

Sudden death syndrome (SDS)

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FLIP-OVER DISEASES

Acute heart failure

Lung edema

Acute death syndrome

- Sudden death syndrome (SDS) is a condition in which **apparently healthy fast growing broilers chicks die suddenly** due to unknown causes.
 - **Metabolic disorders** affect internal body metabolism and development and are the cause of the **large proportion of mortality in both commercial and backyard poultry flocks**.
 - There is usually a **short wing beating convulsions prior to death**, so that the majority of affected broilers are **found dead lying on their backs**. As a result, the condition often been referred to as “**Flip-Over Disease**”.
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- Broilers of all ages are affected starting **as early as 2 days of age and continuing to market age**.
 - **Peak mortality** usually occurs between **3 and 4 weeks** of age.
 - **Males** are more affected than the females.
 - **Lung edema** is a prominent PM lesions.
 - There is **no proper treatment** and preventive measures for control of SDS, but incidence can be **reduced by management techniques**.
 - The **causes** of the Sudden Death Syndrome includes; **Managemental factors, Nutritional factors, Diet Composition and Role of Prostaglandins**.

Etiology

Suggested that there are numerous nutritional and physiological factors which may lead to SDS.

- The level and type of **fat** (higher for saturated than for unsaturated) in the diet may be involved.
- The fact that death is apparently due to **heart failure** may suggest the involvement of **electrolytes** (Na^{++} , K^{+} , Cl^{-}).
- **Stress: (Lighting and stocking density)** causes functional disorders in their organs including the heart. **Catecholamine from adrenal gland leads to increased Ca^{++} in cardiac muscles followed by cardiac arrhythmia.**
- **Absence of certain vitamins.**
- **Genetic variation.**

■ Role of prostaglandin in SDS

- ➡ Prostaglandin **regulates** the flow of blood and transmission of nerve impulses to visceral organs.
- ➡ In SDS, **decrease in the synthesis of prostaglandin causing cardiac arrhythmia, and increase the incidence of SDS.**

■ Nutritional factors

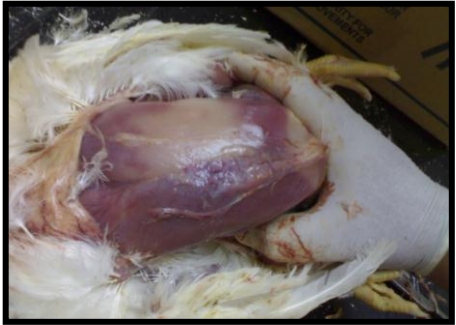
- ➡ In broilers; **pelleted feed** is extensively used causing faster growth rate hence incidence of SDS and ascitis are more in broilers
- ➡ Inclusion of **meat meal** provides **some protection** against the occurrence of SDS.
- ➡ **Soybean meal** supplies **increase incidence** of SDS due to production of some toxic factors.

