

Communication

Detection of adenovirus precipitating antibodies in the sera of Polo horses in Nigeria

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Des échantillons de sérum ont été recueillis chez 107 chevaux Polo présentant des symptômes cliniques de virose respiratoire afin de rechercher par précipito-diffusion en gélose et contre-immunoelectrophorèse des anticorps anti-adénovirus. Les résultats obtenus apportent la preuve sérologique de la présence d'une infection à adénovirus. La contre-immunoelectrophorèse s'est révélée environ trois fois plus sensible que le test de précipitation en gélose : 19,3 p. 100 contre 64,5 p. 100. Cet examen pourrait donc servir au passage au crible d'un nombre important d'échantillons en peu de temps. **Mots clés :** Cheval Polo - Adénovirus - Technique immunologique - Immunodiffusion en gélose - Contre-immunoelectrophorèse - Anticorps - Nigeria.

Introduction

Adenoviruses are known to inhabit the upper respiratory and intestinal tracts as well as conjunctivae of man, domestic animals and birds (7). They have been implicated in the poor performance syndrome observed in race horses (6, 8). Serological evidence of this infection has been recorded in several countries including England (2, 8), Ireland (9) and North America (10) to mention just a few, and isolation of the virus from Arab foals has been reported (5, 10). Adenoviruses have also been recovered from apparently healthy foals (4) and from adult horses in training (8). In Nigeria, there is a lack of information on adenovirus infection in horses. This paper reports the detection of precipitating antibodies to adenovirus group A antigen in clinically affected Polo horses.

Materials and Methods

Sera obtained from 107 horses of various breeds from the Northern and Southwestern part of Nigeria were tested for precipitating antibodies to adenoviruses by agar gel precipitation test (AGPT) and counter-immunoelectrophoresis (CIEOP) using human and canine adenovirus group A antigens. The human antigen was obtained from the Department of Virology, University of Ibadan while the

canine antigen was obtained from the liver of a dog that died of infectious canine hepatitis (1). The techniques of AGPT and CIEOP have been previously described (1, 3).

Using AGPT, 88 sera were tested from Polo horses comprising 27 from Ibadan, 45 from Lagos, 7 from Jos, 4 from Kano and 5 from Kaduna while with CIEOP, 107 sera were tested comprising the above 88 sera and an additional 19 sera from horses stabled at the Nigerian Army Saddle Unit stables adjacent to the Ibadan Polo Club stables.

Results

Table I shows the results of AGPT and CIEOP tests. With AGPT, 17 (19.3 %) of the 88 tested sera were positive. Out of these, 7 (7.95 %) were from Ibadan, 7 (7.95 %) from Lagos, 2 (2.3 %) from Kaduna and only 1 (1.14 %) was from Jos while none from Kano were positive.

TABLE I Precipitating antibodies to adenovirus detected in Polo horses in Nigeria.

Location of equine establishments	Number tested		Number positive		% positive	
	AGPT	CIEOP	AGPT	CIEOP	AGPT	CIEOP
Ibadan	27	46	7	24	7.95	22.42
Lagos	45	45	7	39	7.95	36.44
Kaduna	5	5	2	2	2.27	1.87
Kano	4	4	—	1	—	0.93
Jos	7	7	1	3	1.14	2.8
Total	88	107	17	69	19.31	64.5

However, with CIEOP, 69 (64.5 %) of the 107 tested sera were positive, 3 (2.8 %) gave questionable precipitin lines while 35 (32.7 %) were negative. Twenty-four of the positive sera (22.4 %) were from Ibadan, 39 (36.4 %) from Lagos while 3 (2.8 %), 2 (1.9 %) and 1 (0.9 %) were from Jos, Kaduna and Kano, respectively. There was no age or sex distribution in the positive horses.

Discussion

The results of this study demonstrate serological evidence of adenovirus infection in Polo horses in Nigeria. While the clinical signs observed in some of the tested horses were not specific for adenovirus infection, the presence of mild diarrhoea with soft faeces would suggest adenovirus infection in these horses although the possibility of mixed respiratory tract infection involving other respiratory viruses such as the influenza virus, type 1 equine herpes virus and rhinovirus could not be ruled out. This should be confirmed by the results of virus isolations currently being undertaken.

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The above results showed that only 19.30 % of the sera tested by AGPT were positive whereas 64.5 % of the sera tested by CIEOP were positive. This indicated that CIEOP was about three times more sensitive than AGPT. It is probable that the greater sensitivity of the CIEOP test described here resulted from its higher reproducibility thus allowing for more reliable detection of small rises in the antibody level following adenovirus infection in the clinically affected horses. The CIEOP technique is cheap, fast and can be used simultaneously on a large number of samples within a short time. It could therefore be used for sero-survey and sero-monitoring of large populations of animals and man. It is also a reliable diagnostic method for routine use.

Conclusion

Clinical adenovirus infections have not been previously reported in horses in Nigeria. The results of the present study provide further evidence of adenovirus activity in domestic animals. Investigations are in progress for typing the virus after isolation from this particular animal population in the country.

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Serum samples obtained from 107 Polo horses showing clinical signs of viral respiratory disease were tested for precipitating antibodies to adenovi-

rus by agar gel precipitation test and counter-immunoelectrophoresis method. The results obtained demonstrate serological evidence of adenovirus infection in Polo horses in Nigeria. The counter-immunoelectrophoresis method was observed to be about 3 times more sensitive than the agar gel precipitation test with 19.3 vs 64.5 %. It could thus be used to screen a large number of serum samples within a short period. *Key words* : Polo horse - Adenovirus - Immunological test - Agar gel test - Counter-immunoelectrophoresis - Antibody - Nigeria.

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