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MOST COMMON DISEASES of BACKYARD flocks

**Silvia Carnaccini
DVM**

**California Animal Health and Food Safety Laboratory System, Turlock
Branch, School of Veterinary Medicine
University of California, Davis.**



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Thanks to:

Dr. Gabriel Senties

Dr. Bruce Charlton



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Animal Health & Food Safety

Laboratory System

School of Veterinary Medicine
University of California



Mission

To provide the citizens of California with the
highest quality of diagnostic laboratory support.

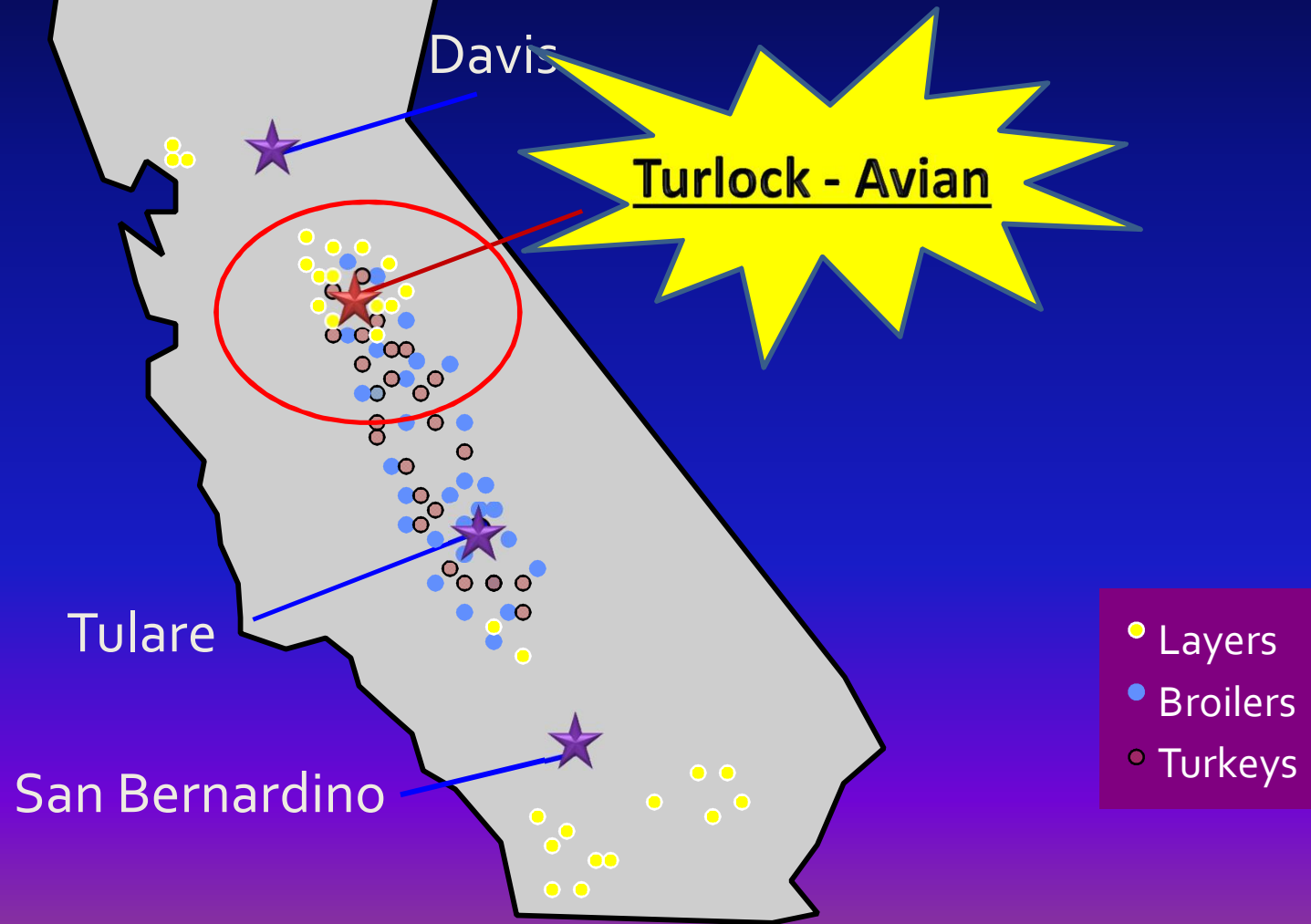


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California Animal Health & Food Safety Laboratory System





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Why we should know each other better?

- ✓ All the backyard submissions
(flocks under 1000 birds) are for **FREE**.
- ✓ You get to know:
- ✓ **why** your pet died.
- ✓ if your flock is healthy.
- ✓ if there is a potential risk
for your family or human consumption.

...while we monitor for epidemic diseases.



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BY flocks in California (2002)

BY

LAYERS

BROILERS

TURKEYS





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FENCE

OUTSIDE THE FENCE

APPROPRIATE FOOD

WATER AD LIBITUM



VIRUS

BACTERIA

PARASITES

TOXICS

STRESS

TEMPERATURE

LITTER/SOIL

VENTILATION



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> BIOSECURITY <

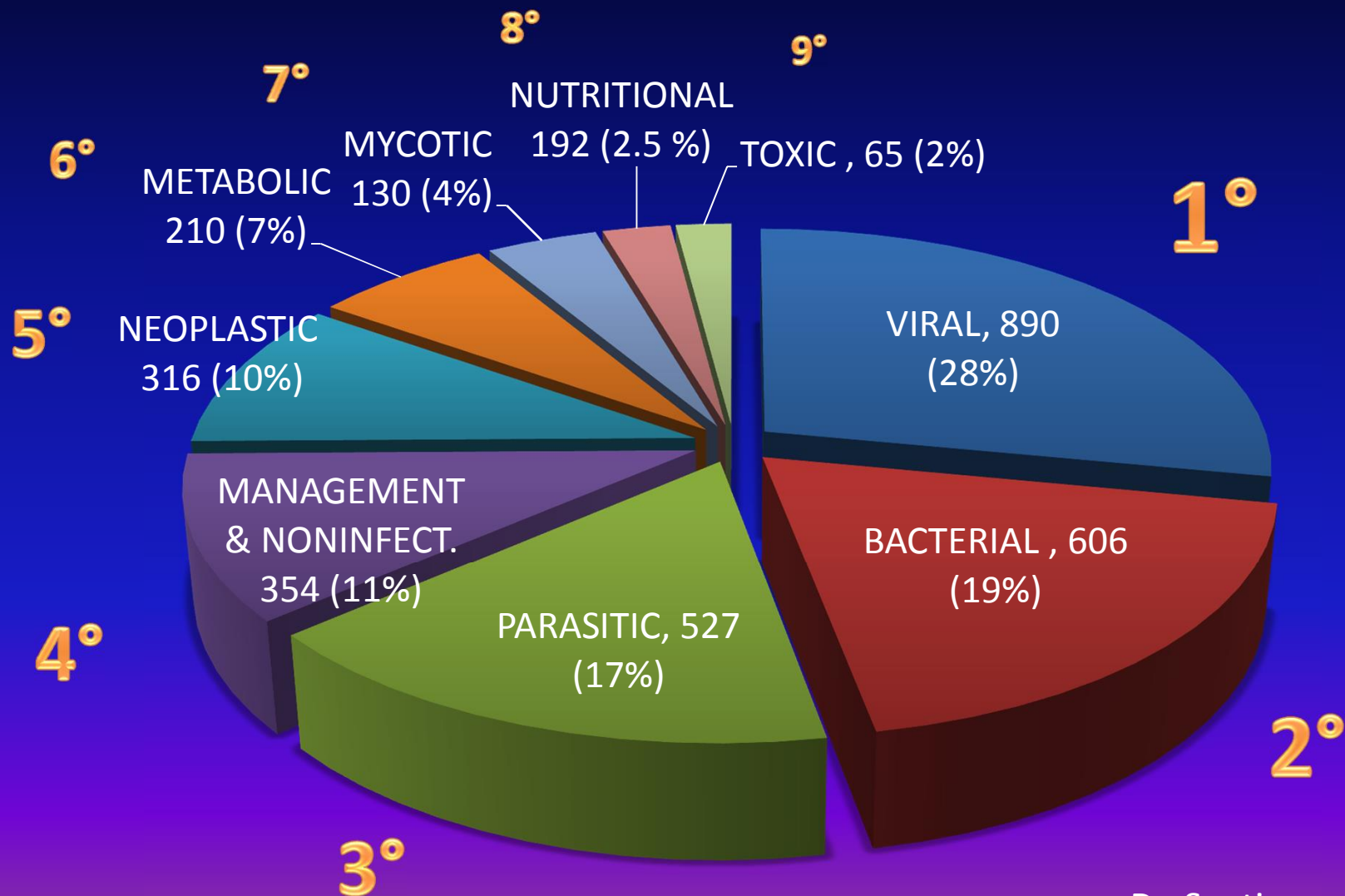
KEEPING THE FLOCK HEALTHY AND "FREE" FROM INFECTION WOULD
BE THE IDEAL.
BUT IF SOMETHING GOES WRONG:

The first step is to recognize the problem ASAP!

So you can intervene and save your flock before it is too late.



Frequencies and Percentages of Diagnoses by Etiological Types



Dr. Senties courtesy



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Top 10 Avian Diseases in Backyard flocks for 2013:

1. Marek's Disease
2. Ovarian and oviduct tumors
3. Fatty liver/hemorrhagic syndrome
4. Carcinomatosis
5. Salpingitis (E.coli and other bacteria)
6. Coccidiosis
7. Lymphoid Leucosis
8. Gout
9. Septicemia (bacterial)
10. Respiratory diseases (bacterial)



NEOPLASTIC DISEASES



VIRAL ETIOLOGY

- ❖ MAREK'S DISEASE
- ❖ L/S GROUP:
 - LYMPHOID LEUKOSIS
 - MYELOID LEUKOSIS
 - ...(many others)
- ❖ RETICULOENDOTHELIOSIS
- ❖ NON-LYMPHOID TUMORS
(many)

UNKNOWN ETIOLOGY

- ❖ OVARIAN CARCINOMA
- ❖ OVIDUCT CARCINOMA
- ❖ NEPHROBLASTOMA
- ❖ HEMANGIOSARCOMA
- ❖ FIBROSARCOMA
- ❖ ...(many others)

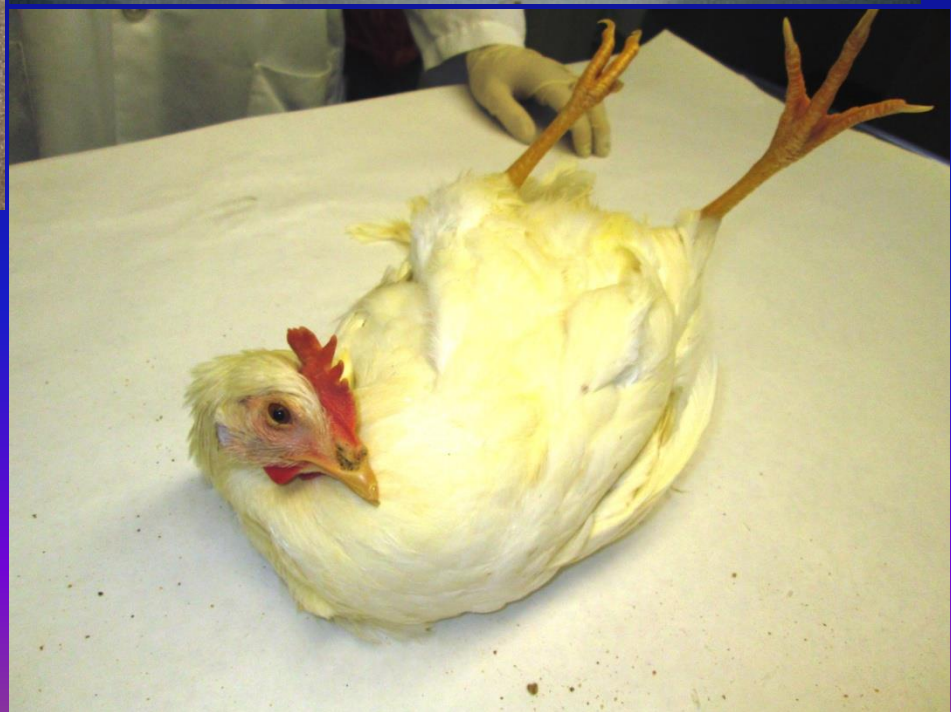


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AREK'S DISEASE





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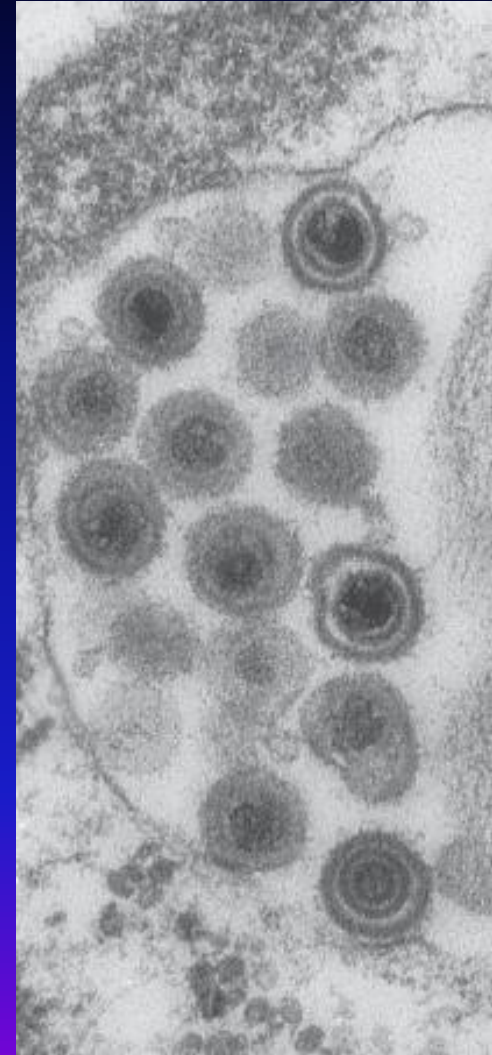
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AREK'S DISEASE

Etiology: VIRAL.

- **Herpesvirus**
- Envelope (sensitive to many disinfectants and detergents)
- It causes a lymphoproliferative disease (T cell Lymphoma).
- Immunodeficiency (atrophy and death of Immune System cells).
- Latency





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IBLA REK'S DISEASE

- **Chickens, quails, and turkeys.**
- **All ages.**
- **Orizontal transmission.**

- **The infection is for LIFE.**
 - the virus can activate any time and causing the disease.
 - The virus activate easily in presence of stress, new ñnaiveö birds, etc.
 - The birds shed intermittently (feather shafts).

- **Tropism for the NERVOUS SYSTEM.**



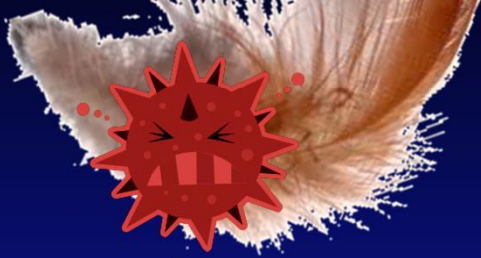
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Marek's Disease pathogenesis

Day 0: Infection.



ATCHOO
!!!



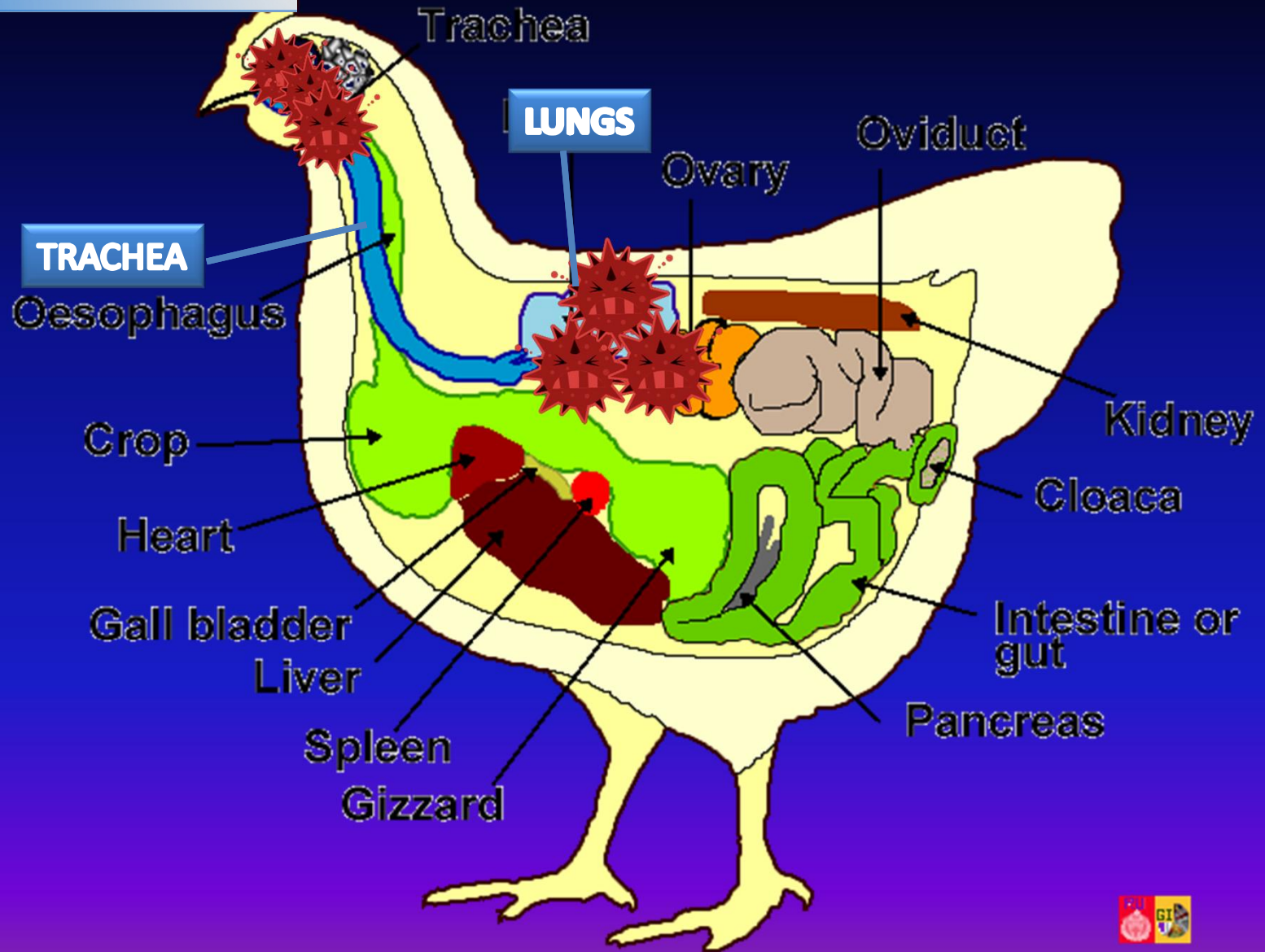


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1. Early Replication in lungs.



