

Escherichia coli Infections (E. coli)

Colibacillosis

Escherichia coli Infections (E. coli or Colibacillosis)

- ▶ Escherichia coli infection or colibacillosis is the most common, the most widely prevalent, and economically the most important bacterial disease of poultry.
- ▶ The disease occurs from the day-old chick as **yolk sac infection**, up to the adult bird as **egg peritonitis**. It occurs throughout the year.
- ▶ Generally occurs as a **secondary bacterial infection** causing many different signs and lesions in chickens and turkeys.

Etiology

- ▶ A bacterium called **Escherichia coli**.
- ▶ E. coli normally lives in the **digestive tract** of birds, but most types (strains) do not produce disease.
- ▶ E. coli causes disease only when there is a serious **managermental fault**, or some other underlying diseases like **Mycoplasma** is present.
- ▶ Thus, E. coli infection occurs when **bird's defenses (immune system)** have been **damaged or defeated**.

Types of Diseases caused by E.coli

❑ **Group of local or systemic diseases, where E. coli is the primary or the secondary agent.**

❑ **Local Forms of E. Coli Infection:**

1. **Omphalitis (navel infection). It is characterized with reddening and tissue oedema in the umbilical region.**
2. **Salpingitis (inflammation of the oviduct). Salpingitis due to E. coli infections could be also observed in growing birds.**
3. **Egg yolk peritonitis in a layer hen consequently to E. coli salpingitis.**
4. **Oophoritis (inflammation of the ovary) consequently to a salpingitis due to ascendant E. coli infection**
5. **Coligranuloma.**
6. **Swollen head syndrome.**
7. **Enteritis.**

Escherichia Coli Infections

□ Systemic E. Coli Infections:

Neonatal E. coli septicaemia.

- Chickens in the first 24 - 48 h after hatching, The yolk sac is unabsorbed. The spleen is enlarged.
- Some days later, the typical serofibrinous polyserositis lesions, affecting the peritoneum, the pericardium, the air sacs and the liver capsule are manifested.



Omphalitis (yolk sac infection)

(navel infection) It is characterized by reddening and tissue oedema in the umbilical region



Omphalitis



Omphalitis (yolk sac infection)

