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Introduction

The viral family Paramyxoviridae has two subfamilies – the Pneumovirinae (pneumoviruses) and the Paramyxovirinae (avian paramyxoviruses). Newcastle virus belongs to the first (APMV-I) of nine serogroups of the paramyxoviruses (see Poultryhealth BYTES 46).

Newcastle disease varies a lot in its severity and manifestation. These are classified as follows:

- Viscerotropic (of the viscera) velogenic (severe) Newcastle disease (VVND), which is an acute lethal infection with high mortality and haemorrhagic lesions in the digestive tract.
- Neurotropic (of the nervous system) velogenic Newcastle disease, which is an acute fatal infection characterised by respiratory and nervous signs.
- Mesogenic Newcastle disease, which is of moderate severity.
- Lentogenic Newcastle disease, which manifests itself as a mild or inapparent respiratory disease.
- Asymptomatic enteric Newcastle disease, which is an infection of the digestive tract.

In the past Newcastle disease has had many names including pseudo-fowl plague, pseudovogel pest, Ranikhet disease, avian pest and avian distemper. Since the 1970s there has been an on-going pandemic of PMV-I infection in pigeons.

The economic impact of Newcastle disease is enormous and countries with developed poultry industries strive to keep themselves free of the disease by tight import controls and vaccination.

History of Newcastle disease

The first outbreaks of virulent Newcastle disease occurred in Java in 1926 and in Newcastle, England (hence the disease's name). It is thought that the outbreak in Newcastle was the result of some refrigerated poultry meat coming to Newcastle (a major port) from Java as refrigeration had been introduced to some ships a few years earlier.

In the 1920s the disease was found in several European countries. Earlier disease outbreaks which may have been Newcastle disease occurred in Korea (1924) and Scotland (1896).

Mild Newcastle disease was seen in the USA in the 1930s.

Following World War II a wave of Newcastle disease spread across Europe from the Middle East and caused significant problems in the 1960s and early 1970s.

In the late 1990s a wave of outbreaks of Newcastle disease spread westwards across Europe. These were related to an unusual migration of waterfowl and in various countries along the migratory pathway primary outbreaks occurred by open water on which the migrating waterfowl fed and rested. In many instances the disease spread from these primary outbreaks and caused secondary ones. The furthest west of these was associated with Lough Neagh in Northern Ireland.