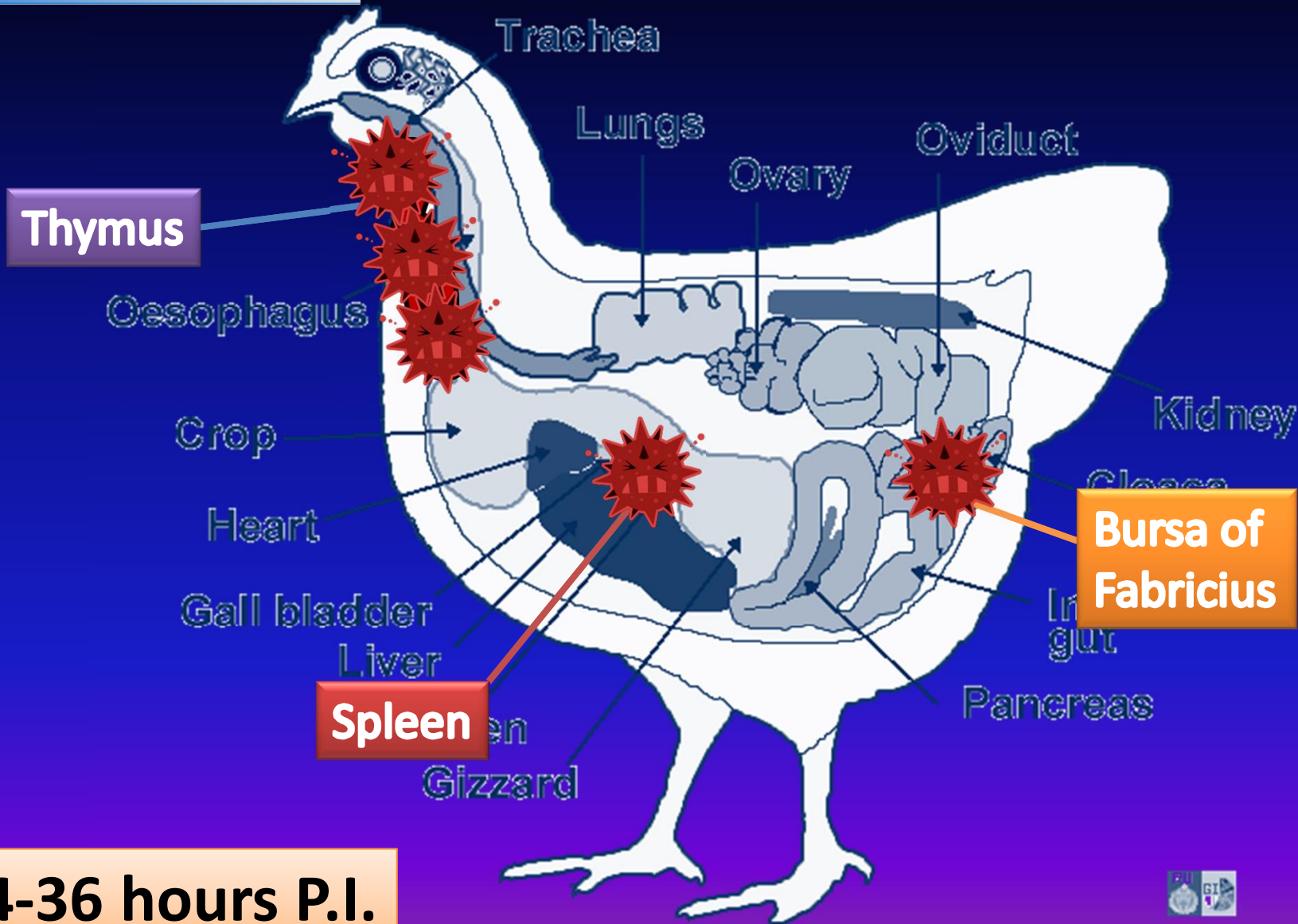


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lytic fase: Immunodepression.



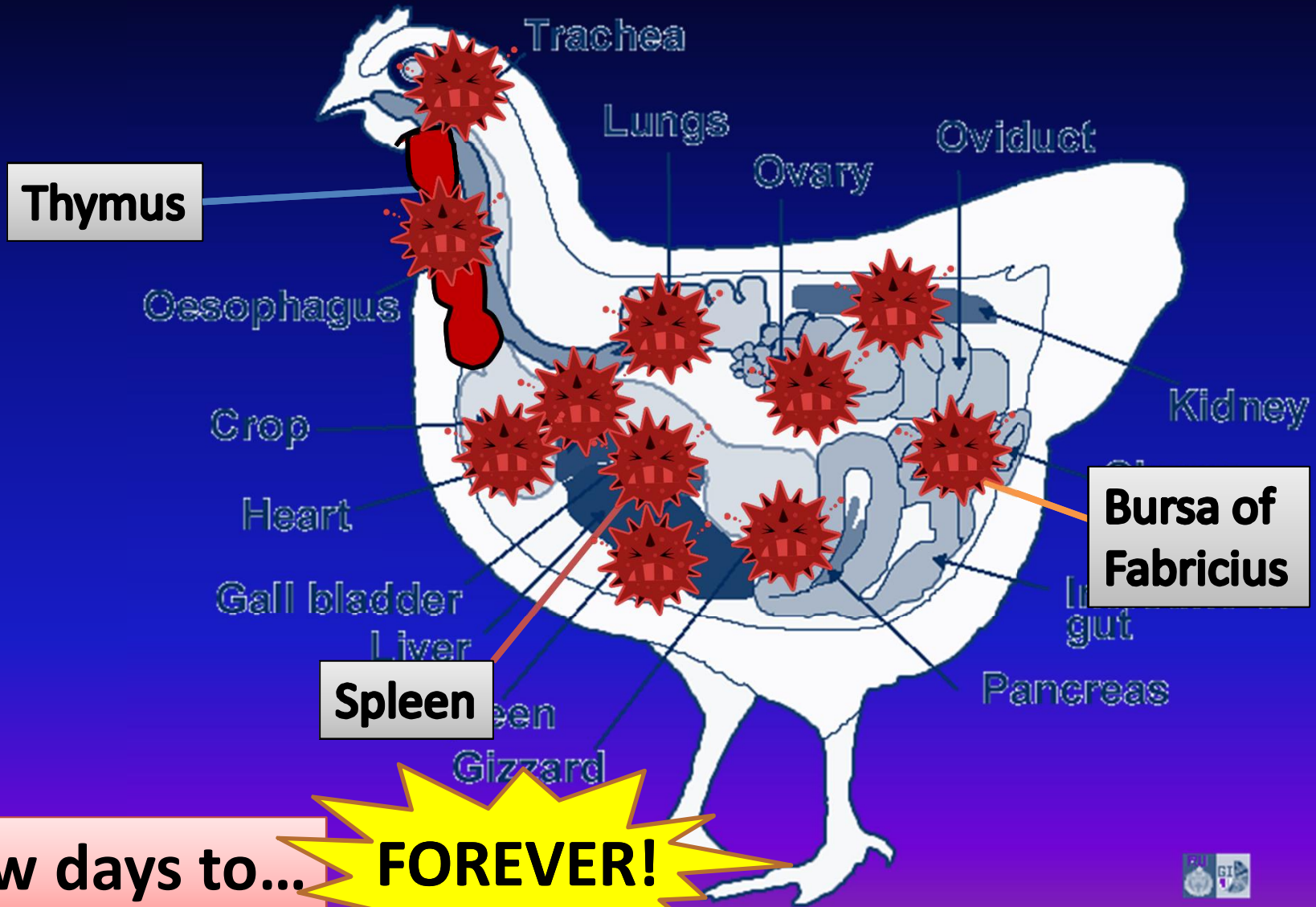


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Phase: development of immune response.





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Maturation in the Feather follicles and second Cytolytic fase.





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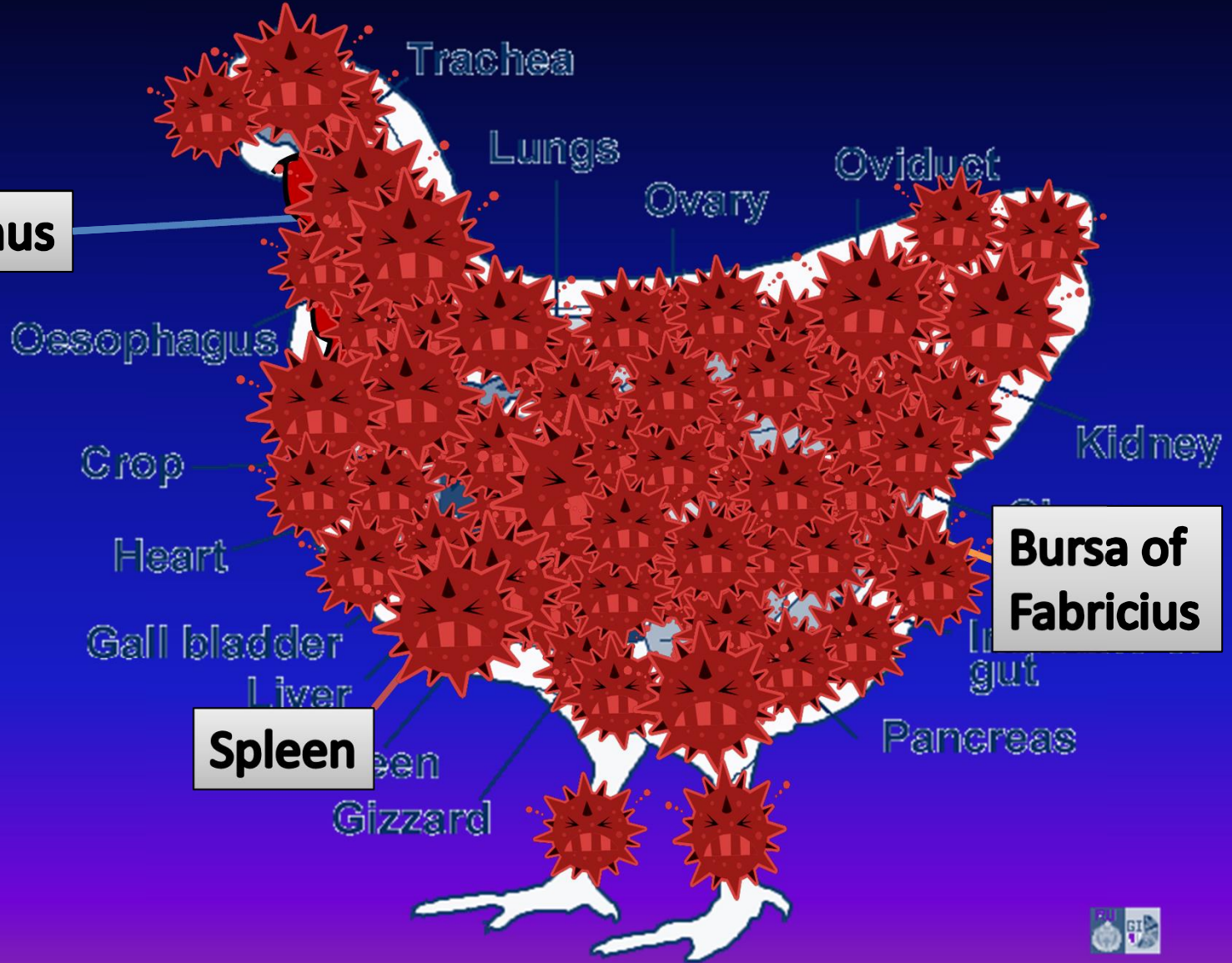
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Immune system development.

From 20 days and up.

Thymus

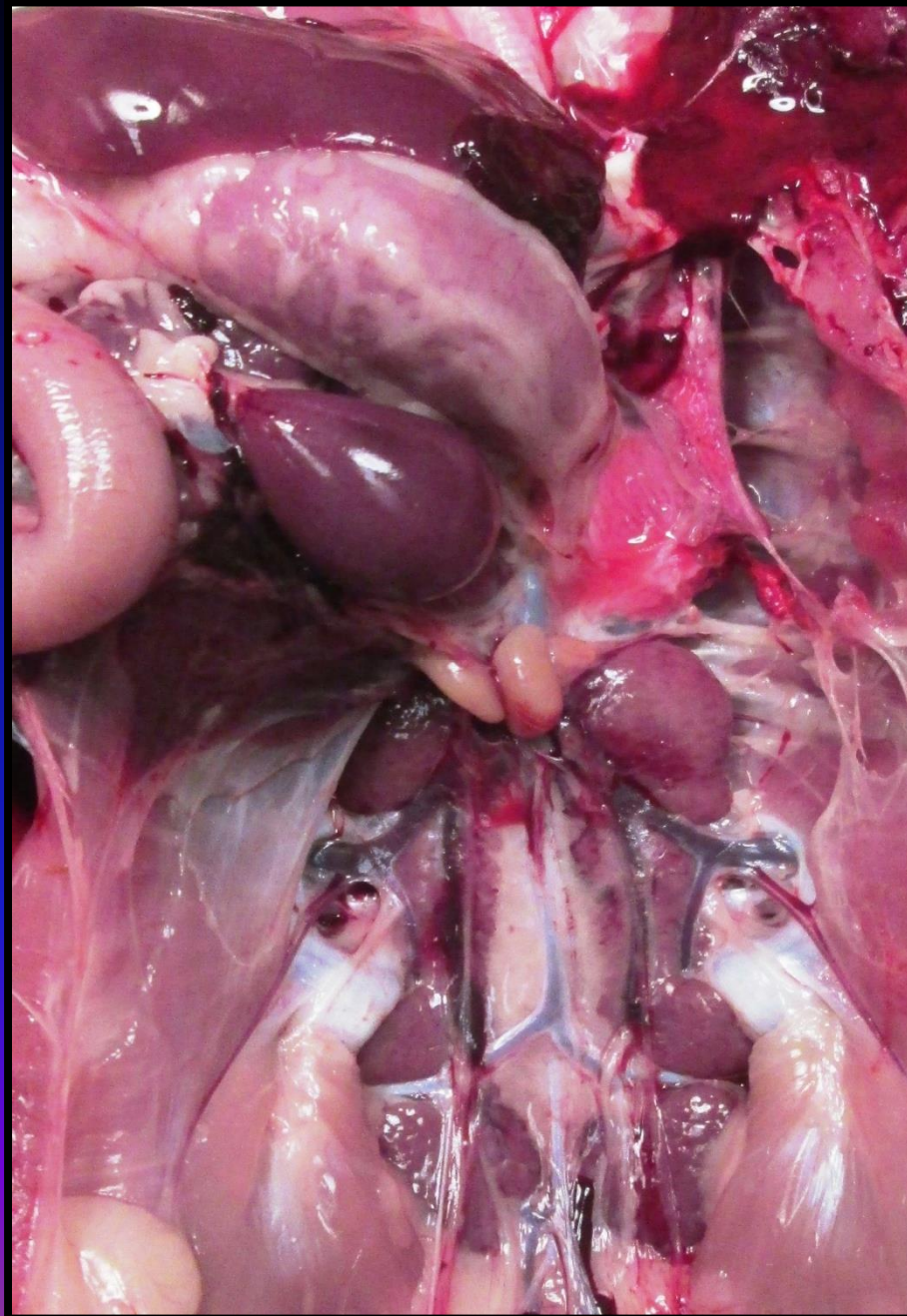
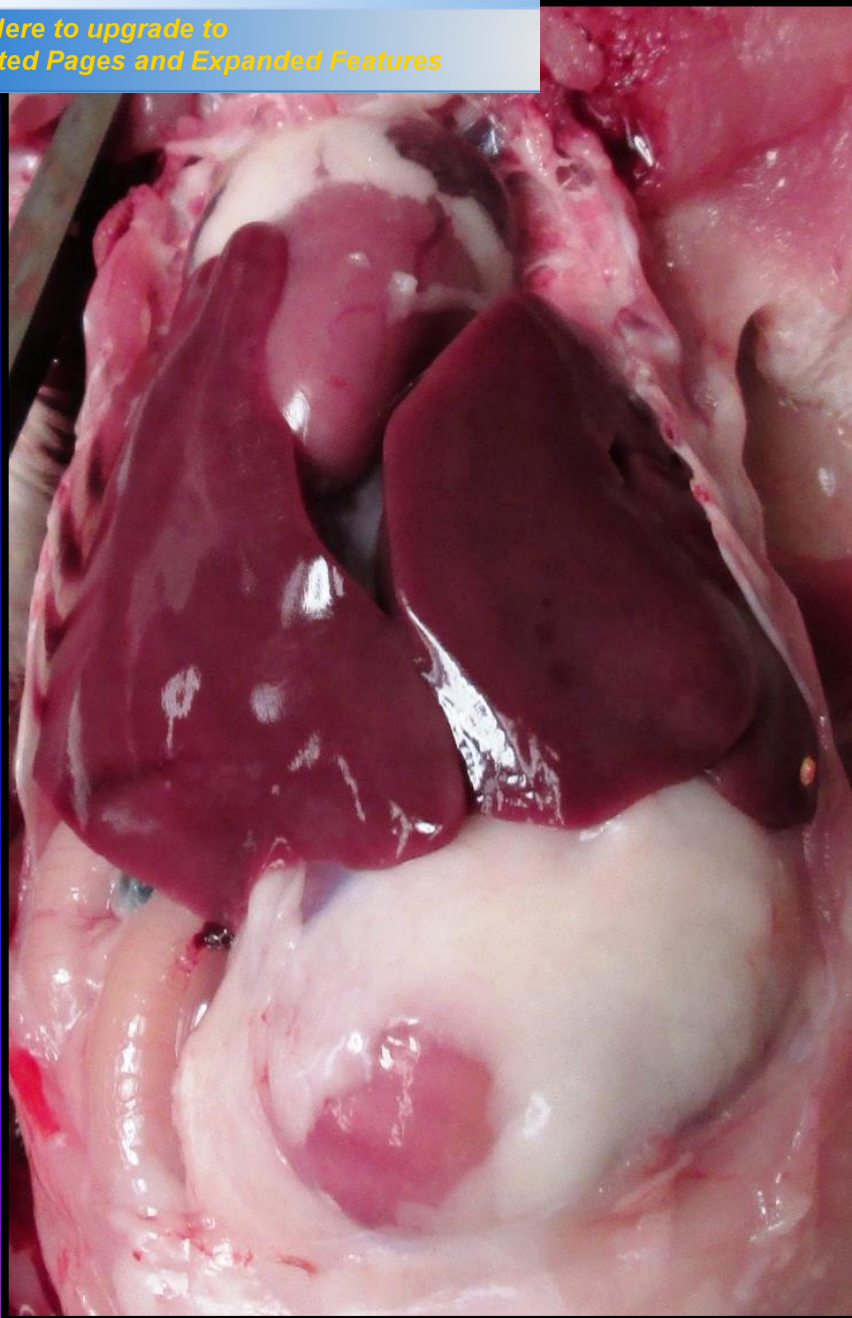




