



Nephrology/Urology

Dr. Ed Neufeld B.A. M.Div. D.V.M.

Chief Complaint

“Bing is a 6 year old spayed female Bishon Frise with a history of blood in her urine for the past 2 weeks

Bing



History

- Pollakiuria
- Dysuria
- Hematuria
- Good appetite

Physical Examination

- Bright/Alert/Receptive
- Temperature 38.5 degrees C
- HR – 100 BPM
- Respiratory rate 12 breaths per minute
- Mucous membrane pink
- CRT - < 2 seconds

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Problem List

- Pollakiuria
- Dysuria
- Hematuria

Rule Outs

- List all the Possible Diagnoses
- *This list is your Rule Out list*

Rule Outs

- Cystitis – bacterial infection
- Cystitis - bacterial infection plus calculi
- Neoplasia of the urinary bladder
- Interstitial cystitis
- Pyelonephritis
- IMHA
- IMT

The Plan

- What is your PLAN ?

Plan

- CBC
- Serum blood chemistry
- Complete urinalysis U/A
- Urine culture
- Abdominal radiographs
- Abdominal ultrasound

CBC/Chemistry

- CBC and serum chemistry – normal

Urinalysis

- Protein - + ++
- Glucose – negative
- Blood + ++
- WBC - ++++
- Bacteria + ++
- Crystals – star shaped

Crystals – What are these? – Calcium Oxalate



Struvite Crystals



Assessment of the Lab Findings

What is the significance of each finding?

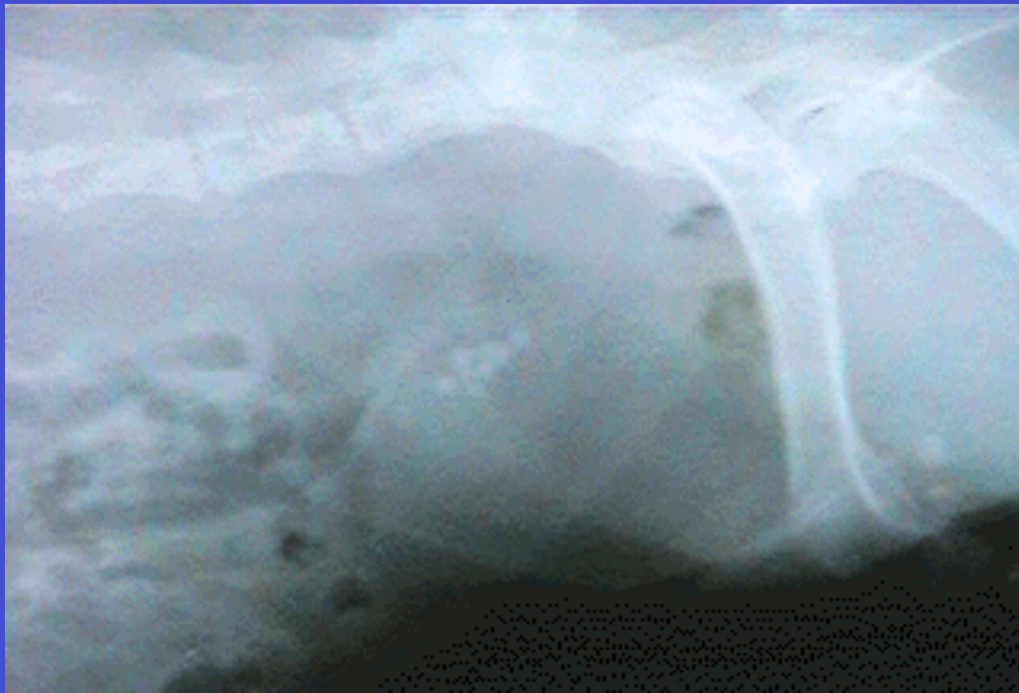
- Protein - + 2
- Glucose – negative
- Blood + 3
- WBC - many
- Bacteria + 3
- Crystals – star shaped

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Assessment of the Lab Findings

- **Proteinuria** – probably caused by the blood. Not Glomerulonephritis because BUN/SCr Normal
- **Blood** – inflammation/infection of the bladder
- **Bacteria** – bladder infection
- **Crystals** – Calcium Oxalate Crystals

Radiographs – What do you see?



Radiograph Evaluation

- Numerous small calculi within the bladder

Rule Outs

- What is the most likely diagnosis after reviewing the clinical signs. Laboratory Findings, Radiographs

Most Likely?

