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PROTECTIVE EFFECT AND IMMUNOPATHOLOGICAL STUDY IN IMMUNIZED  
HAMSTER AFTER CHALLENGE WITH VIABLE METACERCARIAE  
OF OPISTHORCHIS VIVERRINI

BY

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ABSTRACT

Four groups of golden Syrian hamsters were used in the present study. The first group was immunized by gastric intubation with 40 inactivated metacercariae twice at three days interval and three days thereafter challenged with 100 viable metacercariae. The second group was infected once with 100 viable metacercariae while the third group was immunized with inactivated metacercariae the same as in group I but without challenge and the fourth group was kept as untreated control. Animals were sacrificed and recovered worms were counted. No significant differences in worm burden were noted between immunized and non-immunized groups. Thus, the immunizing method used in this study did not confer protective immunity against reinfection, judging from the numbers of recovered

worms. Furthermore, determination of antibodies in the serum of the experimental hamsters by ELISA and IFA methods did not reveal any significant differences between immunized and non-immunized groups. Antibody responses to adult worm antigens were detected in the infected hamsters' sera from 4 weeks after dosing with viable metacercariae. The peak response was noted at the end of the second month and declined slowly thereafter.

Immunofluorescent staining of kidneys from infected animals demonstrated deposition of O.V. antigen, hamster immunoglobulins and complement complexes in the glomerular mesangium at six weeks after infection while kidneys from age-matched controls showed no such deposits. Liver sections from infected hamsters also did not demonstrate deposition of immune complexes. Light microscopically the kidneys of infected hamsters showed local deposition of amyloid in the interstitial tissue intermingling with the basement membrane of nearby tubules at 8 weeks after infection. Proteinuria was first discovered in the 9<sup>th</sup> week, becoming severe at week 16 after infection at which time severe glomerular alterations including amyloidosis and sclerosis were evident. Amyloid deposition was also demonstrated in livers and spleens of infected hamsters. This is the first experimental model in which both immune complex induced glomerulonephritis and amyloidosis have been demonstrated to be associated with opisthorchiasis.