Pregnancy Failure

Ovine and Caprine

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General Approach to Failure of Pregnancy

- Preliminary discussions
  - Is there a public health issue?
  - Is there really a problem?
  - Cost benefit analysis
  - Discuss Quarantine

- Clinical Investigation of FOP
  - Clinical history and interview
  - Take precautions to prevent zoonotic disease
  - **Determine common diseases**
  - **Examine Mother, Fetus and Placenta**
  - **Diagnostic testing**
  - Final diagnosis
  - Treatment or recommendations.

Small Ruminant

- Infectious causes are more common in the list of diagnoses
- CCC and T: *Chlamydia, Coxiella*, *Campylobacter* and *Toxoplasma*
- *Chlamydia* and *Coxiella* are zoonotic.

Ovine Abortion*

No Diagnosis	48
Noninfectious	2
Infectious	50
Chlamydia abortus	17
Campylobacter	4
Toxoplasma gondii	19
Coxiella burnetii	5
Virus (Cache Valley)	1

* Animal Health Laboratory, University of Guelph

Goats

No diagnosis	52
Noninfectious	4
Infectious	40
• *Coxiella burnetii*	13
• *Chlamydia abortus*	9
• *Toxoplasma gondii*	9
• Bacteria	3

Goats

- *Coxiella* especially important
- Goats are susceptible to ‘stress’ and luteolysis

Disease of the Ovine and Caprine Fetus

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Fetal lesions

- Cyclopia
  - *Veratrum californicum* (d14)
- Arthrogryposis*
- Anencephaly
  - *Cache Valley orthobunyavirus*
- Hepatic necrosis
  - *Regions - Campylobacter*
    - *C. jejuni, fetus fetus,* and *fetus venerealis*
  - Multifocal necrosis – *Listeria monocytogenes*

Photo complements of Pathologic Basis of Veterinary Disease

Cyclops – greek word
Arthros = joint
Gryposis = abnormal curvature
An = no
Encephaly – brain

