

## **Paramyxoviridae:**

### **General characters:**

- a. Large pleomorphic enveloped viruses (150 nm or more).
- b. Negative sense single –stranded RNA, (non segmented).
- c. Helical symmetrical nucleocapsid.
- d. Replicate in the cytoplasm.
- e. Genetically stable & not exhibit recombination but some antigenic variation may occurs through mutation

### **Replication:-**

Viral replication is cytoplasmic. Entry into the host cell is achieved by virus attaches to host cell. Replication follows the negative stranded RNA virus replication model. Negative stranded RNA virus transcription, using polymerase stuttering is the method of transcription. Translation takes place by leaky scanning, ribosomal shunting, and RNA termination-reinitiation. The virus assembly and releasing from the host cell by budding

### **Genera of Paramyxoviridae:**

Rubella virus : - Newcastle disease virus.-Avian parainfluenza virus.

### **Newcastle Disease in Poultry:-**

Newcastle disease is an infection of domestic poultry and other bird species characterized by acute respiratory disease ,depression, nervous manifestations, or diarrhea may be the predominant clinical form. Severity depends on the virulence of the infecting virus and host susceptibility. Occurrence of the disease is reportable and may result in trade restrictions.

### **Etiology :-**

NDV, is an RNA virus causes by rubella virus. The virus classification isolates into one of three virulence groups by isolated chicken embryo and chicken inoculation as virulent (velogenic), moderately virulent

(mesogenic), or of low virulence (lentogenic) .Velogens and mesogens are now classified as virulent NDV (vNDV), the cause of Newcastle disease and reportable infection, whereas infections with lentogens, the low virulence NDV (loNDV) widely used as live vaccines, are not reportable.

### **Transmission :-**

- 1-air.
- 2-respiratory discharges,
- 3-feces.
- 4-ingesting contaminated water or food.
- 5-contaminated equipment or litter

### **Clinical Findings :-**

- 1-Onset is rapid, and signs appear throughout the flock within 2–12 days (average 5).
- 2-Observed signs depend on whether the infecting virus has a predilection for respiratory, digestive, or nervous systems.
- 3-Respiratory signs of gasping, coughing, sneezing, and rales predominate in infections with loNDV.
- 4-Nervous signs of tremors, paralyzed wings and legs, twisted necks, circling, clonic spasms, and complete paralysis may accompany, but usually follow, the respiratory signs in neurotropic velogenic disease. Nervous signs with diarrhea are typical in pigeons, and nervous signs are frequently seen in cormorants and exotic bird species. Respiratory signs with depression, watery greenish diarrhea, and swelling of the tissues of the head and neck are typical of the most virulent form of the disease, viscerotropic velogenic Newcastle disease, although nervous signs are often seen, especially in vaccinated poultry. Varying degrees of depression and inappetence are seen. Partial or complete cessation of egg production may occur.
- 5-Eggs may be abnormal in color, shape, or surface and have watery albumen. Mortality is variable but can be as high as 100% with vNDV infections.

### **Diagnosis :-**

1-NDV can be isolated from oropharyngeal or cloacal swabs or tissues from infected birds by inoculation of the allantoic cavity of 9- to 11-day-old SPF embryonated chicken eggs.

2-hemagglutinating inhibited test.

3-PCR.

4-ELISA

### **Prevention:-**

1-vaccines are used to prevent losses from sickness and death. **Live lentogenic vaccines, chiefly B1 and LaSota strains**, are widely used and typically administered to poultry by mass application in drinking water or by spray.

2-Oil-adjuvanted inactivated vaccines are also used after live vaccine