

Blood flukes and arterial damage.

A review of aneurysm cases in patient with Schistosomiasis.

V. Silvestri¹, M. Mshana¹, W. Bonaventure¹, N. Justine¹, D. Sabas², B. Ngasala¹

¹Department of Parasitology and Medical Entomology, Muhimbili University of Health and Applied Science MUHAS P.O. Box 65001 Dar es Salaam Tanzania

²Directorate of Library Service, Muhimbili University of Health and Allied Sciences, Tanzania

Introduction

Schistosomiasis is a three-stage disease caused by trematode worms of the genus *Schistosoma*. Organ-specific morbidity, according to the infecting *Schistosoma* spp., can develop in chronic stages. Clinical manifestations are caused by inflammatory response of the host to the accumulation of parasite eggs in vessels and organs. Vascular complications of Schistosomiasis are less described than the involvement of other organs or systems. Damage can occur by direct lesion of vessels walls or to contiguity with a focus of inflammation in surrounding tissues. Among vessel lesions, aneurysms have been described.

Results 12 cases were included in our review. The mean age of patients was 41.3±14.9 years (range 18-66), 7 male and 5 females.

Reported comorbidities More frequently reported comorbidities were cardiovascular, including hypertension, previous aortic dissection and pulmonary valvular steno-insufficiency in 3 cases. Oesophageal varices, previous smoke and alcohol consumption have also been reported.

Schistosomiasis details A previous history of Schistosomiasis was known in 7 cases. In the majority of cases an intestinal or hepato-splenic involvement was reported (7 cases), followed by pulmonary Schistosomiasis (5 cases) and urinary or testicular (2 cases).

Clinical presentation Pain (referred to chest, hypochondrium or lumbar region) was the most frequently reported symptom (6 cases), followed by dyspnoea (in 5 cases). Fever, hoarseness, hyper-eosinophilia, syncope/cardiogenic shock and anaemia were reported in a minority of cases.

Vascular district involved Lesion in pulmonary artery was reported in 5 cases. Aortic arch, thoraco-abdominal aorta, hepatic, renal, splenic artery and portal involvement were reported once for each location. Aortic rupture on previous aortic graft also occurred once.

Surgical treatment In four cases no surgical treatment was performed: in 2 because of patients refusal, in one because of exitus and in 1 for unspecified reason. Among performed treatments 1 splenectomy, 1 aneurysmectomy with renal reimplantation, in aneurysmectomy of aortic arch and one reintervention on aortic graft have been reported.

Outcome Follow-up data were available for 6 patients. 3 survived. In one case, post splenectomy portal vein partial thrombosis complicated occurred, but resolved at 4 years follow up. Exitus occurred in three cases, and was due to post-operative cardiogenic shock in aortic reintervention for aortic rupture; pulmonary embolism in pulmonary aneurysm (refused treatment) and for ruptured pulmonary artery aneurysm with cardiac tamponade.

Aims and methods

Aim of our study was to analyse the occurrence of aneurysm lesions in patients with Schistosomiasis, through a review of case reports in literature.