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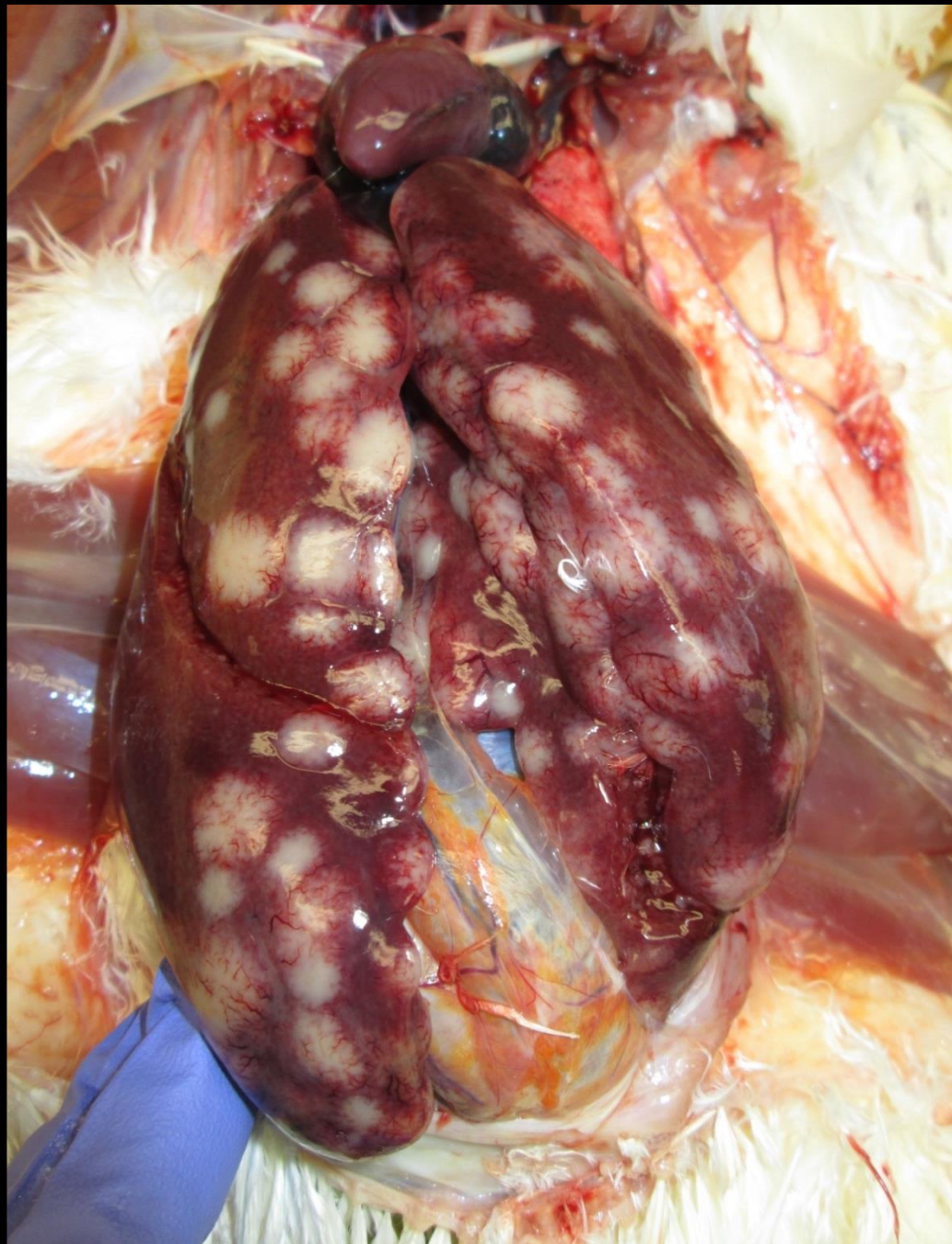




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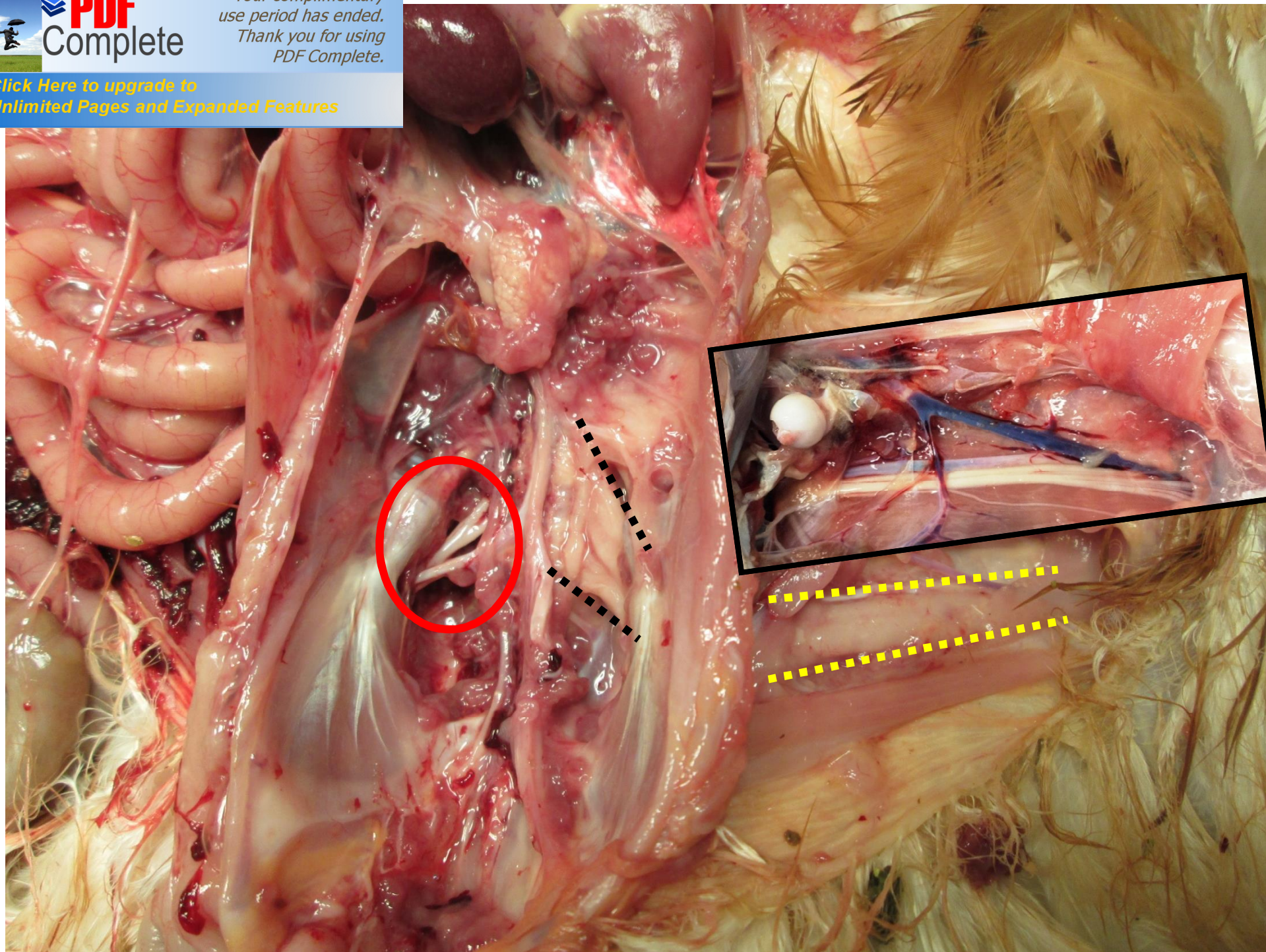




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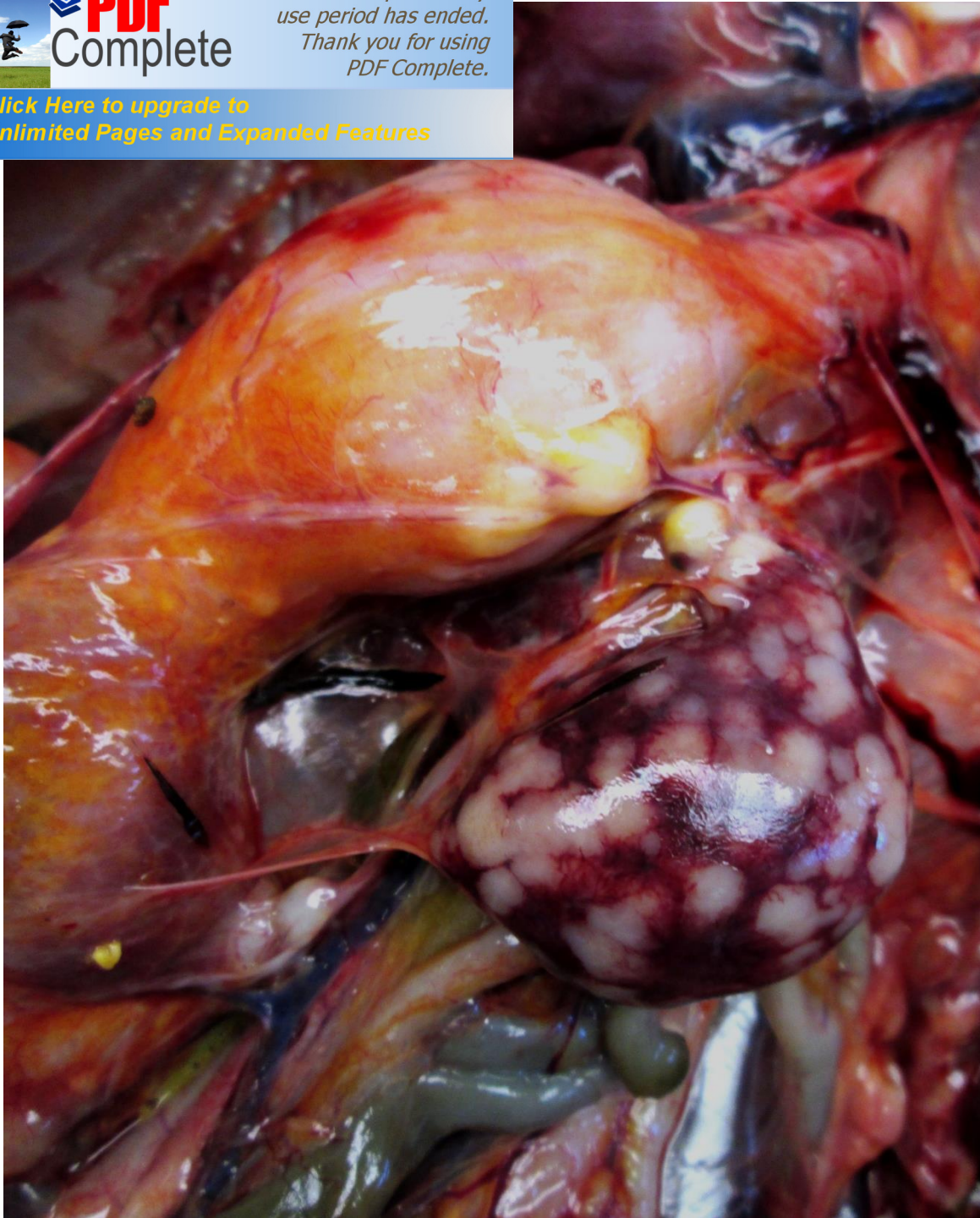




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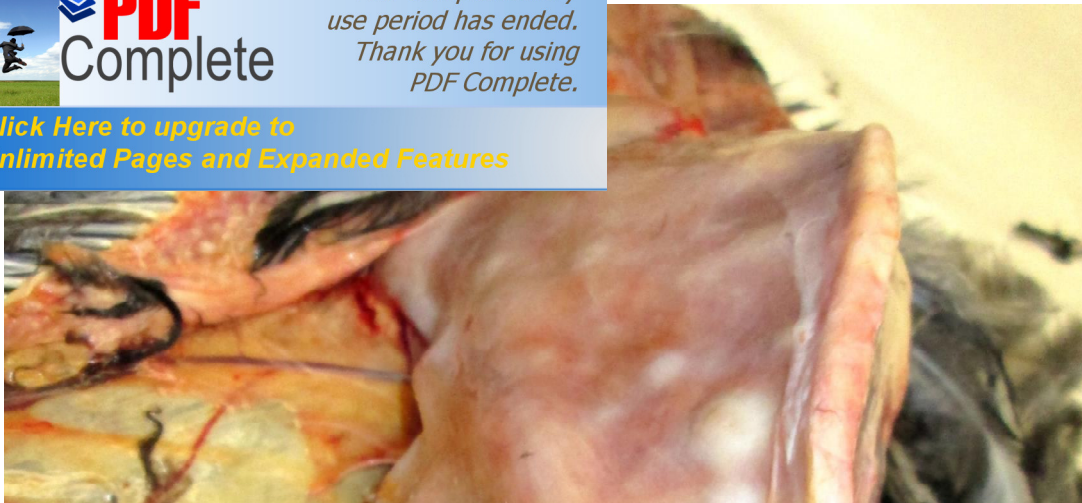




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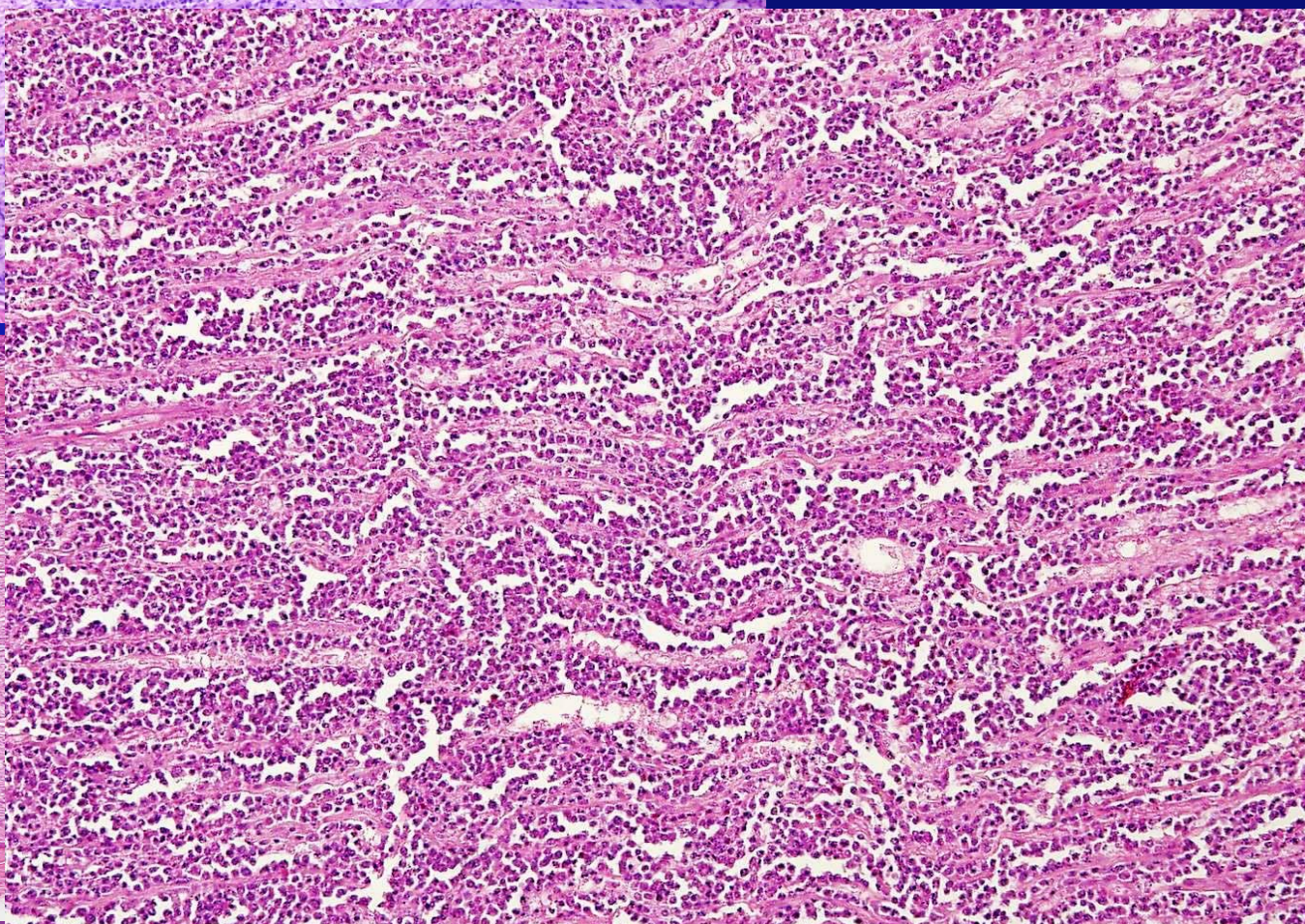
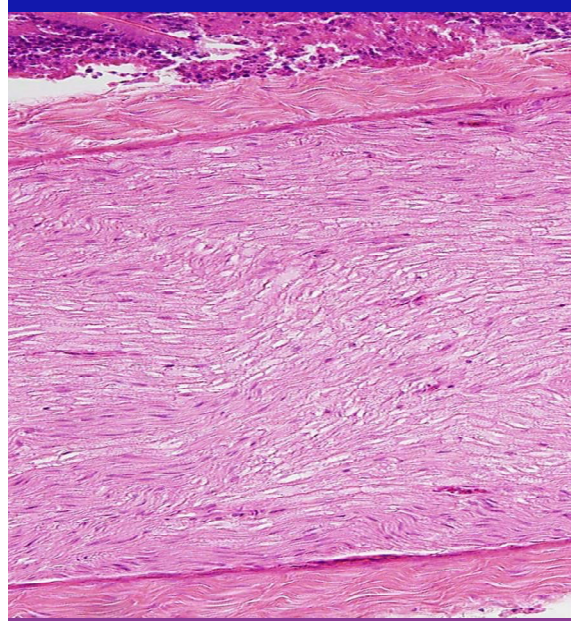
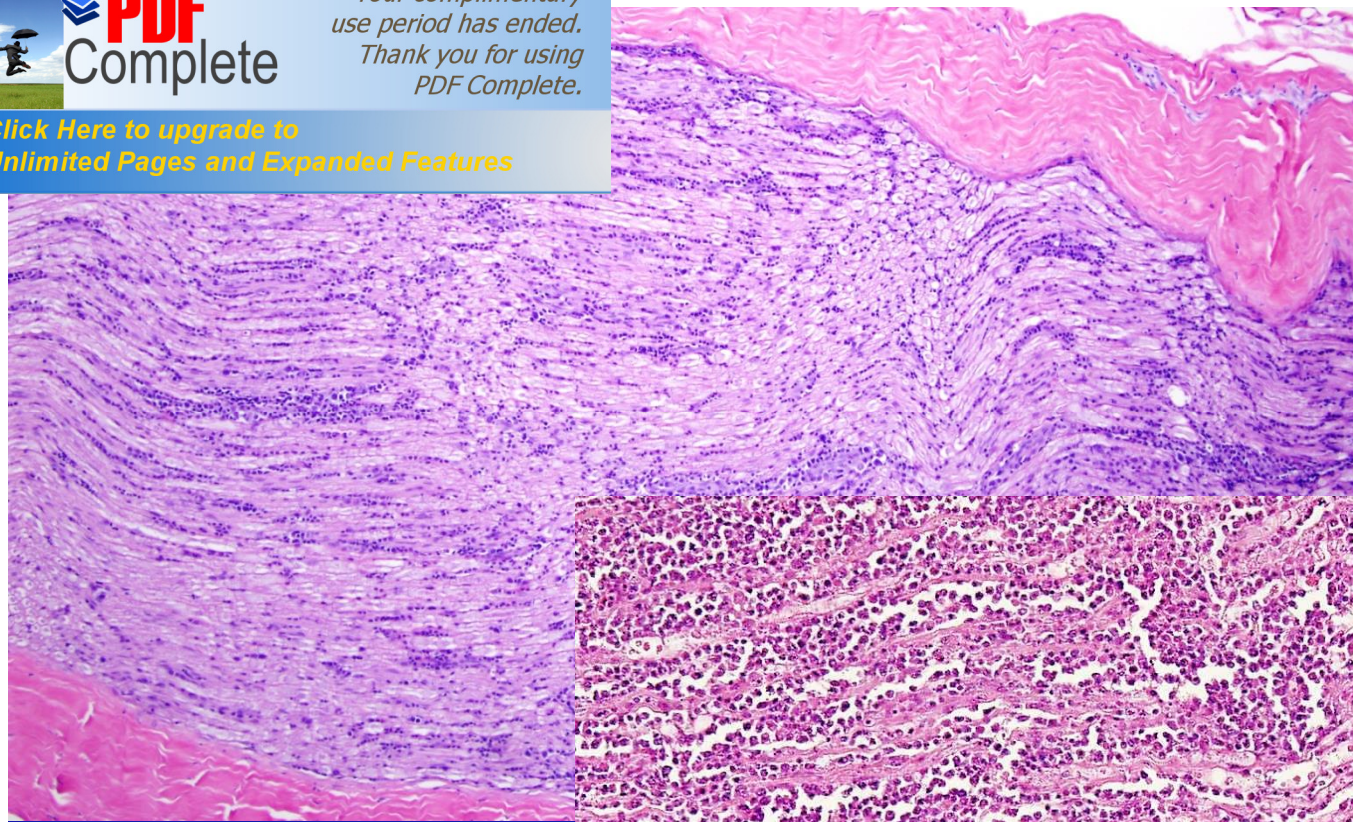




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Disease is caused by a virus so..

