Avian Mycoplasmosis

1-Mycoplasmas are very small prokaryotes, without cell wall, bounded by plasma membrane only, the morphology of colony on agar as fried egg.

2-In general mycoplasmas colonize mucosal surface and most species are noninvasive, some species including *mycoplasma gallisepticum* are known to have the ability to penetrate cells.

3- Mycoplasmas are member of class Mollicutes, order I, Mycoplasmatales,

Genus I.

4-Mycoplasma has more than **120** species, they found in humans, many animal species, plants and insects.

5-Only four species are pathogens for domestic poultry:-

1-Mycoplasma **gallisepticum** (M.G).

2-Mycoplasma **synoviae** *(M.S)* for chickens and turkeys.

*(M.G) and (M.S) for chickens and turkeys.

3-Mycoplasma **meleagridis** (M.m).

4- Mycoplasma **iowae** (M.i) for turkeys.

*(M.M) and (M.I) for turkeys.

1-Mycoplasma gallisepticum(M.g) infection

***Definition:** The disease is commonly known as chronic respiratory disease **(CRD) of chickens** and infectious **Sinusitis of turkey**.

*Predisposing Factor:

The most predisposing factor by:

1-Respiratory virus infections (Infectious bronchitis, Newcastle disease).

2-E.coli, excessive ammonia, bad ventilation, dust, bad management, nutritional deficiency, vaccination with live vaccine.

*Economic losses:

1-Condemnation of carcass.

2-Reduced feed consumption , bird lose weight and egg production.

3-Increase medication costs that make disease one of costliest disease problems.

4-Prevention & Control program, which include (Serology, Culture, Isolation and identification).

5-Vaccination.

*Transmission:-

1-**Vertical** transmission (egg transmission).

2-Horizontal transmission, by direct or indirect contact, spread by air born (dust or droplets).

*Clinical Signs:

1 **Adult flock (chicken)**:

1- The most characteristic signs are tracheal rales, **nasal discharge** and coughing.

2-Feed consumption is reduced, bird lose weight.

3-In laying flocks egg production decline, but usually is maintained at lowered level.

4-**Male** birds have most pronounced signs and more severe during **winter**.

2 **Broiler (chicken)**:

1-Most outbreak occurs after **4weeks** of age.

2-Severe outbreak with high morbidity and mortality due to other infections and environmental factors.

3-Conjunctivitis, **swelling of facial skin and eyelids**, increase lacrimation and respiratory rales.

3 **Turkeys:**

1-Nasal discharge with foamy eye secretions precedes the more typical swelling of **paranasal sinuses**.

2-Partial to complete close of the eyes results from severe swelling of sinuses.

3-Tracheal rales, coughing &labored breathing evident (if tracheitis or air sacculitis is present).

*Gross lesion:-

1-Catarrhal exudate in nasal, paranasal passage, trachea, bronchi and air sac.
2-Sinusitis is usually most prominent in turkeys but also observed in chickens.
3-Air sacs contain caseous exudate.
4-Some degree of pneumonia may be observed.
5-In severe cases typical air sac disease in chickens or turkeys, there is fibrinous or fibropurulent **perihepatitis** and **adhesive pericarditis** resulting in high mortality and extensive condemnations at processing **(**these lesions may occure with chlamydiosis or septicemia and are **not pathognomic** for M.g).
6-Salpingitis in layer.

*Diagnosis:-

1-Isolation &Identification of organism.
2-Serology:-
A-Rapid Serum plate test.
B-ELISA.
C-HI.
3-PCR.

*Differential Diagnosis:-

1- *Mycoplasma gallisepticum* in chickens:
Must be differentiated from common respiratory disease:

1-Newcastle disease.
2-Infectious bronchitis.
3-E.coli.

4-Infectious Coryza.
5-Fowl Chlolera.

2- *Mycoplasma gallisepticum* in Turkey:

Respiratory disease including Sinusitis may be due to:

1-Avian influenza.
2-Aspergillosis.
3-Pasteurellosis (fowl cholera).
4-Chlamydiosis.
5-Newcastle disease.
6- Mycoplasma **synoviae.**
7-Vitamin A deficiency**.**
8-Ornithobacterium rinotracheale (ORT).