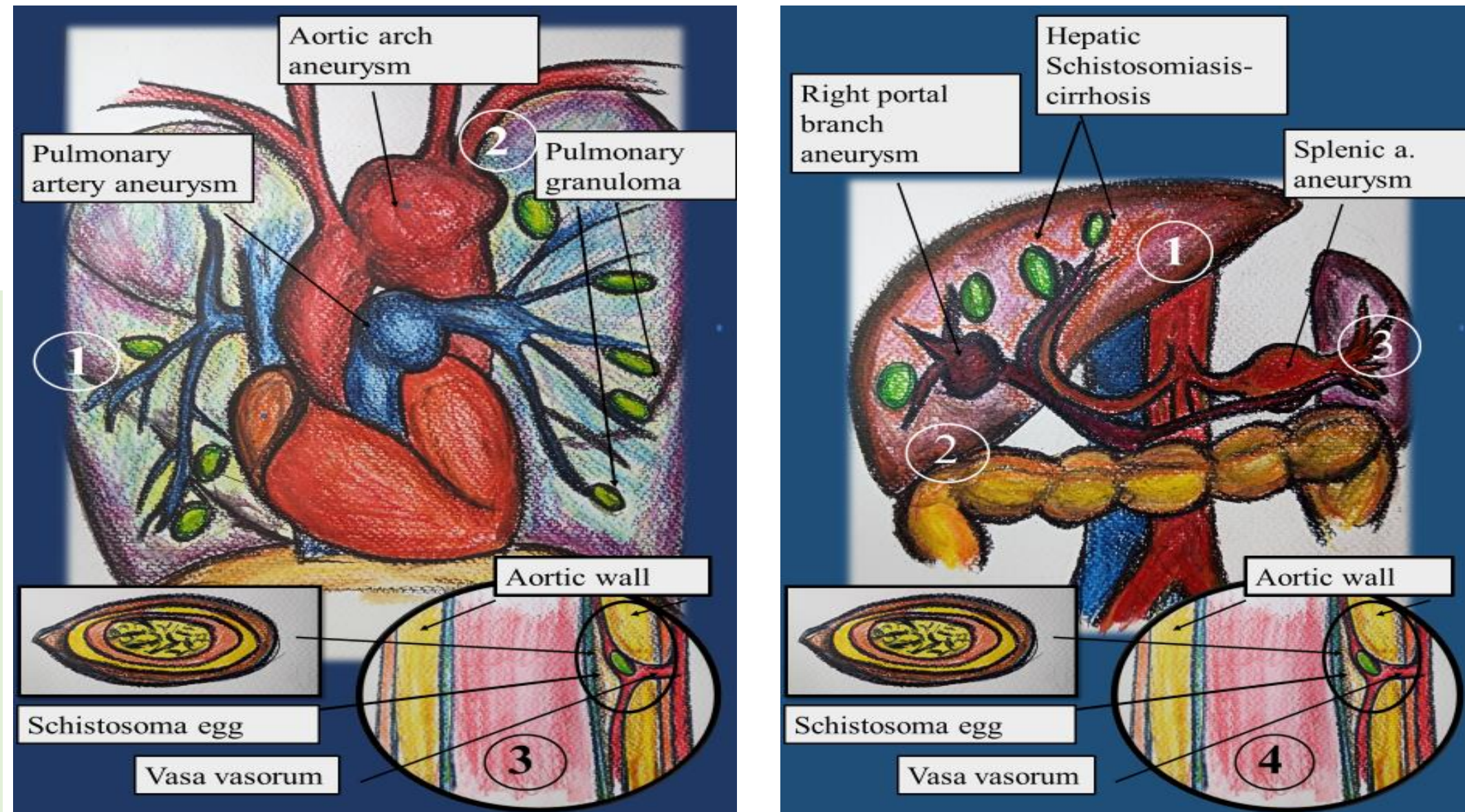


Figure 1 Physiopathology behind Aortic aneurysm and Pulmonary artery aneurysm formation. 1 Schistosoma eggs may seed pulmonary arteries, leading to lung inflammatory reaction, granuloma formation. Direct damage to vessels may occur as a result of inflammation of tissues surrounding vessels. 2 Pulmonary inflammation due to Schistosoma eggs seeding of pulmonary arteries may lead to pulmonary hypertension. Damage to vessels may be due to hemodynamic changes. 3 Schistosoma eggs may seed major vessels wall through vasa vasorum, causing cystic medial necrosis and loss of wall integrity.

Figure 2 Physiopathology behind portal branch aneurysm and splenic artery aneurysm formation. 1: seeding of hepatic vessels by Schistosoma eggs may lead to inflammatory reaction in hepatic parenchyma, fibrosis, cirrhosis and direct damage to vessels. 2: inflammatory reaction and portal fibrosis due to Schistosoma eggs seeding of hepatic vessels may lead to portal hypertension, which may induce aneurysms by hemodynamic mechanisms in visceral vessels. 3 Splenic artery aneurysm may be secondary to portal hypertension. 4: Schistosoma eggs may seed arterial wall through vasa vasorum, inducing direct damage and predisposing to aneurysm formation.

Conclusions Aneurysms may occur in patients with Schistosomiasis. Given the high burden of this neglected tropical disease in endemic regions, and the high morbidity and mortality of vascular conditions there is a need for studies that will better define physiopathology and guide clinician.