- Urinary Calculi with Cystitis caused by bacterial infection.
 - Calcium Oxalate Calculi

Treatment?

- What is the treatment?

Treatment

- If **Calcium Oxalate calculi** - Surgery – cystotomy
- If **Struvite calculi** – Dissolve with a dissolution diet which makes the urine acid and dissolves the calculi OR remove the stones via cystotomy.

Calcium Oxalate Calculi



Struvite Calculi



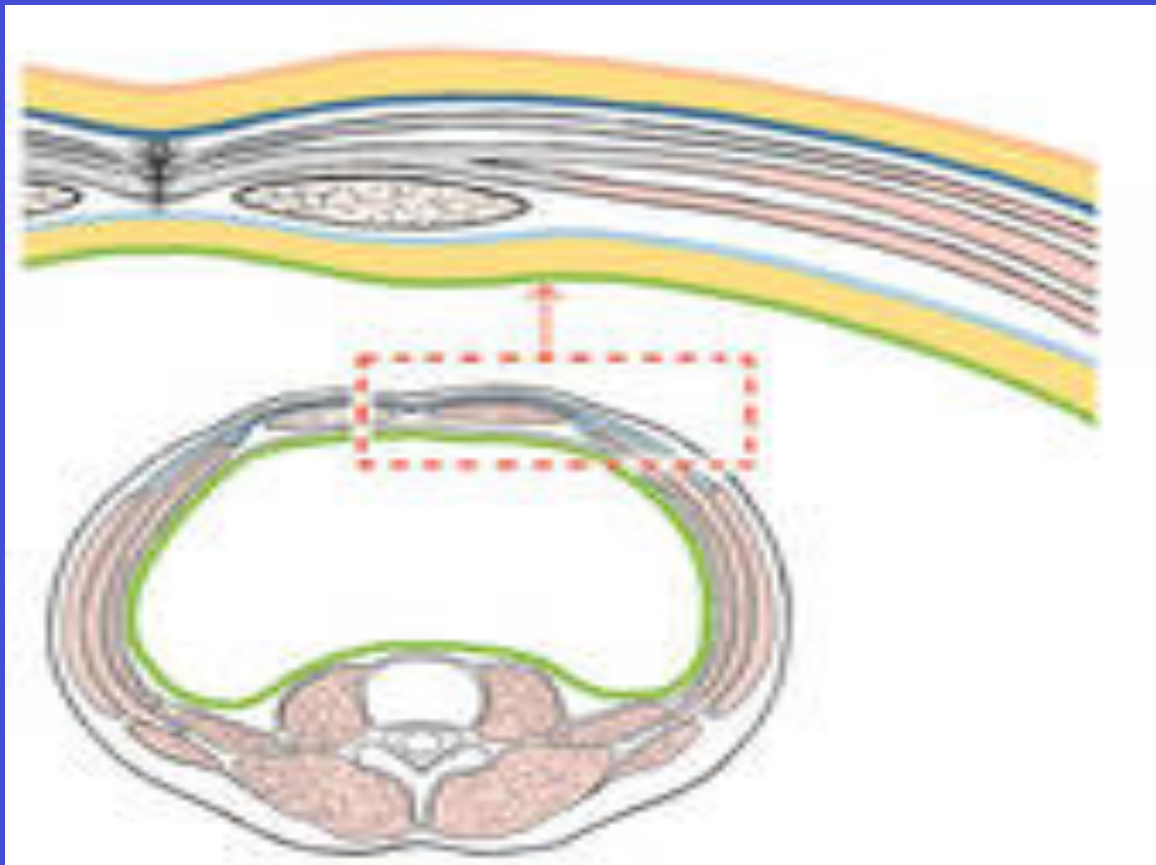
The Surgical Suite



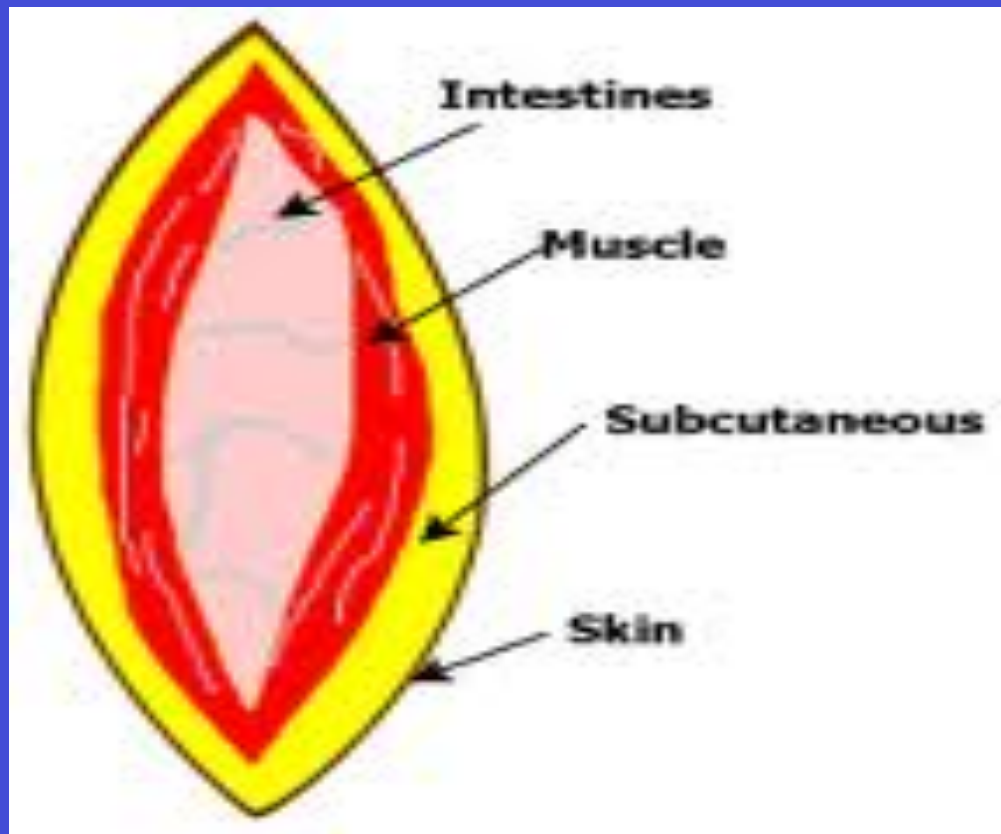
Incision through the Abdominal Layers



Abdominal Layers



Abdominal Layers



Incision into the Bladder Wall



Open Bladder with Calculi



Stone Scoop



Allis Forceps



Thickened Bladder Wall



Closing Bladder Wall – Single Appositional Layer