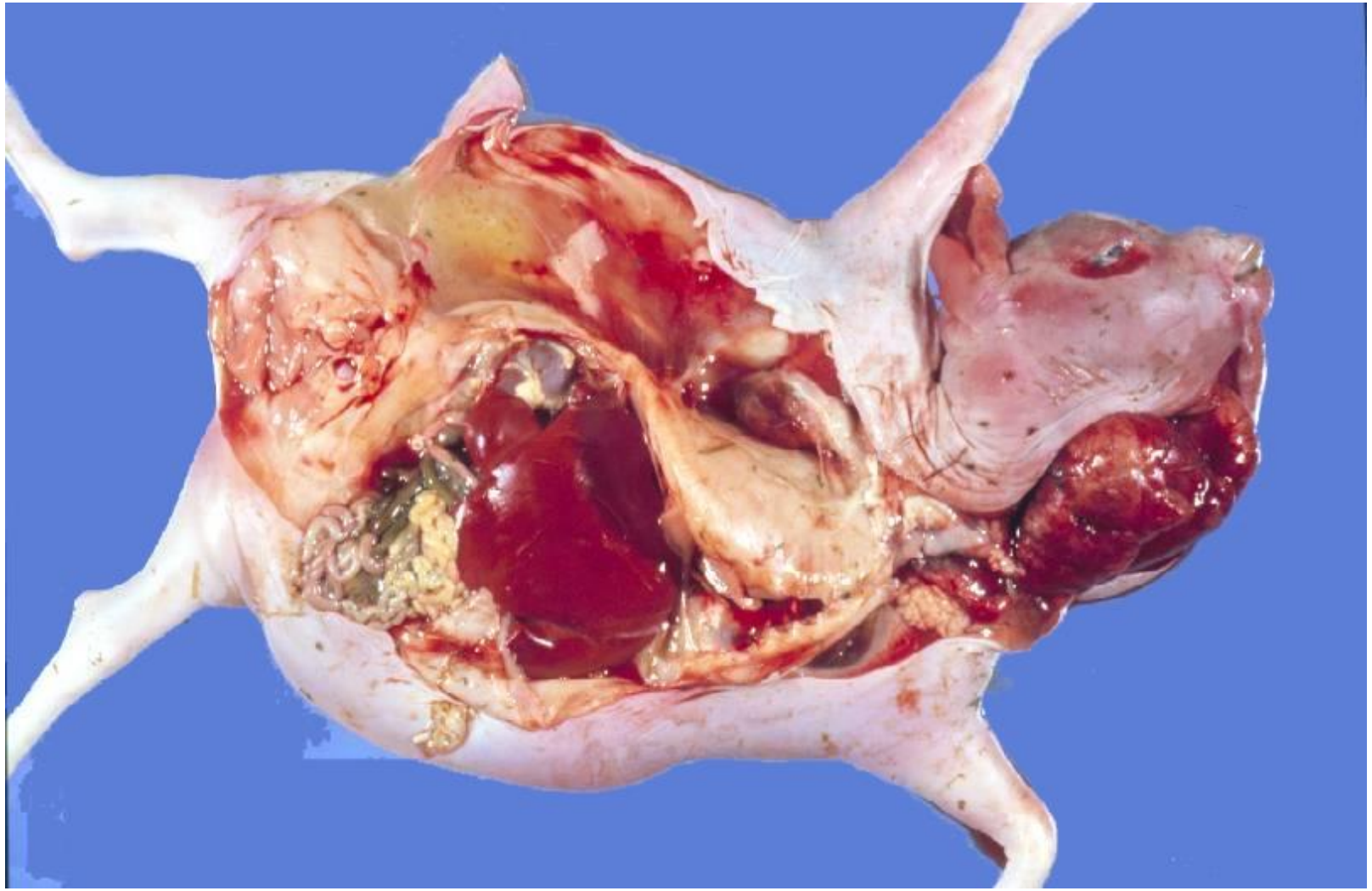
Fetal lesions

- Cyclopia
- Arthrogryposis
  - *Orthobunyavirus cacheense*

  *(*Cache Valley virus)
- Hepatic necrosis
  - *Large multifocal*
    - *Campylobacter, C. jejuni, fetus fetus, and fetus venerealis.*
    - *Helicobacter sp*
  - Small multifocal
    - *Listeria monocytogenes*

Iodine deficiency

Goitre
Myxedema of skin
Alopecia



Disease of Ovine and Caprine Placenta

Chronic placentitis (CCC)

Focal necrosis in cotyledon (toxoplasmosis)