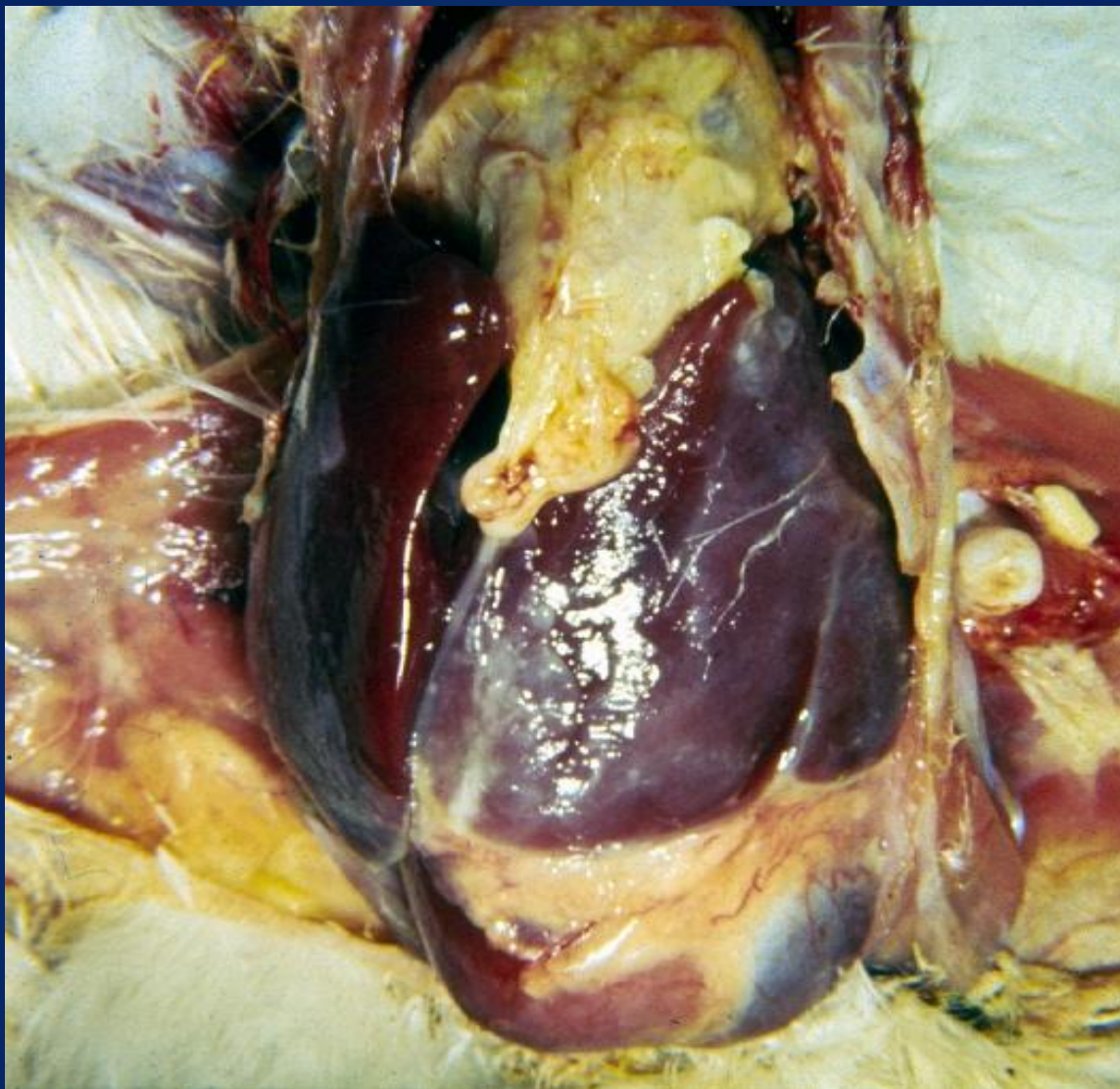


Omphalitis (yolk sac infection)

Colisepticaemia

pericarditis, peritonitis, perihepatitis





Pericarditis, perihepatitis



Pericarditis



Perihepatitis

Panophthalmitis (inflammation of all tissues of the eyeball). Generally, it develops secondary to *E. coli* septicemia .





