



Veterinary Observations of Koala Retrovirus (KoRV)-Associated Disease

Presented by Jon Hanger

Does KoRV cause disease?

- The evidence for the causal role of KoRV in leukaemia and related diseases in koalas is compelling, but circumstantial
- Koch's postulates not fulfilled (? Relevance)
- Statistical analysis may prove association, but not causation
- Difficulties related to prevalence, endogenisation, variability in viraemia, proviral copy number etc

KoRV-Associated Disease (NB Putative only)

- AIDS-like condition:
 - Chronic ill-thrift/poor body condition
 - Stomatitis
 - Mouth/tongue ulceration
 - Gingivitis
 - Severe or generalised dermatitis
 - Severe or life-threatening fungal infection
 - Disseminated cryptococcosis
 - Severe trypanosomiasis
 - Typhlocolitis/caecocolic dysbiosis syndrome
 - Marginal anaemia with lymphopaenia

KoRV-Associated Disease

- Some Cancers/ Bone Marrow Disease:
 - Lymphoma
 - Leukaemia
 - Mesothelioma
 - Osteochondroma
 - Myelodysplasia

Diagnostic investigation

- Full physical examination
- Blood examination
- Bone marrow examination
- Abdominal aspirate examination



Poor Body Condition



Stomatitis



Gingivitis/Periodontal Disease



Mouth/Tongue Ulcers



Typhlocolitis/Caecocolic Dysbiosis



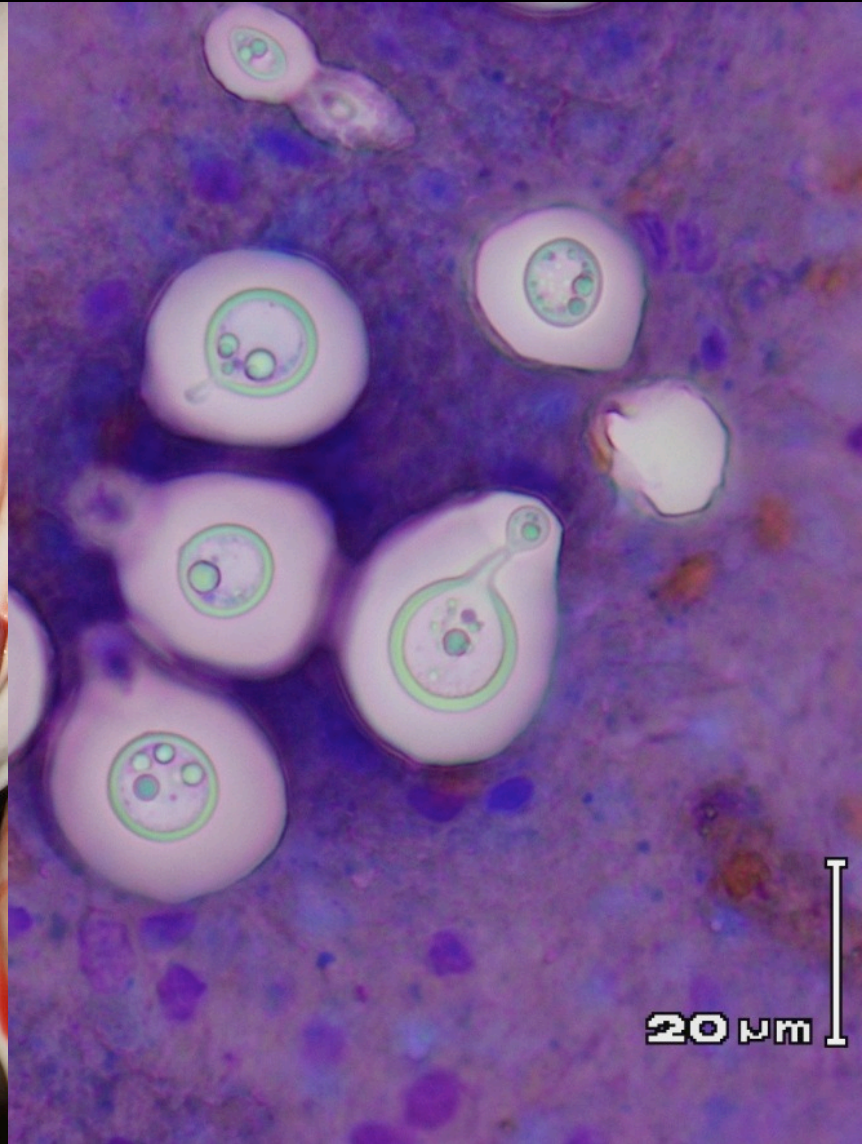
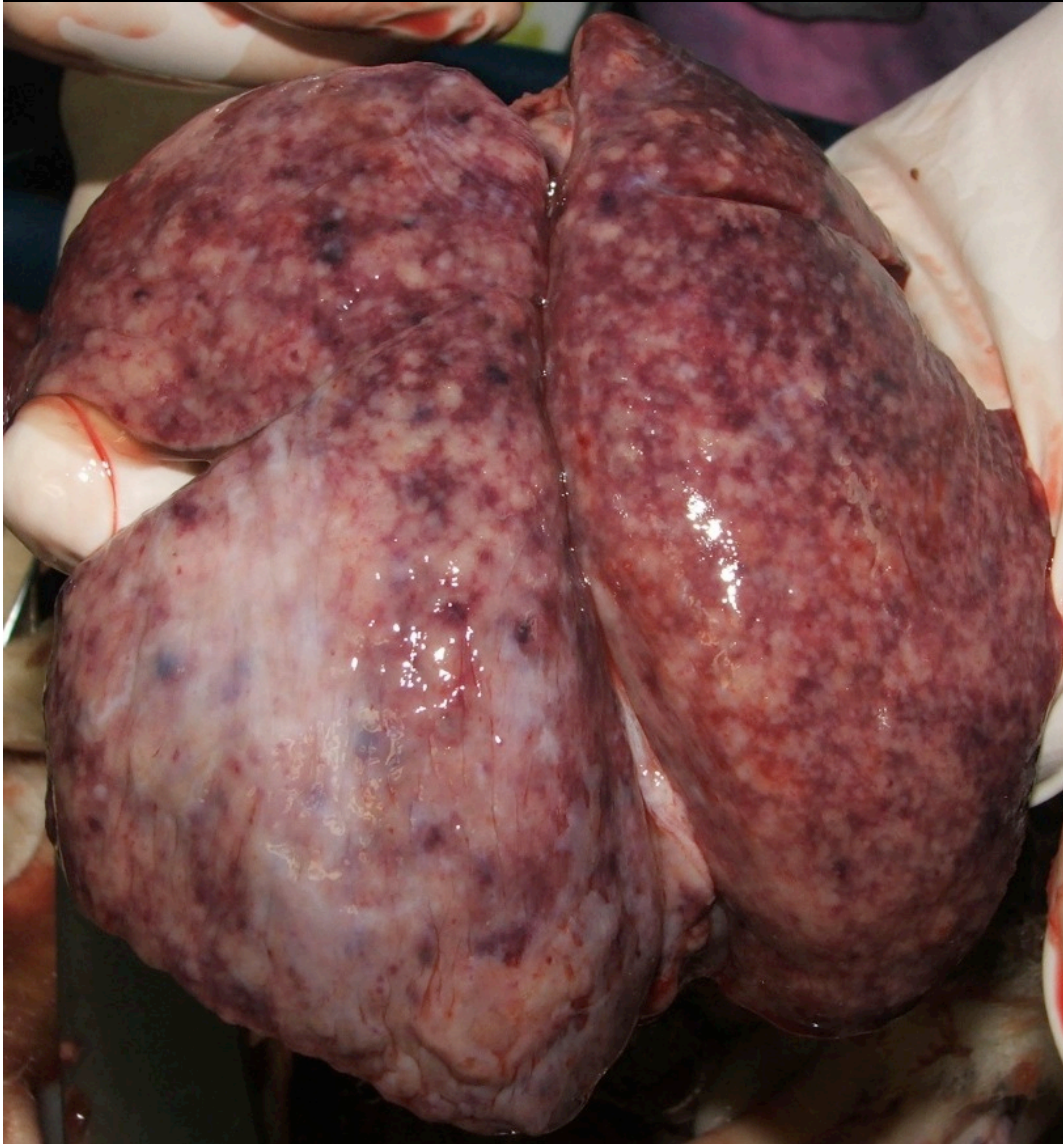
Pyoderma and ulceration



