Rev. Inst. Med. trop. São Paulo
17(6):394-397, novembro-dezembro, 1975

UDC 616.995.122

DETECTION OF SCHISTOSOMAL ANTIGEN *(S. MANSONI)* IN HUMAN KIDNEYS OBTAINED AT AUTOPSY
(Preliminary report)

Sumie HOSHINO-SHIMIZU (1), T. de BRITO (2), A. L. CANTO (2), Hermínia Y. KANAMURA (1) and L. C. da SILVA (3)

SUMMARY

Antigen was demonstrated by immunofluorescent microscopy in one of the seven kidneys obtained at necropsy of hepatosplenic schistosomiasis mansoni patients. No clinical manifestations of renal disease was found in any case. Fixed IgG antibodies eluted from the kidney homogenates showed specific binding to *Schistosoma mansoni* gut, thus suggesting that the antibodies (eluates) are, at least partially, constituted by antibodies similar to the anticirculating antigen. Deposits of IgM, IgG, IgA, IgE, complement C_3 and also of fibrinogen were observed in most of the cases.

Glomerular lesions were described in human schistosomiasis mansoni ranging from proliferation of mesangial cells to mixed proliferative and membranous glomerulonephritis. Immunofluorescence and electron microscopy studies showed IgG, IgM, C_3 and electron dense deposits on the glomerular capillary walls respectively. Soluble immunocomplexes offered in large quantities to the kidney during many years was postulated as the main mechanism for the renal injury [2, 10].

As far as we could ascertain, antigen was demonstrated in experimentally infected animals with *S. japonicum* [11] and *S. mansoni* [9] and, recently, in a patient afflicted with hepatosplenic schistosomiasis mansoni and renal disease who received a kidney transplant. Schistosomal antigen was identified by immunofluorescence within glomeruli of the transplant [3].

In a study of kidneys from 7 autopsied hepatosplenic cases, *S. mansoni* antigen was found in all glomeruli in one case, with a heavy infestation, and presenting one viable schistosomal egg impacted at the afferent glomerular artery. Antibodies eluted from this and another kidney without granuloma and according to the technique described by LAMBERT et al. [6] gave a strong immunofluorescent reaction with the worm gut. Such antibodies were shown to react against circulating antigen [8] (Fig. 1).

Previous experimental *S. mansoni* infection studies indicated that antigen can be demonstrated in the circulation [1, 4, 7] only early in the disease. In the kidney of *S. japonicum* infection antigen was also found only at

From the "Instituto de Medicina Tropical de São Paulo", "Departamento de Patologia" and "Hospital das Clínicas", "Faculdade de Medicina da Universidade de São Paulo", São Paulo, Brasil

