

Obstructive Urolithiasis

The
Blocked
Goat

Metabolic & Nutritional Disease

Management
Disease??



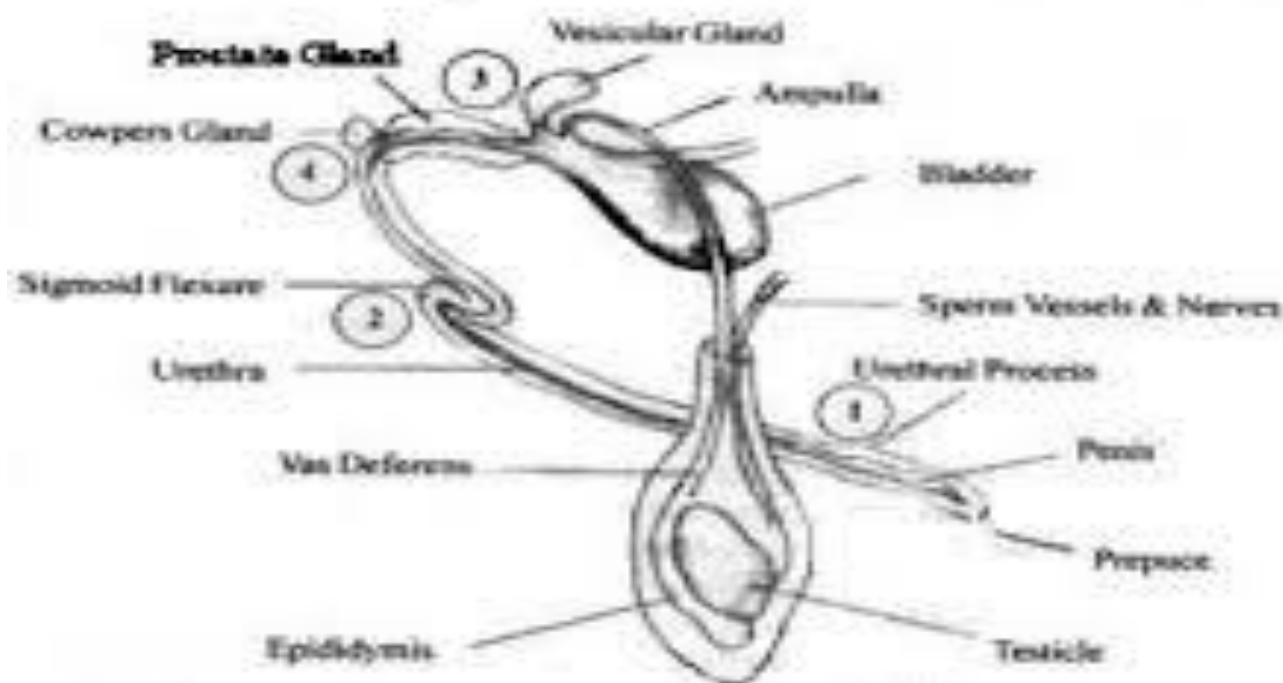
Signs

- Vocalize
- Off feed
- Uncomfortable
- “Constipated”
- Lethargic

Male Goat Problem

- Anatomy – Primary Offender = Wether

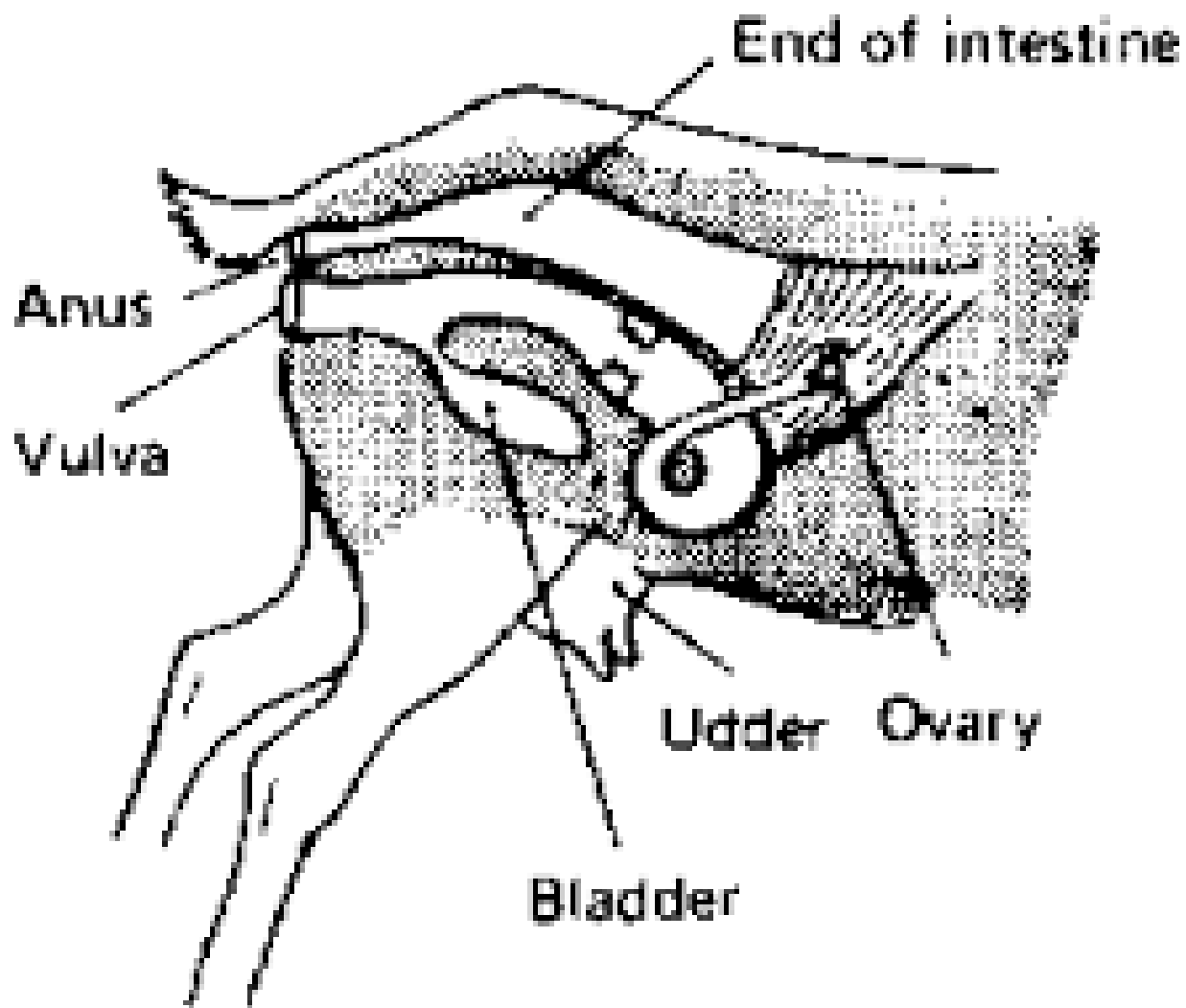
Anatomy of the Male Goat Urethra



Common Sites for Calculi Obstruction:

- 1) Urethral Process
- 2) Sigmoid Flexure
- 3) Neck of the bladder
- 4) Urethra at the ischial arch of the pelvis

Female Goat



What are the causes?

- Early Castration
- Over feeding – Grains!!
- Unbalanced Diet: Too much energy, minerals as Calcium, Phosphorus, Magnesium.
 - Inadequate Vitamin A
- Improper Water: Quantity, Quality, Access, Temperature
- Silicate / Oxalate containing plants

What are the consequences?

Rupture of Urinary Bladder =
Water Belly
Rupture of Urethra
Death



Why does this happen?