Hyperkeratosis

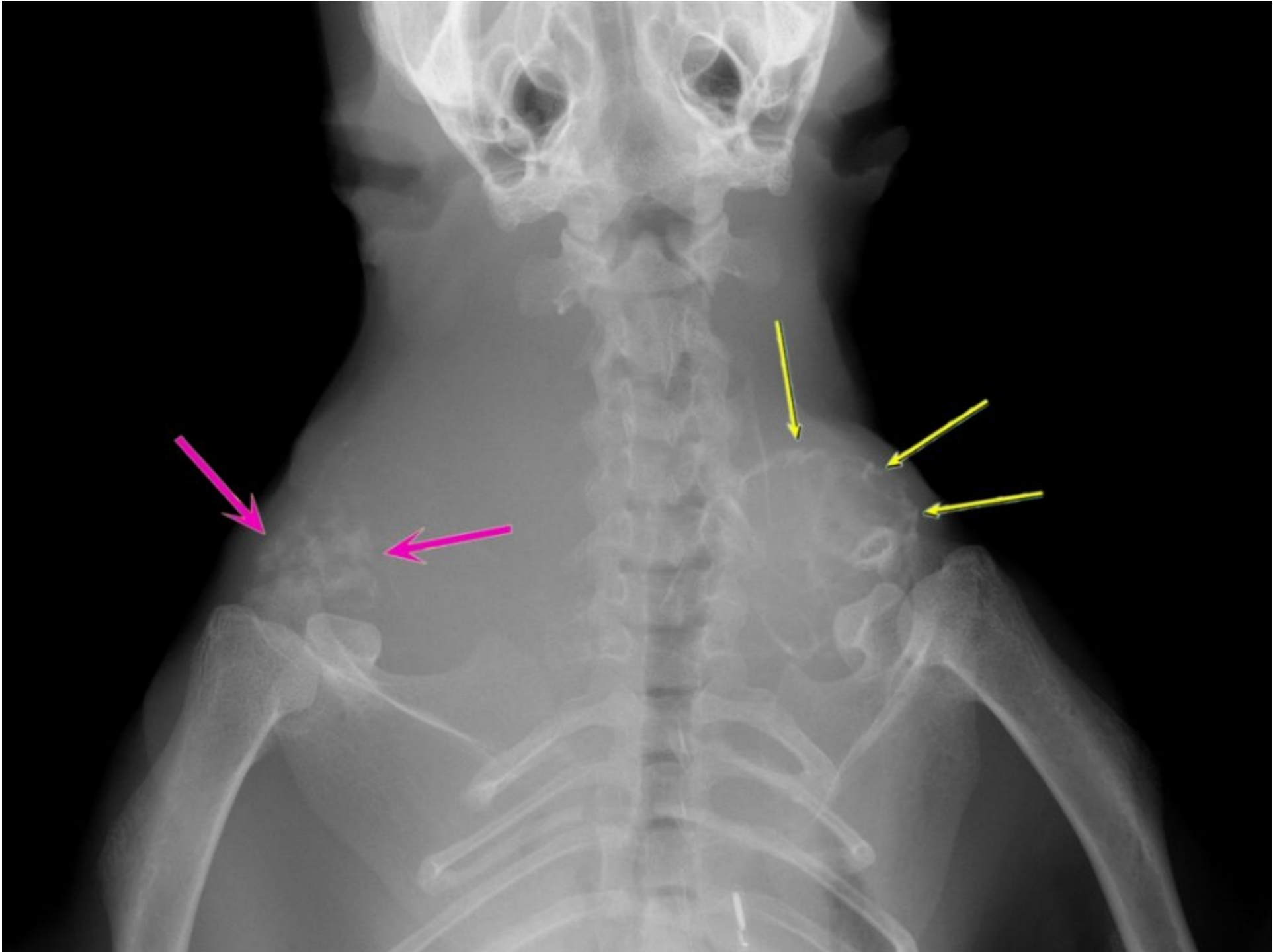


Cryptococcosis

