ASCITES IN BROILERS

By Dr Gachugia Kuria (BVM, MSC)

CVL Kabete – Pathology Lab.

A CASE OF ASCITES IN BROILER BIRDS

- Case No A59/2014
- This case was reported on 3rd april 2014
- From ting'ang'a, Kiambu county.
- Number in the flock – 700; Affected – 60; dead – 60
- Age of the birds was 32 days
- 3 carcasses were submitted.

Clinical History

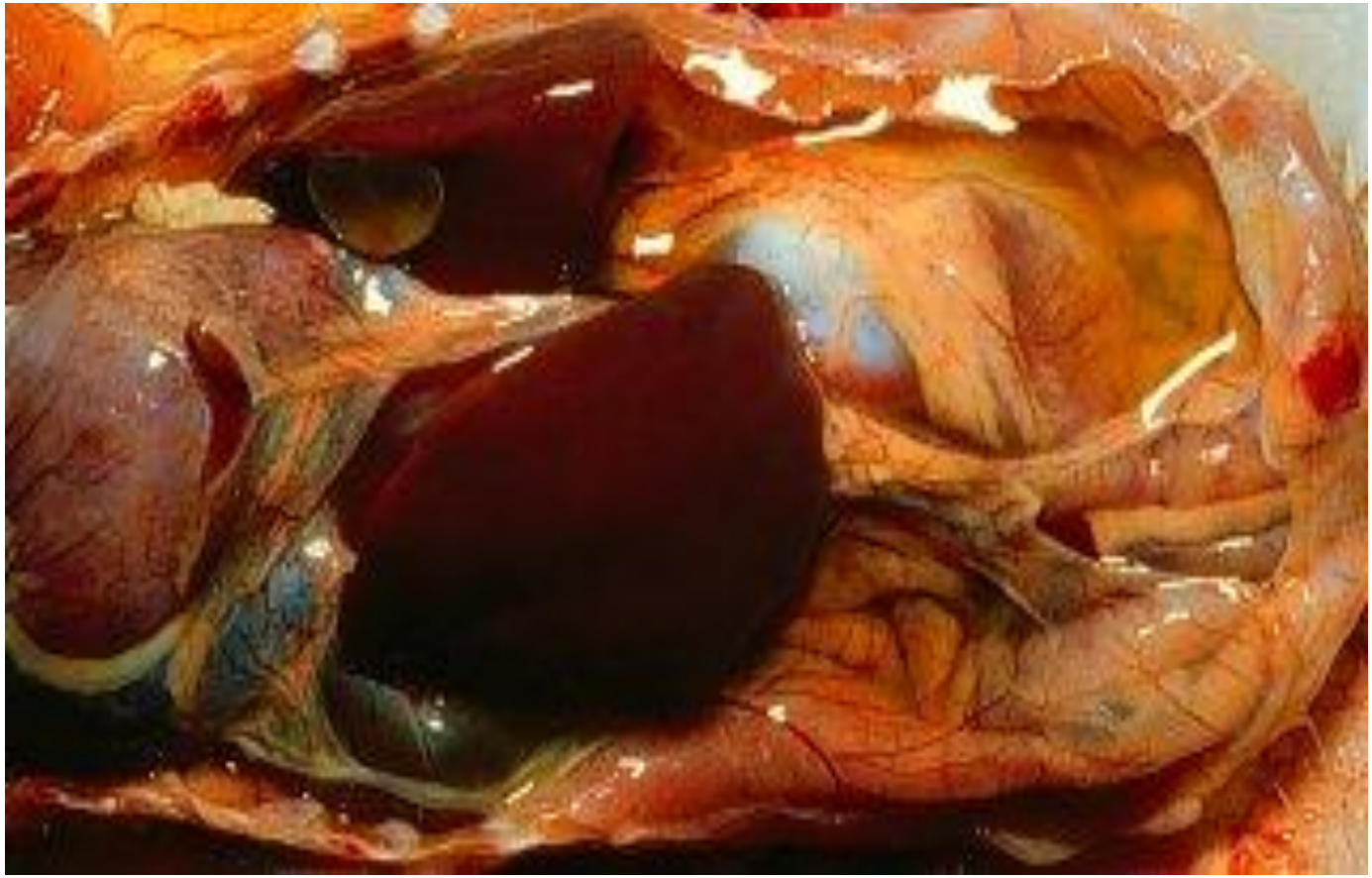
- Duration of outbreak was 3 days.
- Lack of appetite.
- swollen abdomen.
- panting.
- Ventral recumbency.
- unable to walk.

Postmortem findings

- Externally, the carcasses were in good body condition
- Distended abdomen
- Breast muscles were congested
- Opening the abdominal cavity, there was amber or clear fluid (lymph) that resembles blood plasma.

- The heart was enlarged and there was fluid in the pericardium (the sac surrounding the heart).

- The liver edematous (swollen and congested) and covered by fibrin (blood clotting protein which is soluble in the blood) adhering to the surface.



Discussion

- It is a condition in which there is excess amount of ascitic fluid
- Causes death
- If the birds mature – the carcass would most often be condemned

Recent Trends

- In the World Broiler Ascites Survey (Maxwell and Robertson, 1996), information on 18 countries from four continents showed that ascites affects 4.7% of live broilers worldwide.

- Loss for ascites related mortality has been estimated to be in excess of $500 billion per year.

In Kenya

- Leading causes of broiler poultry condemnations at Tigoni abattoir from January to April 1995 were cadavers (51.5%), ascites (26.1%) and others (22.4%).

