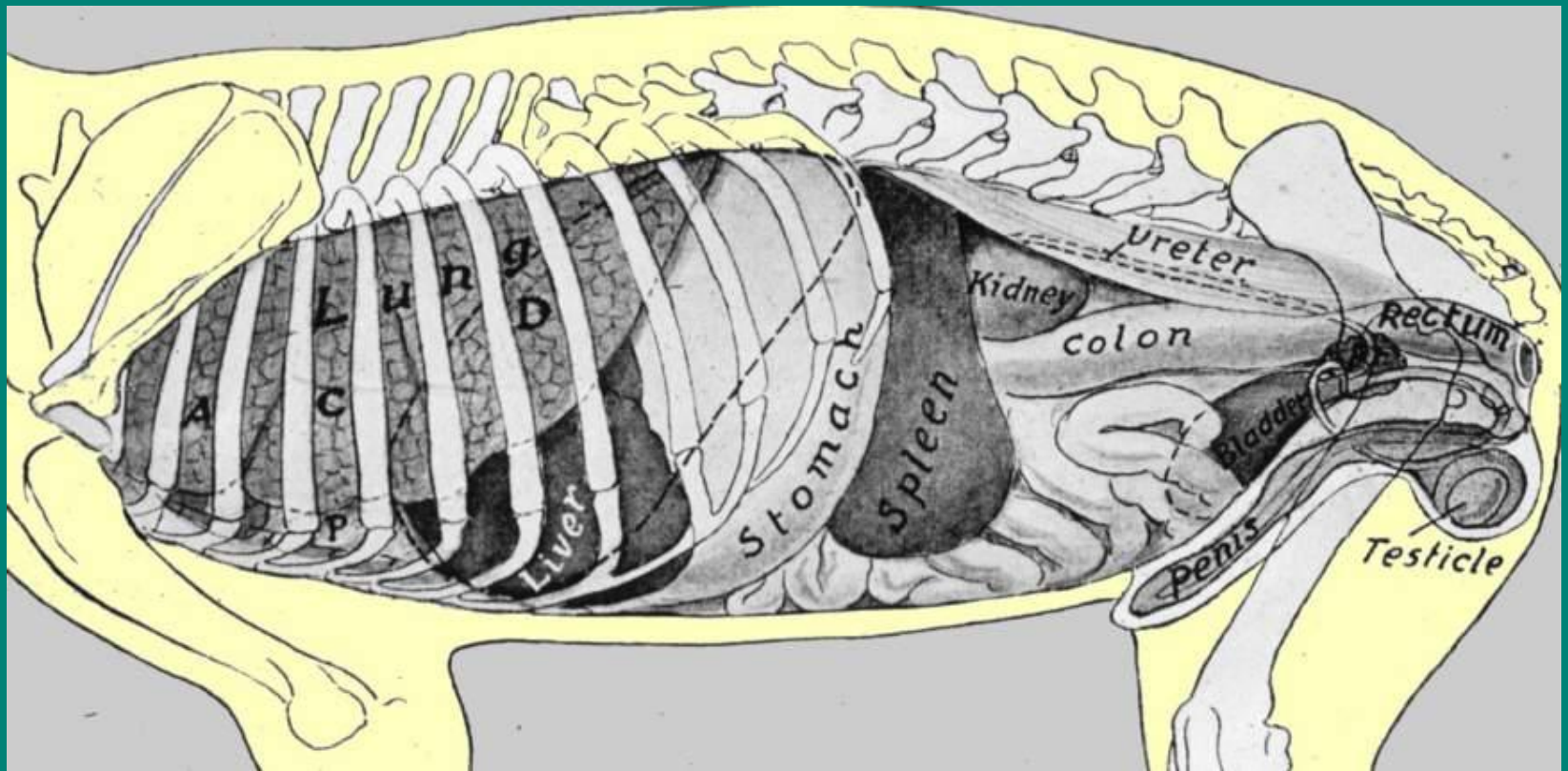# Urinary Tract Ultrasound

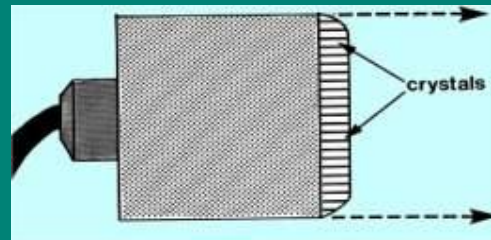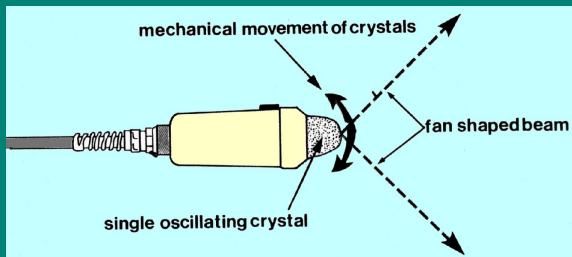Alison King