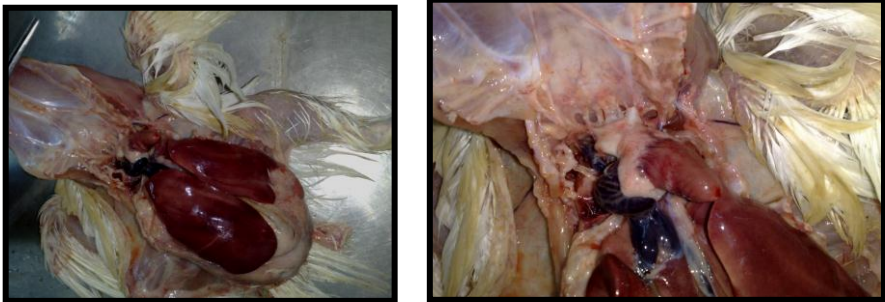
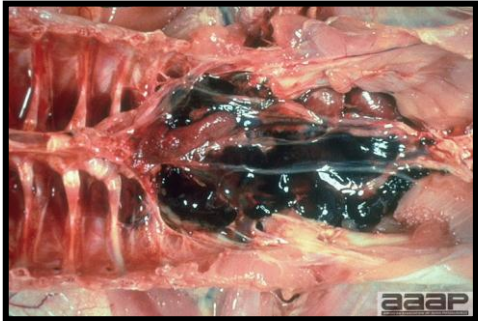
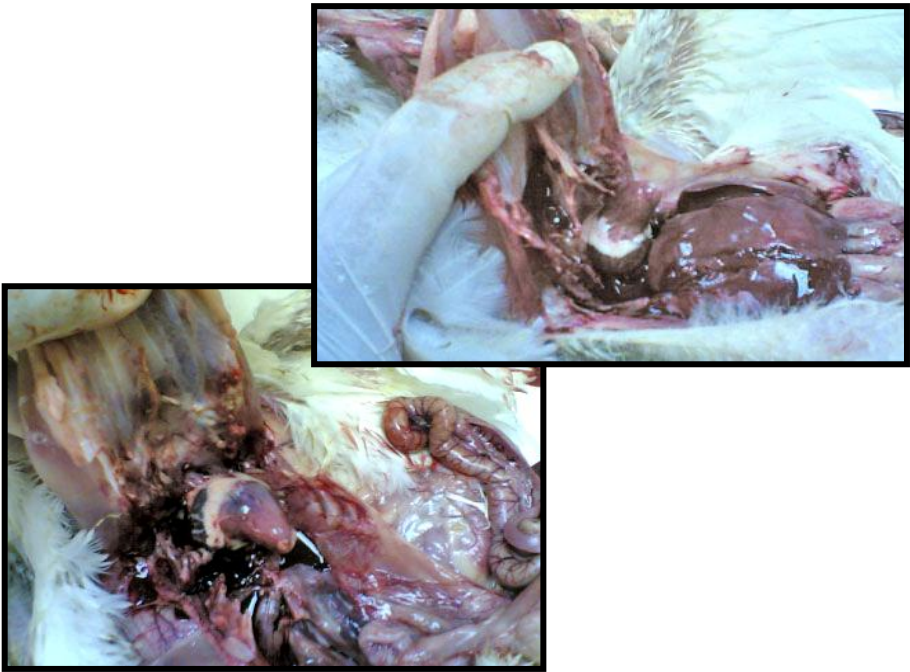
Clinical signs

- **Birds prior to death eat, drink and walk normally.**
- Then they extend their neck, squawk and beat wings. Death occurs within minutes.
- All affected birds exhibited a sudden attack prior to death characterized by loss of balance, violent wing flapping and strong muscular contraction.
- Most of birds gave some type of squawk or high pitched cry during the attacks.

PM findings

- **Heart** : Firmly contracted with enlargement, ventricles were empty. Atria filled with blood clots. Clot was considered as post-mortem origin.
- **Lung** : Edema of lung
- **Crop and Gizzard** : Full of recently ingested food.
- **Gall bladder** : Empty, indicates birds prior to death eaten up food.
- **Kidney and liver**: Slightly congested and subcapsular petechial hemorrhage. Heavier liver with fatty infiltration.





Diagnosis

- Diagnosis of SDS was made if the birds was **well fleshed** with congested lungs, as small gall bladder and no evidence of other disease.
- Diagnosis is based on the history of **sudden death within one minute by violent wing flapping, convulsion and death.**

Prevention

- Condition is related to early faster growth rate. So, such management techniques are used to **reduce early maximum potential for growth.**
- Use diets with **5-7% reduction in nutrient density which tampering early fast growth rate up to 18-20 days.** which reduces incidence of SDS.
- **K salts** in feed given to broiler well reduce the incidence of SDS.
- **Dietary fat restriction from 0-7 days** initially reduced growth rate and increased feed gain ratio.
- **Lowering the energy/protein ratio of finishing diet significantly between 29 and 49 days** well reduce the incidence of SDS significantly.

- **Using quantitative feed restriction** to decrease mortality. **Feed restriction at 30-40% for 7 days lowering the incidence of SDS mortality. Practically we can turn off the light or covering the feeder for few hours each day.**
- Using electrolytes containing sodium chloride, sodium bicarbonates, potassium chloride, citric acid, glycine and vitamins.