A surprisingly late (and late surprising) diagnosis

TROPICARE 25-11-2024
STEVEN VAN DEN BROUCKE

♀ 28y

- “For 8 years I have fatigue…
- … menorrhagia's, dysmenorrhea, dyspareunia, vaginal discharge and pain in the lower abdomen. Persistent. Intermittent hematochezia without diarrhea”
- Been abroad?
- Yes, I travelled in several countries in Africa and South America
- Freshwater contact?
- Mali 2010: fallen in the Niger river, ‘abdominal eczema’ for 3 weeks
- Ecuador 2008: fresh water contact
- By the way, for 1,5 year we are failing to conceive

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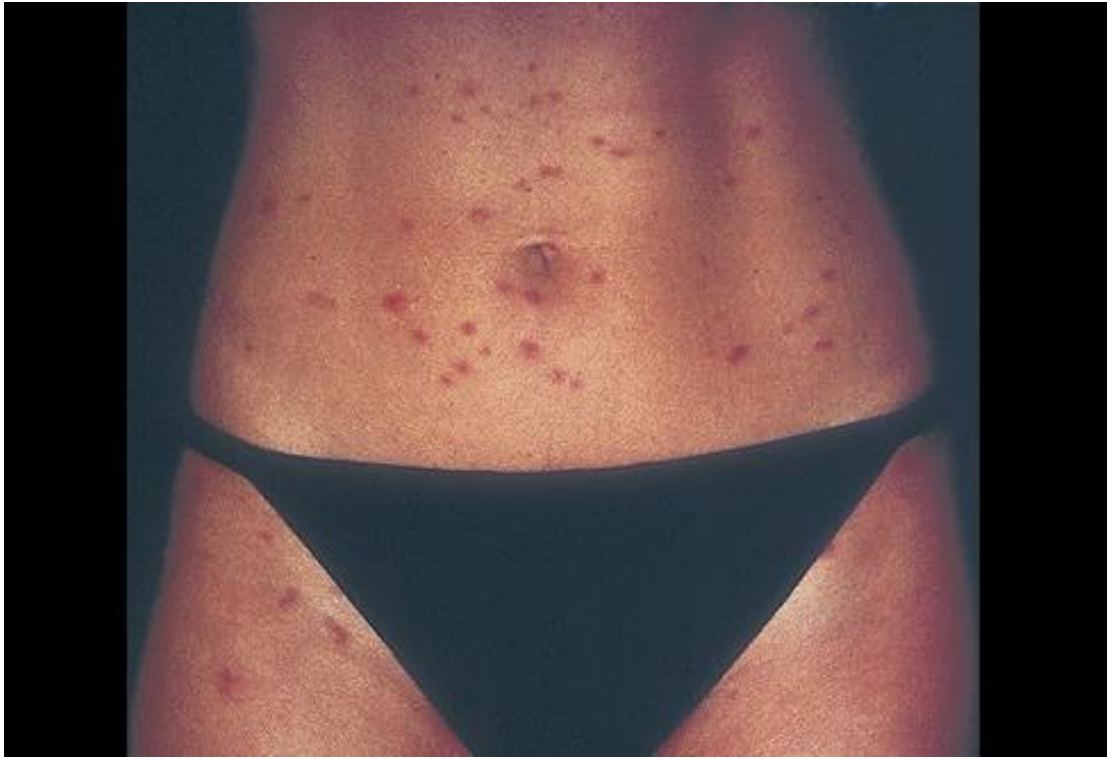
- **Physical exam:**
- Hypogastric palpation moderately painful
- External genitalia normal
- Slight cervical motion tenderness
- Speculum exam normal
- Digital rectal exam normal

- Lab:
  - Hb 12.6 g/dl
  - WBC 7600/µl
    - 50% neutro, 35% lympho, 6% eosino, 2% baso, 7% mono
  - Syphilis, HIV, Chlamydia, Gonorroe: neg
  - Urine: 18 RBC/µl, no WBCs, mucus +, prot -

Abdominal eczema?

