

STUDY OF THE SO-CALLED "ECTOPICAL LESIONS" IN MANSON'S SCHISTOSOMIASIS. II — MYOCARDIAL SCHISTOSOMIASIS

João Plutarco Rodrigues LIMA (1)

SUMMARY

From 4,416 necropsies, 544 cases (12.3%) of Manson's schistosomiasis were found. Among them 96 cases (17.6%) showed ectopically localized granulomas.

Ten cases presented schistosomal granulomas in the myocardium (1.8%) and eight cases revealed unusual location in other organs; the kidney being the most affected (7 cases).

Concerning the myocardium besides the granulomas, there was an interstitial inflammatory infiltration (lymphocytes and plasma cells) admitted to be related with the specific granuloma.

INTRODUCTION

In Manson's schistosomiasis two types of lesions have been described in the myocardium, i.e., granulomatous myocarditis and the so-called nonspecific myocarditis. The latter is frequent whereas the former is a rare schistosomiasis manifestation since only six cases have been reported^{1, 2, 3, 9, 10, 13}.

In the present paper ten cases of schistosomal granulomatous myocarditis were studied, as an attempt to investigate the correlations between the presence of the specific granuloma and the so-called "nonspecific myocarditis", and to correlate the association of myocardium lesions with the so-called ectopic lesions, i.e., lesions found in other organs besides the liver, intestinal tract and lungs.

MATERIAL AND METHODS

This paper is based on 4,416 necropsies performed between 1933 and 1961 at the Department of Pathology of Medical School of the Pernambuco Federal University (Prof. R. de Barros Coelho).

Specimens of all organs were fixed in a ten per cent formalin solution, sections were stained by hematoxylin and eosin.

RESULTS

Among 4,416 necropsies, 544 cases of Manson's schistosomiasis were found and of these 96 presented ectopic lesions. In the latter group 10 cases of granulomatous form of schistosomal myocarditis were found, 3 of which had been previously reported^{2, 9, 10}.

The data concerning the sex and the correlation between specific granuloma and interstitial infiltration are seen in Table I; the sites of the ectopic lesions are seen in Table II.

The main cause of death in our patients was the so-called schistosomal hepatic cirrhosis.

The macroscopical aspect of the heart was not mentioned because complete data was lacking in some cases; one being Chagas disease, another schistosomal "*cor pulmonale*", and the third one associated with membranous glomerulonephritis.

(1) Assistent-Professor "Instituto de Patologia da Universidade de Campinas" (Prof. Dr. J. Lopes de Faria), Campinas, São Paulo, Brasil

TABLE I

Case no.	Age (years)	Sex	Inflammatory infiltrate	
			Peri-granulomatous	Interstitial
1	46	♂	+	+
2	20	♀	+	+
3	11	♂	+	+
4	21	♂	+	++
5	53	♂	+	+
6	19	♂	++	+
7	30	♂	++	+
8	11	♂	+	+
9	13	♂	++	+
10	28	♂	+	+++

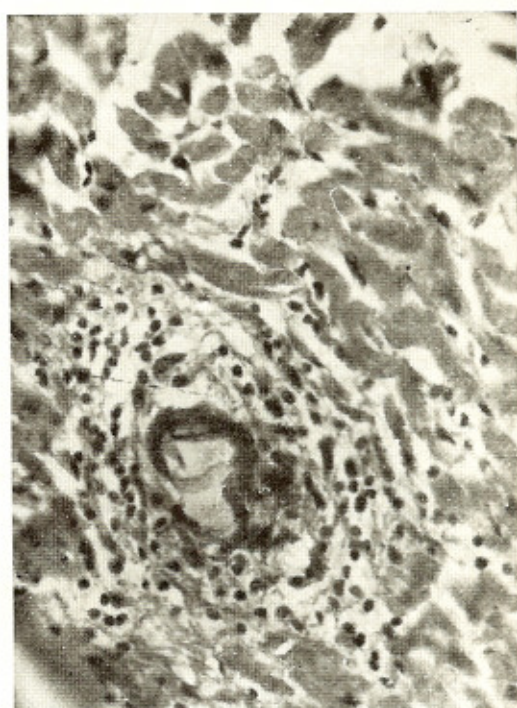


Fig. 2 — The egg is engulfed by a giant cell. Around it the same inflammatory reaction. 480 X

