

## Streptococcal meningitis in a five-month-old male lamb

*Streptococcus* species cause a wide variety of diseases in food animals, including septicaemia, mastitis, meningitis, encephalitis and pneumonia<sup>5</sup>.

Meningitis due to *Streptococcus* spp. is commonly a complication of bacteraemia and septicaemia in neonates. In older animals, streptococcal meningitis is common only in pigs<sup>3</sup>. A case of streptococcal meningitis in a 5-month-old lamb is reported. To the best of our knowledge this is the 1st report of the disease in an older lamb.

A 5-month-old male lamb was brought to the University of Nairobi Large Animal Clinic with a history of being well in the early morning and then falling frequently to the left side later in the day. A clinical examination was carried out and blood taken in EDTA for haematology. In addition, cerebrospinal fluid was obtained aseptically through the atlanto-occipital joint and submitted for bacterial culture and sensitivity determination. The methods used for bacterial culture and sensitivity were as described by Buchanan and Gibbons<sup>2</sup> and Agumbah *et al.*<sup>1</sup>.

On clinical examination, the lamb was dull, recumbent, staggered when forced to move and would fall over to the left side. Body temperature was 40.0 °C and there was opisthotonus. It was hyperaesthetic, grinding its teeth, with paddling movements of the hind limbs and appeared blind. A tentative diagnosis of meningitis was made on the basis of the clinical manifestation.

The significant haematological findings were high leukocyte count (16 000 WBC/ $\mu$ l), with 70 % of these cells being neutrophils (Table 1). The cerebrospinal fluid had a protein level of 0.9 g/l, which was slightly elevated (Table 2), and alpha-haemolytic *Streptococcus* was isolated. It was sensitive to chloramphenicol<sup>a</sup>, neomycin and penicillin but

resistant to oxytetracycline, chlortetracycline, furazolidone, sulphonamides and streptomycin.

Immediately after the clinical examination, the lamb was treated with chloramphenicol (Chlorocide 1GM<sup>®</sup>, Regal Pharmaceuticals, Nairobi) at 10 mg/kg body weight per day intramuscularly in 2 divided doses. An intravenous drip of isotonic dextrose-saline (Dextrose 5 %<sup>®</sup>, Infusion Kenya Ltd, Nairobi) was also administered. By the 3rd day the lamb was bright and able to stand.

In food animals, streptococcal meningitis is common in neonates, and several *Streptococcus* spp. have been reported to be involved. However, in weaned

animals, streptococcal meningitis has not been reported in farm animals other than pigs, where the causative agent is usually *Streptococcus suis* serotype 2<sup>5,6</sup>. In the present case both the clinical signs and bacterial culture of cerebrospinal fluid (CSF) indicated a case of streptococcal meningitis in a 5-month-old lamb.

In weaned farm animals, both mammary and extramammary streptococcal infections have been reported<sup>5</sup>. Extramammary localisation in animals other than the pig tend to occur in the lungs, pleura, joints and bones<sup>4</sup>, with no apparent involvement of the meninges. In the present case, localisation of the bacteria in anatomical sites other than the meninges was not confirmed but cannot be ruled out.

This report demonstrates that streptococcal meningitis in weaned farm animals is not confined to pigs. The *Streptococcus* sp. involved in the present case could not be typed owing to technical problems, and therefore its possible relationship with *S. suis* was not determined.

Table 1: Haematological findings in a 5-month-old lamb.

Parameter <sup>a</sup>	Value	Differential leukocyte count (%)
PCV	42 %	N 70
TP	5.4 g/dl	ST 0
Hb	16.4 g/dl	L 29
RBC	$10.96 \times 10^6/\mu$ l	M 0
WBC	$16.6 \times 10^3/\mu$ l	E 1
MCHC	39 %	B 0

<sup>a</sup>PCV = packed cell volume; TP = total plasma proteins; Hb = haemoglobin concentration; RBC = red blood cell count; WBC = white blood cell count; MCHC = mean corpuscular haemoglobin concentration N = neutrophils; ST = band neutrophils; L = lymphocytes; M = monocytes; E = eosinophils; B = basophils.

Table 2: Findings of cerebrospinal fluid (CSF) taken from a 5-month-old lamb.

Parameter	Value
Cytology	No marked influx of cells
Specific gravity	1.009 g/ml
Glucose	0.47 g/l
Proteins	0.9 g/l
CSF pressure	300 mm H <sub>2</sub> O

<sup>a</sup>The use of chloramphenicol in food animals is not permitted in South Africa — Editor

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