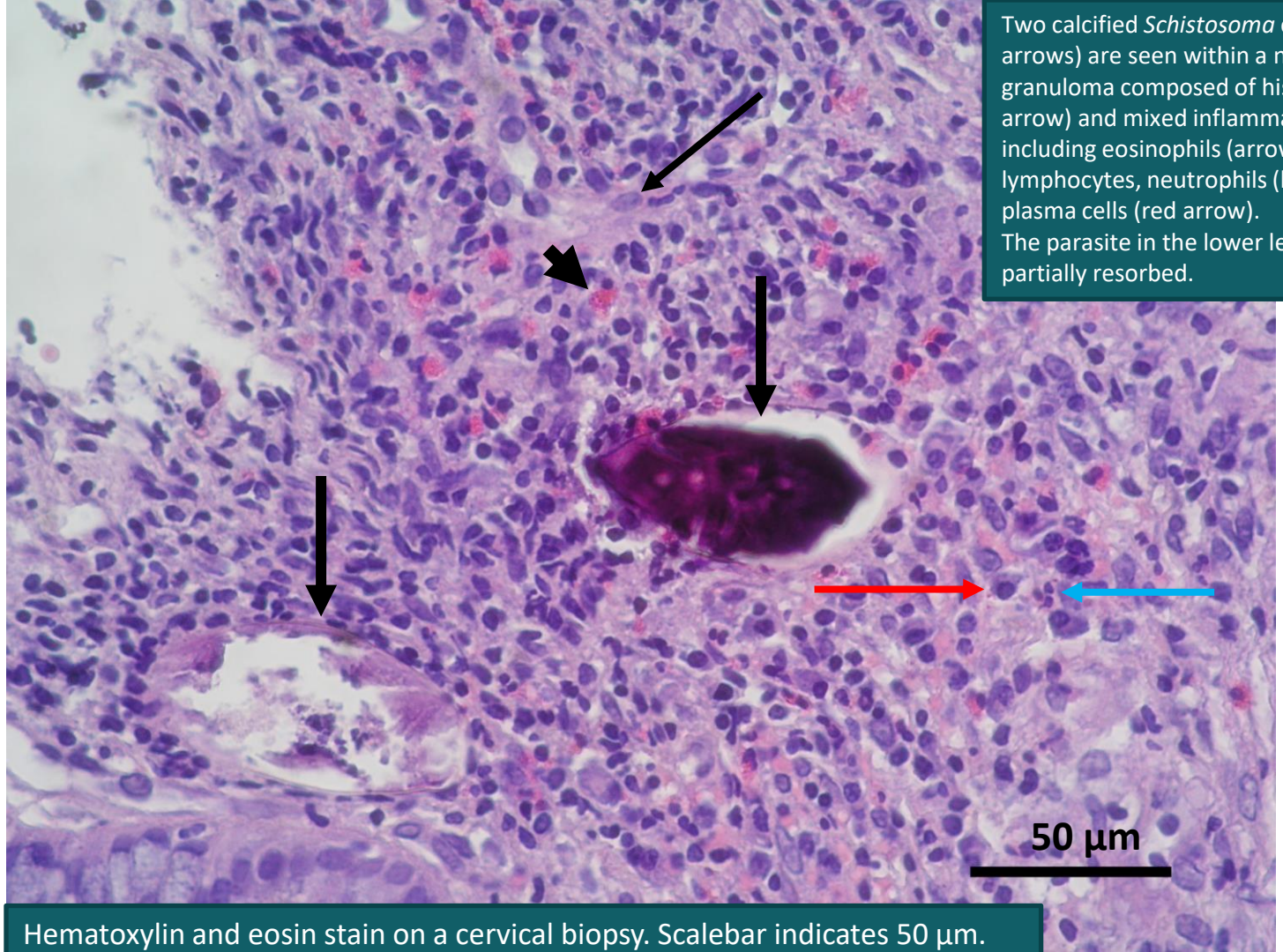
- Cercarial dermatitis (Swimmer's Itch)