Abdominal Anatomy

Patient Preparation

- Sedation not usually required
- Lateral / dorsal recumbency
- Clip
- Surgical spirit / gel

Transducer – Type

- Sector
- Linear
  - Curvilinear

- Footprint size
- Near field image quality

mechanical movement of crystals
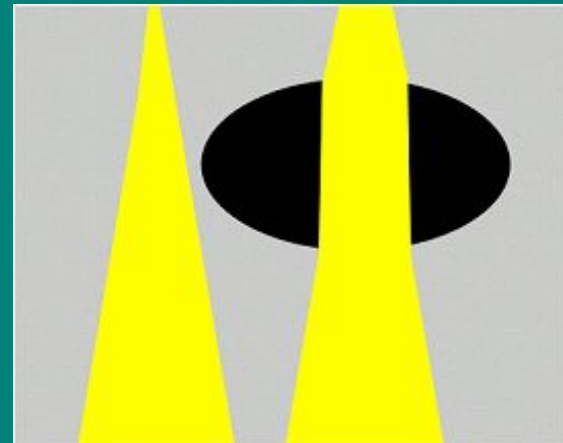
fan shaped beam

single oscillating crystal

crystals

Transducer - Frequency

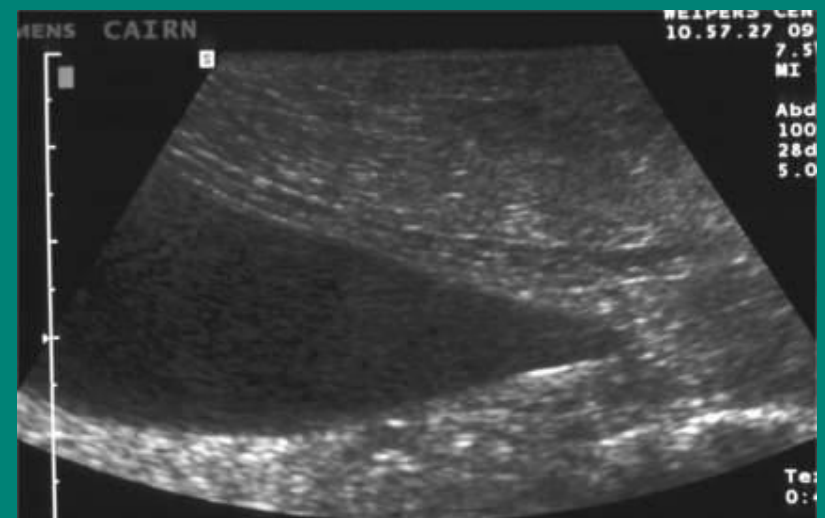| Frequency	Resolution	Depth
7.5 MHz	+++	+
5.0 MHz	++	++
3.5 MHz	+	+++

Urinary bladder

Fluid:

- 99% beam transmitted
- Anechoic / black
- Acoustic enhancement

Urinary bladder - normal

- Must be distended

- Wall 1-2mm thick

- Anechoic contents

- Examine entire organ

- Landmark – prostate

      - uterus

Urinary bladder - contents
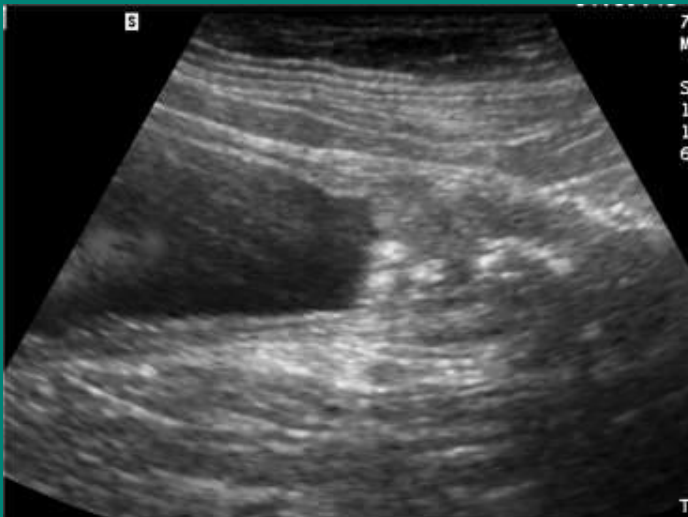
Calculi / sediment:

- Hyperechoic (white) + acoustic shadow (black)

- All types visible

- Mobile

Urinary bladder – wall thickness

- Cystitis
- Polyps
- Tumours
  - Check neck

Prostate

- Pelvic inlet
- Visible entire dogs
- Not always visible in castrated dogs
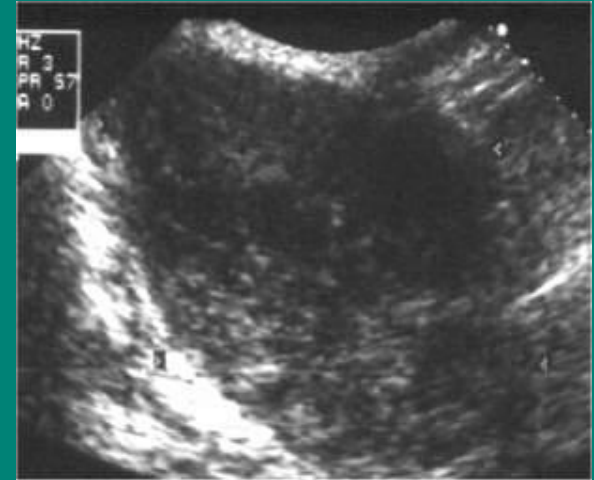
Prostate - size

Benign prostatic hyperplasia (BPH) :

- Large

- Cysts

Prostate - echogenicity

Inflammation:

- Hypoechoic –

  acute inflammation

- Hyperechoic & mottled –

  chronic inflammation

Prostate - architecture
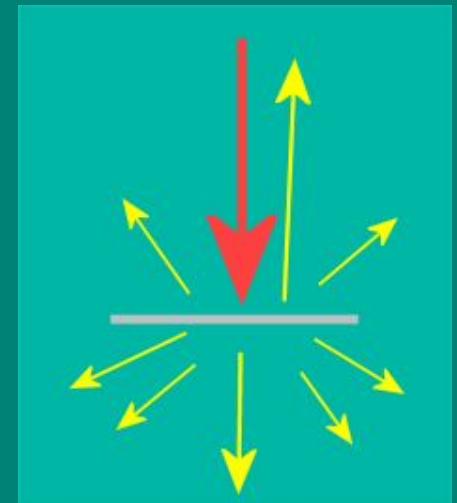
- Chronic inflammation
- Neoplasia

Kidney
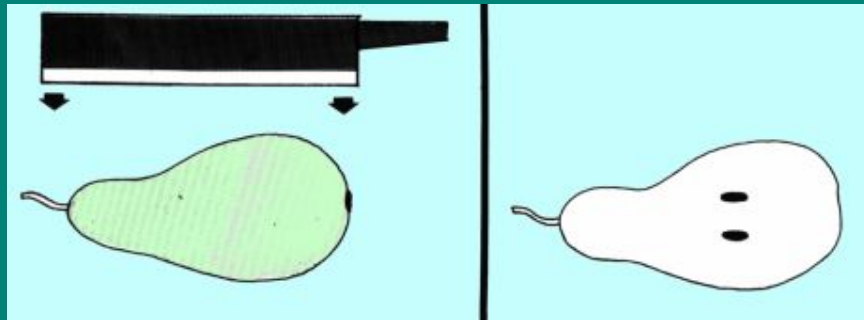

- Cortex

- Medulla

- Pelvis

- Capsule

Soft tissue:

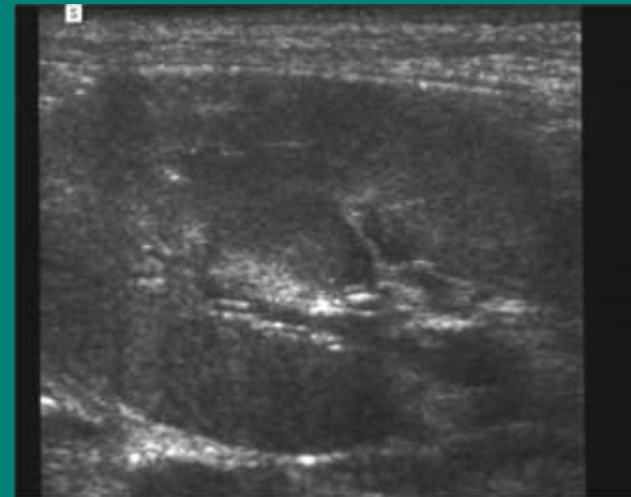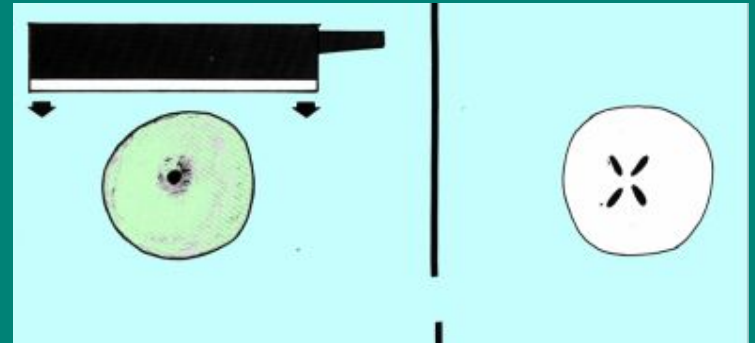- % beam reflected depends on composition

Kidney

- Long Axis
- Short Axis

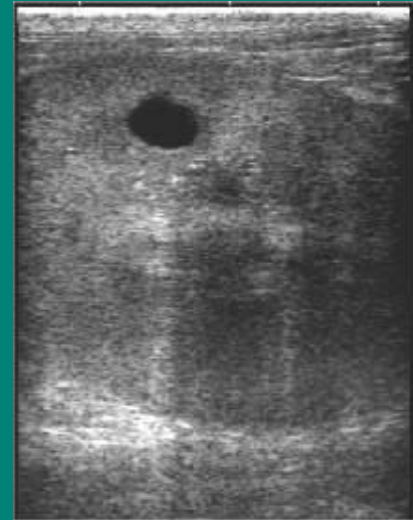# Kidney – pelvic distension

- Hydronephrosis

- Hydroureter

Kidney - echogenicity

Polycystic kidney disease:
- Anechoic cysts

Hyperechoic cortex:
- Increased density of tissue
  – ethylene glyocol
  – neoplasia
  – etc
- Acute renal failure

Kidney - architecture
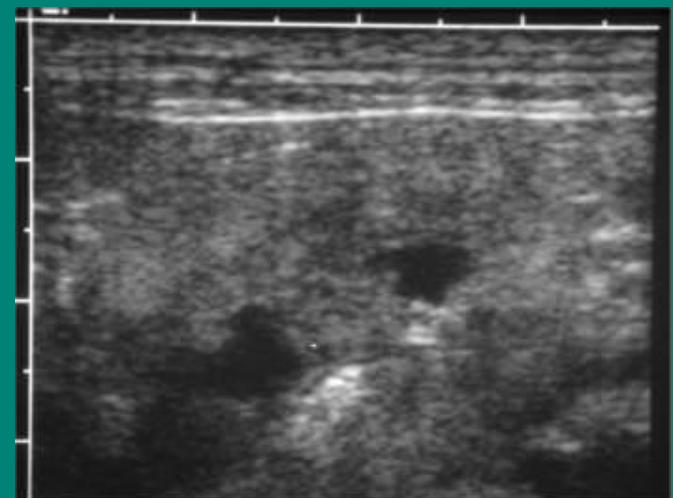
- Chronic inflammation
- Neoplasia

Kidney - size

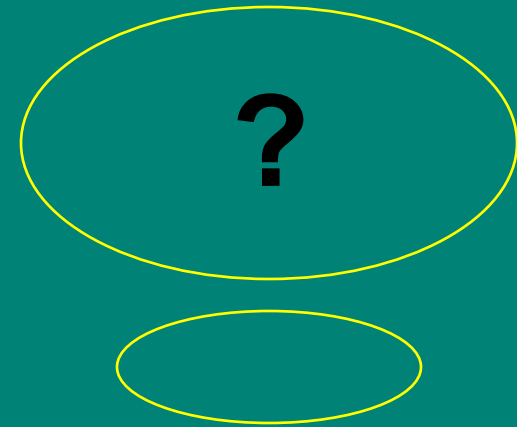- Bilateral symmetry

Chronic endstage kidney:

- Small
- Distorted
- Difficult to locate

Summary

Assess:

- Contents
- Wall
- Size
- Echogenicity
- Architecture

?

Any questions?