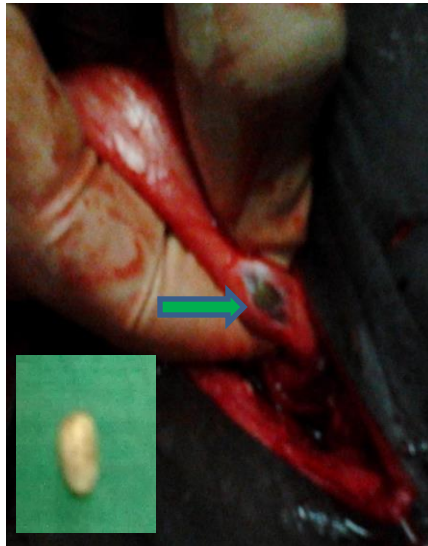
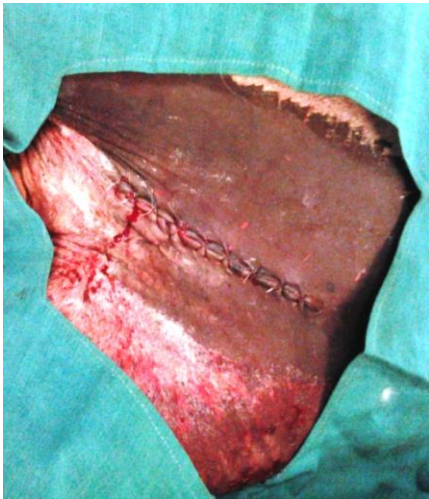
DRAINING URINE AND  
URINARY BLADDER REPAIR