This work was partially supported by a grant from CNPq

(1) Immunologist

(2) Pathologist

(3) Clinician

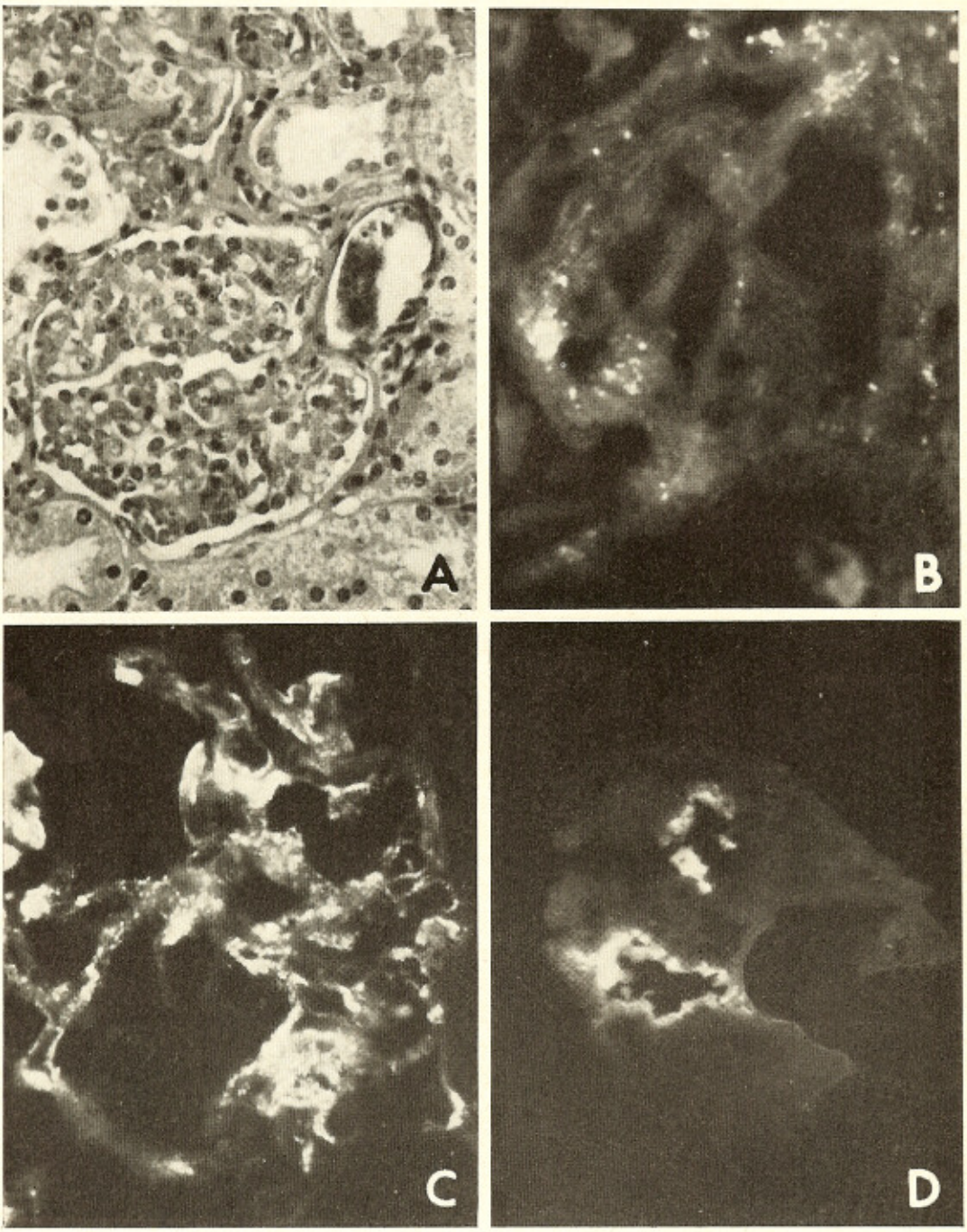

Fig. 1 — A — Case number 3 — Kidney exhibiting reactive proliferative glomerulitis. A viable egg of *Schistosoma mansoni* is seen, impacted in the afferent glomerular artery. H.E., 200 X. B — Antigen granules are demonstrated by immunofluorescent technique along the mesangium and in the walls of the glomerular loops, (case number 3). 500 X. C — Marked IgM deposits are observed, mainly along the mesangium. 500 X. D — Fluorescent staining of the digestive tract of adult *S. mansoni* worm after treatment with eluates of kidney fixed-antibodies and anti-human IgG conjugate. 80 X.