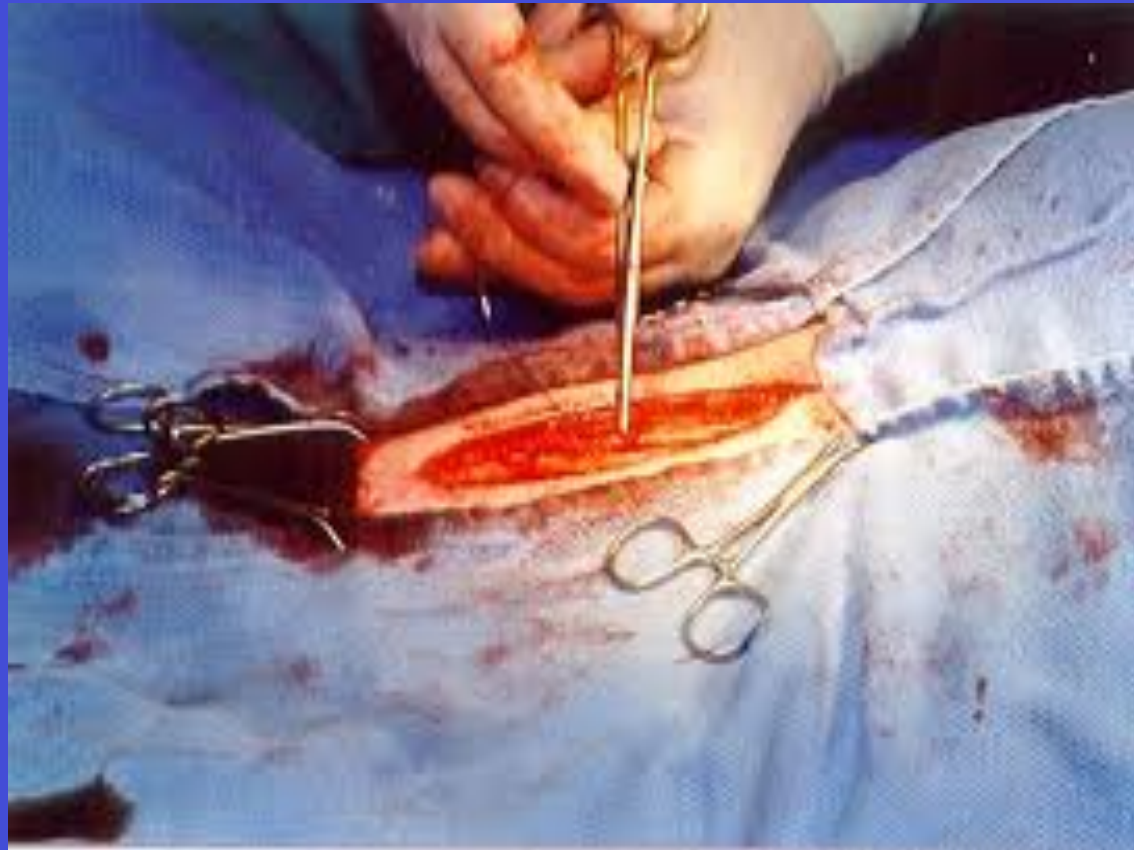
Sutured Urinary Bladder Wall



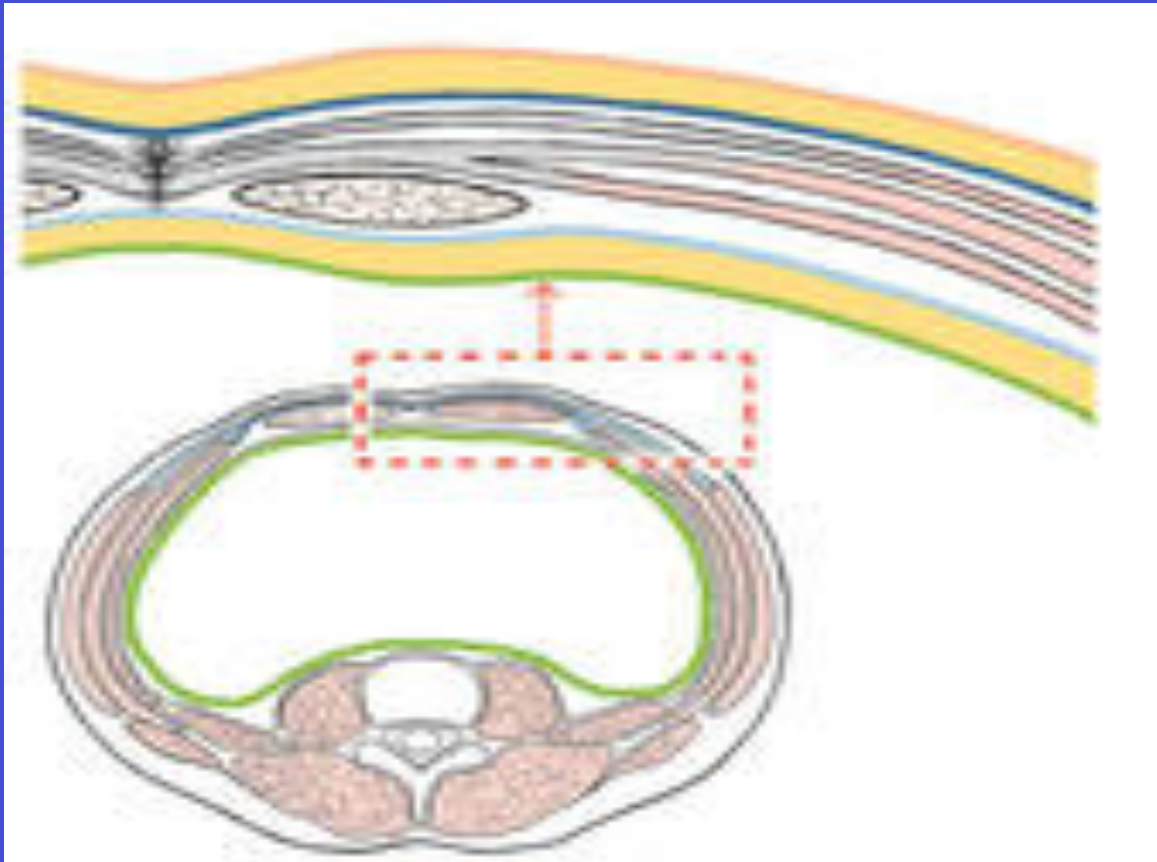
Bladder Closure

- One layer appositional closure
- Simple continuous or simple interrupted
- 3/0 monofilament absorbable on a round needle

Abdominal Closure – 3 layers



Abdominal Layers – 3 Layers



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- The End