Folley's catheter passed in UB

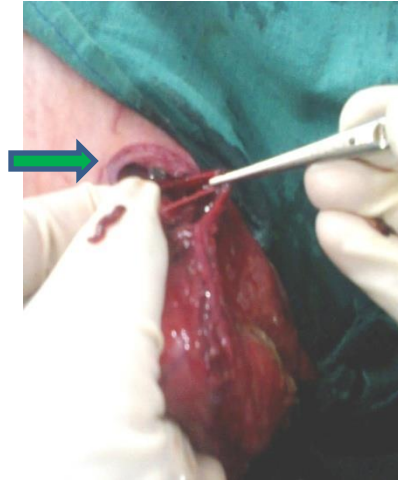


Closure of incision line



# URINARY BLADDER RUPTURE IN CALF

## Cystorrhaphy and Tube cystostomy



# Management of urolithiasis in goat

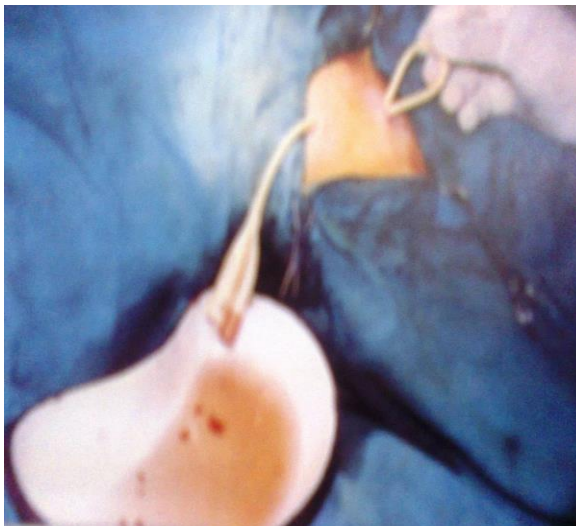
## Amputation of urethral process



Amputaion of urethral process

# Management of urolithiasis in goat

## Tube cystostomy





# Post-operative care

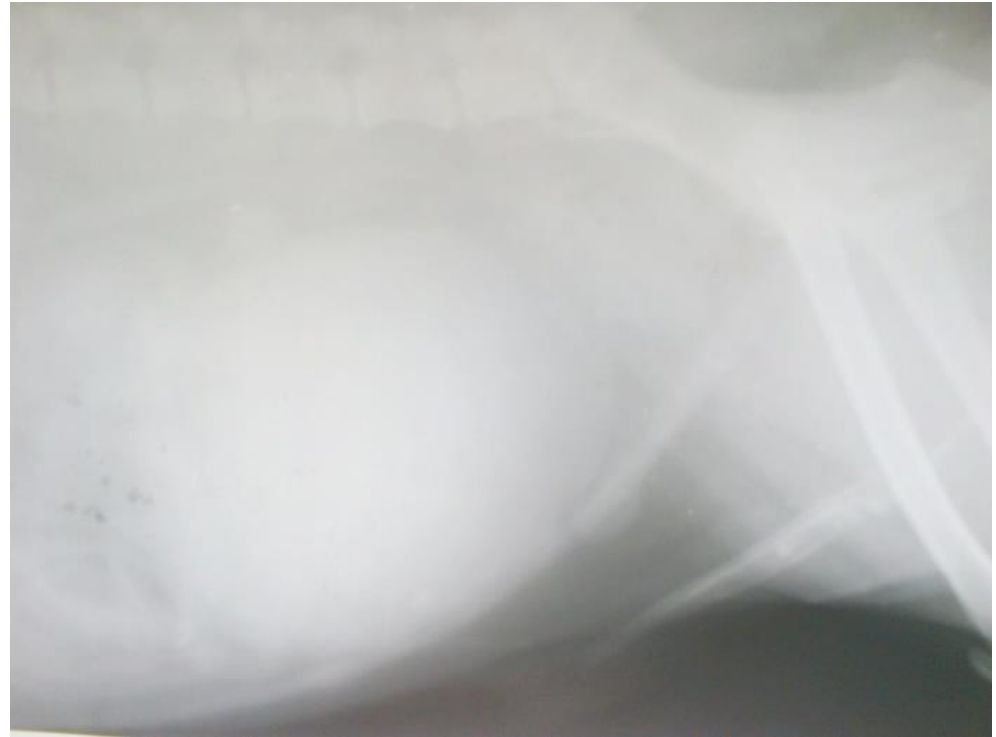
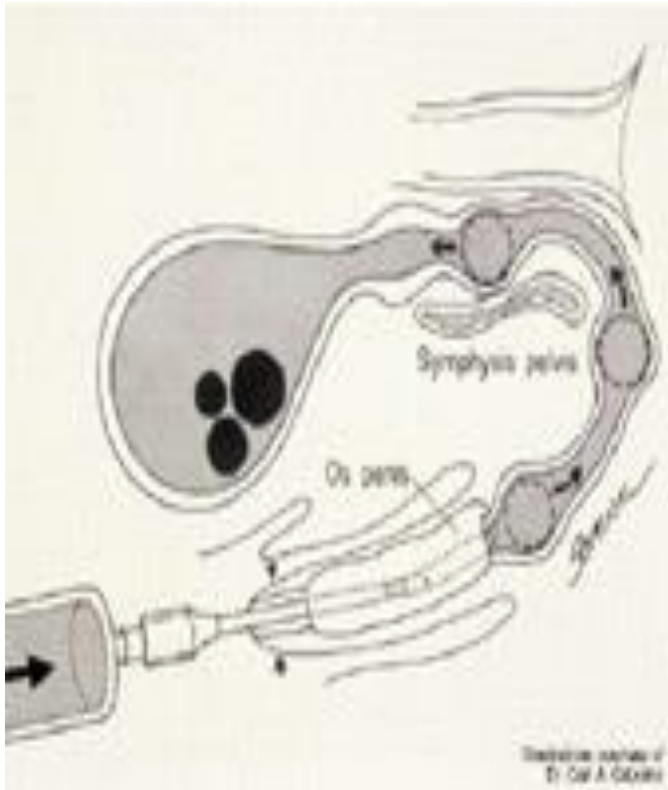
- Adequate fluid therapy
- Analgesic and antibiotic-5-7days
- Indwelling catheter- 2wks
- Water should be provided *ad lib*
- Ammonium chloride 5gm bid 15days



# Management of urolithiasis in Dog

## Urohydropropulsion

Verify and localize the urethro-liths with the aid of appropriate imaging procedure(s).



# Cystotomy to remove stone from bladder

Cystotomy: Incision into urinary bladder  
Urethrotomy: Incision into urethra



# Post operative care

- Broad spectrum antibiotic
- Antispasmodic
- Tab. Cyston for one months