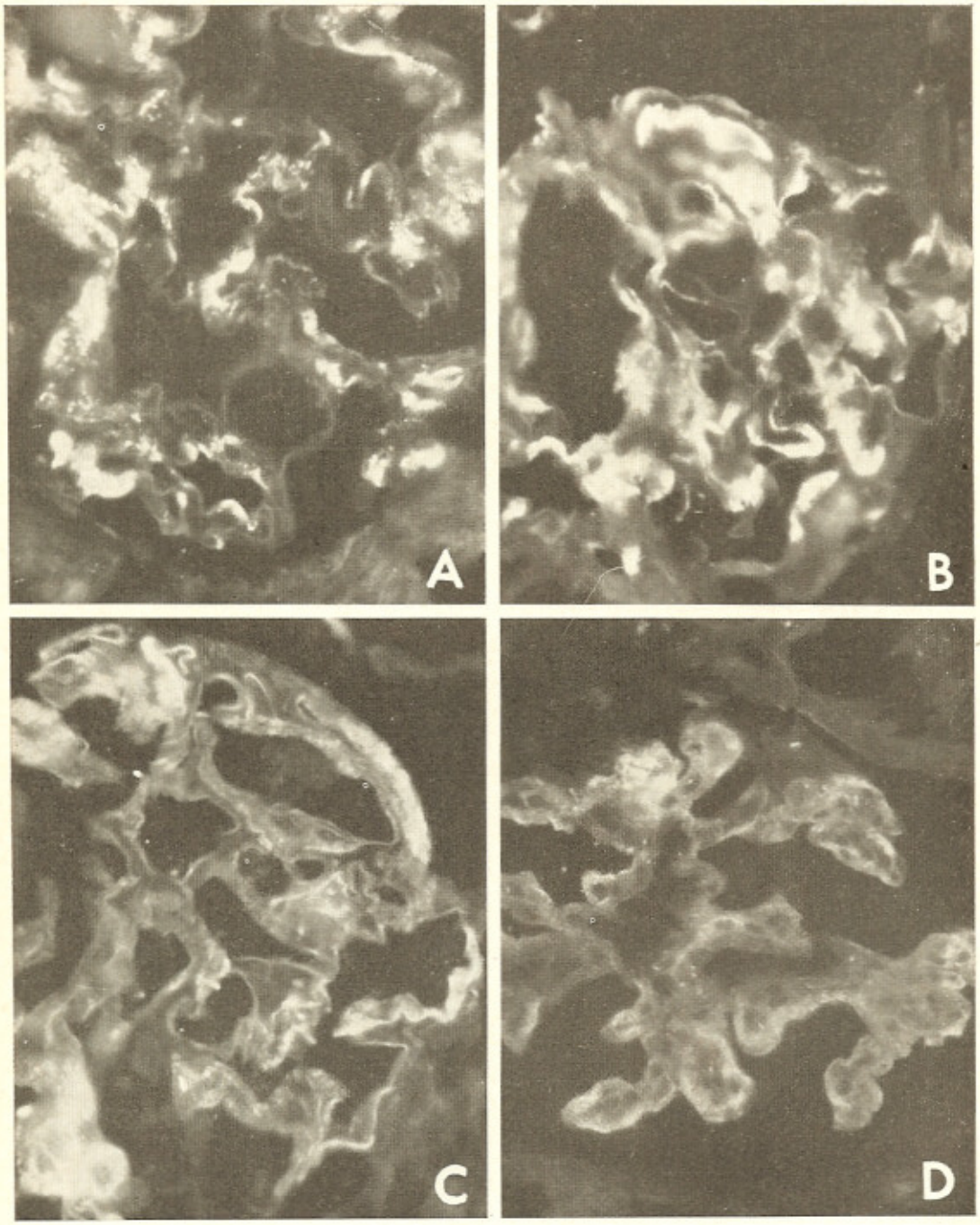

Fig. 2 — A — Complement C_3 deposits are seen chiefly along the mesangium. Few deposits are observed faintly delimiting the glomerular loops. 500 X. B — IgA deposits follows essentially the same pattern. Deposits along the mesangium, however, are more marked. 500 X. C — Fibrinogen deposits also following the same pattern. Deposits delimiting the contour of the glomerular loops are better seen than in A. 500 X. D — IgE deposits are observed along the mesangium and delimiting the contour of the glomerular lumina. 500 X.

a similar stage of the disease [11]. Apparently in the kidney, the immunecomplexes deposited are those formed in a zone of antigen or slight antibody excess. Later, after the clearence, the antigenic material is not easily detected probably due to the formation of larger immunecomplexes by direct binding of circulating antibodies, to the remaining antigen molecules in the glomerular capillary walls [5] (Fig. 2).

These experimental studies might have their counterpart in the natural disease in man. During the chronic stage of the disease it should be expected a difficult antigen demonstration in the renal glomeruli. Probably such detection is only achieved when the patient enters in a phase of massive antigen liberation as it seemed to occur in our case.

RESUMO

Demonstração de antígeno de S. mansoni *em rins humanos obtidos de necropsias (Nota prévia)*

Em necropsias de sete pacientes com esquistossomose hepatosplênica conseguiu-se demonstrar a presença de antígeno de *S. mansoni* em glomérulos renais de um caso sem manifestações clínicas de nefropatia.

Anticorpos de tipo IgG eluídos de homogenatos de rim reagiram especificamente contra tubos digestivos de vermes adultos, de maneira semelhante ao observado com anticorpos contra antígeno circulante.

Na maioria dos casos detectaram-se depósitos de IgM, IgG, IgA, IgE, complemento C_3 e de fibrinogênio.

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Recebido para publicação em 18/9/1975.