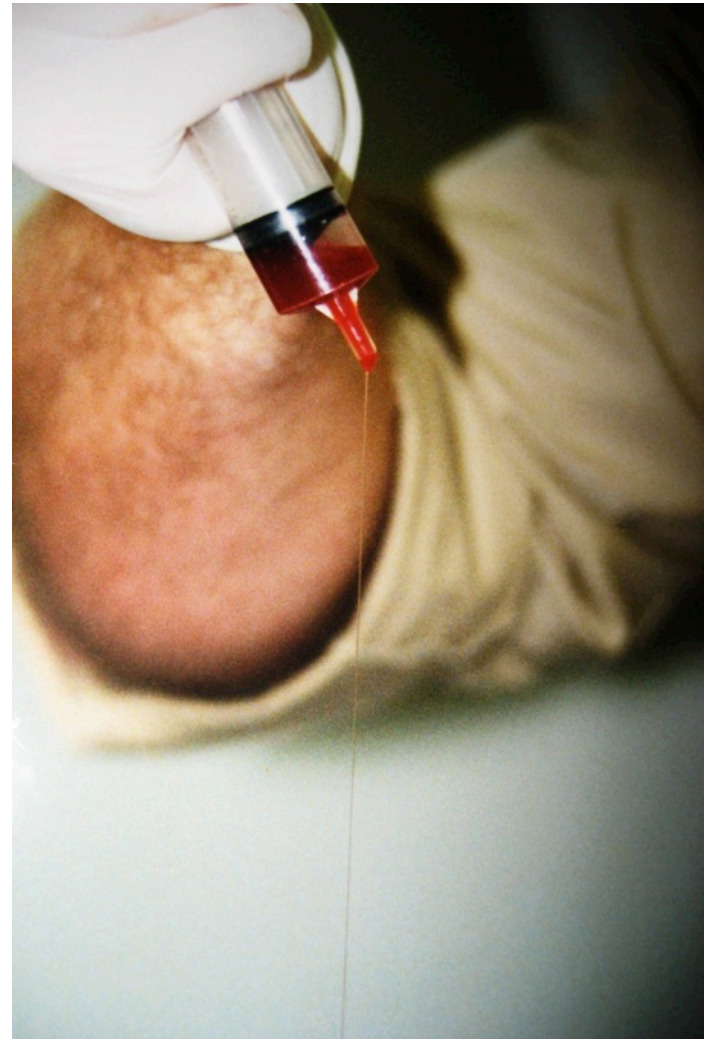
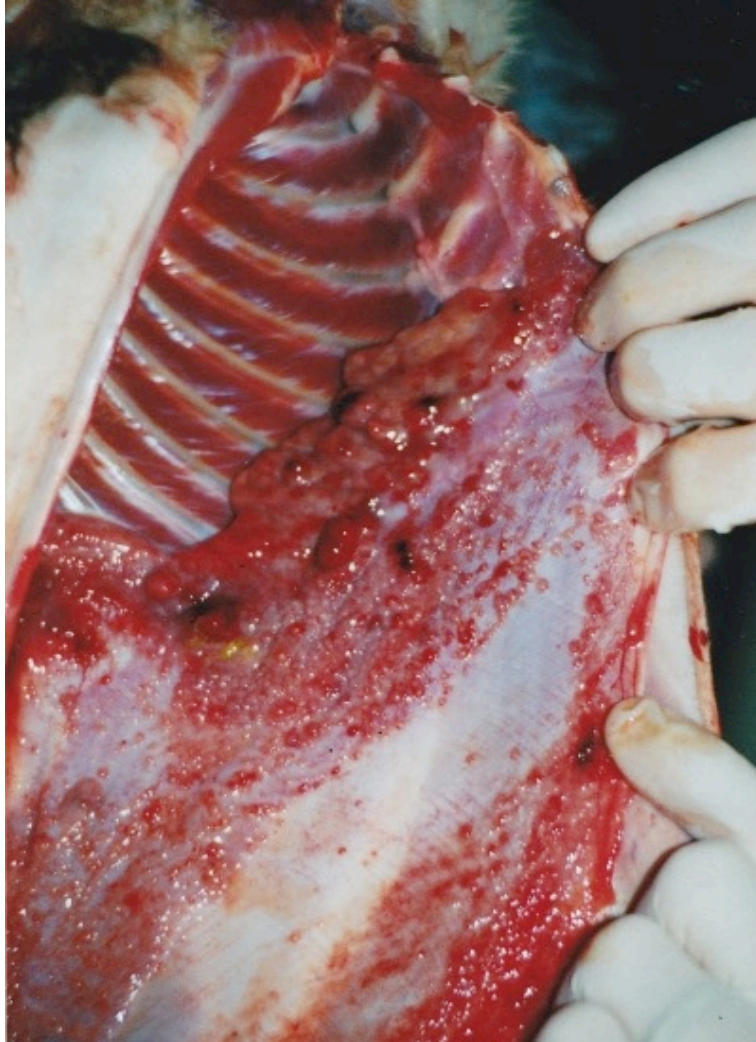