- For instance in 1994, the total market loss was estimated at Ksh 1,677,100 (*Njue, S. W. et al,* 1997)

Etiology

- Rapid growth rate requires a high basal metabolic rate.
- Sustaining a high metabolic rate requires oxygen.
- that the demand for oxygen may exceed the cardiopulmonary capacity to supply sufficient oxygen .

- This ultimately leads to an oxygen deficit.

- The heart responds by increasing its output of (deoxygenated) blood to the lungs for oxygenation.
- The right ventricle (which pumps blood to the lung) responds to the increased demand for oxygen by increasing heart rate and blood volume

- Right ventricle dilates, the valves become increasingly inefficient and allow some blood to flow back into the atrium.
- This leads to right ventricular failure.
- The increase in back flow causes liver congestion (edema).
- capillaries cannot exchange the fluid and the high pressure causes exudation of the plasma into the body cavity.

Rapid growth rate
High basal metabolic rate

↓

Increased body demand for oxygen

↓

Increased cardiac output

↓

Increased pulmonary arterial pressure

↓

Right ventricular hypertrophy

↓

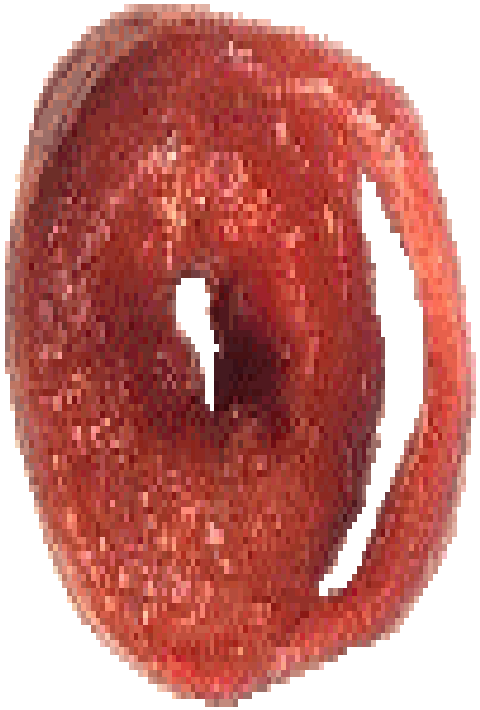
Valvular insufficiency
Right ventricular dilation
Right ventricular failure

↓

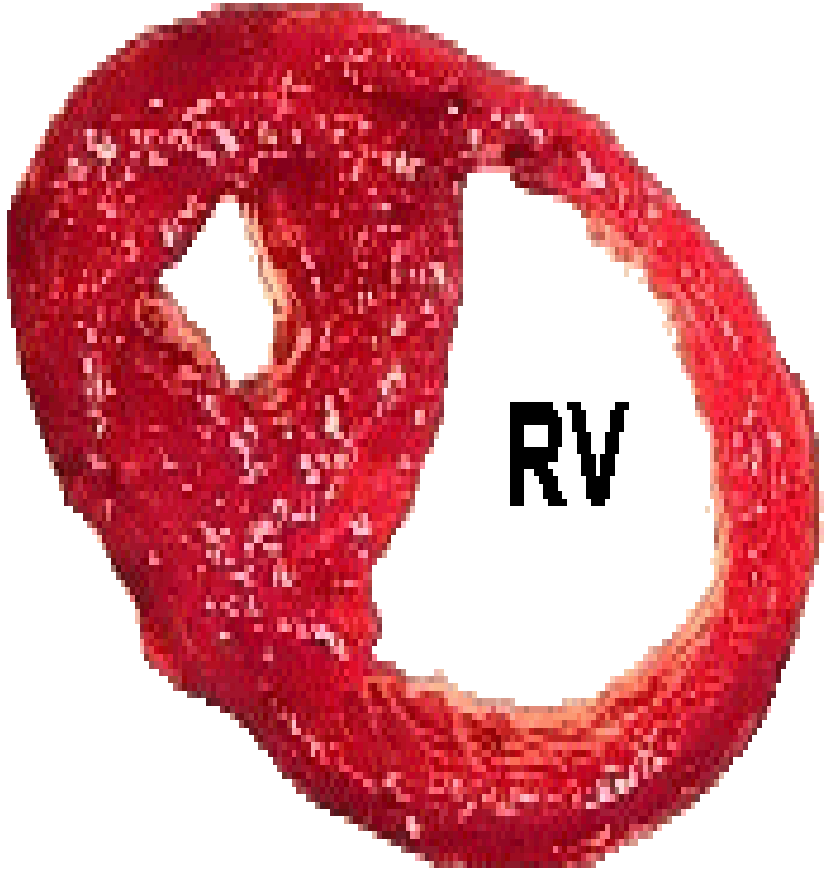
Liver congestion and edema

↓

Ascites



normal



ascites

Diagnosis/Clinical signs

- Ascites at 4 – 5 weeks of age, although signs of ascites have been recorded in day-old birds
- Panting
- dilated (enlarged) abdomen
- Increased respiration rate and reduced exercise tolerance
- Older birds which are mildly ascitic may show signs of cyanosis – combs and wattles
- Spontaneous death, especially when excited.

Reducing incidence of ascites

- Ensure adequate ventilation
- Maintain air quality – avoid contaminants e.g. high levels of carbon monoxide, carbon dioxide, dust etc. – reduce respiratory efficiency.
- Avoid periods of cold stress – increase metabolic rate
- Restrict feeds intakes especially 4-5 th weeks

Methods of feeds restriction

- Feed form (Mash v.s. Pellets)
- Composition of the feed (nutrient reduction programs) – lowering the energy content of the diet
- Limited access to feed (meal feeding)
- Skip a day feeding

Thank you