- Narrow long urethra
- Nidus of cell debris & mucus
- Improper mineral balance
- Poor water intake
- Overweight animal

What are the stones?

- Apatite: Calcium phosphate
- Struvite: Magnesium ammonium phosphate
 - Both Grain related
- Silicate – some grasses
- Oxalate – Oxalate accumulating plants
- Calcium carbonate – High clover/legume



Calcium carbonate calculi



Calcium oxalate



Struvite (magnesium ammonium phosphate) crystals

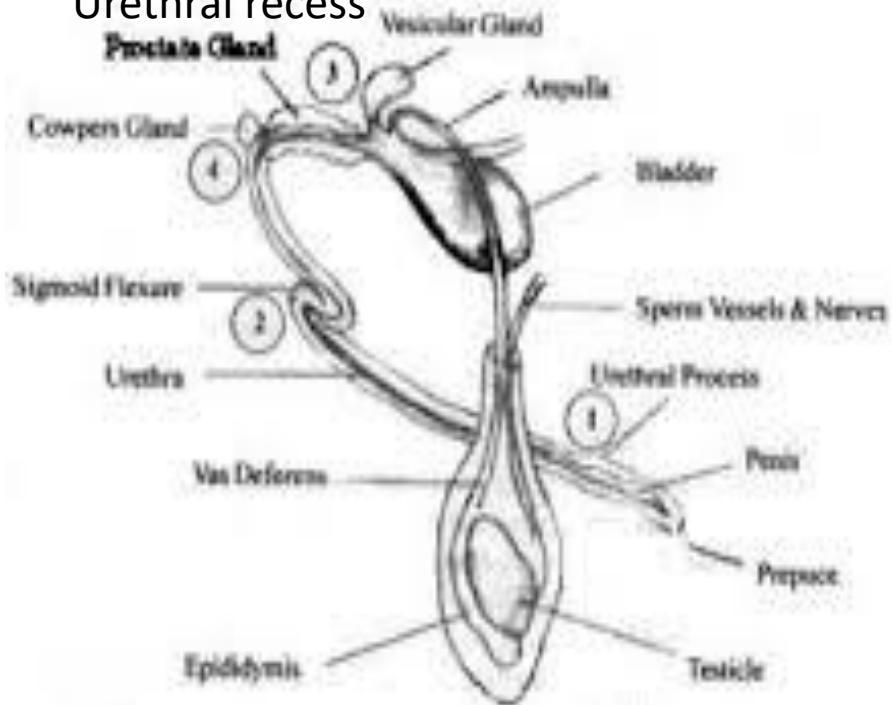




Where is the problem?

Anatomy of the Male Goat Urethra

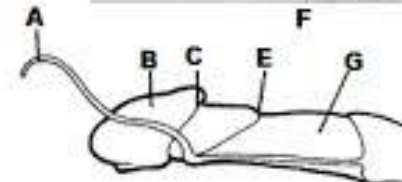
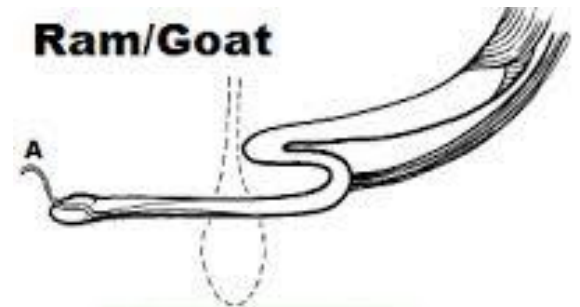
Urethral recess



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Ram/Goat



Urethral process

What can be done?

- Amputate Urethral process
- Catheterize –
Complications
- Anti-inflammatory
drugs
- Urethral dilation –
relaxation



What else can be done?

- Multiple surgeries: All have complications. Long term resolution is poor.
- Urethrostomy of various forms
- Tube cystostomy
- Urinary bladder marsupialization
- Others

Tube Cystotomy



Why so much failure?