There is NO treatment!

✓ **BIOSECURITY**
✓ **VACCINATION**





LEUKOSIS/SARCOMA GROUP

❖ RETROVIRUS.

- ❖ Group A, B, C, D, E and J.
- ❖ Different groups may cause different types of neoplasia.
- ❖ Tumor type also related to virus strain and infectant dose.
- ❖ **Lymphoid Leukosis Virus (ALV)** is the most common.
- ❖ But other examples: myelocytomatosis, erythroblastosis, osteopetrosis, myeloblastosis, endotheliomas, hemangiomas, sarcomas, nephroblastomas, thecomas, granulosa cell tumors, epitheliomas, (...).



LYMPHOID LEUKOSIS

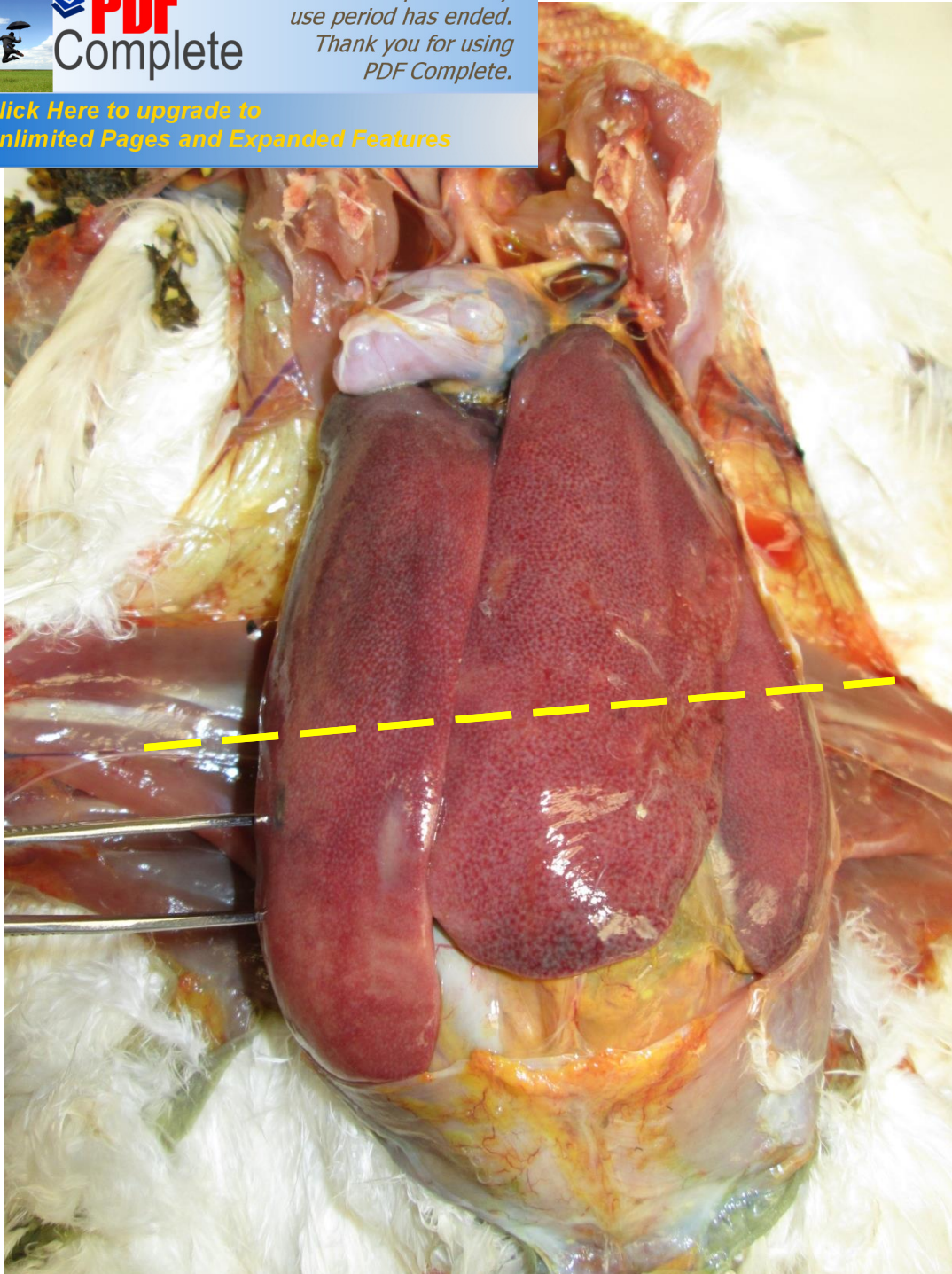
- ☐ Retrovirus (Group A-E).
- ☐ Vertically transmitted.
- ☐ Orizontal transmission exists but limited.
- ☐ Infection is FOR LIFE.
- ☐ Bursa primary organ involved
(B cell leukemia).
- ☐ Adult birds (more common).
- ☐ All the organs may be involved.
- ☐ No affinity for nerves or nervous system.



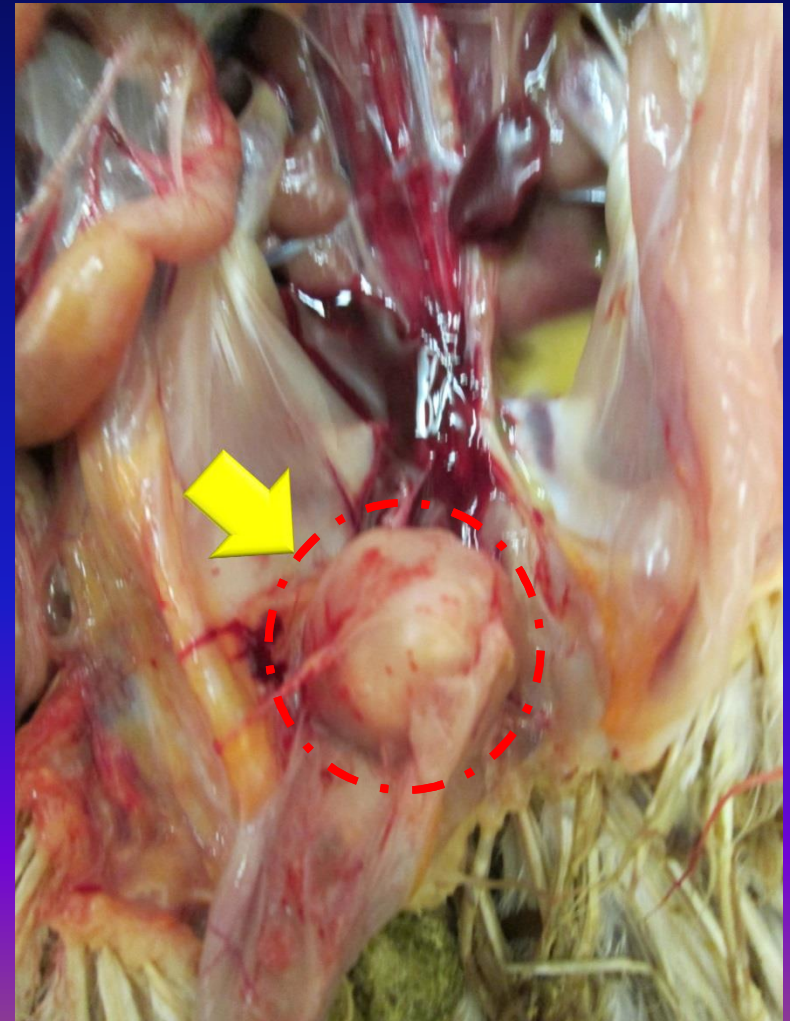
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LYMPHOID LEUKOSIS

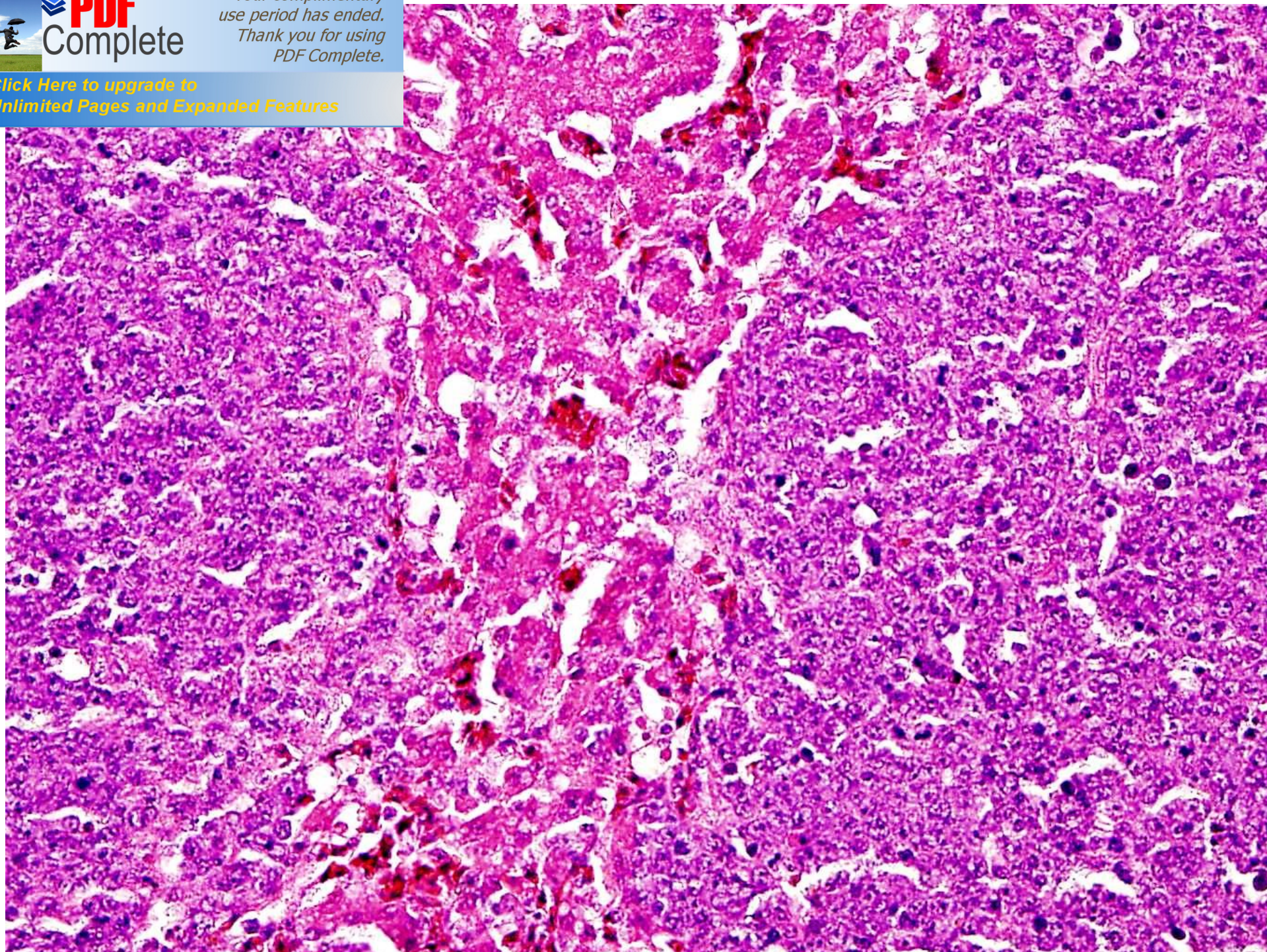




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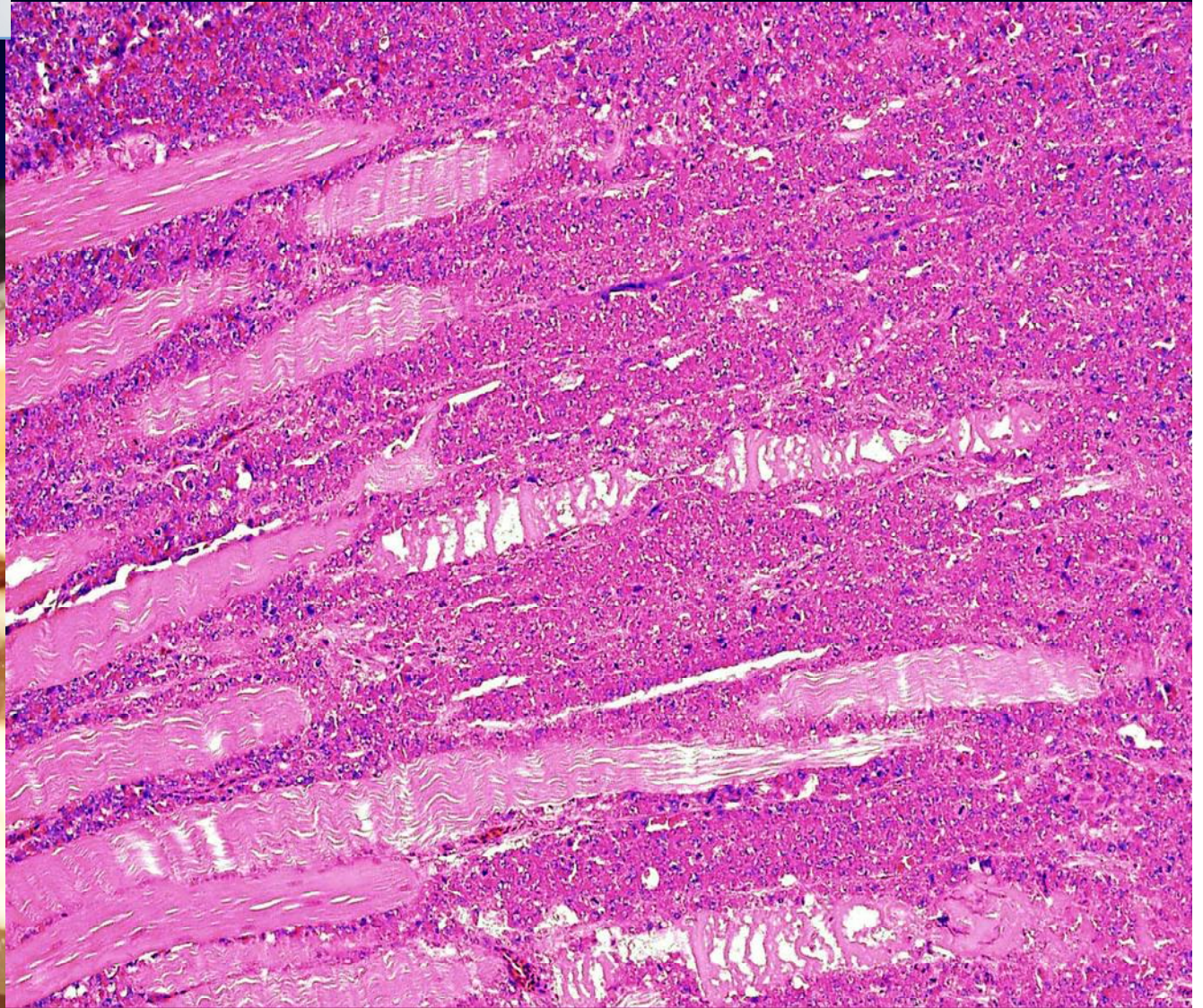


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OCYTOMATOSIS





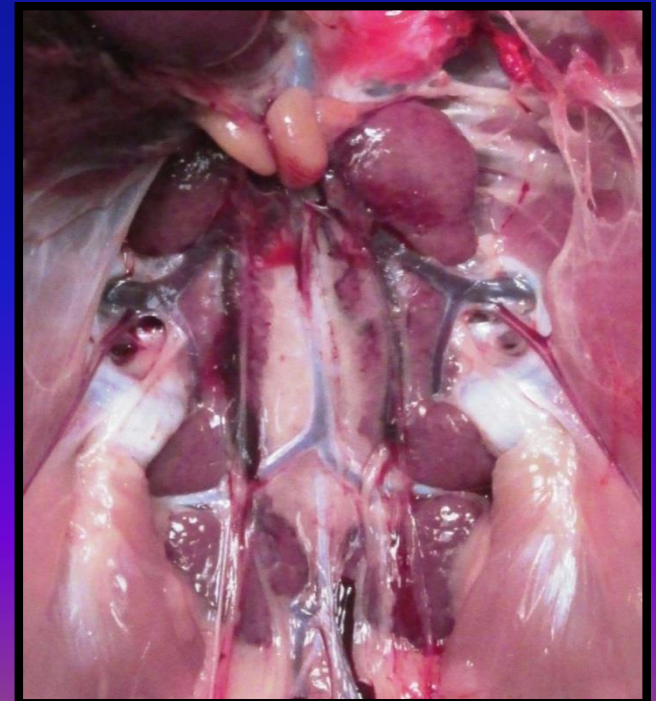
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NEPHRO- BLASTOMA





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Leukosis/Sarcoma tumors
are caused by viruses so..

There is NO treatment!

There are NO vaccines!