Consulted several gynecologists in the past 8 years

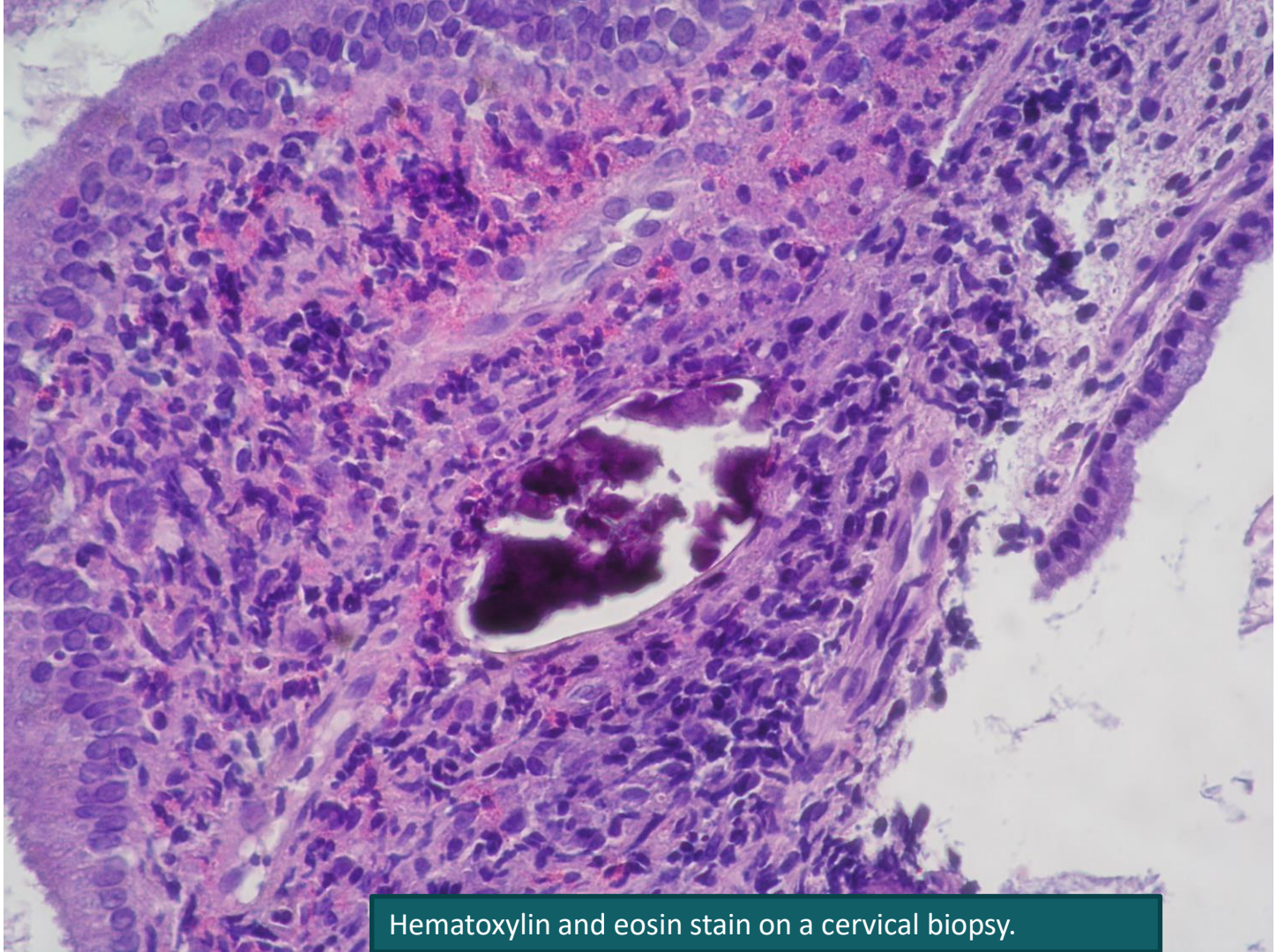
- Extensive work-up including hysterosalpingography normal
- Last PAP-smear: ‘atypical inflammation’
- **What would you do now?**

Cervical biopsy



Two calcified *Schistosoma* eggs (thick arrows) are seen within a nonnecrotic granuloma composed of histiocytes (thin arrow) and mixed inflammatory cells including eosinophils (arrowhead), lymphocytes, neutrophils (blue arrow), and plasma cells (red arrow).
The parasite in the lower left granuloma is partially resorbed.