- Extensive damage before signs
- Another blockage awaiting
- Unable to change environment
- Goat self damage



How can problem be avoided?

- Delay castration: Dehorn at 2-3 weeks, Castrate at 3 months or later – Early maturing!
- Avoid obesity – Goats add fat in abdomen
 - Wethers do not need grain
- Feed balanced diet
- Water: Clean, warm in cool weather
- Certain additives available?

Diet

- Goats are browsers
- Water: clean, warm in cool weather, multiple locations, multiple times.
- Grass based diet + 2-4 ounces alfalfa pellets per goat per day.
 - Adds protein, Ca/P ration 2 – 2.5/1 Control P and Mg levels in diet. Moderate calorie intake.
- Salt at 3-5% of the diet
- Vitamin A – Add Goat mineral



Room for all



Multiple
Choice

Mineral feeders

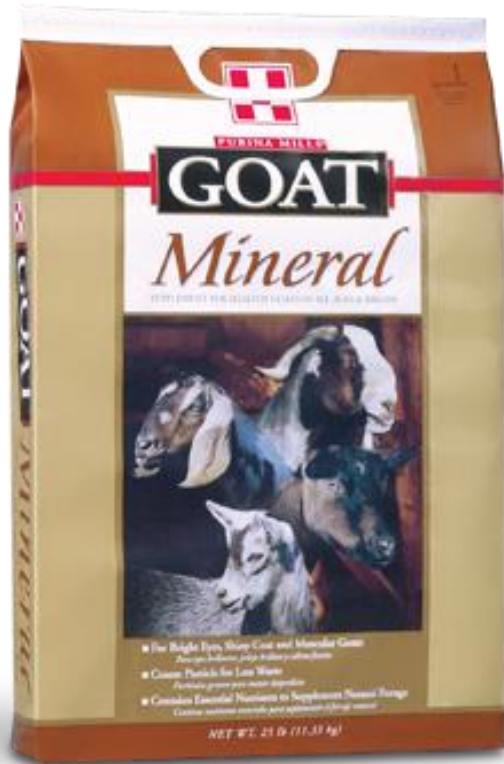


Goat Mineral / Salt

Keep Dry

Goat Mineral Free Choice

Monitor intake – This
one goal is 0.25 to 0.35
ounce per goat per day.
(1 teaspoon/goat)



For Goats

Not All-breed, Not Sheep & Goat

Math

- Goats eat 3-4 % of body wt per day in DMI
 - 100# goat eats 3-4# DMI per day
 - 2-4 ounces alfalfa pellets – be sure all have access
 - 4% of DMI as salt is 2.0-2.5 ounces of salt per 100#s of goat per day. (1 heaping Tablespoon = 1 ounce)
 - Wet hay and sprinkle with salt – increase slowly
 - Make salt solution and spray hay
 - Less concern when on pasture
 - Monitor goat mineral consumed – can add as per salt application

Vitamin A

- Vitamin A important for cell health
- Vitamin A important – Also can be toxic
- Dose: 100 IU / Kg per day
 - 100# goat = 45 Kg or 4500 – 5000 IU of Vit. A
 - Green grass source of Vit A
 - Vit A stored in the liver
- Purina Goat mineral has 8750 IU/ounce
 - Target 0.25-0.35 ounce per goat per day

Other additives

- Ammonium Chloride: Recommend at 0.5-1% of DMI per day – Controversial?
 - Best used to combat Struvite stones.
 - Consider if raising meat goats and feeding grain
 - Anionic Salts as Soychlor or Biochlor have been tried also
 - Goal of these is to make urine more acid to help dissolve crystals and prevent stones – best with magnesium ammonium phosphate stones.

Summary

- Delay castration
- Water, Water, Water
- Avoid obesity!
- Balanced Diet: Protein, Energy, Minerals (salt), Vitamins



Questions???