- ✓ **GENETIC SELECTION**
- ✓ **BIOSECURITY**
- ✓ **AVOID STRESS**



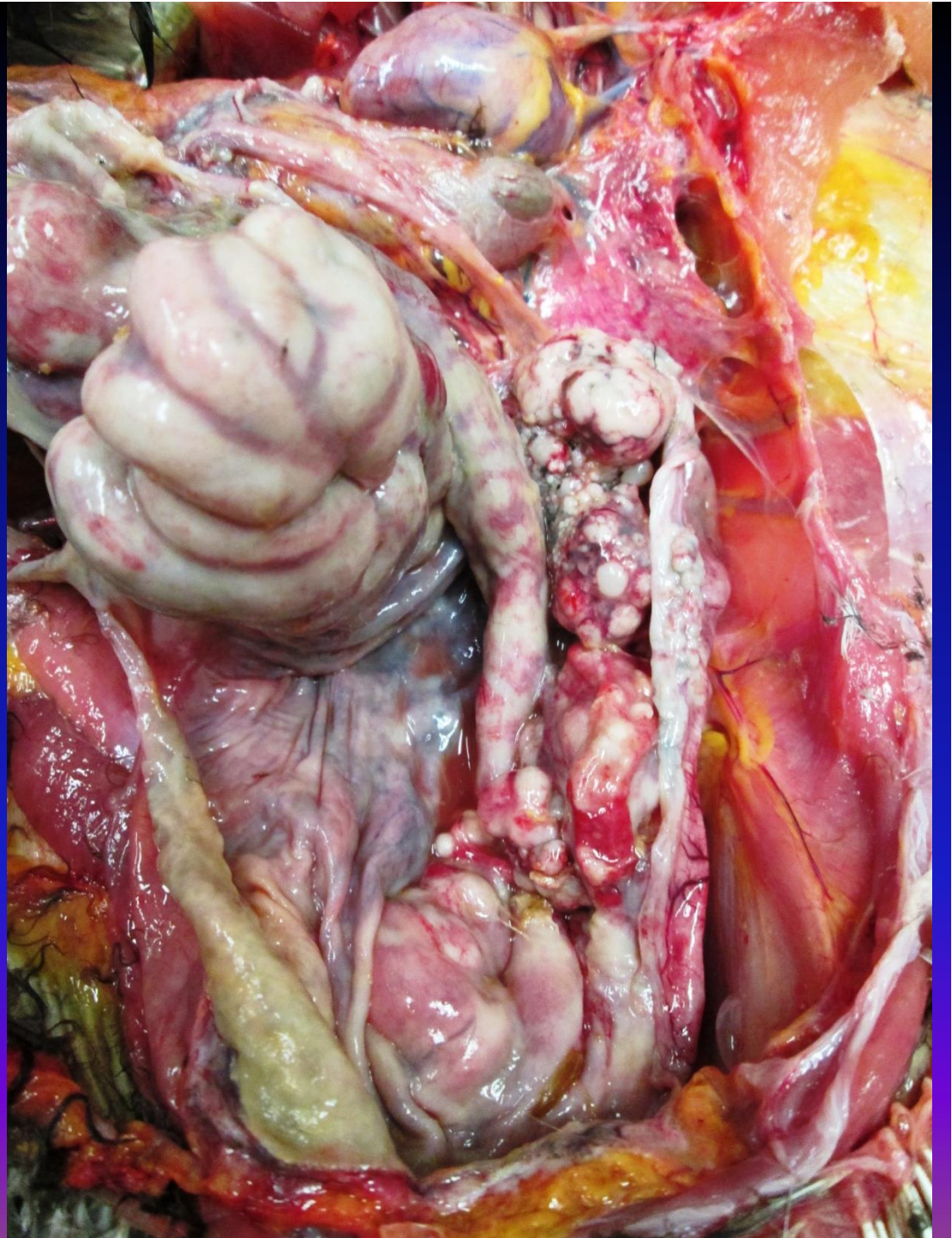
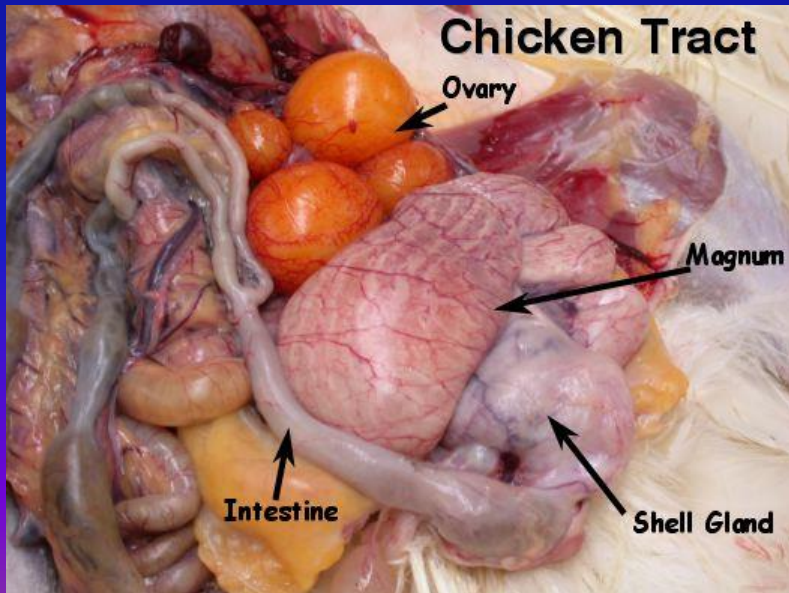


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OVARIAN CARCINOMA





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OVIDUCT CARCINOMA

And Carcinomatosis



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UTRITIONAL DISEASES



"I'm afraid it's bad news, Mr. Griswold. . . . The lab results indicate your body cavity is stuffed with a tasty, bread-like substance."

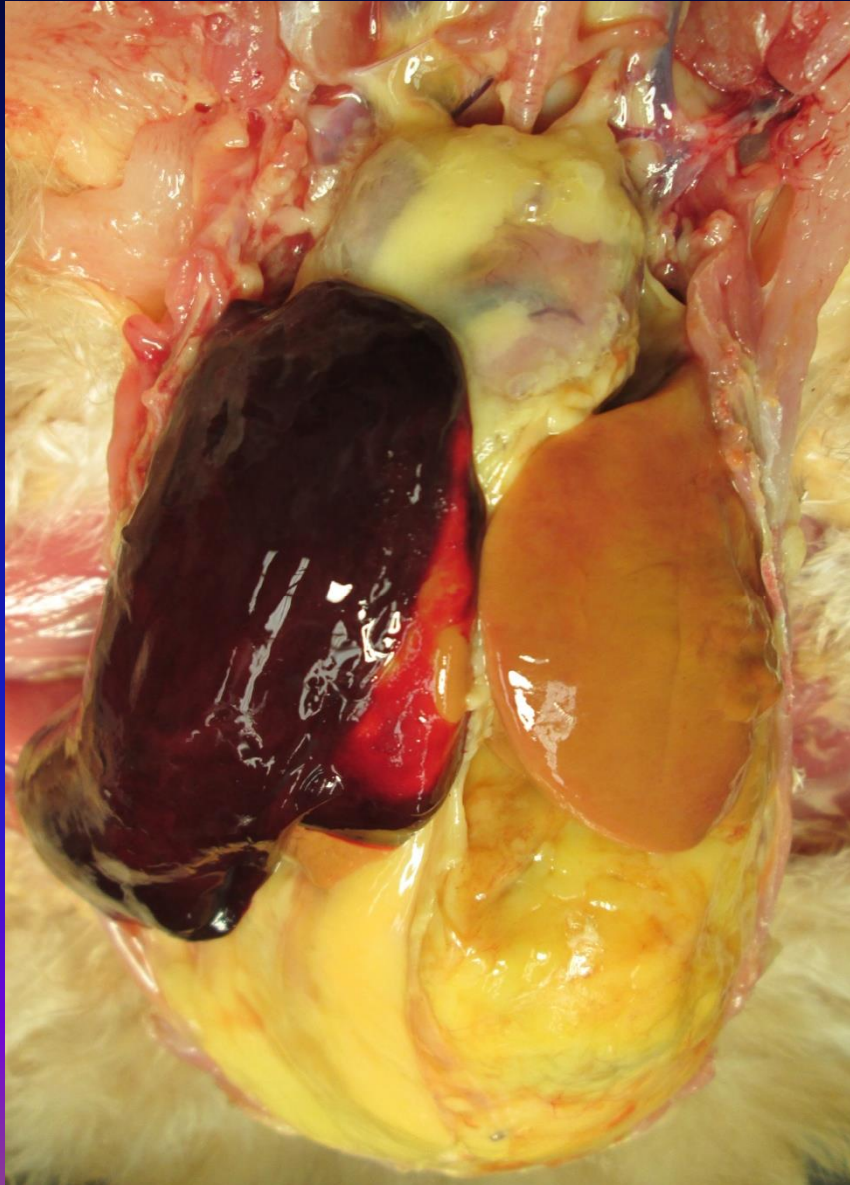


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CHAGIC FATTY LIVER SYNDROME- FATTY LIVER SYNDROME





AGIC FATTY LIVER SYNDROME-

...TTY LIVER SYNDROME



- ✓ **High-energy diet along with restricted exercise.**
- ✓ **Mistake in the ratio**
(pullet mix vs. layer mix)
- ✓ **Excess in carbohydrates**
(rice, bread, corn, etc. added to the ratio)
- ✓ **Excess in diet fats.**
- ✓ **Hot weather (most common).**

- Differentiate from:
- Hepatitis E virus
 - Toxins (aflatoxins)



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DIET STARTS



TODAY



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VISCERAL GOUT





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VISCERAL GOUT

- URATES DEPOSITION in internal organs and tissues.
- Cause: KIDNEY FAILURE.



1. DEHYDRATION

- WATER SHOULD BE ALWAYS AVAILABLE!
- Especially in HOT WEATHER!



Other causes:

2. Vitamin A deficiency.
3. Infectious diseases.
4. Tumors.
5. Antibiotics-nephrotoxic.
6. etc.



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S and OSTEOMALACIA



Nutritional deficiency in:

- ✓ Calcium
- ✓ Phosphorus
- ✓ Vitamin D3 deficiency
- ✓ Calcium-Phosphorus disbalance (2:1 ratio).
- ✓ Excess of Calcium in broilers.
- ✓ Soft bones in young chickens.
- ✓ Difficulty to walk, limping, reluctant to move.
- ✓ Adult birds: easy fractures, Thin-shelled eggs, reduced egg production, etc.

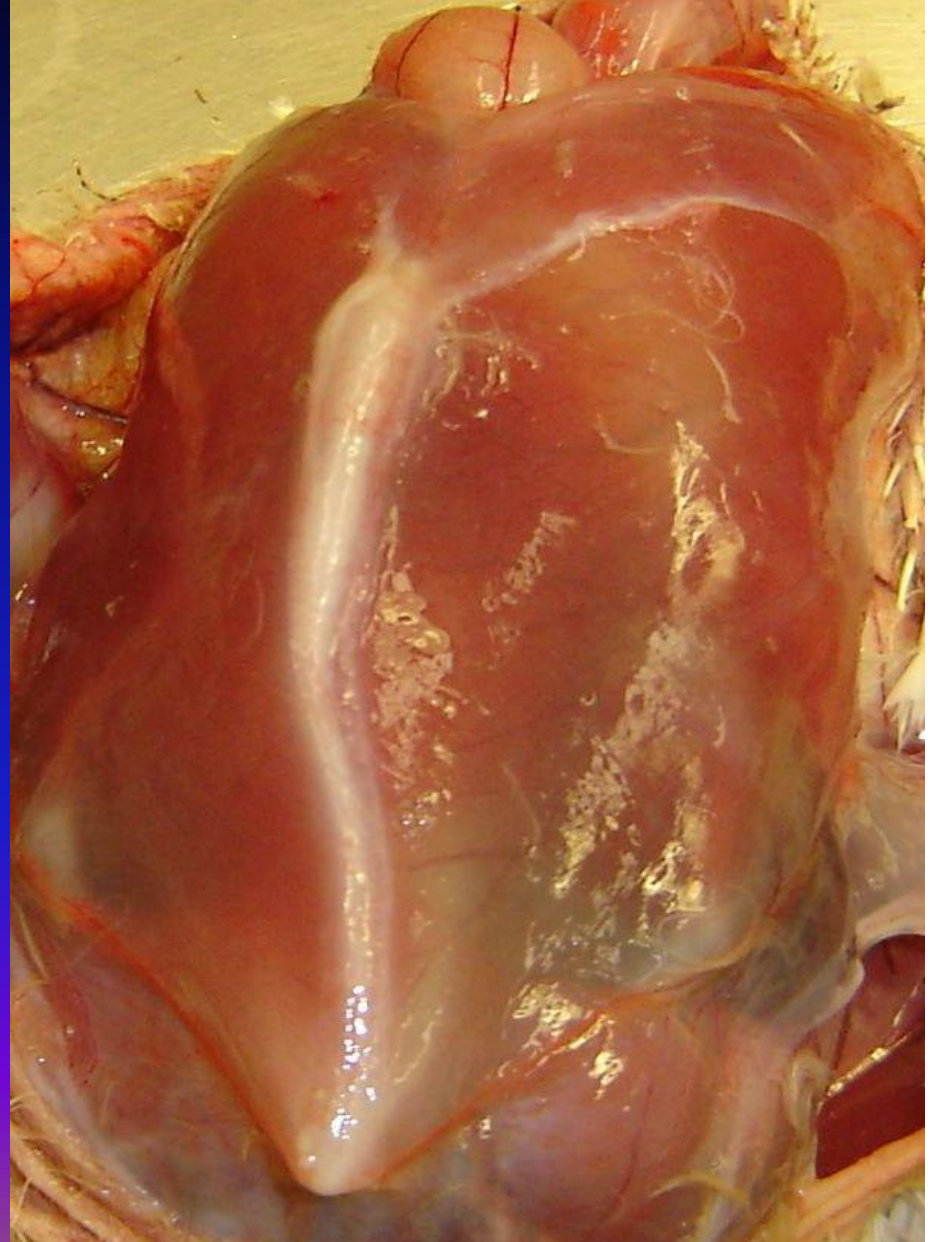
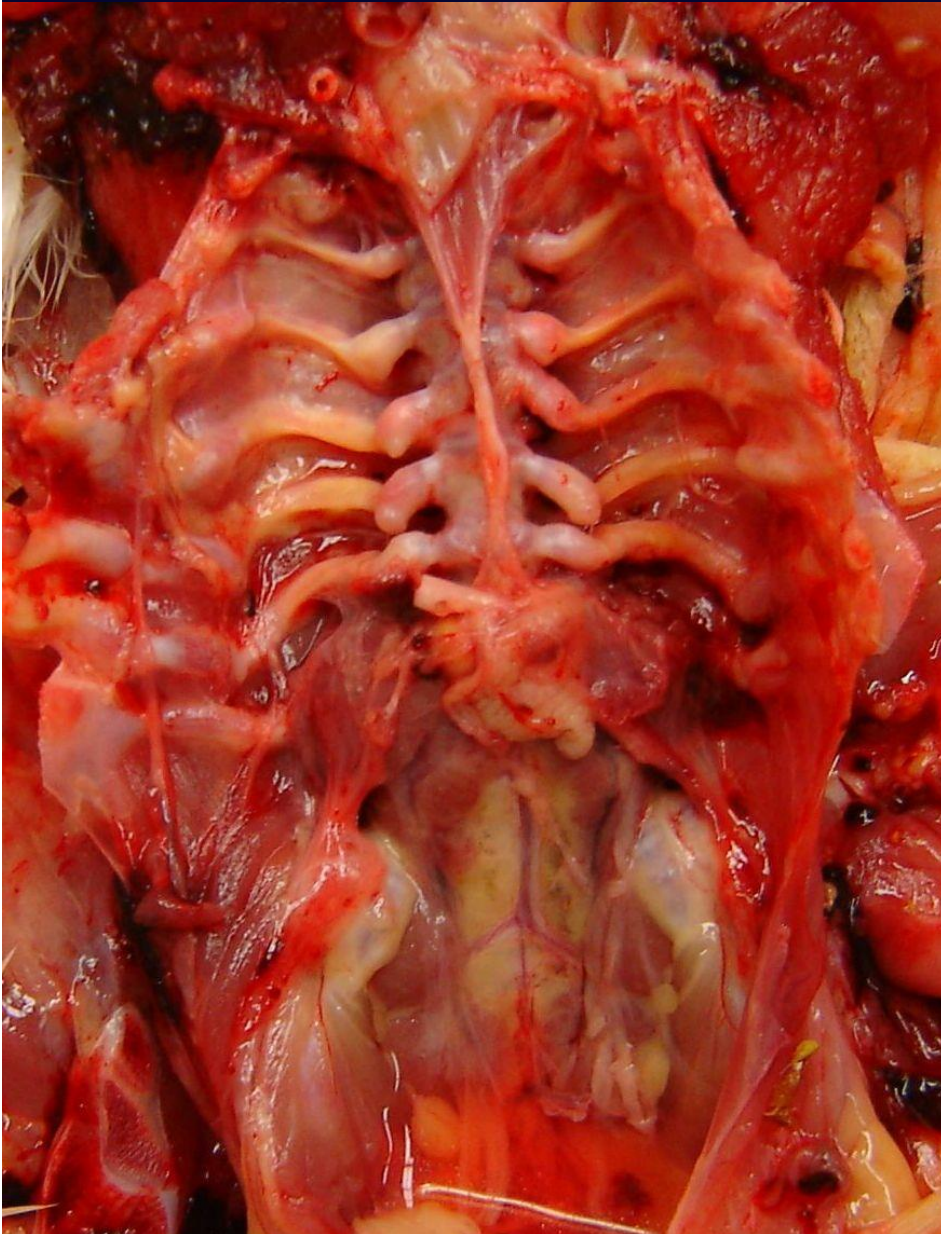


