

**Glomerulonephropathies in Plasmodium inui-infected rhesus monkey: a primate model and possible applications for human quartan malaria**

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**Abstract:** None of the few animal models proposed for the study of human quartan malaria nephritic syndrome have shown complete pathological findings that are similar to those seen in humans. This study investigated the histopathological changes in kidneys in 10 Plasmodium inui infected Macaca mulatta monkeys by light and electron microscopy in order to develop a suitable animal model for human quartan malaria. Ten healthy adult rhesus monkeys were infected with P. inui and clinical chemistry and haematologic tests were done before and after infection. A renal biopsy sample was collected before infection as a baseline control and another biopsy was collected after infection. Histopathological changes examined by light and transmission electron microscopy (TEM) revealed abnormalities in all infected monkeys to variable degrees. Several electron-dense discrete or diffused mesangial deposits, and increase in mesangial cells and matrix were associated with the morphological changes observed by light microscope. This pattern is consistent with membranoproliferative glomerulonephritis type reported in humans infected with Plasmodium malariae. Results strongly support that the P. inui-infected rhesus monkey develop an immune-complex-mediated glomerulonephritis in the course of the infection. Therefore, this experimental model represents a useful tool to better understand the different parameters and the consequences of quartan malaria infections comparable to situations in humans.