STUDY OF GOAT POX OUTBREAK AND ITS CLINICAL MANAGEMENT

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ABSTRACT

A goat pox outbreak occurred in black Bengal breed of goats at Jharkhand, was studied. The morbidity and mortality rate was recorded as 100% and 81.25% respectively. No age and sex specificity was observed. The course of the disease was found to be more severe in kids than adults. On conducting countercurrent immunoelectrophoresis (CCIE) test the disease was confirmed as goat pox. Total protein (7.34 ± 0.287 gm%) and globulin levels (5.3 ± 0.27 gm%) increased however, albumin (2.04 ± 0.14 gm%) and A:G ratio (0.39 ± 0.03) decreased in affected goats as comparison to their physiological values. The disease probably precipitated due to transportation stress as the animals were purchased from endemic area.

An outbreak of goat pox was recorded in black Bengal breed of goats at Jharkhand in January 2001. The serum protein profile viz., total protein (TP), albumin (A), globulin (G) and A : G ratio and clinical management are presented.

The owner purchased 128 Black Bengal breed of goats from Mayapur, Hoogly, West Bengal and transported them 250 Kms away i.e. to Giridih, Jharkhand. The flock comprised 11 males and 117 females, which were further divided into adults (> 1 yr; 68) and kids (3-6 month; 60). In total 26 sera samples were randomly collected from the affected animals. Besides morbid material viz., skin nodules and spleen pieces were also collected aseptically in 50 % glycerol saline. All the materials were sent to I.V.R.I., Mukteshwar under ice for further investigations. Serum protein profiles were estimated as per Biuret method (Varley, 1980). The statistical analysis ('t' test) was conducted as per Snedecor and Cochran (1968).

Goats, on 20th day post arrival, started exhibiting typical clinical signs of pox viz., rough coat, pyrexia (106°F), congested conjunctiva with thick sticky discharge, mucopurulent nasal discharge, anorexia, respiratory distress, cutaneous nodules (size 1-4 cm diameter) filled up with transparent watery fluid, over entire body surface, including mouth, internal and external nares. Besides abortions were also observed in all the pregnant females (Batta et al., 1999). The morbidity and mortality rates were recorded as 100% and 81.25 % respectively. The disease did not exhibit any age and sex specificity i.e. all males and females and both adults and kids were found to be equally affected. Moreover, course of severity was found to be more in kids than adults (Smith and Sherman, 1994; Rao and Bandyopadhyay, 2000).

Post mortem findings revealed button shaped nodules over dorsum of the tongue, gums and internal nares. Trachea was congested and filled up with froth. All the lobes of both the lungs were congested and consolidated and were covered with small white nodules. Liver was fully covered with small whitish nodular abscess. Spleen and mesenteric lymph nodes were enlarged. Kidneys were congested. Thoracic and abdominal cavities were filled-up with blood mixed fluid.

On the basis of countercurrent-immunoelectrophoresis (CCIE) test, the disease was confirmed as goat pox.

Out of 26 serum samples, 10 samples of succumbed animals were randomly selected and TP, A, G and A: G ratio was estimated
Table 1. Serum protein profile picture of succumbed and normal goats

<table>
<thead>
<tr>
<th>Category</th>
<th>Total protein (TP) (gm %)</th>
<th>Albumin (A) (gm %)</th>
<th>Globulin (G) (gm %)</th>
<th>A : G ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Succumbed goats (n=10) (mean ± S.E.)</td>
<td>7.34 ± 0.28</td>
<td>2.04 ± 0.14</td>
<td>5.3 ± 0.27</td>
<td>0.39 ± 0.03</td>
</tr>
<tr>
<td>Physiological values (PV) (mean ± S.E.)</td>
<td>6.84 ± 4.84</td>
<td>3.35 ±0.19</td>
<td>3.35 ± 0.10</td>
<td>1.02 ± 0.25</td>
</tr>
<tr>
<td>t value</td>
<td>0.10</td>
<td>5.57**</td>
<td>6.02**</td>
<td>2.59**</td>
</tr>
</tbody>
</table>

** P < 0.01.

Individually. The data were pooled and further compared with normal animals (Table 1).

Total protein and globulin levels increased however, albumin and albumin globulin ratio decreased in succumbed goats, as compared to PV. The possible reason which could be attributed to hypoalbuminia in goat pox, characterized by febrile condition (temp. stress) and severe inflammation in vital organs viz., lungs etc., the process of movement of protein and fluid into the tissue, which induced edema and ultimately resulted in a decrease in albumin concentration (Hoch-Ligeti et al., 1953; Kaneko et al., 1999). The reason for rise in globulin level could be commonly associated in acute inflammatory infectious diseases due to increase in acute phase protein, which mainly constituted of globulin (Kaneko et al., 1999). Observations on estimation of various protein parameters reflected the response of disease to hepatic system.

In goat pox, decrease in A : G ratio indicated disproportion of protein towards decrease in albumin and increase in globulin fraction.

All the animals were treated individually with Enrofloxacin @ 0.5-1.0 ml, Antihistaminic (Chlorphenarnine maleate) 1.0 ml, Diclofenac sodium 1-2 ml and vitamin B-complex 1.0 ml. All the preparations were given I/M for 7 days along with topical application of herbal antiseptic fly repellent cream.

Treated animals responded effectively resulting efficacy rate of 100% as it could control secondary infections in infectious viral diseases.

As the disease is having its zoonotic importance (Sawhney et al., 1972); no human infection cases were recorded during this outbreak (Mohamed et al., 1982). The disease probably precipitated due to stress factor moreover, the goats were transported from endemic area.

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REFERENCES