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and OSTEOMALACIA



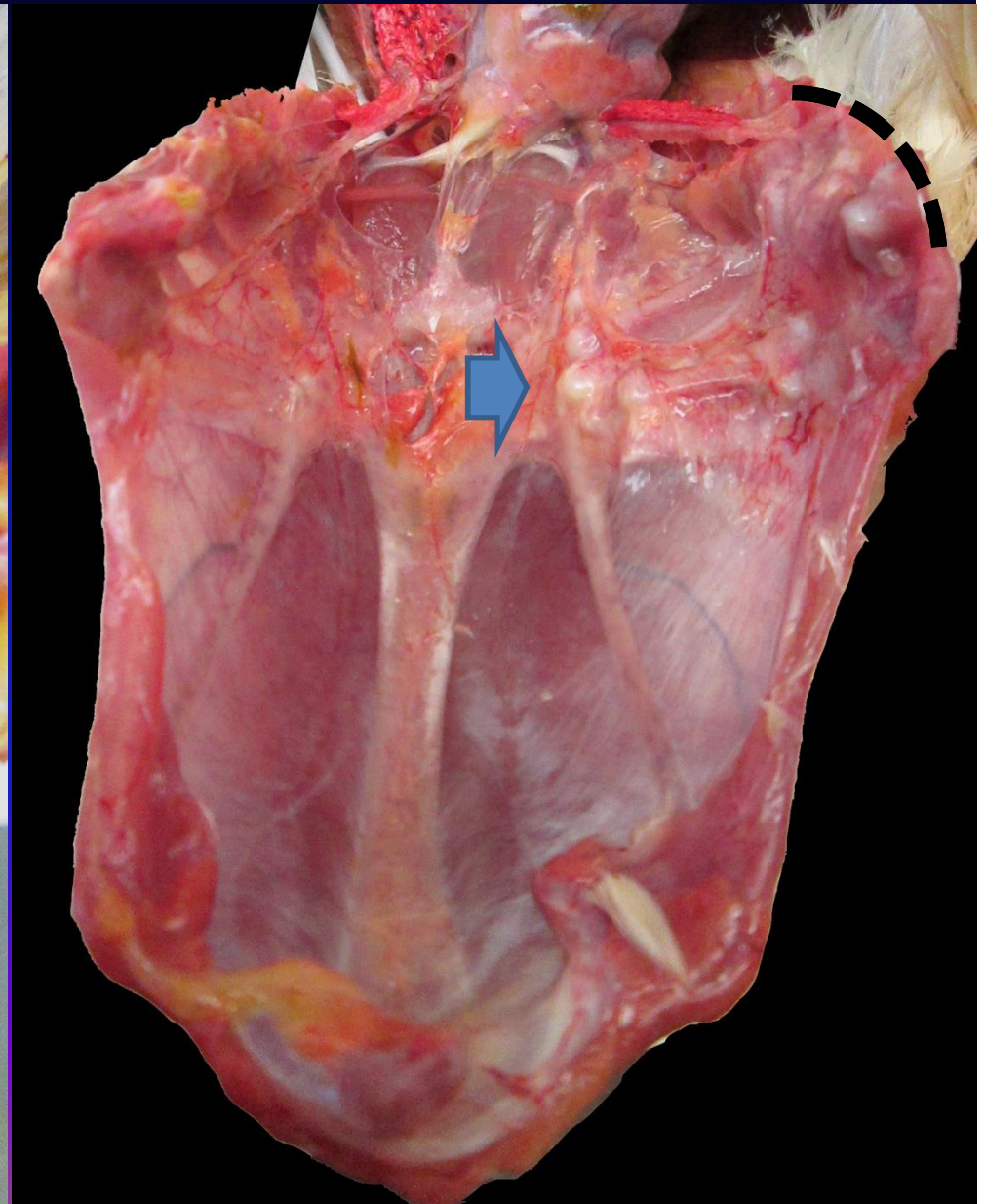
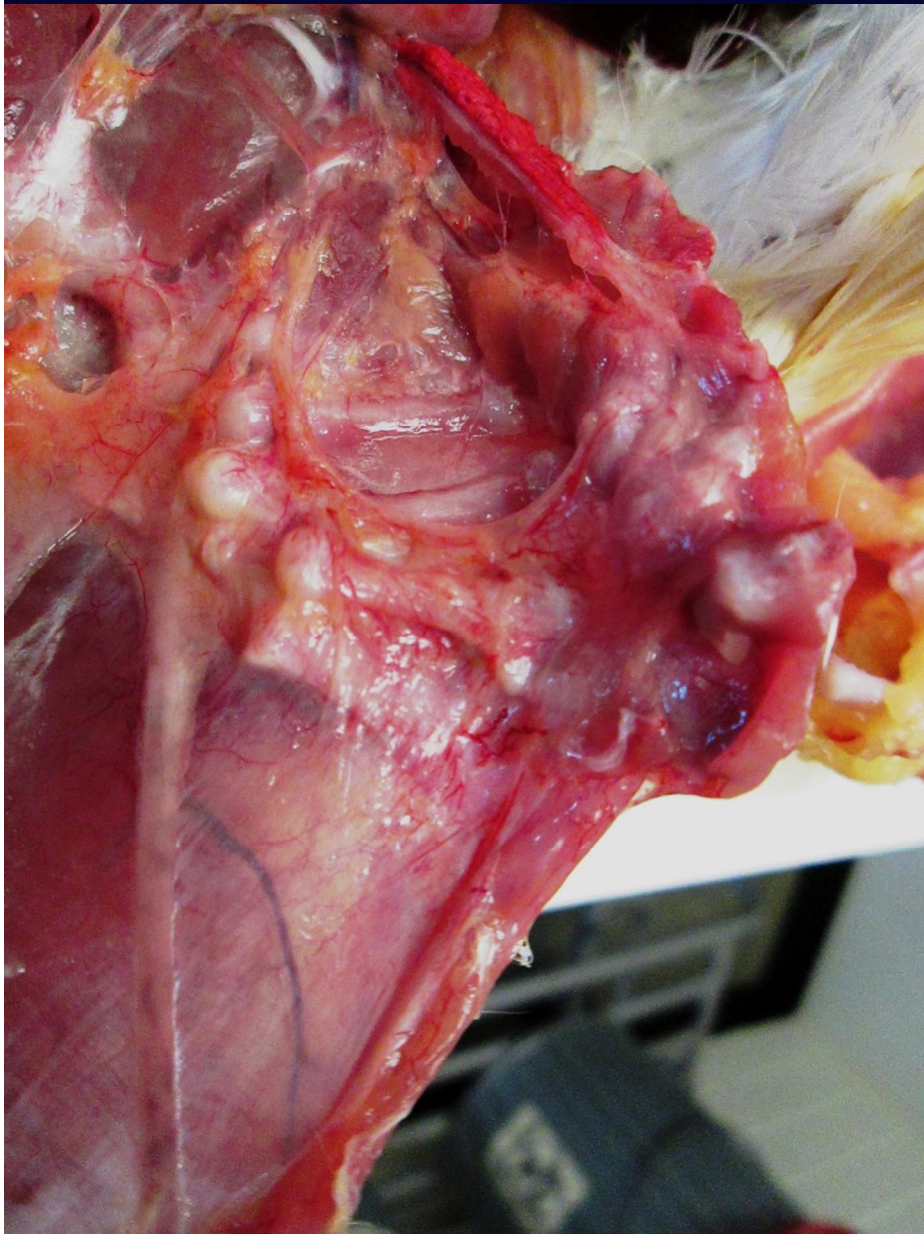


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and OSTEOMALACIA





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BACTERIAL INFECTIONS



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BACTERIAL SEPTICEMIA

- “ Bacteria get in to the bloodstream, replicate and reach many organs and tissues.
- “ Organs affected show pattern of necrosis, inflammatory reaction, hemorrhages.
- “ Poliserositis _Fibro-caseous exudate on visceral serosa (perihepatitis, pericarditis, airsacculitis, etc.).

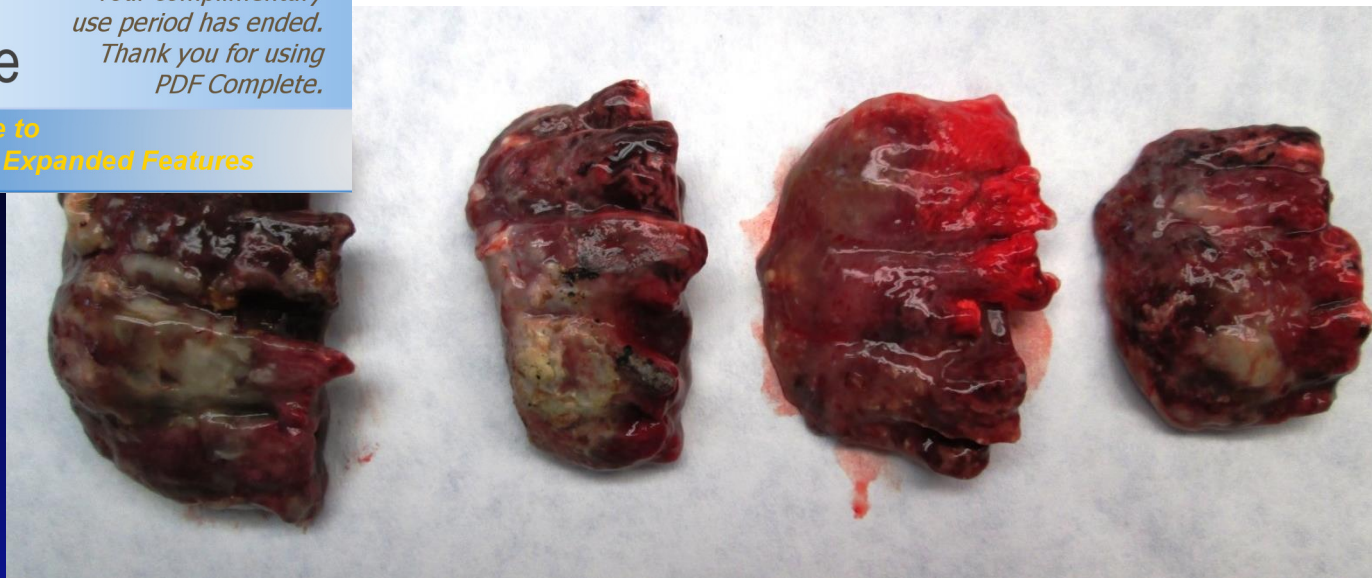




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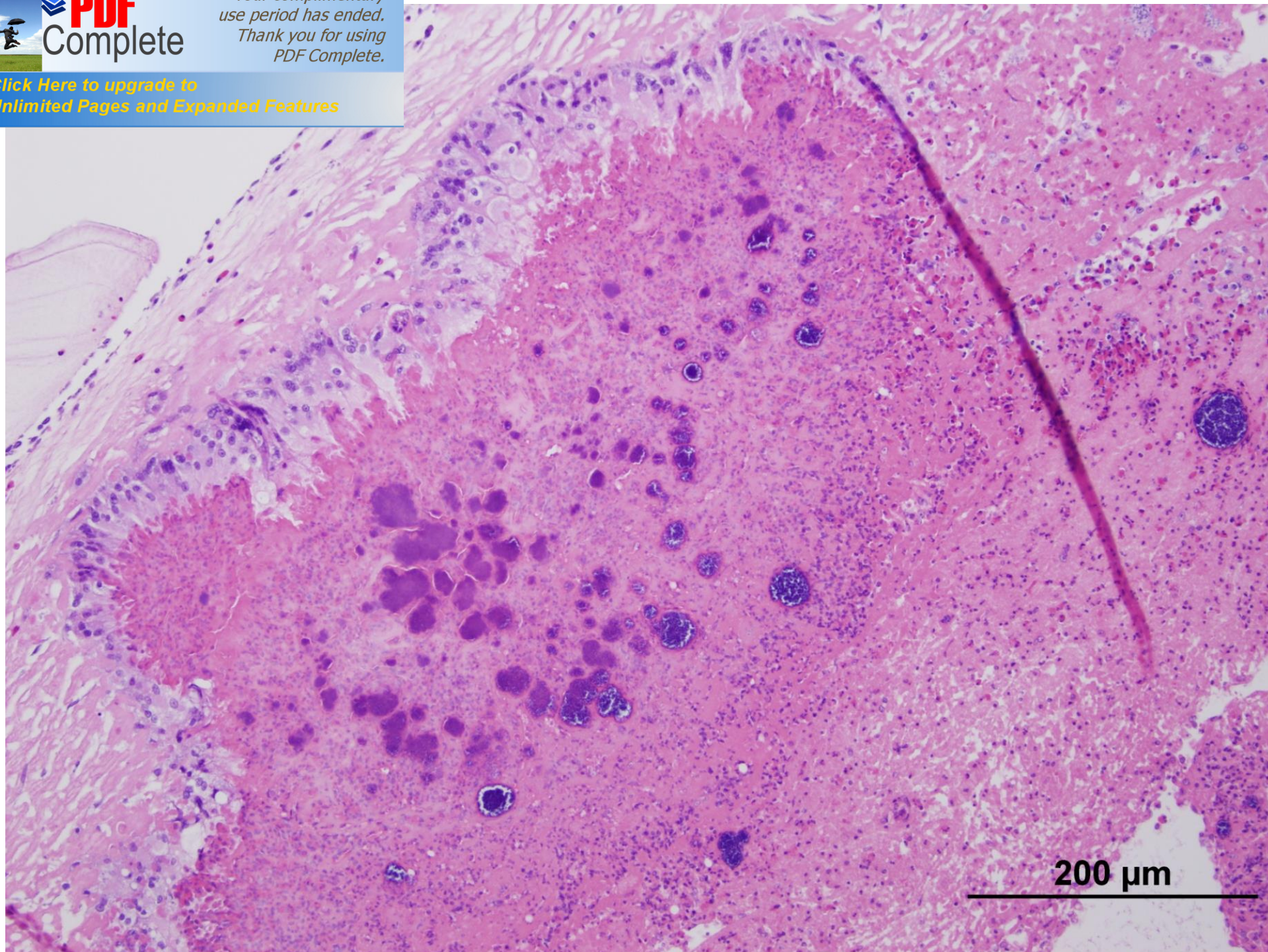




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PERITONITIS





PERITONITIS

➤ Inflammation and collection of yellowish cheesy exudate on the peritoneum.

Etiology:

- ❖ Bacterial (most common)
 - E. coli, P. multocida, Salmonella spp., etc.
- ❖ Viral
 - AI, ND, etc.
- ❖ Toxic
- ❖ Non infectious.

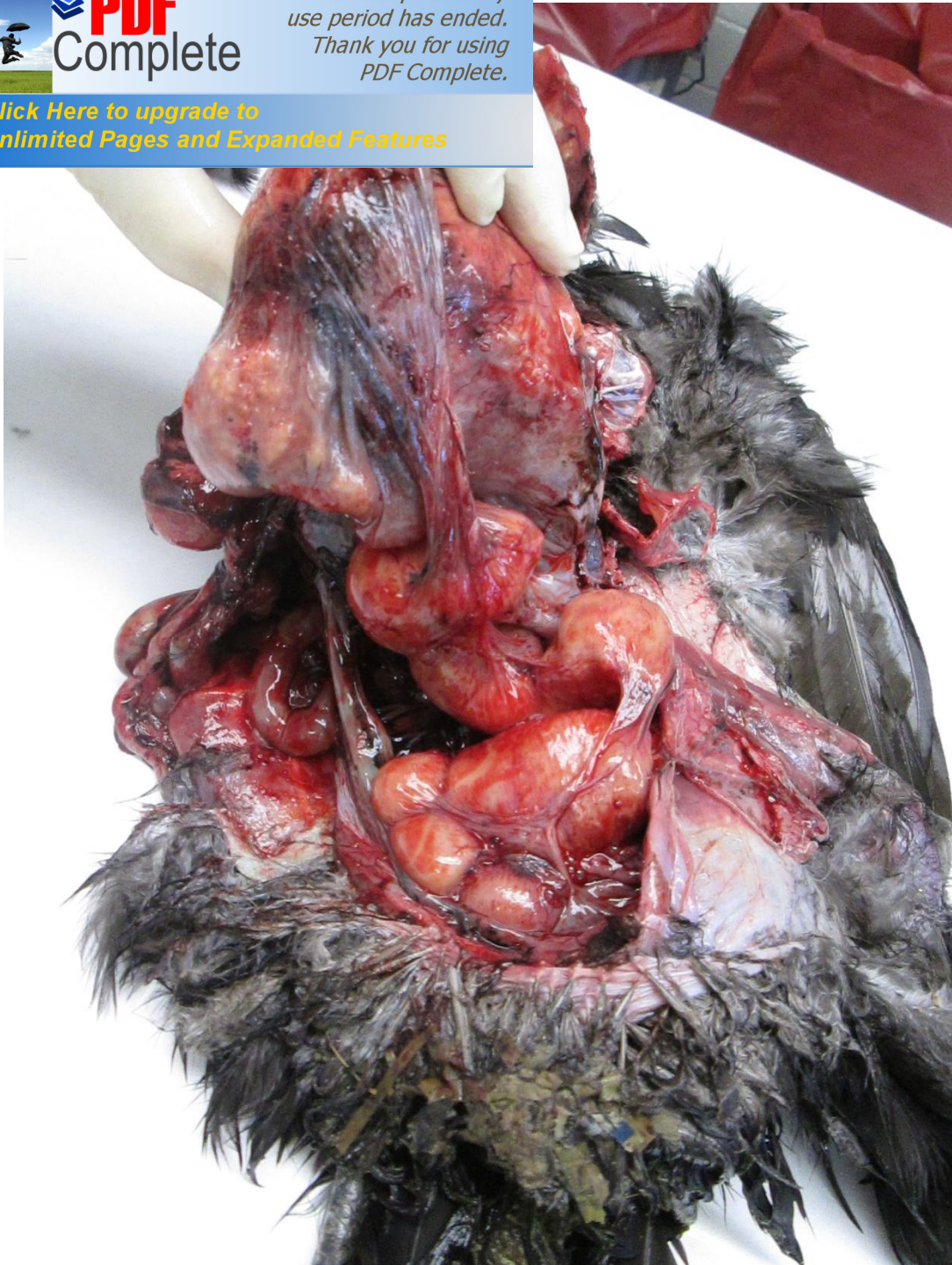




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SALPINGITIS

- ❖ Inflammation of the oviduct.
- ❖ Collection of exudate mixed to yolk material which gets stratified inside the oviduct.
- ❖ Etiology:
 - ❖ Bacterial.
 - E.coli, P.multocida, etc.
 - ❖ Non infectious causes.



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Diagnosis of Bacterial infection

❖ Bacterial cultures:

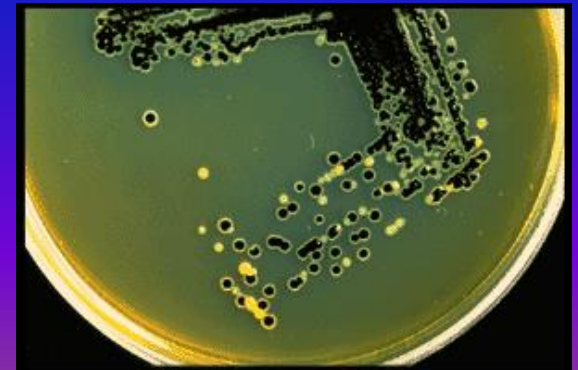
- Isolating the bacteria on selective media.
- Typing them by morphology and biochemical tests.

e.g. *E. coli*, *P. multocida*, *B. avium*, *Salmonella* spp., etc.

❖ Biotechnology:

- PCR (specific detection of genetic material).

e.g.: *Salmonella enteritidis*, *Mycoplasma gallisepticum*,
Mycoplasma synoviae, etc.