Osteochondroma

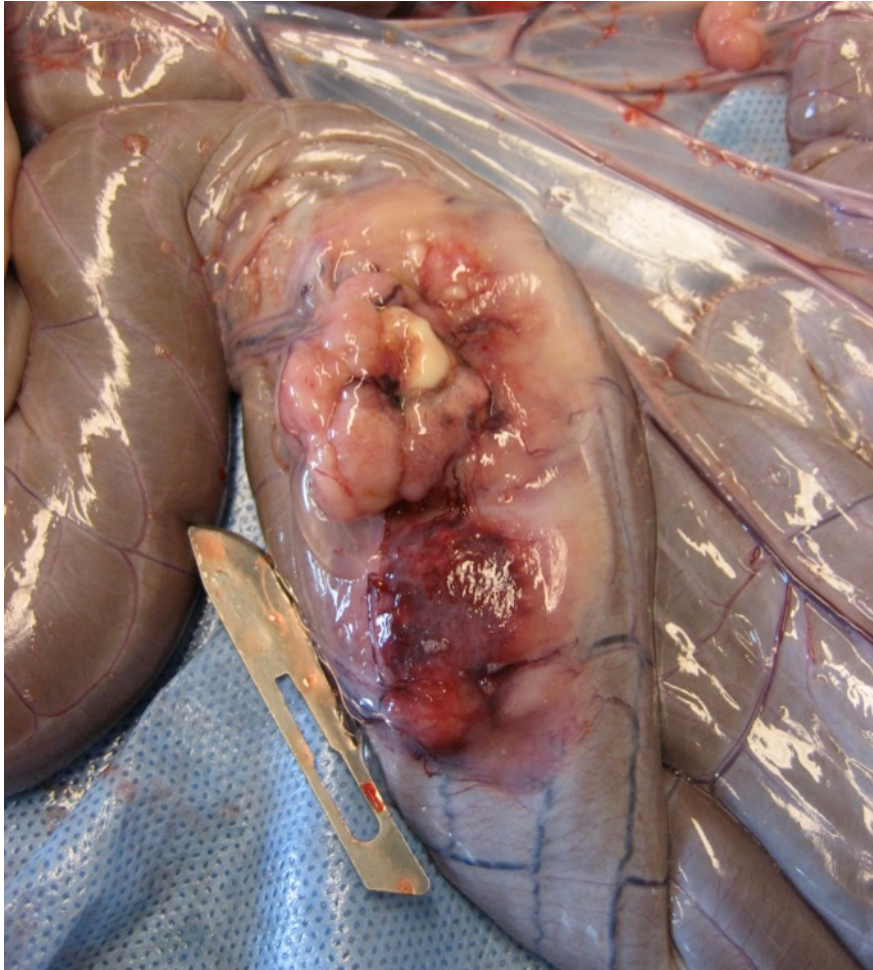




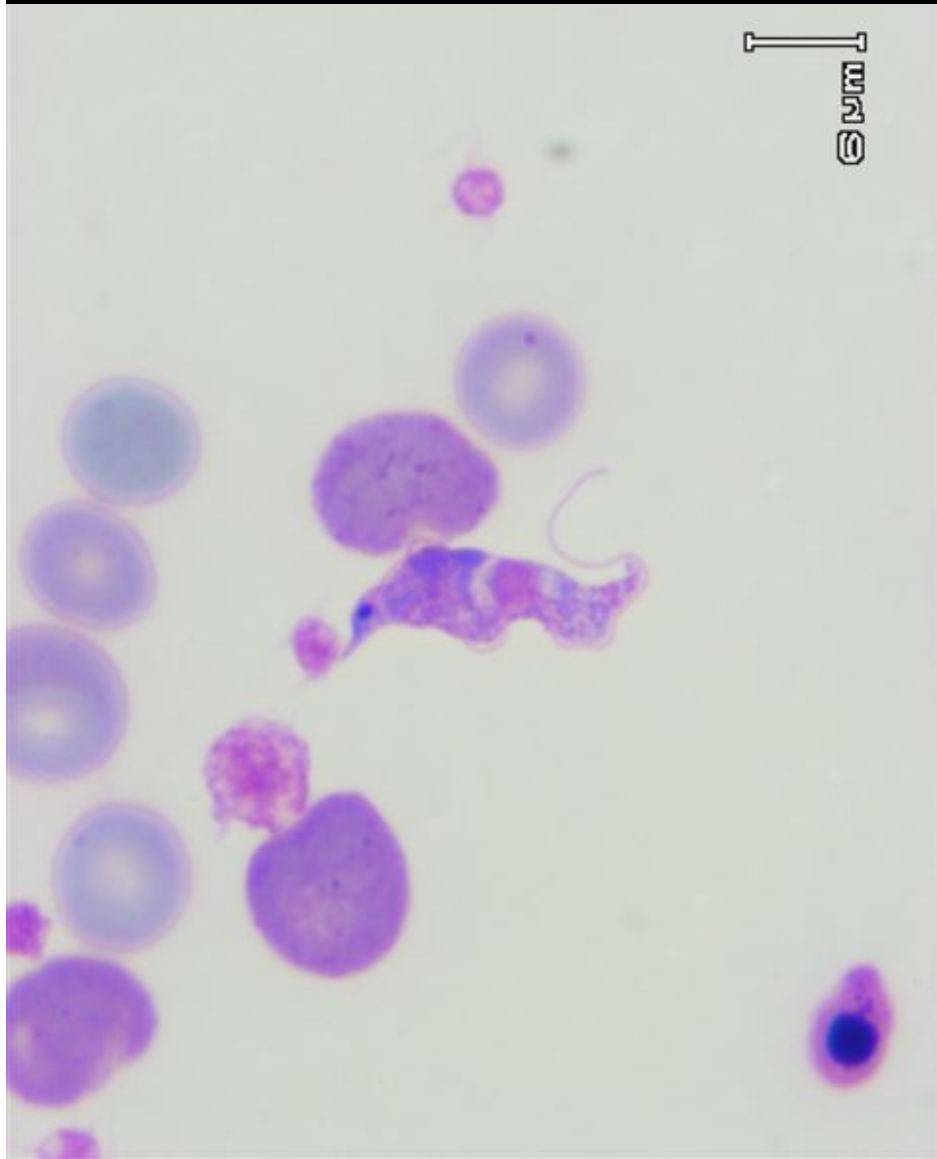
Mesothelioma



Lymphoma



Opportunistic Infections