

# Schistosomiasis in World Pathology

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It is estimated that more than 200 million people throughout the world are afflicted with schistosomiasis. This parasitosis is most prevalent in Africa, where it is found in almost all countries of the continent and often exists in both its vesical and intestinal forms. It continues to spread in tropical regions of Africa and South America despite steps taken to arrest it. This spreading of the disease is usually linked to agricultural development and especially to land development by irrigation and drainage. Large artificial lakes have been formed following the construction of dams, but the majority of this new water supply has been rapidly colonized by molluscs, vectors of schistosomiasis, resulting in a considerable aggravation of the risk of infection with bilharzia. This danger is increased by the fact that of the numerous workers brought in to clear the land some came from regions infested with schistosomiasis.

In countries where schistosomiasis is endemic, it is difficult to evaluate accurately its importance on public health. For a long time, this evaluation was based on acute outbreaks of the disease, while the irreversible and late complications, particularly hepatic and cardio-pulmonary disorders which are an important cause of morbidity and mortality, were neglected. Only in the past 20 years has the gravity of these complications become evident, due to extensive and prolonged investigations in particular groups of patients. Such investigations allowed the entire bilharzic syndrome to be determined by considering not only the disorders connected with the elimination of eggs into the environment, but also the precocious or late complications which can be more important than the disease itself. As Macdonald (1973) stated, this is an entirely new approach to the bilharzia problem which, even in developed countries, has been only rarely practised.

Vesical schistosomiasis caused by *Schistosoma haematobium* was considered for a long time to be a relatively benign disease and less important than intestinal schistosomiasis in terms of morbidity. This rather optimistic opinion did not take into account the late complications of this disease. During the past 10-20 years, serious vesical complications characterized by extensive fibrosis and even calcification of the bladder wall have been increasingly observed. This fibrosis may extend to the intra-vesical segment of the ureter and to the vesical cervix, provoking disorders of urine flow with subsequent hydronephrosis. These large lesions are usually found in young patients. In more than 20% of schoolchildren in certain areas of Africa the urinary tract is affected, and 8% are affected with hydronephrosis before reaching adolescence.

Another frequent complication of vesical schistosomiasis is the formation of stones with secondary infection of the urinary tract, a condition found in more than 25%

of patients in some areas of Egypt. Serious genital complications are noted in some countries, lesions of the seminal vesicles being found in Egyptian males. In the south of the Sahara, this disease mainly affects the fallopian tubes and uterine cervix of women. In addition to these urinary and genital lesions, long-term complications are seen, in particular pulmonary fibrosis.

Intestinal schistosomiasis provoked by *Schistosoma mansoni* and *S. japonicum* is rightly considered to be the most serious form of the disease, mainly due to the frequency of hepatic and cardio-pulmonary complications. Of these two schistosomiasis, *S. japonicum* is the more pathogenic, producing about ten times more eggs than *S. mansoni* and it is known that the eggs are responsible for most of the tissue lesions seen in schistosomiasis.

The first irreversible lesions are seen in the colon. These lesions produce inflammatory polyps and sclerosis of the walls. Over a period ranging from 3 to 15 years, progressive fibrosis of the liver can be seen to develop in relation to the increasing egg deposit in this organ. This fibrosis provokes portal hypertension characterized by ascites, splenomegaly and the production of a collateral circulation with the formation of anastomoses between the portal vein system and that of the vena cava. The oesophageal veins develop varices which can break, provoking potentially fatal haemorrhage. Due to the anastomoses between the portal and caval venous systems, the eggs are able to bypass the liver and clot in the pulmonary parenchyma or in the terminal branches of the pulmonary artery, resulting in fibrosis of these organs and subsequent hypertension in the pulmonary artery. This in turn causes right ventricular hypertrophy which leads to right heart inadequacy.

The seriousness of the complications of schistosomiasis is no longer challenged by parasitologists, who consider that in the endemic regions this disease should follow malaria in the order of priority to be given to various public health programmes. In opening this session on schistosomiasis I considered it worthwhile recalling the serious visceral complications to which patients stricken with this disease are exposed, in the hope that the administrative authorities of these countries will become more aware of the situation and will mount systematic campaigns against schistosomiasis.

## Reference

- Macdonald, G. (1973). In "Epidemiology and Control of Schistosomiasis" (Ed. N. Ansari), pp. 354-387. S. Karger, Basel.