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VIRAL DISEASES



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AVIAN INFLUENZA





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AVIAN INFLUENZA

- Fortunately NOT COMMON!
- Widespread in the **WILD BIRDS**.
- Especially **WATERFOWL** (carriers).
- **ALL Back yard flock** (less than 1.000 birds) submissions to the CAHFS laboratory are **TOTALLY..**

FREE





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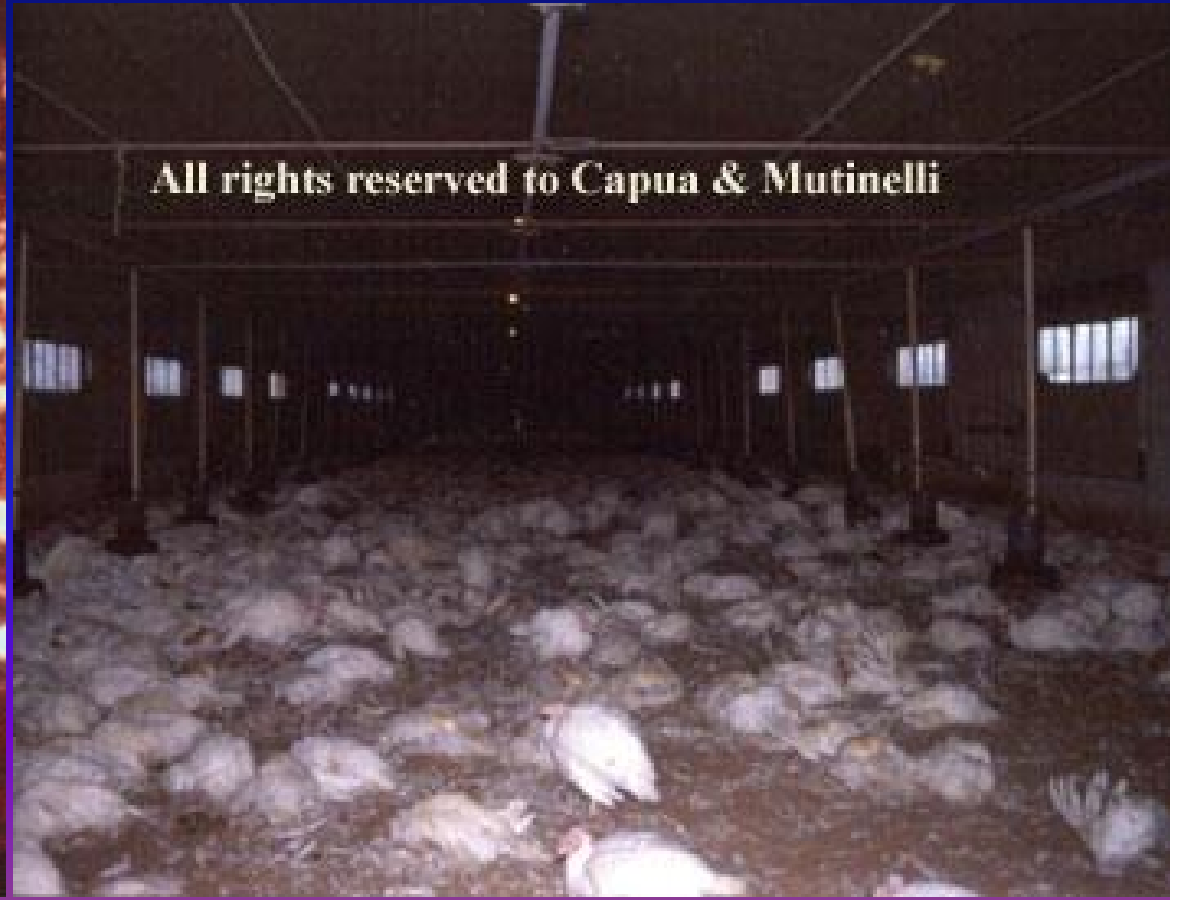
AVIAN INFLUENZA

What do we want to prevent?

Australia



Italy, 1999-2000





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AVIAN INFLUENZA





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Cornell University/PIADC



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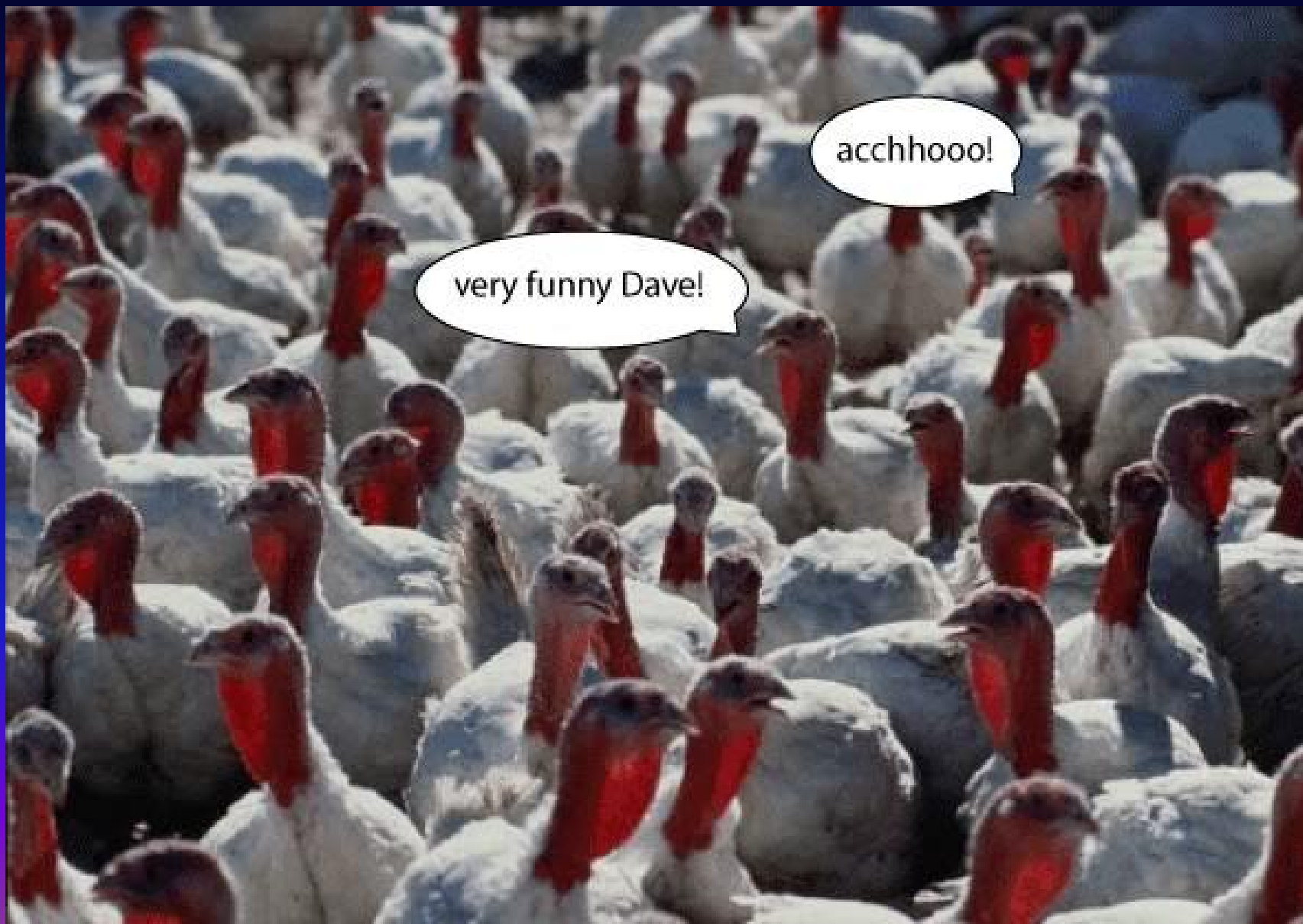
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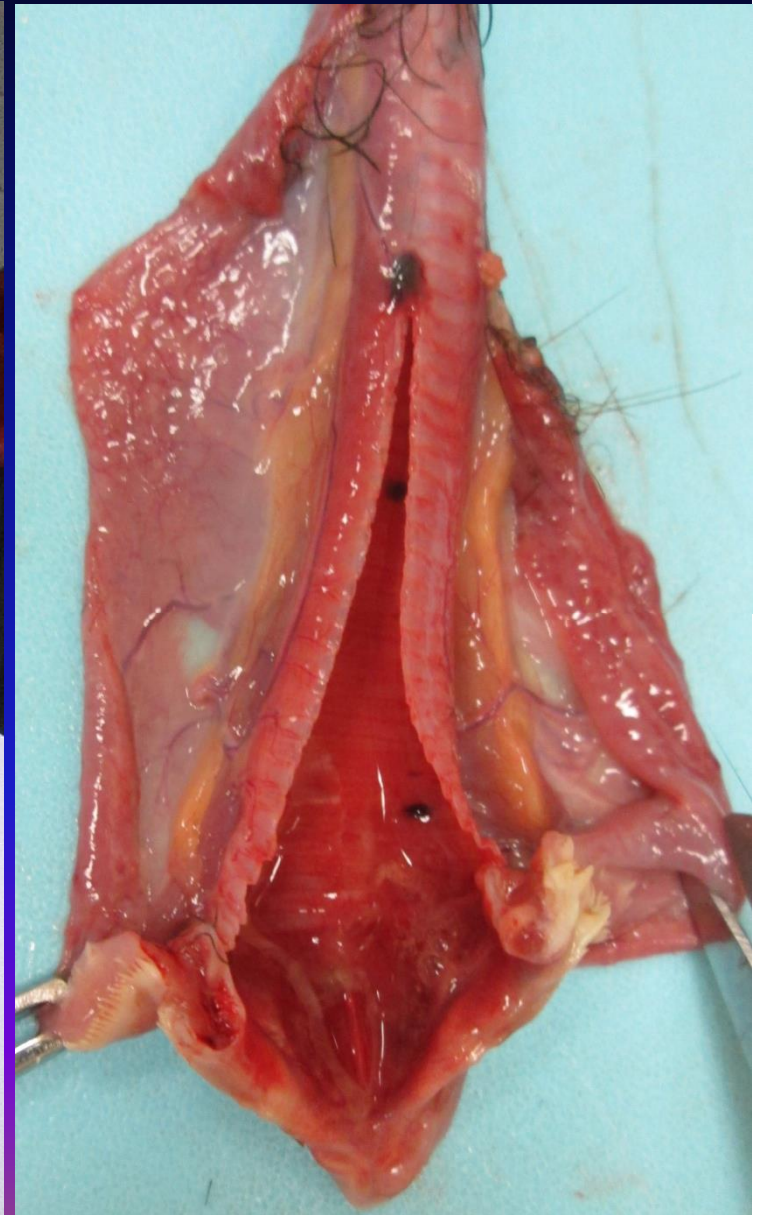


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us Laryngotracheitis (ILT)

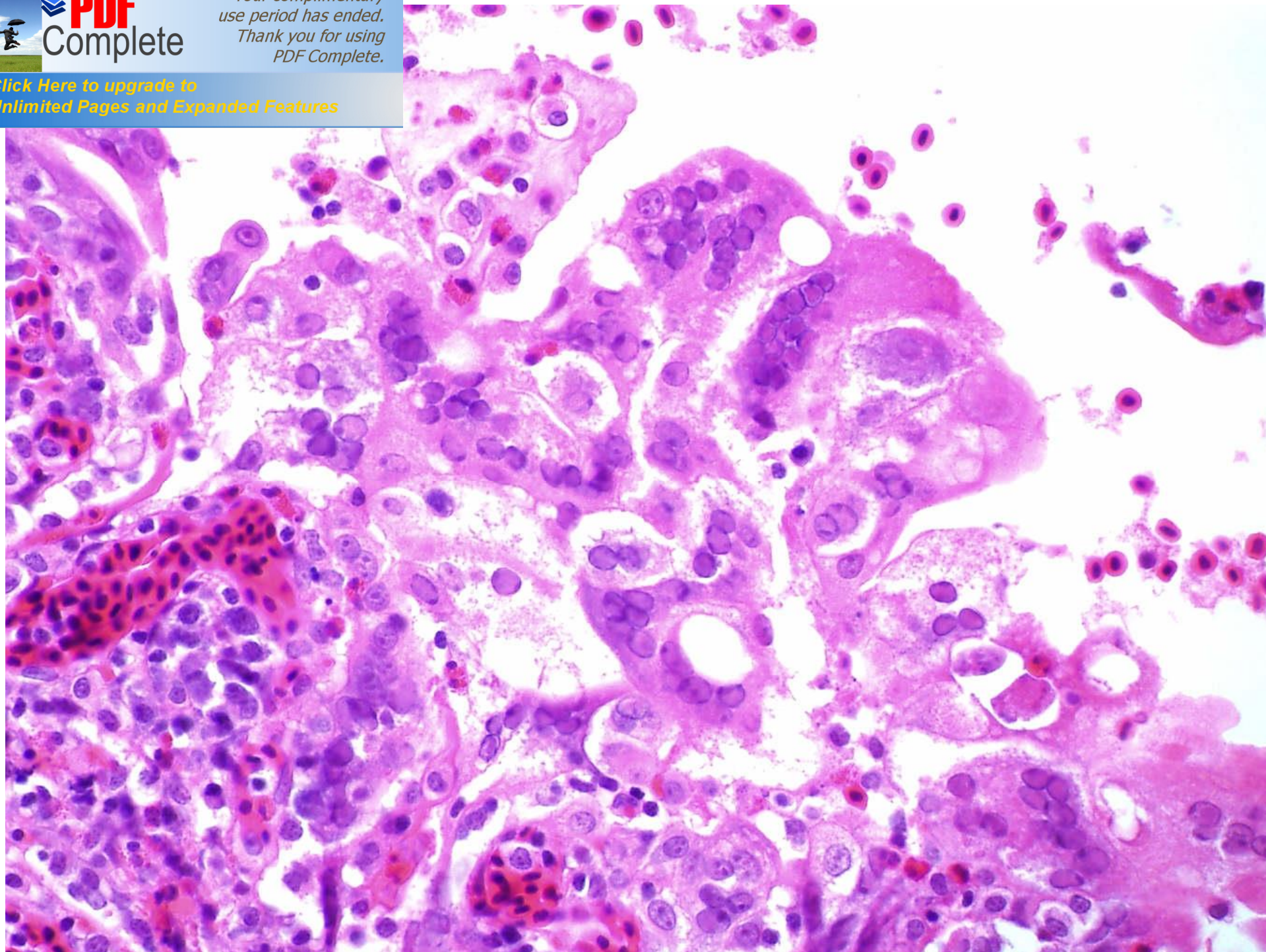




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Pox



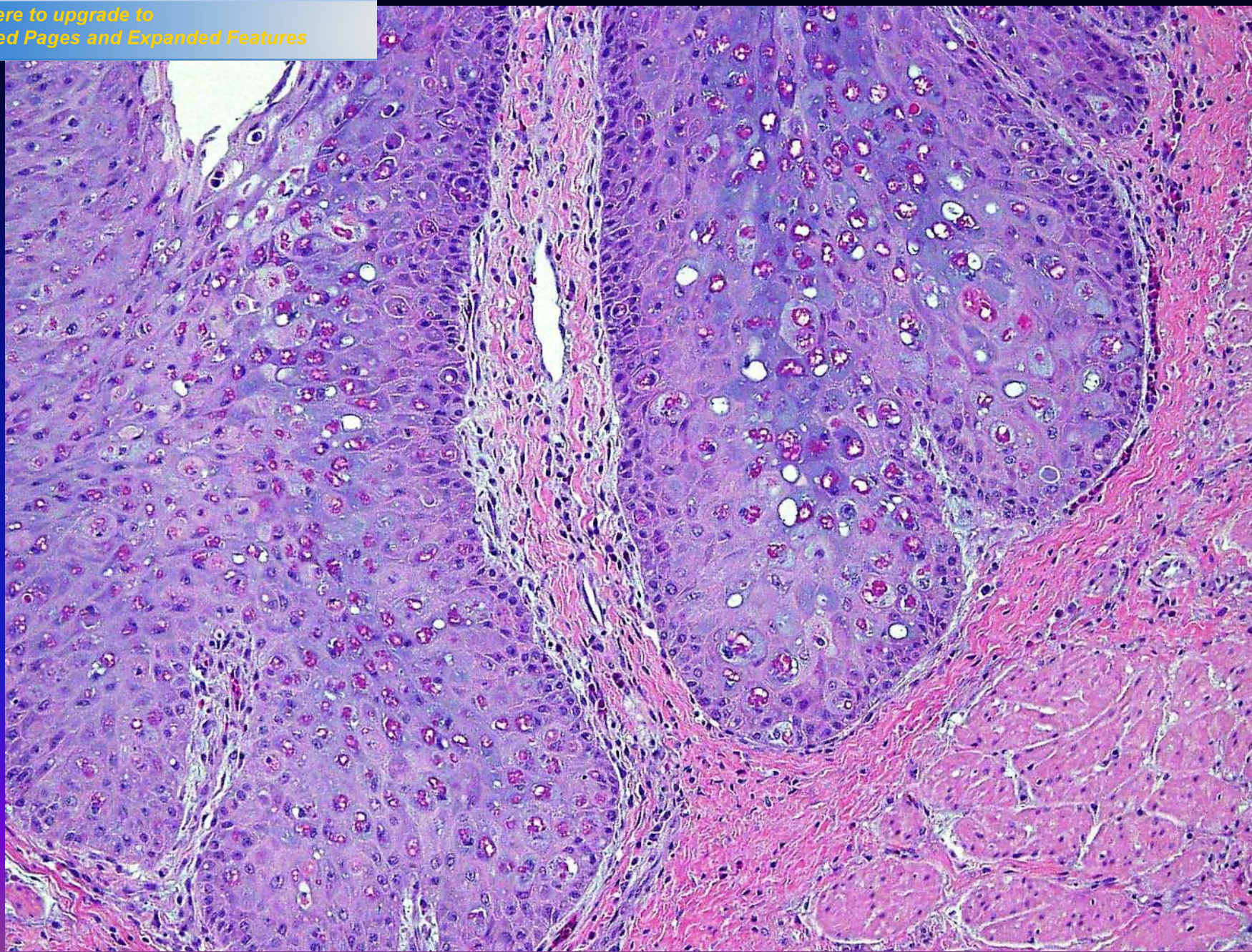


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Pox





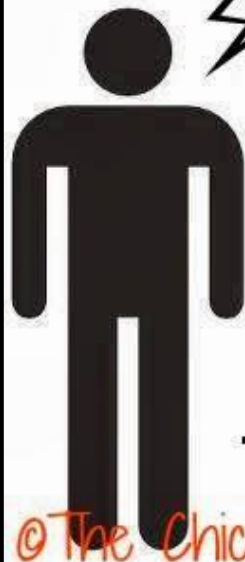
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AVIAN PARASITES

WARNING



**Chicken POOP
MAY BE DISCUSSED
ON THIS FB PAGE at
ANY TIME without
advanced notice.**

Thank you & enjoy your stay. 😊

@The Chicken Chick



PARASITES

INTERNAL

○ PROTOZOA

- Coccidia
- Histomonas
- Cryptosporidium
- í

○ ROUNDWORMS

- Ascarids
- Capillaria
- Singamosis
- Tetrameres
- í

○ TAPEWORMS

EXTERNAL

▪ MITES

▪ LICE

▪ Fleas

▪ Ticks

▪ Bedbug

▪ í

PESTS

“ RODENTS

“ BEETLES

“ FLIES

“ í





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APILLARIASIS





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CAPILLARIA





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orms (Ascarids)





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or Tapeworms

- ***Raillietina cesticillus* and *Choanotaenia infundibulum*.**
- ” Flattened, Ribbon-shaped, segmented body, full of eggs.
- ” Non host specific
- ” Indirect life cycle (4 weeks)
 - Earthworms, ants, houseflies, snails, beetles.

