Lecture title: **SALMONELLOSIS; Lecture 1.**

Lecturer Affiliation:

Introduction:

Bacteria of the genus Salmonella have presented serious challenges to the poultry industry and other farm animal industries and are responsible for significant health problems. Salmonella infections in poultry are presented as; pullorum disease, fowl typhoid, arizonosis, and fowl paratyphoid.

Paratyphoid salmonella infections are relatively common in poultry and all steps should be taken to minimize contamination as they are zoonotic.

Pullorum disease:

Definition:

Pullorum disease (PD) is an infectious, egg-transmitted disease of poultry especially chicks and turkey poults, often characterized by white diarrhea and high mortality in young birds (it may reach 100%) and by asymptomatic adult carriers.

Many other bird species can be infected naturally but they usually play an insignificant role in the epidemiology of this disease. Pullorum disease occurs in all age groups of chickens and turkeys but causes greatest loss in those less than 4 weeks old and it is worldwide in distribution.

Etiology:

Salmonella pullorum, a non-motile, Gram-negative bacillus adapted to poultry. This organism, like many other Salmonella spp., tends to infect young birds more frequently than older individuals. S. pullorum closely resembles S. gallinarum, the cause of fowl typhoid. They share certain antigens and usually cross-agglutinate on serologic tests.

The organism is rather resistant under moderate climatic conditions and can survive for months. However, it can be destroyed by thorough cleaning followed by disinfection. The organism can be killed by formaldehyde gas, which may be used in fumigation of fertile eggs and hatchers.

Epidemiology:

- S. pullorum is primarily spread vertically. Many of the infected chicks hatch and then transmit the organism horizontally to other birds in the hatcher through the digestive and respiratory systems.
- Adult carriers also shed the organism in their dropping. Spread to other adults through contamination of feed, water, and the environment.

- Contamination of nests and eggs can result in eggshell penetration and infection of chicks that hatch from those eggs.

- Cannibalism of infected bacteraemic birds can result in transmission.

Clinical signs:

Adults

Usually there are no signs. An infected hen may or may not be a productive layer.

Young chicks and poults

1. There may be reduced hatchability. A few newly hatched birds are weak or soon die.
2. Morbidity and mortality begin to increase around the 4th or 5th day. Losses usually peak during the 2nd or 3rd week and then diminish.
3. Sick birds appear sleepy and weak. They are anorexic and gathered near heat sources.
4. White adherent diarrhea with pasting of the vent area.
5. A few days later there may be respiratory signs in birds that inhaled the organism in the hatcher
6. Survivors often are irregular in size and some are unthrifty, stunted, or poorly feathered. Many remain carriers and disseminate the etiologic agent.
7. Mortality varies greatly but often is very high and can approach 100%. Mortality is increased by shipping, chilling, or poor husbandry. Conversely, mortality may be surprisingly low and the disease may go unrecognized.

Lesions (PM.):

Adults

1. Often there are no lesions. An abnormal ovary may have hemorrhagic, atrophic, or discoloured follicles, it resembles cauliflower. Affected testes may have white foci or nodules.
2. Less frequently there is oviduct impaction, peritonitis, or ascites. Occasionally there is nodular myocarditis