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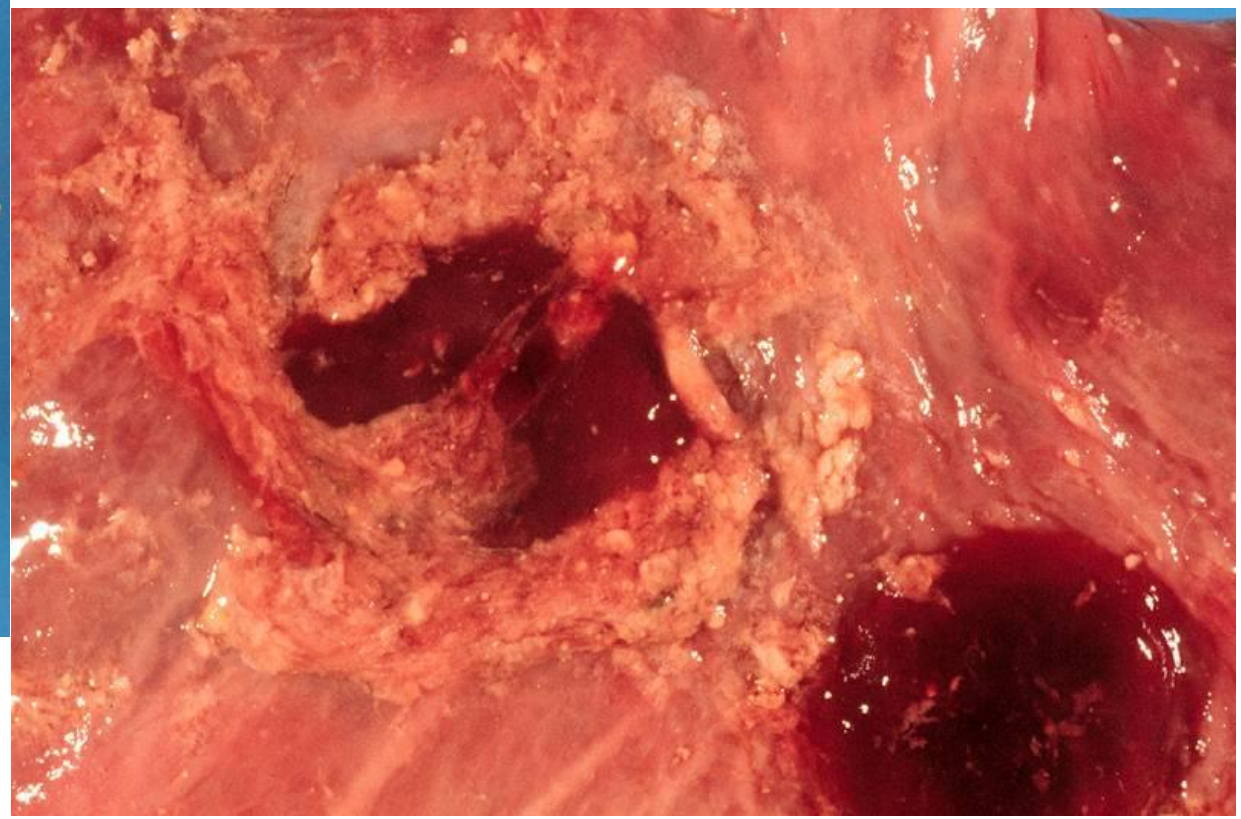
Placental Lesions: Chronic placentitis
The 3 Cs



Pathogenesis of Placentitis

- Exposure of mucous membranes
- Local proliferation
- Bacteremia
- Localize in endometrium/placenta, fetomaternal interface.
- Trophoblasts around placentome especially infected
- Logarithmic growth of organism
- Necrosis, neutrophilic inflammation
- Failure of pregnancy

- Incubation
  - *Coxiella* -
  - *Chlamydia* – 50-90 days
  - *Campylobacter* – 7-60 days

Chlamydia Herd/flock history naive herd

- Incubation = 50-90 days
- Immunity only when abort

- Small ruminant gestation is about 150 days

- First year - replacements abort
- Next year – storm with up to 75% loss
- Following year enzootic – ewe lambs

Coxiella burnetii

- Highly resistant to physical and chemical agents, and has ‘endospores’.
- Highly infective in dried state – barns persistently infected for years
- Clinical systemic disease in humans only
- Carrier goats, cattle, sheep, cats, birds and other wildlife
- Shed in urine, faeces, milk, uterine discharge, but usually in parturient period.
- Triggers for multiplication and shedding not known.

Placental Lesions: Focal necrosis in cotyledons

Toxoplasma gondii

Toxoplasma gondii

- Cat – rodent lifecycle
- Cat sheds oocyts for 7 days post infection
- Herbivores infected from contaminated feed – stored and pasture
- Adults develop immunity
- Infection during pregnancy
  - Placental and fetal infection
  - Abortion with characteristic lesions, mummification, stillbirth, weak lambs

Toxoplasma gondii

- Control
  - Control cats and rodents
  - No kittens, have cats use litter
  - Feral cats and contaminated feed problematic

Regionally important diseases

Others

- *Brucella ovis* (not zoonotic)
- *Pestivirus ovis* (Border disease virus: related to BVDV)
- *Pestivirus bovis* and *Pestivirus tauri* (BVDV)
- *Orthobunyavirus schmallenbergense* (Schmallenberg virus) *orthobunyavirus*
- Iodine deficiency (Great Lakes basin)
- *Wesselbron virus*
- *Phlebovirus riftense* (Rift Valley fever virus; zoonotic)
- *Brucella melitensis* (zoonotic - Mediterranean fever)