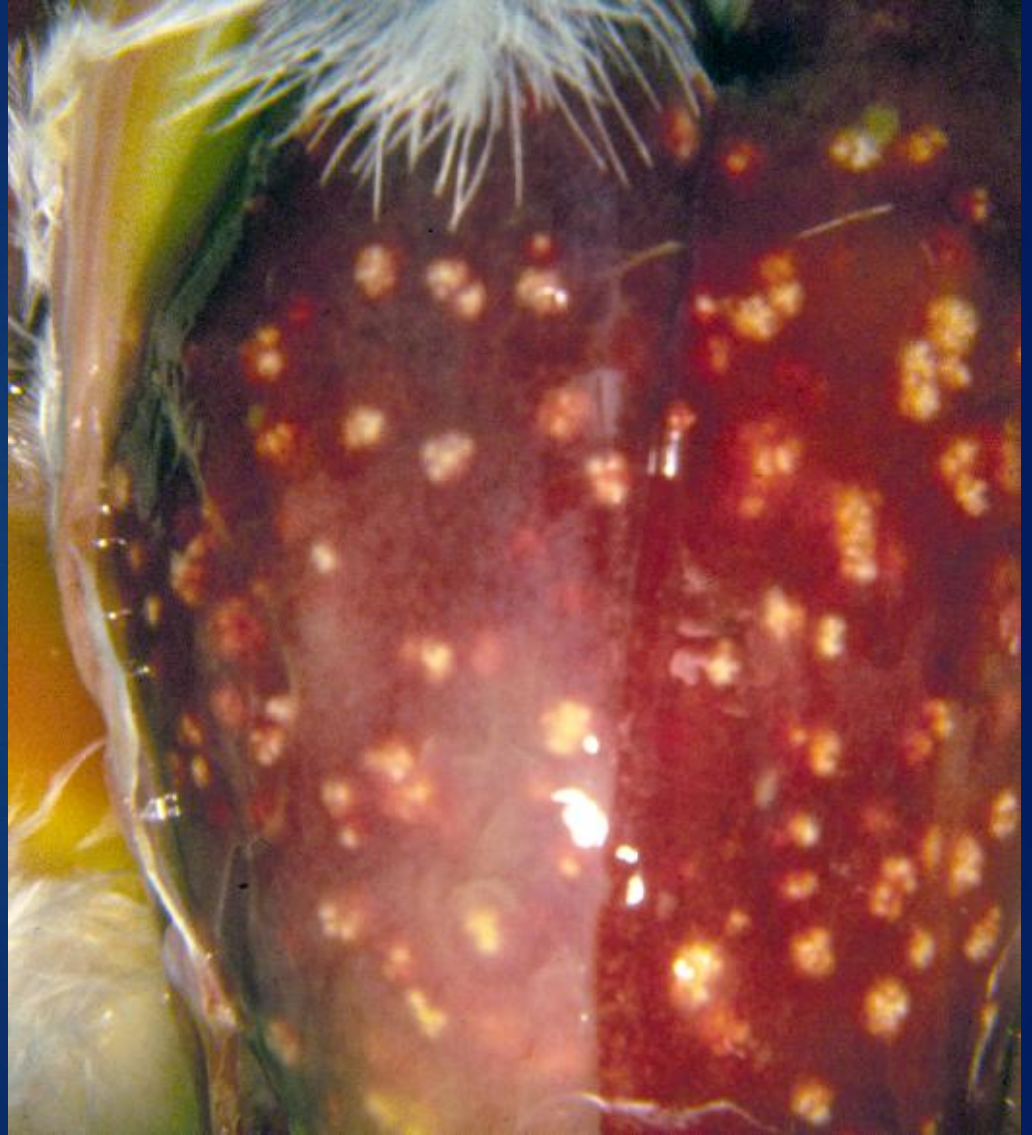
**Arthritis, Osteomyelitis
and Osteonecrosis**
(inflammation of joints,
bone marrow and bone
necrosis, respectively).

Coligranuloma (Hjarre's disease)

It is characterized
by multiple
granulomas in the
intestinal tract, the
mesentery
and the liver **except**
in spleen



