



Universiteit
Leiden
The Netherlands

Viable *Schistosoma mansoni* infection 41 years after last exposure-a case report of a loyal parasite

Staehelin, C.; Eichenberger, A.; Mookhoek, A.; Hoepner, R.; Münger, C.; Sidler, N.; ... ; Oberli, A.

Citation

Staehelin, C., Eichenberger, A., Mookhoek, A., Hoepner, R., Münger, C., Sidler, N., ... Oberli, A. (2025). Viable *Schistosoma mansoni* infection 41 years after last exposure-a case report of a loyal parasite. *Journal Of Travel Medicine*, 32(8). doi:10.1093/jtm/taaf103

Version: Publisher's Version

License: [Licensed under Article 25fa Copyright Act/Law \(Amendment Taverne\)](#)

Downloaded from: <https://hdl.handle.net/1887/4289317>

Note: To cite this publication please use the final published version (if applicable).

Clinical Pearls

Viable *Schistosoma mansoni* infection 41 years after last exposure—a case report of a loyal parasite

Cornelia Staehelin^{ID}, MD, MIH^{1,*}, Anna Eichenberger, MD¹, Aart Mookhoek, MD, PhD², Robert Hoepner, MD³, Claudia Mürner, MD⁴, Nadine Sidler, MLT⁵, Linda J. Wammes, MD, PhD⁶, Beatrice Nickel, PhD^{7,8}, Maura Concu, MSc^{7,8}, Andreas Neumayr^{ID}, MD, MCTM^{8,9} and Alexander Oberli^{ID}, PhD⁵

¹Department of Infectious Diseases, Inselspital, Bern University Hospital, University of Bern, Freiburgstrasse 20, 3010 Bern, Switzerland, ²Institute of Tissue Medicine and Pathology, University of Bern, Murtenstrasse 31, 3008 Bern, Switzerland, ³Department of Neurology, Inselspital, Bern University Hospital, University of Bern, Freiburgstrasse 20, 3010 Bern, Switzerland, ⁴Gastroenterology Practice, Weissenaustasse 27, 3800 Interlaken-Unterseen, Switzerland, ⁵Institute for Infectious Diseases, University of Bern, Friedbühlstrasse 25, 3001 Bern, Switzerland, ⁶Department of Medical Microbiology, Leiden University Center for Infectious Diseases, Leiden University Medical Center, Albinusdreef 2, 2333 ZA Leiden, The Netherlands, ⁷Swiss Tropical and Public Health Institute, Department of Medicine, Diagnostic Centre, Kreuzstrasse 2, 4123 Allschwil, Switzerland, ⁸University of Basel, Petersplatz 1, Postfach, 4001 Basel, Switzerland and ⁹Division of Tropical Health and Medicine, College of Medicine and Dentistry, James Cook University, 1 James Cook Drive, QLD 4811, Townsville, Australia

*To whom correspondence should be addressed. Email: cornelia.staehelin@insel.ch

Submitted 19 June 2025; Revised 23 September 2025; Accepted 7 October 2025

Key words *Schistosoma mansoni*, chronic intestinal schistosomiasis, chronic hepato-splenic schistosomiasis, longevity, traveller

Case report

Schistosoma species may cause chronic infections, sometimes persisting for decades, despite not replicating within the human host. Intestinal and hepato-splenic schistosomiasis is caused by five *Schistosoma* species¹ that reside in the mesenteric venous plexus. Among these, *S. mansoni* is the most important species.

We report the case of viable *S. mansoni* infection detected in a 68-year-old Swiss woman who had visited Rwanda and had swum in Lake Kivu only once in 1983, 41 years prior to diagnosis of schistosomiasis. She never visited any other country endemic for *S. mansoni*. During a routine screening colonoscopy in June 2024, a distal sigmoid section showed teleangiectases and aphthous lesions. Biopsies from these lesions revealed multiple granulomas containing calcified but also non-calcified viable eggs (Figure 1A and B). Even upon knowing these results, she confirmed, that she had never experienced any gastrointestinal symptoms.

