

## Prevalence of *Listeria monocytogenes* in Organised Sheep Farms of Kashmir

Jaffar Sharif<sup>1</sup>, M.M. Willayat<sup>1</sup>, G.N. Sheikh<sup>2</sup>, S.S. Roy<sup>1</sup> and S. Altaf<sup>1</sup>

<sup>1</sup>Division of Veterinary Public Health, F.V.SC & A.H. SKUAST K Shuhama Srinagar - 190 001, India.

<sup>2</sup>Division of Veterinary Epidemiology & Preventive Medicine,  
SKUAST K Shuhama Srinagar - 190 001 India.

(Received: 08 April 2010; accepted: 10 May 2010)

*Listeria monocytogenes* was isolated from five cases of abortions/stillbirths out of a total of twenty seven in organized sheep farms of Kashmir valley. Out of a total five isolates recovered, three were isolated from only brain tissues, two from both brain and livers. All the isolates produced marked degree of beta haemolysis on 10 per cent sheep blood agar plates in 24-36 hr. The 18 hr old broth culture produced kerato-conjunctivitis and monocytosis in healthy rabbits within 2- 6 days on intra-ocular instillation.

**Key words:** *Listeria monocytogenes*, Sheep farms, Abortion, Still births.

*Listeriosis* is an acute infectious disease of animals and humans caused by bacteria belonging to the genus *Listeria*, which presently includes seven species. Among these *Listeria monocytogenes* and *Listeria ivanovii* are regarded as pathogenic species. (Seeliger and Jones, 1986; Mcluachlin, 1987). Global occurrence of *listeriosis* has been reported from almost all species of domestic animals as well as from many species of poultry, fish, wild animals and rodents. The disease is of great economic importance in sheep, goats and cattle and less so in pigs and poultry. The role of *Listeria monocytogenes* in causing meningo-encephalitis, septicemia, endocarditis, abortion, cervicitis, diarrhoea, mastitis, keratoconjunctivitis has been established beyond doubt. (Gitter *et al.*, 1986).

In pregnant animals, placenta and fetuses are affected resulting in abortions and stillbirths. *Listeriosis* is a significant public health problem (Roucort and Berche, 1987). Milk, dairy products, meat, poultry, vegetables, salad and sea foods have been found to be sources of contamination (WHO, 1988). The present study was conducted to study the prevalence of *Listeria monocytogenes* in organised sheep farms of Kashmir.

### MATERIAL AND METHODS

Cases of abortions and stillbirths in sheep in organized farms of Kashmir valley were selected for the present study. The organized farms under the study included Sheep Breeding Farm Dachigam, Kralpathri., Zawoor, Gaobal and Sheep Research Station, Shuhama. Heart blood, liver, stomach contents, lungs, brain and kidneys of the aborted/ stillbirth lambs were collected aseptically in ice packs and brought to Veterinary Public Health laboratory immediately. The samples were processed for isolation of *Listeria monocytogenes* within six hours of

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\* To whom all correspondence should be addressed.

(Table 1). The variability in the prevalence rates could be due to the variability in the local sanitary and hygienic conditions in these farms.

None of the aborted ewes presented any clinical manifestations of *listeriosis* prior to or following abortions/still-births which is in agreement with the findings of other workers (Kennedy and Miller, 1993). Out of a total five isolates recovered, three were isolated from only brain tissues, two from both brain and livers

In the present study, *Listeria monocytogenes* produced typical smooth greenish yellow colonies on *Listeria* selective agar within 48 hr at 37°C. The cultural confirmation of the organism was, however, made in PALCAM agar where greyish colonies with blackening of the surrounding media representing aesculin hydrolysis, was observed in 48 hr at 37°C. A characteristic tumbling motility, as demonstrated by previous workers (Farber and Peterkin, 1991), was observed in broth cultures at 22°C in 18-24 hr. Although relatively inactive biochemically, *Listeria monocytogenes* produces catalase and is positive for Voges-Proskauer and aesculin hydrolysis reactions. The organism gives a negative reaction for indole, oxidase, nitrate reduction and gelatin liquefaction and fails to hydrolyse urea. In the present study, the isolates of *Listeria monocytogenes* demonstrated biochemical reactions similar to those reported by earlier workers (Rocourt *et al.*, 1983). All the isolates in the present study produced marked degree of beta haemolysis on 10 per cent sheep blood agar plates in 24-36 hr depicting the extent of their pathogenicity in the host species.

Further confirmation of *Listeria monocytogenes* as the causative agent of abortion/stillbirths was done by animal inoculation tests. The 18 hr old broth culture produced keratoconjunctivitis and monocytosis (Plate 1) in healthy rabbits within 2- 6 days by intra-ocular route. Similar observations on experimental inoculation in rabbits have been made previously (Dutta and Malik, 1978; Radostitis *et al.*, 1994).

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