PRELIMINARY REPORT ON THE PULMONARY PATHOLOGY ASSOCIATED WITH SUBCUTANEOUS INJECTIONS OF DIROFILARIA IMMITIS ANTIGEN

R.B. ATWELL¹, R.H. SUTTON² and E.W. MOODIE¹

¹Department of Veterinary Medicine and ²Department of Veterinary Pathology & Public Health, University of Queensland, St. Lucia, Qld. 4067 (Australia)

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ABSTRACT


Thickening of alveolar septa was seen in a dog given subcutaneous D. immitis antigen, whereas control animals had normal lung structure at autopsy.

INTRODUCTION

The pathology of dirofilariasis recorded by Winter (1959) and Adcock (1961), and reviewed by Knight (1977), relates to different aspects of arterial, peri-arterial and pulmonary parenchymal pathology. Many of the changes involving the pulmonary arteries and the lung, in the natural disease, have been reproduced (Atwell, unpublished data) by inserting segments of dead filariae (Dirofilaria immitis) into the pulmonary arteries of dogs which have been previously stimulated with an extract of D. immitis given subcutaneously.
together with Freund's complete adjuvant (Commonwealth Serum Laboratories, Parkville, Victoria, Australia). A consistent finding was extensive plasma cell infiltrations in association with reactions to filarial segment deposition. However, of particular histological significance, was the development of alveolar septal thickening and associated alveolar obliteration only in those dogs receiving antigen, as opposed to those receiving Freund's adjuvant alone.

However, it could not be determined if this was associated with exposure to antigen alone, or due to an interaction between the presence of filarial segments and antigenic exposure. In this experiment the changes due to antigenic exposure without subsequent pulmonary arterial challenge with filarial segments, were assessed histologically.

MATERIALS AND METHODS

_D. immitis_ antigen was prepared by crude aqueous extraction of adult filariae and subsequent freeze drying. The antigen (prepared and supplied by Dr. D. Weiner, School of Veterinary Medicine, University of Pennsylvania, Philadelphia, PA, U.S.A., NIAID, NIH.R22A113767) was reconstituted (24 mg/ml) with distilled water. The preparation was stored at 4°C and shaken vigorously before administration.

Three 6-week-old pups supplied by a local refuge were examined, vaccinated against distemper, hepatitis and parvovirus (Arther Websters Pty. Ltd., Northmead, 2152, Australia) and treated with an anthelmintic (Fenbendazole; Hoechst Australia Ltd., Melbourne, Australia) at 5 mg/kg. They were housed in an isolated air-conditioned ward at the Faculty of Veterinary Science for eight weeks.

Pup 1 was given, subcutaneously, 1 ml of a mixture of equal volumes of Freund's complete adjuvant and reconstituted _D. immitis_ antigen and 14 and 28 days later was given 0.5 ml of the antigen extract only. The total weight of crude antigen given to pup 1 was 36 mg, 12 mg being given at a different