and Severe Chlamydiosis



Disorders of Growth or Cellular Regulation

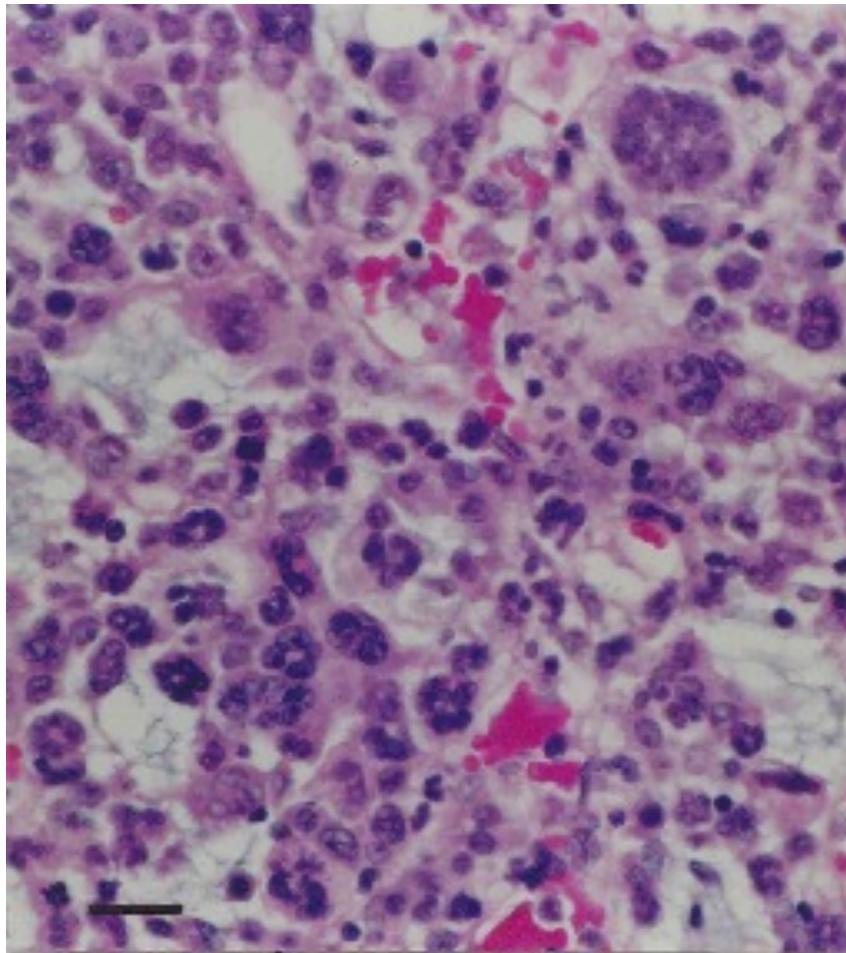
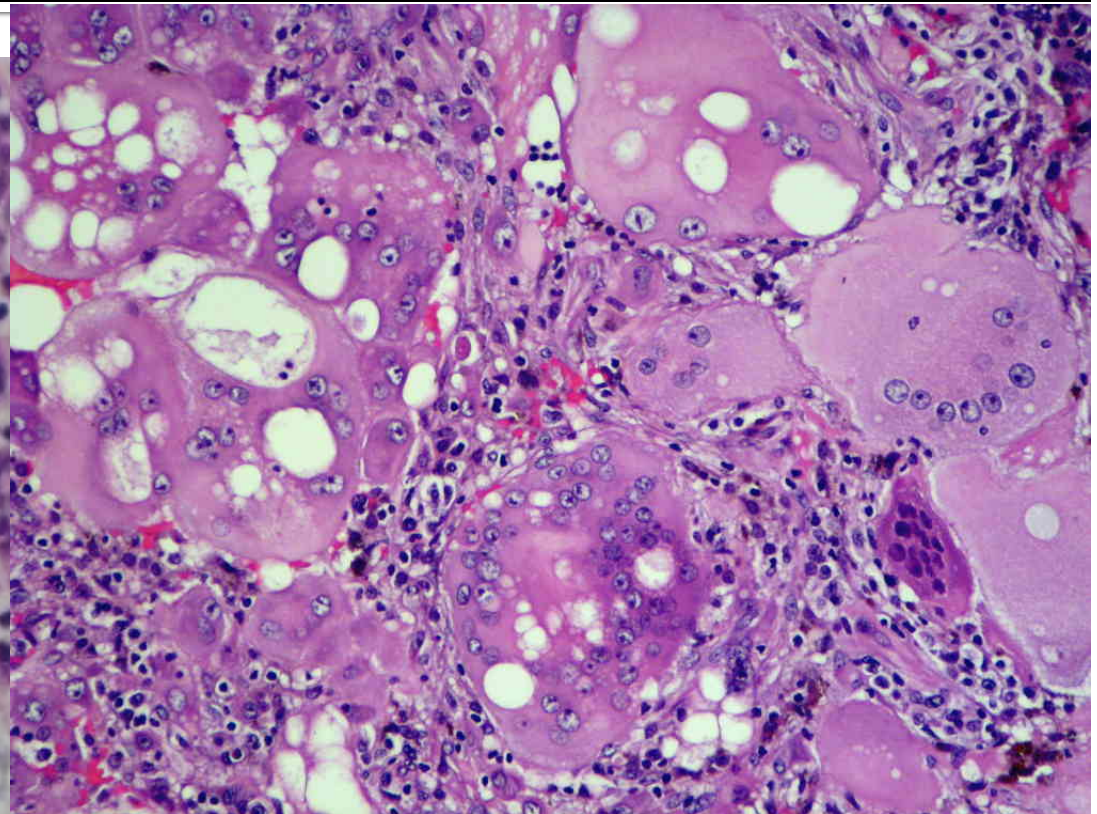


