

Contagious caprine pleuropneumonia

Detected for the first time in Tajikistan

Field observations

In November and December 2008, in Khatlon Province of Tajikistan, there were reports of a disease affecting sheep and goats (mainly goats), with a clinical description consistent with peste des petits ruminants (PPR). Occurrences of such cases were reported from four villages in the districts of Muminabad, Shuraabad and Yavaan, with morbidity averaging about 50 to 60 percent and a case fatality rate of 20 to 30 percent.

These cases were not confirmed by laboratory testing. A presumptive diagnosis of PPR was made, based on clinical, pathological and epidemiological observations. Of note is that Khatlon is the province with the highest density of sheep and goats in Tajikistan.

During May and June 2009, a disease with a similar clinical and pathological pattern was observed in the districts of Vahdat, Fayzabad, Nurabad, Roghun and Rasht in Direct Ruled District (DRD) Province.

The disease was observed in villages located along the migration route of sheep and goats brought from Khatlon Province to summer pasture in DRD (see Figure 1). Disease onset was observed two weeks after the animals moving to summer pasture had crossed the affected villages. Apparently, the disease was no longer present after mid-June 2009, so its overall duration in these villages appeared to be approximately one month.

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Animal movement to summer pastures, Tajikistan

Figure 1: Migration route of sheep and goats from Khatlon Province to DRD



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From the clinical point of view, the disease was mainly characterized by respiratory signs (coughing and laboured respiration). Pathological findings were indicative of pneumonia, and straw-like fluid in the pleural and pericardium cavity was observed in some subjects. Of note, and different from what may be observed with PPR, cases occurred mainly, if not exclusively, in goats, even in mixed flocks of sheep and goats.

The number of goats dying over this period was estimated at about 1 000 to 1 200.

PPR is present in Tajikistan, but this rapid observation led to consideration of the possibility of contagious caprine pleuropneumonia (CCPP), which had never been reported in Tajikistan.

Laboratory activities

No tissue samples were available from the cases occurring in November and December 2008, but there were samples from the cases in May and June 2009: i) tissue samples from four dead goats collected in July and early August 2009 from the districts of Fayzabad and Roghun; and ii) 20 serum samples from live goats in the districts of Fayzabad (six samples), Nurabad (nine) and Roghun (five). The serum samples were collected from live animals in villages where clinical cases had been observed. All were tested for PPR (antigen and antibodies) in the National Veterinary Laboratory in Dushanbe.

Test results from the tissue samples were inconclusive, while those from the serum samples yielded the following results for PPR antibodies:

- Fayzabad: three positives out of six tested;
- Nurabad: three positives out of nine tested;
- Roghun: one positive out of five tested.

An FAO field mission by GTFS/INT/907/ITA project staff was carried out in August 2009, when it was not possible to observe clinical cases, so only retrospective information was obtained. It was decided that a differential diagnosis should be obtained for aetiologies with similar clinical signs, such as CCPP.

On 10 September 2009, seven tissue and 19 serum samples from goats were therefore sent to the International Cooperation Centre of Agricultural Research for Development (CIRAD) in Montpellier, France. The samples were collected from Rogun, Fayzabad and Nurobod Districts.

In early October, preliminary test results indicated that even in the absence of *Mycoplasma* spp. isolation (due to heavy bacterial contamination), real-time polymerase chain reaction (PCR) products specific for *Mycoplasma capricolum* subspecies *capripneumoniae* (Mccp) had been detected. The amplified product was sequenced and compared with existing Mccp sequences. The sequence was identical to AF378156, obtained from an Mccp strain

Fibrinous pneumonia, with thickened pulmonary pleura and enlarged lymph node



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Fibrinous pneumonia, with necrosis of parenchyma of the lungs



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Fibrinous pneumonia with straw-coloured fluid in thorax and adhesion of lungs to chest wall

in the United Arab Emirates isolated in 1991 (Dr Francois Thiaucourt, CIRAD, personal communication).

Preliminary consideration

This was the first report of CCPP in Tajikistan. It cannot be excluded that a co-infection of PPR-CCPP may have occurred; in the absence of a rapid diagnostic procedure for CCPP in the country, an early detection system based on clinical signs is currently being implemented. Field veterinarians are being trained and recommended to report respiratory syndromes in small ruminants. On detection of suspected clinical cases, an early response mechanism will be implemented, using antibiotic treatment of clinically affected animals and emergency vaccination against PPR in healthy animals.

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