Given the extraordinary long history of exposure, we used different diagnostic methods^{2,3} to confirm the histological diagnosis of *S. mansoni* and the activity of the infection: light microscopy

and PCR of stool samples, circulating cathodic antigen (CCA) in urine, ELISA and Western blot as well as circulating anodic antigen (CAA) and cell-free DNA (recently described as activity markers) in blood samples.

Microscopy of multiple stool samples yielded *S. mansoni* eggs (Figure 1C), though only in very low quantities. Stool and biopsy PCR confirmed the species to be *S. mansoni*. CCA in urine was also positive. *Schistosoma* in-house ELISAs based on adult worm and egg antigen showed positive results (19 and 46 AU/ml, respectively, with a cut-off ≥ 10 AU/ml). Immunofluorescence staining (IFAT) was positive with titre 1:640 (cut-off $< 1:80$). Moreover, Western blot IgG (LDBIO Diagnostics, Lyon, France) confirmed specific anti-*Schistosoma* antibodies with numerous immunogenic protein bands ranging between 8 and 34 kDa.

Liver ultrasound showed no signs of hepatic schistosomiasis, particularly no signs of periportal fibrosis. Markers of activity, CAA and cell-free DNA PCR (both in blood), were negative. She had normal eosinophil counts ($0.1 \times 10^9/L$, reference $0.02\text{--}0.4 \times 10^9/L$), normal haemoglobin and leucocyte counts as well

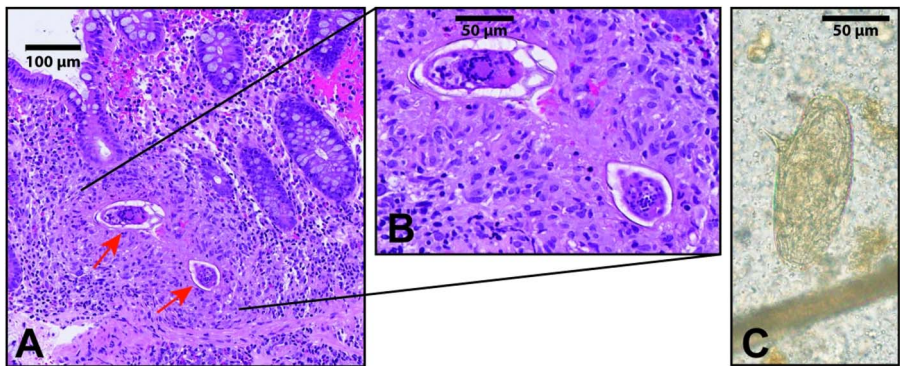


Figure 1 Haematoxylin and eosin stain of sigmoid biopsy and *S. mansoni* egg in a formalin-fixed stool specimen. (a) Calcified, non-viable (not depicted) and non-calcified viable eggs (two depicted with red arrows) seen in mucosa and submucosa. They elicit a chronic granulomatous reaction as a hallmark feature of chronic infection with *Schistosoma* spp. Histology images were taken from a scanned slide. Size bar: 100 µm. (b) Close-up of (a), depicting two viable *S. mansoni* eggs with lateral spine and detectable internal structures of miracidia. Size bar: 50 µm. (c) *S. mansoni* egg in one of the formalin-fixed stool samples of the patient. Original image magnification 400×; Size bar: 50 µm

Table 1 Longevity of previously published cases of viable *Schistosoma* species (longest published to date, per *Schistosoma* species)

Country of diagnosis	Country of infection	<i>Schistosoma</i> species	Years passed since last exposure in an endemic area	First author and DOI or PMID
France (only abstract available)	?	<i>S. haematobium</i>	30	De Gentile <i>et al.</i> ⁷
France	Martinique	<i>S. mansoni</i>	38	Payet <i>et al.</i> ⁸
USA	Philippines	<i>S. japonicum</i>	47	Hall <i>et al.</i> ⁹

as normal liver values. In colonoscopy, only a short segment of the sigmoid colon showed visible signs of pathology, potentially indicating that the (assumed only few) helminths were lodging only in the branches of the inferior mesenteric venous system, which drain this section of the colon.