Figure 3.4 F Bone marrow of "Helen".
Tumour of chondro-sarcoma arising in the bone marrow.



Koala "Boris" tumour

Sebaceous Hyperplasia



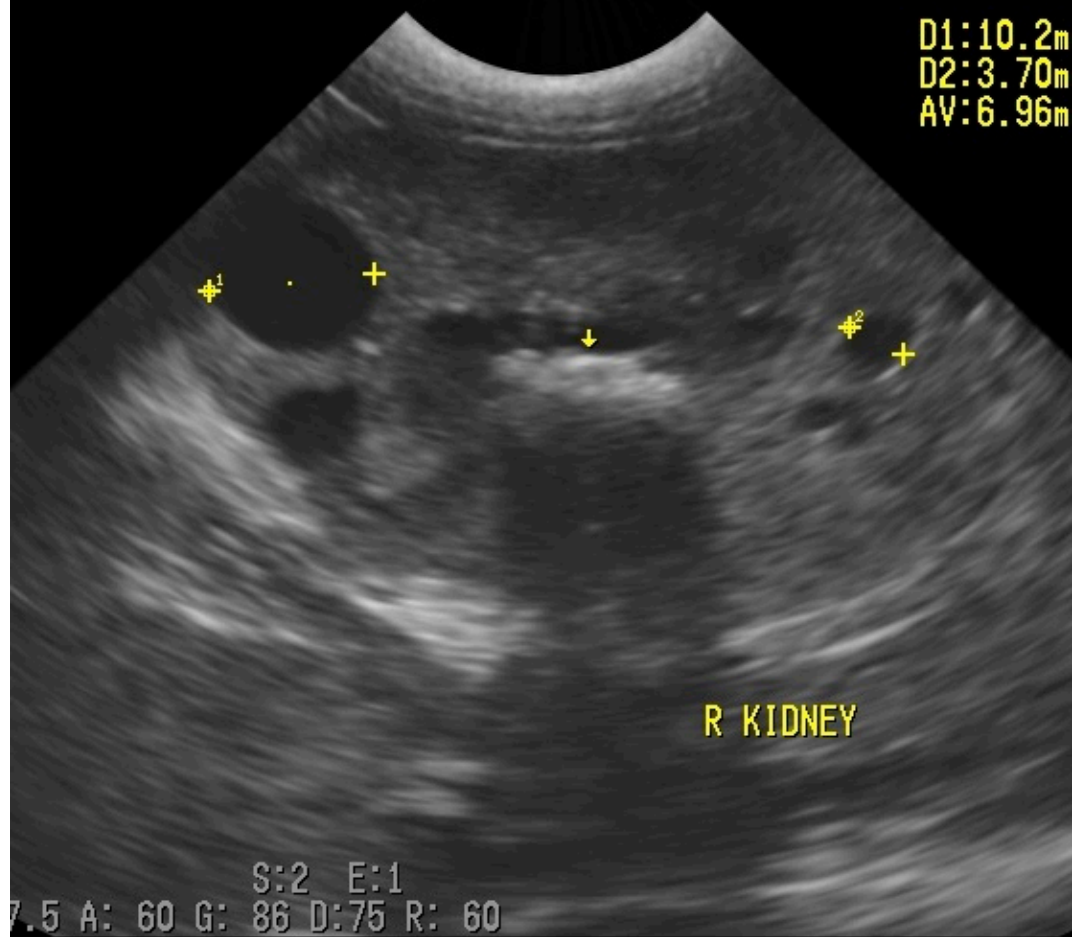
Polycystic Kidney Disease



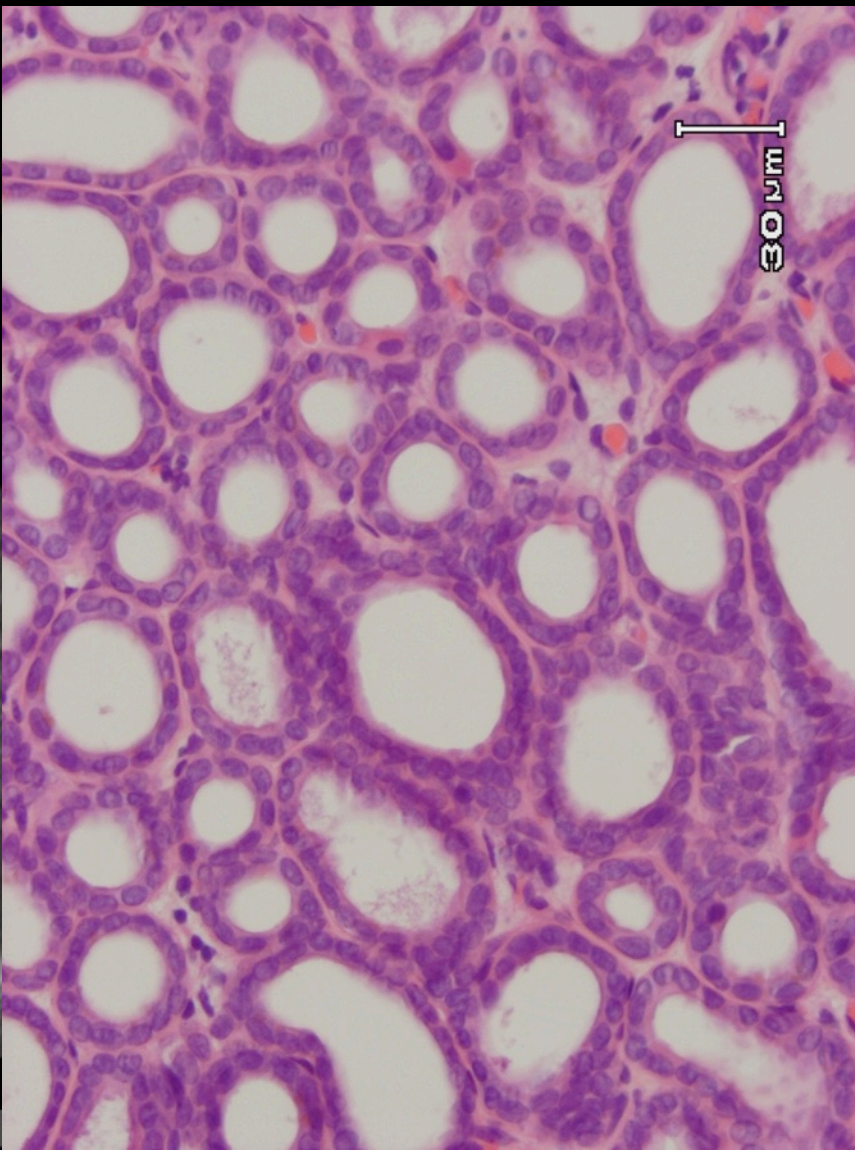
Polycystic Kidney Disease

SONICS HS-2100V ENDEAVOUR VETERINARY ECOLOGY
7:21 ID:22368 NAME:KOALA TOLLIVER

D1:10.2m
D2:3.70m
AV:6.96m



S:2 E:1
7.5 A: 60 G: 86 D:75 R: 60
5712M P2:NONE
3:DHD 4:cHD 5:CHD 6:CHL 7:CTD 8:DGSD 9:EC



Others?

- Congenital deformities
- Diabetes
- Endocrine disorders
- Pouch death of joeys



Questions and Priorities for KoRV Research from a Clinical Perspective

- Thorough review of koala hospital clinical records – better statistics on prevalence
- Does KoRV cause immunodeficiency or modulate immune responses?
- Can we predict KoRV-related disease?
- Can we selectively breed for KoRV disease resistance?
- What is special about healthy old koalas?
- Can we, and/or should we, apply treatments to alter KoRV disease outcomes?
- Is chlamydiosis helping to select for reduced KoRV pathogenicity?