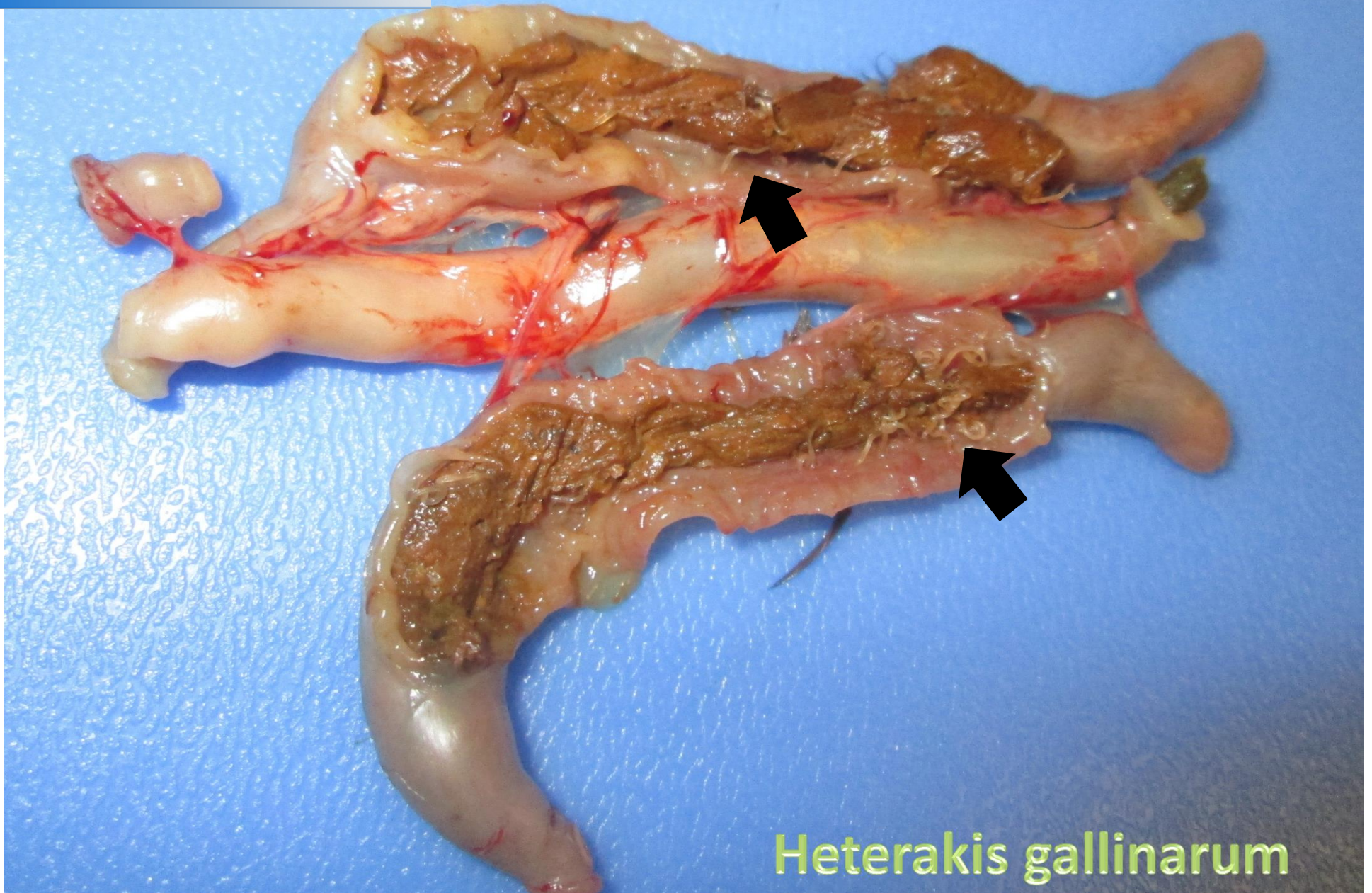




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Heterakis gallinarum



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JUL 20 2007



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Coccidiosis

- ❖ Protozoa.
- ❖ Direct Oro-fecal cycle.
- ❖ Conditions of LITTER are essential for maturation of the oocysts. (AVOID WET LITTER!!!)
- ❖ Mature Oocysts are Highly resistant in the environment.
- ❖ Pathogenicity vary between strains BUT co-infection with multiple strain is common.
- ❖ Often in association with Necrotic Enteritis (*Cl. perfringens*).

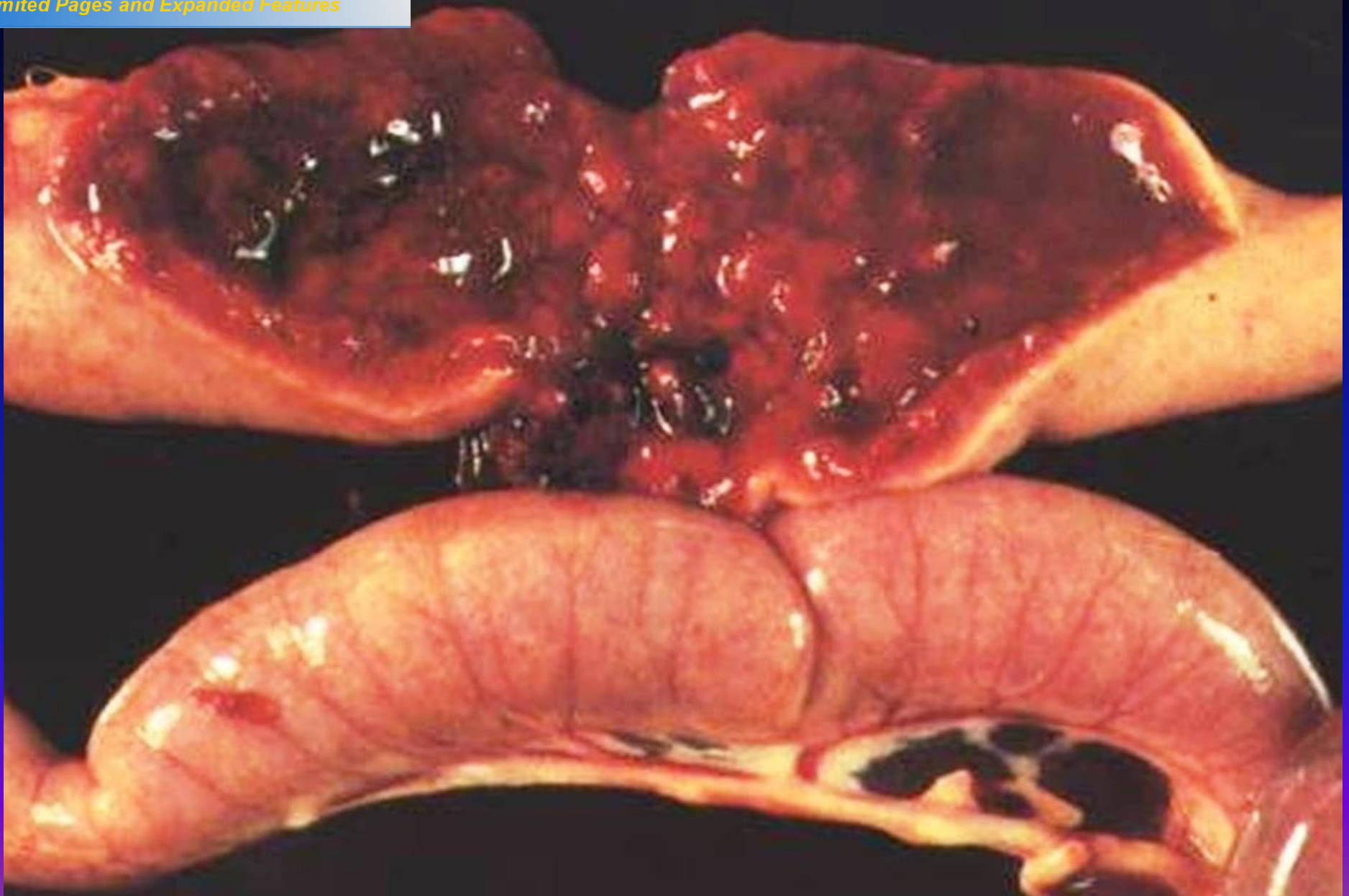




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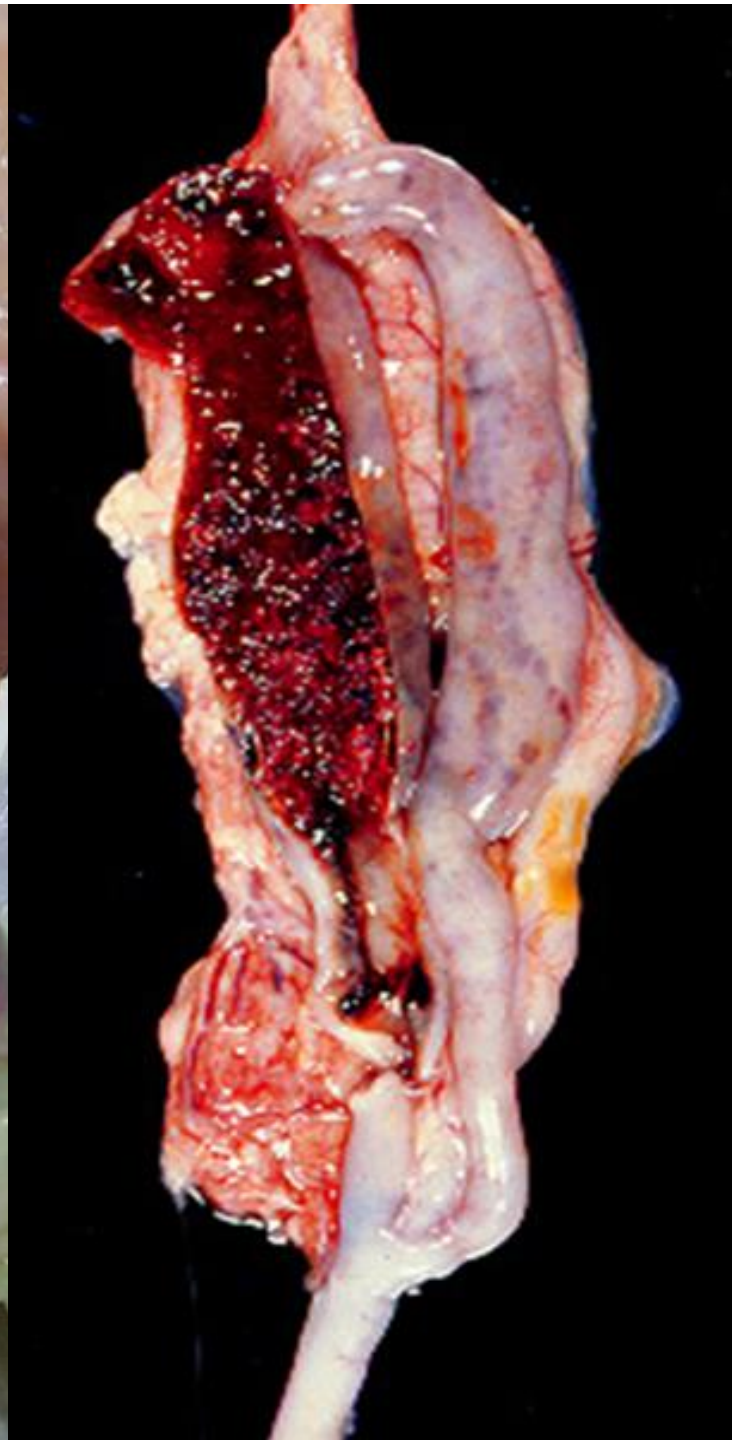


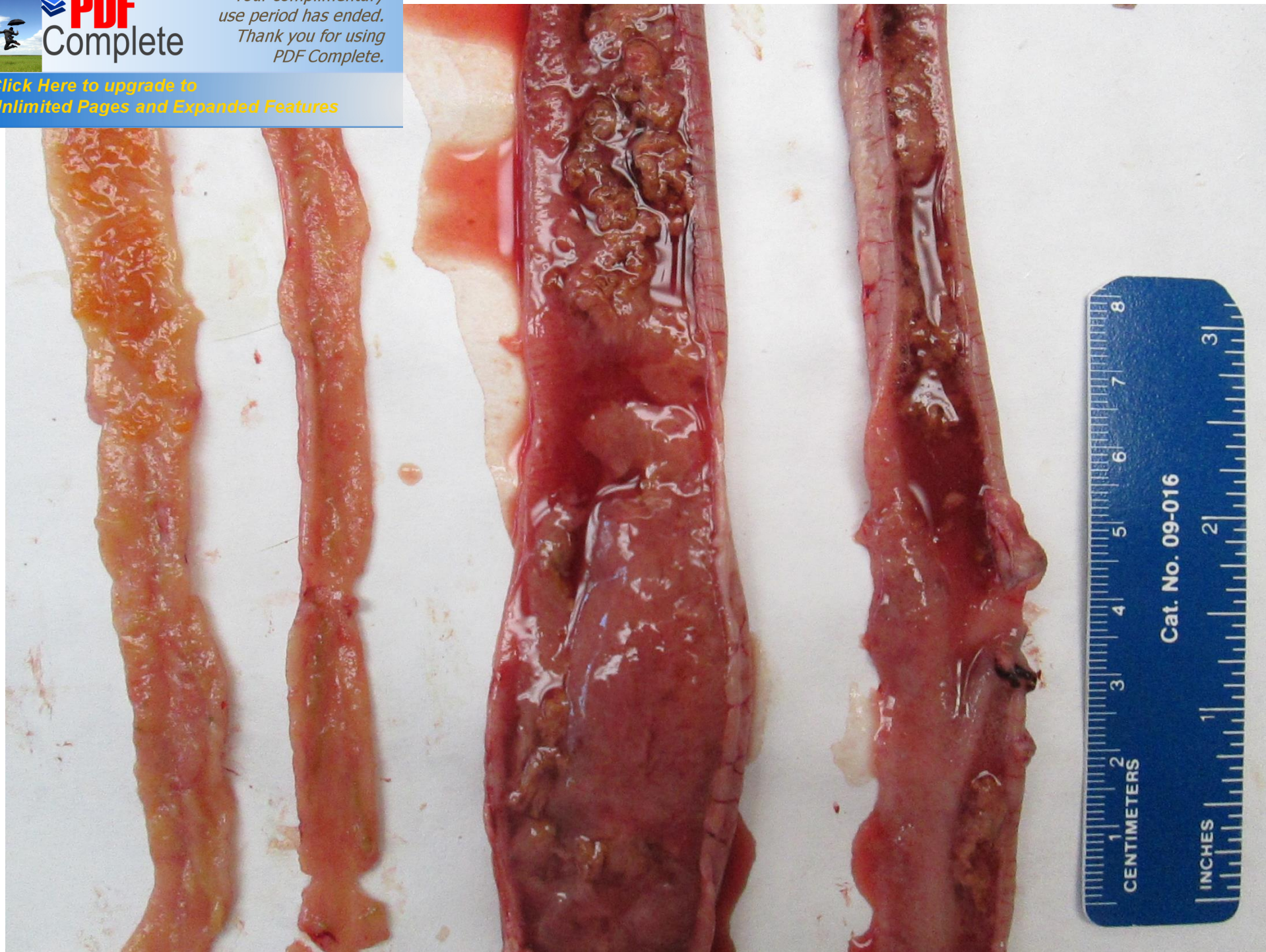


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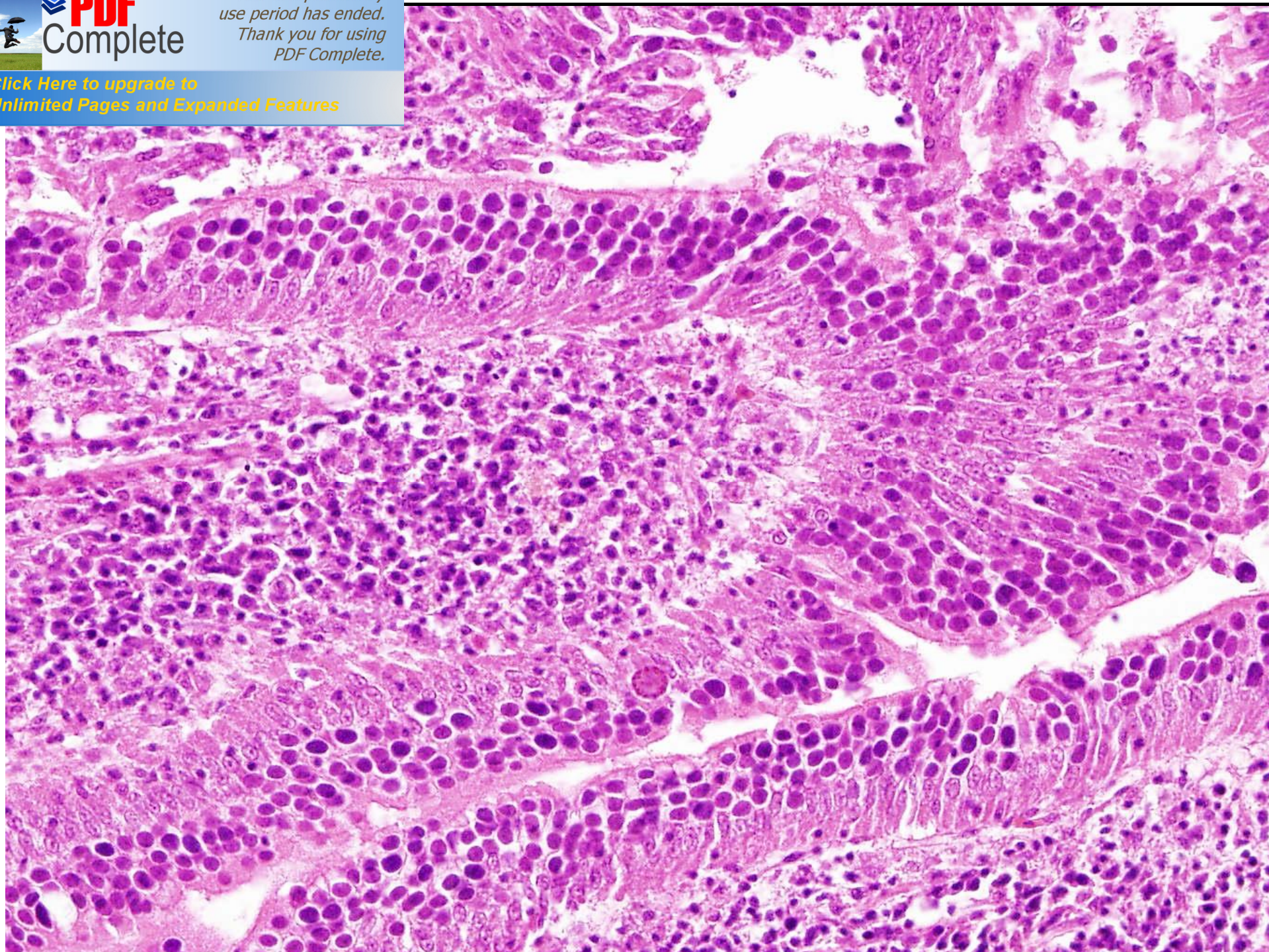




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Thank you!