RINDERPEST IN THE LANDHI DAIRY COLONY

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SUMMARY

Earlier diagnostic reports of rinderpest in buffaloes in the Landhi Dairy Colony were discounted by most veterinarians in Pakistan. Four recent investigations have shown beyond doubt that the affliction was indeed rinderpest.

INTRODUCTION

Every winter for at least 18 years a rinderpest-like disease has threatened buffaloes and cattle in the Landhi Dairy Colony during the months of December and January. The colony was established near Karachi in 1959. Privately owned flying dairy herds are accommodated on 410 plots subdivided into 730 milk-sheds each of which can accommodate 250 adult buffaloes. Fifty thousand buffaloes are milked daily and to keep the milk supply constant between 1,800 and 2,000 buffaloes are replaced every month by freshly calved buffaloes purchased usually from central Punjab 1,500 km distant. The general management and sanitation in the colony is much below standard and nutritional requirements are rarely met. There are no quarantine facilities for freshly arrived animals. Many stock-owners, moreover, avoid vaccination of their stock in the belief that rinderpest vaccination causes weight loss and depresses the milk output. Animals are not indelibly identified and it is impossible to establish the origin and history of affected buffaloes. The findings from four recent investigations are herein recorded.

MATERIALS AND METHODS

Dr S. M. Athar studied the epidemiology of the rinderpest-like disease in the buffaloes at the Landhi Colony collating incidence records from 1969 through to 1984. He also tested 55 lymph nodes from suspect cases for rinderpest virus antigen by agar gel immunodiffusion (AGID) and counter immunoelectrophoresis (CIEP). Positive samples were re-checked for rinderpest virus antigen by complement fixation tests.

Dr P. D. McKercher, Chief Virologist at the Plum Island Animal Disease Center, Greenport, USA visited the Landhi Colony in January 1977. He personally collected mesenteric lymph nodes and sera from buffaloes exhibiting clinical signs of rinderpest and took them in a closed container filled with dry ice to Plum Island where they were tested for rinderpest virus and antibodies respectively by Dr A. H. Dardiri.

In 1985 Dr J. S. Walker of the USDA Office of International Co-operation and Development, Washington collected eight uncoagulated blood samples and 40 serum samples at Landhi and submitted aliquots of each to Dr W. P. Taylor, AVRI, Pirbright and to Dr R. J. Yedloutschnig, Plum Island Animal Disease Center, Greenport, USA.

The Pakistan Agricultural Research Council/United States Department of Agriculture project was mounted to investigate and control the rinderpest-like
disease at the Landhi Colony and operated between 1980 and 1985. In this period animals at the colony were routinely vaccinated against rinderpest and 622 buffaloes suspected of having rinderpest were slaughtered and autopsied.

RESULTS

The majority of the 622 slaughtered buffaloes had enlarged lymph nodes with radial streaks in the cortex. Necrotic erosions and ulcers were visible in the mucosae of the upper alimentary and urogenital tracts. "Zebra-stripes" and congestion affected the colons. Livers were enlarged and usually contained multiple abscesses. The gall bladders were slightly enlarged. The kidneys, urinary bladders and the anterior lobes of the lung were often congested. In rare cases eruptions were observed in the skin of the perineums, udders, necks and flanks.

More than nine thousand cases of rinderpest-like disease were observed in 1969 (Fig. 1). Between 1970 and 1974 the annual incidence fluctuated around a median value of 4,700 cases. From 1975 to 1980 there was a steady decline from 3,000 cases down to 200 cases. A flare-up involving 2,700 animals occurred in 1981 after which the incidence stabilised at around 700 cases annually. Most cases of rinderpest-like disease occurred during the dry cold months of December and January (Fig. 2).

Using AGID Dr Athar detected rinderpest-specific antigens in 13% of his 55 lymph node samples. These positive samples also fixed complement the titres ranging from 1/640 to 1/1280. Using CIEP he found rinderpest-specific antigen in 10 samples (18%).

Infectious rinderpest virus was isolated and identified by Dr Dardiri from the two lymph nodes harvested by Dr McKercher in 1977. Similarly rinderpest virus was isolated from two of the eight blood samples harvested and processed by Dr Taylor in 1985. The aliquots of uncoagulated blood sent to Plum Island were unfortunately frozen and consequently virus was not isolated from them.

Dr Dardiri found that five out of the eight sera collected by Dr McKercher

![Fig. 1. Annual incidence of the rinderpest-like disease in buffaloes at the Landhi Dairy Colony compiled from the records at the Veterinary Hospital, Landhi.](image-url)