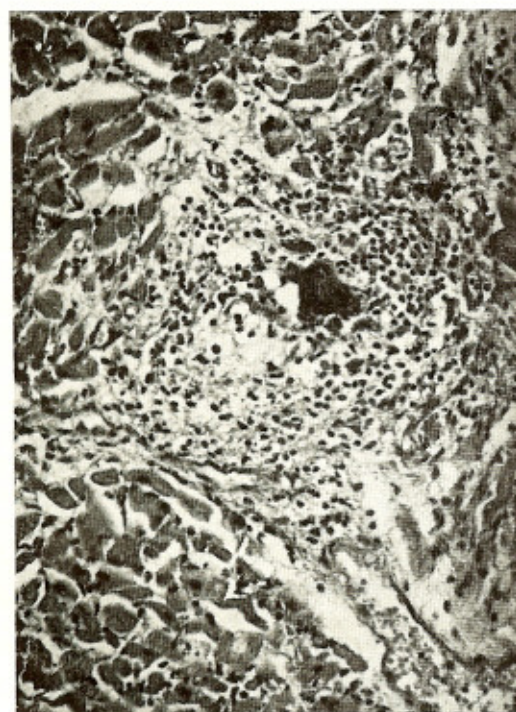


Fig. 1 — Inflammatory reaction surrounding the egg. Note how the inflammatory cells are displayed toward the interstitial spaces. 120 X

TABLE II

Association of myocardial lesion with other unusual localizations

Organs	no. of cases
Myocardium — Esophagus — Appendix — Gallbladder — Lymph nodes	1
Myocardium — Kidney — Lymph nodes	1
Myocardium — Kidney — Pancreas — Ovary	1
Myocardium — Kidney — Pancreas ..	1
Myocardium — Kidney	2
Myocardium — Pancreas	2
Myocardium only	2

Microscopically the myocardial granulomas showed the classical picture, and contained epithelioid and giant cells, lymphocytes, plasma cells and few or none eosinophilic leukocytes (Figs. 1, 2). Schistosome eggs were seen in all granulomas. No scar formation was observed. The wall of the left ventricle was the main site where granulomas were found.

The histological sections of 9 cases show in a few areas of the myocardium nonspecific myocarditis, containing lymphocytes, plasma cells and, sometimes, some eosinophilic leukocytes (Fig. 3). The degree of the nonspecific myocarditis was parallel to that of the specific one. In the remaining cases there was association of schistosomal and Chagas myocarditis and so the inflammatory infiltration was not taken into account.

DISCUSSION

Schistosomal myocarditis was more frequent in the second and third decade of life and more frequent in males than in females.

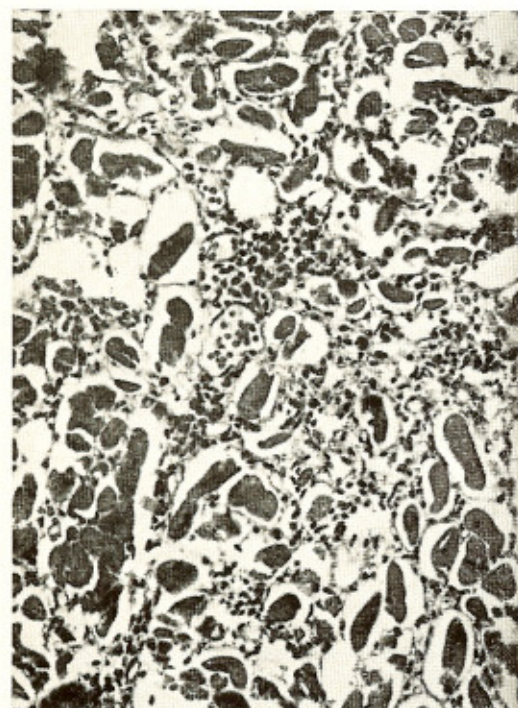


Fig. 3 — Interstitial infiltration apparently not related to specific granuloma. 120 X

The sex difference would be due to the fact that, in our hospital, there are more male beds than female (Table I).