The patient was treated with praziquantel 60 mg/kg body weight/day on two consecutive days, according to Swiss guidelines.⁴ She tolerated the treatment well, follow-up is ongoing (follow-up serology and colonoscopy is planned in late 2025).

Discussion and conclusions

Our case highlights that even with very short exposure, *S. mansoni* infections may cause chronic asymptomatic infections that can persist for at least 41 years. The load of adult parasites was assessed to be low in this patient, as she only reported a very short exposure time (swimming only once in Lake Kivu). Hence, despite the very long duration of infection, the patient was asymptomatic, she only showed pathology of a very limited segment of her colon and no signs of chronic complications in her liver. This latter aspect was surprising—however, may be explained by the assumed low worm burden and by the patient’s immunological predisposition. Interindividual responses to helminth infection can vary widely depending on the Th1/Th2 balance expressed by an individual.⁵ She also had normal eosinophil counts.

This case also highlights that markers of activity, such as CAA and cell-free DNA PCR—although claimed as new and innovative tools that offer improved sensitivity and specificity particularly in low-intensity or chronic infections—can be nega-

tive in low helminth burden.⁶ The microscopic detection of only a few *S. mansoni* eggs in overall three different stool samples also underscores the very low worm burden present in this patient and the importance to screen at least three separate stool samples, collected on three different days, for the microscopic examination of *Schistosoma* eggs.

To our knowledge, this is the longest documented infection with *S. mansoni* reported in medical literature (Table 1) and one of the longest for *Schistosoma* spp. in general. *S. haematobium* most likely is symptomatic at an earlier stage (haematuria, haematospermia) leading to fewer untreated chronic cases.

Funding

None declared.

Author contributions

CS and AO wrote the first draft. All authors revised first draft and approved final version.

Conflict of interest: None declared.

References

1. McManus DP, Dunne DW, Sacko M, Utzinger J, Vennervald BJ, Zhou XN. Schistosomiasis. *Nat Rev Dis Primers* 2018;4:13.

2. Vaillant MT, Philippy F, Neven A *et al.* Diagnostic tests for human *Schistosoma mansoni* and *Schistosoma haematobium*

- infection: a systematic review and meta-analysis. *Lancet Microbe* 2024;5:e366–78.
3. Hoekstra PT, Chernet A, Dood CJ *et al.* Sensitive diagnosis and post-treatment follow-up of *Schistosoma mansoni* infections in asymptomatic Eritrean refugees by circulating anodic antigen detection and polymerase chain reaction. *Am J Trop Med Hyg* 2022;106:1240–6.
 4. Swiss Society of Tropical and Travel Medicine. *Schistosomiasis Treatment Guidelines*. 2020. <https://www.ssttm.ch/dokumente/swisstph-schistosomiasis-2020.pdf>
 5. Abdel Aziz N, Musaigwa F, Mosala P *et al.* Type 2 immunity: a two-edged sword in schistosomiasis immunopathology. *Trends Immunol* 2022;43:657–73.
 6. Corstjens P, Dood CJ, Knopp S *et al.* Circulating anodic antigen (CAA): a highly sensitive diagnostic biomarker to detect active *Schistosoma* infections-improvement and use during SCORE. *Am J Trop Med Hyg* 2020;103:50–7.
 7. Gentile L, Fayad M, Denis P *et al.* Erratic localization and uncommon longevity of *Schistosoma haematobium*. Apropos of a case. *J Urol (Paris)* 1988;94:163–5.
 8. Payet B, Chaumentin G, Boyer M *et al.* Prolonged latent schistosomiasis diagnosed 38 years after infestation in a HIV patient. *Scand J Infect Dis* 2006;38:572–5.
 9. Hall SC, Kehoe EL. Case reports. Prolonged survival of *Schistosoma japonicum*. *Calif Med* 1970;113:75–7.