



**SOUTH PACIFIC COMMISSION**

**INFECTIOUS  
BURSAL DISEASE**



*Enlarged bursa of Fabricius in recently infected bird*

**INFECTIOUS BURSAL DISEASE** (IBD) or Gumboro is a highly infectious disease of chickens caused by a virus that specifically attacks a part of the immune system. The virus targets cells which originate in a small gland called the bursa of Fabricius (above the cloaca or vent). The outcome of infection depends on the age of the bird and the virulence of the infecting strain. IBD can cause high mortality in young, susceptible chicks but in older birds effects are usually mild unless complicated by secondary bacterial or other viral infections. In countries where IBD is present, vaccines are used to control the disease because it is impracticable to eliminate the virus from commercial farms by cleaning and disinfection.

### **DISTRIBUTION**

Although the virus is widely distributed throughout the world the disease was not thought to occur in most Pacific Island countries. However, the virus has now been reported in Fiji, French Polynesia, New Caledonia, New Zealand and Vanuatu. Isolates have been made in Europe, America, Asia and Australia and in most countries having an intensive poultry industry. Of particular concern is a highly virulent strain which is present in South-East Asia and is known to be spreading.

### **INFECTION**

IBD is caused by a virus of the *Birnavirus* group. On the basis of

tests on sera, two serotypes have been identified. Serotype I is involved in disease outbreaks in chickens while Serotype II occurs mainly in turkeys. Strains of the virus vary in virulence, with reports that highly pathogenic strains may cause mortality rates of up to 100 per cent in susceptible chickens.

All strains appear to be well adapted for survival away from the host. The virus is known to survive for 21 days at 25°C and for much longer periods at lower temperatures. It can be inactivated by exposure to 0.5 per cent formalin, chlorine or iodine disinfectants.

Clinical bursal disease has been seen only in chickens and is only caused by some viruses of the Serotype I group. The Serotype II viruses which cause natural infections in turkeys and ducks generally produce no signs of clinical disease. Some strains of virus are known to cross-infect between species.

Spread of infection is by the faecal-oral route. The virus is not transmitted through the egg. The virus can survive in a poultry shed environment, in insects which inhabit the litter or in litter debris for several weeks and many flocks are infected initially from a virus which has persisted in the shed despite disinfestation. During the acute phase of infection birds pass virus in their faeces for several days and lateral spread occurs rapidly through contamination of food, water and surroundings. Outbreaks of disease occur in birds which have no mater-

nal antibody protection or at a time when these antibodies have decreased to levels which do not provide protection.

### **CLINICAL SIGNS**

Affected birds become depressed and sluggish. The earliest signs are frequently whitish watery diarrhoea and loss of appetite, followed by collapse and death. Very young birds may die suddenly without symptoms. The course of the disease is usually short. However, those birds which recover do so within four to seven days. Mild strains of the virus do not produce clinical signs unless infection is complicated by secondary infection as a result of the damage to the immune system.

### **DIAGNOSIS**

Birds which die between two and five days after being infected by a virulent strain of IBD have an enlarged, oedematous (swollen) bursa of Fabricius, pale swollen kidneys and minor haemorrhages (bleeding) in body tissues. Birds which die later are likely to have atrophied shrunken bursae. Confirmation of a diagnosis can be made by isolating the virus or by demonstrating its presence in tissue. Surviving birds produce antibodies which can be detected in blood samples using serum neutralisation, ELISA or precipitating antibody tests.

### **CONTROL**

To prevent the introduction of IBD into countries where it is not present, importation of hatching eggs, poultry products and vaccines should only be permitted from approved sources.

In countries where IBD has become established, control is by vaccination. Vaccinating breeder stock with live or inactivated vaccine will pass maternal antibody to the chicks. Vaccination of the broiler must be timed to ensure that immunity from the vaccination takes over as the maternal antibodies are declining.

Vaccination may not be fully effective in the presence of highly virulent strains of IBD. The presence of maternal antibodies may prevent the development of immunity.

Spread of the disease can occur through contaminated clothing or footwear.

### **TREATMENT**

There is no specific treatment for IBD.

This leaflet was prepared by Peter Saville, Animal Health Adviser, South Pacific Commission, Suva, Fiji, from whom further information can be obtained. The photographs were provided by Solway Animal Health, Inc., 1201 Northland Drive, Mendota Heights, MN 55120-1149, USA.

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