Nonspecific myocarditis in Manson's schistosomiasis is a very controversial subject. JAFFÉ⁶ described it and admitted that it is caused by schistosome toxins. MENEZES¹¹ examined 208 cases, being 100 cases of schistosomal patients and 108 from a control group. The incidence of interstitial myocarditis in the two groups was 25% and 23%, respectively. MENEZES¹¹ considered this as being a strong argument against the concept of schistosomal myocarditis of nonspecific nature. In our 10 cases we found 9 with interstitial infiltration in some areas of the myocardium apparently without relation with the granulomatous lesions. However, it was observed that the inflammatory reaction around the granuloma has a tendency to invade the interstitial spaces (Fig. 3). This fact suggests to us that it is possible to detect schistosomal granuloma if further sections are made from cases presenting nonspecific infiltration. In our 10th case there was Chagas disease, concomitantly. In such cases it is difficult to evaluate the role played by schistosomiasis or Chagas disease in the pathogenesis of the nonspecific inflammatory reactions. However CARVALHAL et al.³ in a similar case, (except for the fact that is presented a great number of schistosomal granuloma), admitted that the inflammatory infiltration was due to schistosomal infection.

There is a frequent association between myocardium and kidney lesions (7 cases as can be seen in Table II). This fact is of particular importance in demonstrating the dissemination of eggs through the arterial route¹².

The egg dissemination through arterial system is supported by many Authors. LICHTENBERG⁷ admitted that this dissemination could be through a patent foramen ovale, or through pulmonary arteriovenous fistulas. These fistulas were described in pulmonary schistosomiasis by FARIA^{4, 5}.

RESUMO

Estudo das chamadas lesões "ectópicas" na esquistossomose mansônica. II — Esquistossomose miocárdica

1) Do estudo de 4.416 necropsias, conta-

ram-se 544 casos (12,3%) de esquistossomose mansônica. Dentre êstes, 96 (17,6%) mostravam uma ou mais localizações ectópicas de granulomas esquistossomóticos.

2) No miocárdio foram encontrados os referidos granulomas em 10 casos, ou seja, 1,8%. Oito dêstes casos revelam raras localizações em outros órgãos; o rim foi o mais afetado (7 casos).

3) Além dos granulomas havia, no miocárdio, um infiltrado linfo-plasmocitário que se admitiu estar relacionado com o granuloma específico.

REFERENCES

1. ARMBRUST, A. F. — Miocardite esquistossomótica (forma granulomatosa). Nota prévia. *Hospital* (Rio) 36:213-216, 1949.
2. BANDEIRA, V. & CARVALHO, A. R. L. — Trombose mural do ventriculo direito com presença de ovos de *Schistosoma mansoni*. *Arq. Brasil. Cardiol.* 15:215-218, 1962.
3. CARVALHAL, S.; TALSAAD, C. L. & BOCANGRA, J. — Miocardite granulomatosa esquistossomótica associada a moléstia de Chagas. *Arq. Brasil. Cardiol.* 13:225-250, 1965.
4. FARIA, J. L. de — Cor pulmonale in Manson's schistosomiasis. I — Frequency in necropsy material; pulmonary vascular changes caused by schistosome ova. *Amer. J. Path.* 30:167-193, 1954.
5. FARIA, J. L. de — Pulmonary arteriovenous fistulas and arterial distribution of eggs of *Schistosoma mansoni*. *Amer. J. Trop. Med.* 5:860-862, 1956.
6. JAFFÉ, R. — Anatomia Patológica de la bilharziosis mansoni en Venezuela. *Arch. Venez. Pat. Trop. Parasit.* 1:1948.
7. LICHTENBERG, F. — Lesions of the intrahepatic portal radicle in Manson's schistosomiasis. *Amer. J. Path.* 31:757-771, 1955.
8. MENEZES, H. — *Estudo histológico das lesões cardíacas em cobaias infestados experimentalmente pelo Schistosoma mansoni*. Tese. Recife, 1952.
9. MENEZES, H. — Granulomas esquistossomóticos no miocárdio. *Rev. Brasil. Med.* 9: 4-5, 1952.
10. MENEZES, H. — Mais um caso de miocardite esquistossomótica. *Rev. Brasil. Med.* 11:474-476, 1954.
11. MENEZES, H. — Aspecto de patologia da esquistossomose mansônica. IV — Miocardite esquistossomótica. *An. Fac. Med. Univ. Recife* 16:161-168, 1956.
12. RODRIGUES, L. J. P. — Estudo das chamadas lesões "ectópicas" na esquistossomose mansônica. I — Incidência geral. *Rev. Inst. Med. trop. São Paulo* 8:167-172, 1966.
13. SYLVANY Filho, A. M. — Miocardite granulomatosa. *Bol. Hosp. Clin. Fac. Med. (Bahia)* 5:103-156, 1957.

Recebido para publicação em 28/10/1968.