Coligranuloma





Coligranuloma

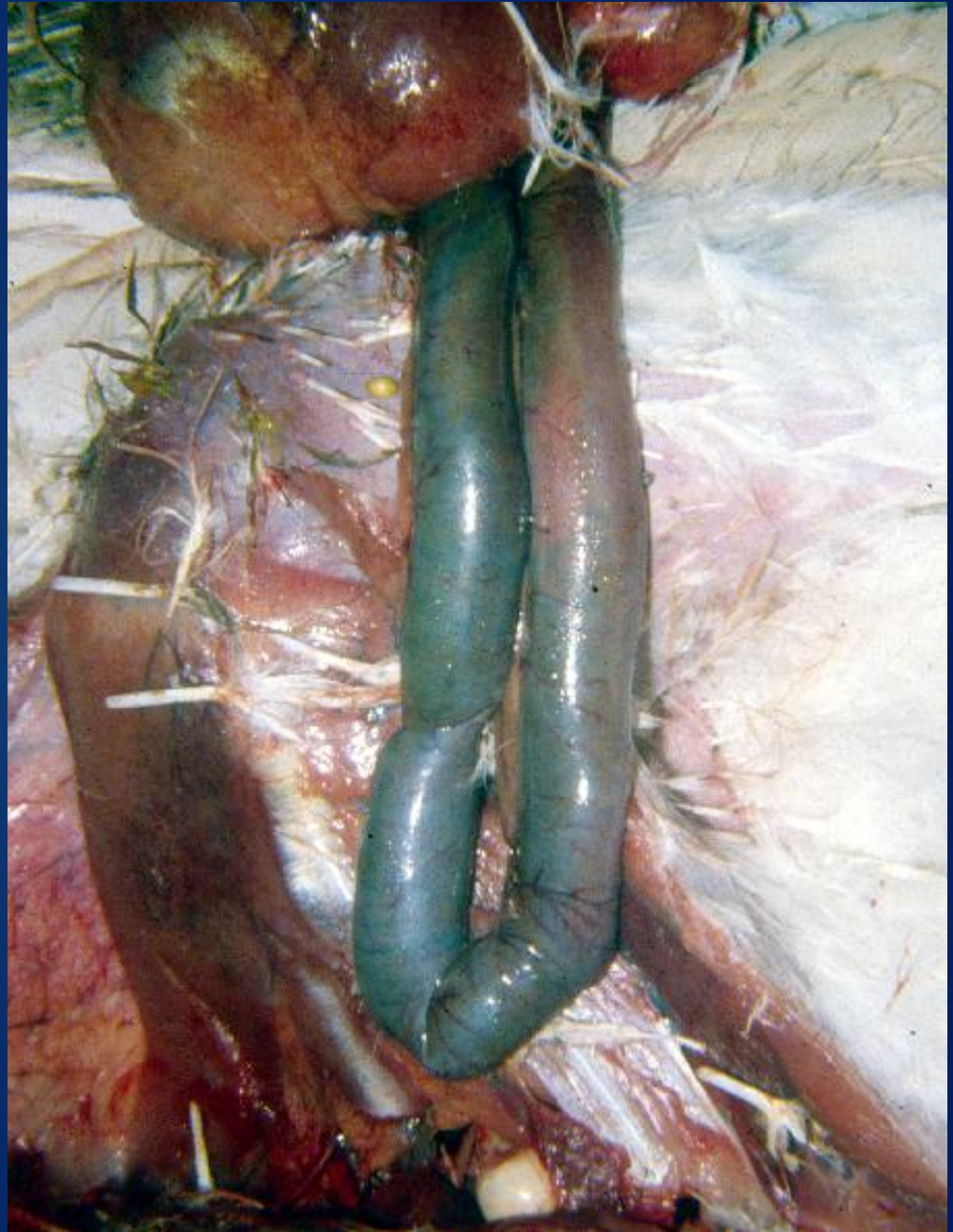


Coligranuloma

E. coli

- ▶ Differential Diagnosis
 - ▶ Mycoplasma
 - ▶ Respiratory virus – NCD, IB
 - ▶ Staph Infection
 - ▶ Fowl Cholera
 - ▶ Blackhead
 - ▶ Erysipelas
 - ▶ Salmonella
 - ▶ Other bacterial septicemias

Enteritis in turkey



Overcome of colibacillosis

- ❑ Incubators, eggs and hatcheries sanitations.
- ❑ Strict biosecurity measures in the farm.
- ❑ Regular culturing and serotyping of the flocks.
- ❑ Treatment of the infected flocks (sensitivity test).
- ❑ Competitive exclusion compounds, acids,...
- ❑ Local inactivated vaccines.

Treatment

- ▶ Sulfa drugs and antibiotics(chloramphenicol, chlortetracycline, neomycin, gentamicin, oxytetracycline, enrofloxacin)
- ▶ *E. coli* resistant to most drugs available for use in poultry.
- ▶ Run sensitivity study.