



Animal &  
Plant Health  
Agency

## Information Note

# Veterinary information note on bovine besnoitiosis

August 2018

This disease is caused by a cyst-forming, intracellular protozoan parasite, *Besnoitia besnoti*, which can be spread by insect vectors. Direct spread through close contact or the use of hypodermic needles for multiple animals could also transfer infection. There are no reports of vertical transmission.

The disease has been recognised in France and Portugal for over 100 years but has spread to other countries and was reported in the Republic of Ireland in July 2015. It has probably spread through the movement of sub-clinically infected cattle.

There are no known food safety or human health risks associated with the disease. It is not notifiable, but APHA would wish to know about any suspect cases.



Figure 1: Cow affected with besnoitiosis showing chronic skin changes

## Clinical signs

Clinical presentation of disease varies from mild to severe, with death in the most badly affected animals. Clinical disease is often mild with many infected animals remaining asymptomatic. The case fatality rate is usually less than 10 per cent, with deaths occurring during the chronic stage, although occasionally acute cases can die.

### Acute disease

This is more commonly seen when biting flies are active. Clinical signs are non-specific. Most commonly there is a pyrexia which can persist for a week or more. Other clinical signs reported are:

- Serous nasal and ocular discharges
- Progressive inappetence and even complete anorexia with severe weight loss
- Photophobia
- Reluctance to move, possible recumbency
- Skin hyperaemia, particularly of the muzzle, periorbital skin and scrotum of light skinned animals

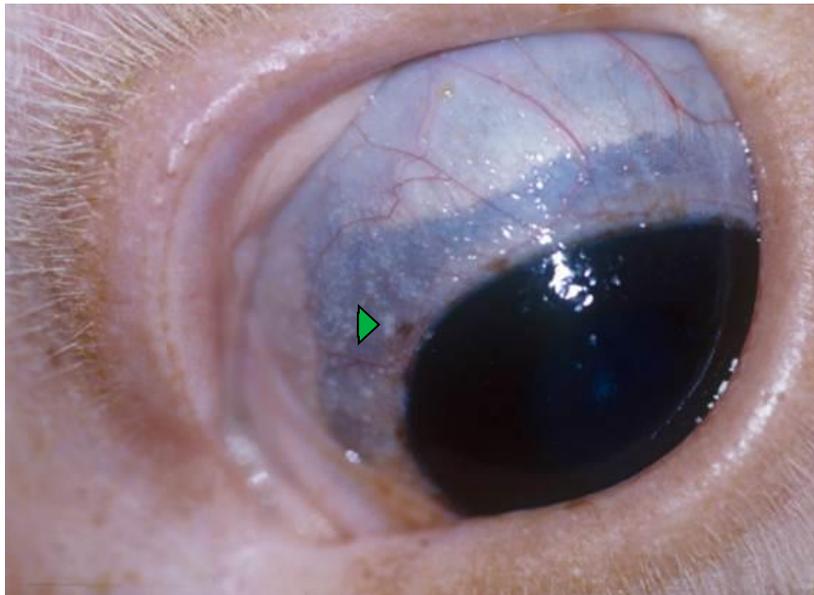
This may be followed by:

- Subcutaneous oedema. This can vary from slight swelling of the face to thickening of the skin folds over the neck, back and chest to subcutaneous oedema over the entire body
- Pain on movement
- A necrotising orchitis leading to sterility
- Abortion
- Diarrhoea

### Chronic disease

Animals once infected remain so for life. They may recover from acute signs and show no or minimal clinical signs but can act as a source of infection to others. A proportion will show severe chronic disease. Clinical signs seen are:

- Cysts (white granules the size of sugar grains) in the sclera, conjunctiva and the vulval mucosa (which will give a tentative diagnosis of besnoitiosis - see Figure 2)



**Figure 2: Scleral cysts in a chronic besnoitiosis (arrows)**

- Progressive thickening, folding or wrinkling of the skin with hair loss. (This may be widespread or localised. The skin on the udder or scrotum and eyelids may also be affected). Raw fissures and scabs can form (Figure 3)



**Figure 3: Skin lesions in chronic besnoitiosis**

- A mucopurulent nasal discharge
- Lameness due to laminitis with non-healing sole ulcers

## Diagnosis

Please contact APHA for information if you suspect a case of bovine besnoitiosis.

Diagnosis of chronic disease is by blood serology (ELISA, IFAT and Western blot). APHA has a validated ELISA test (TC277) for serum or clotted blood. Histopathology of affected skin can also be used. Diagnosis of disease in the acute stage is more difficult.

## Control

There is no treatment for infected animals or available vaccine. Control measures are limited due to the fact it can be spread by vectors. The following could slow the spread of this disease:

- Keeping a closed herd
- Isolation of suspect cases and prompt investigation
- Control of biting flies

**Sian Mitchell, BVMS, PhD, Dip EVPC, Dip ECSRHM, APHA Discipline champion for parasitology, August 2018**

Photographs courtesy of Dr. H Cortes, Victor Caeiro Laboratory of Parasitology, Universidade de Evora, Portugal



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The Animal and Plant Health Agency (APHA) is an executive agency of the Department for Environment, Food & Rural Affairs, and also works on behalf of the Scottish Government and Welsh Government.