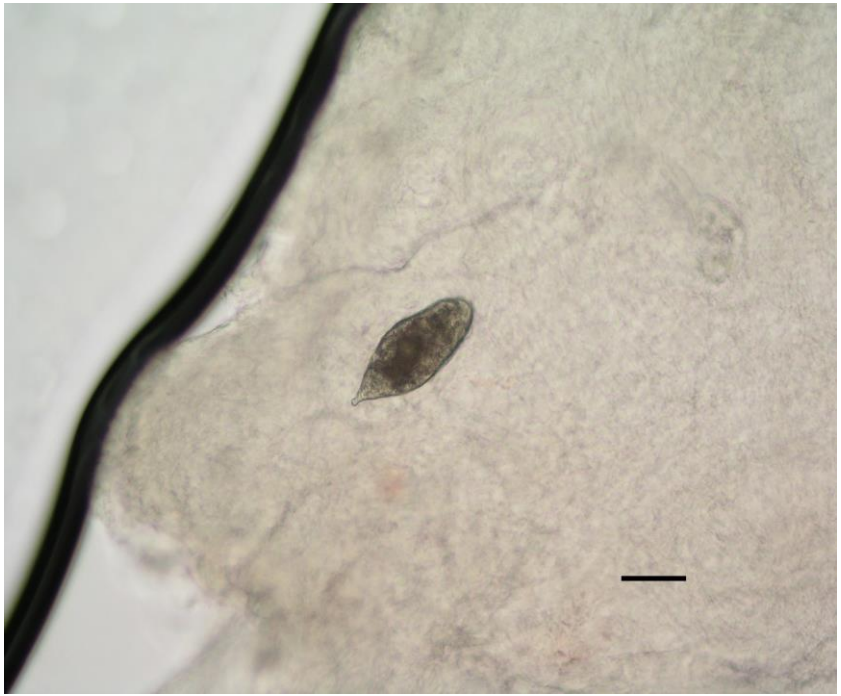
Hematoxylin and eosin stain on a cervical biopsy. Scalebar indicates 50 µm.



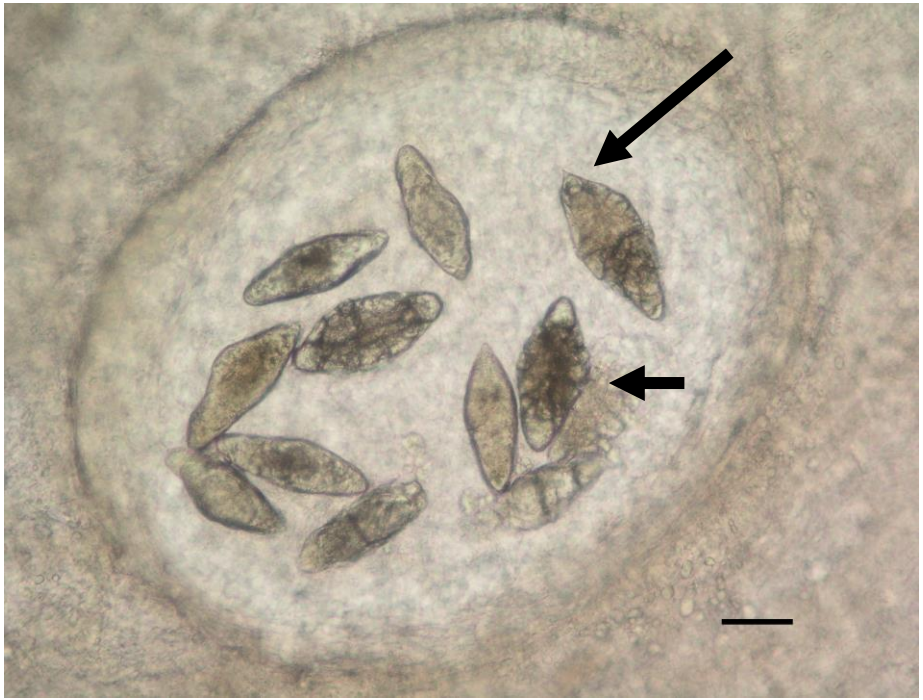
Hematoxylin and eosin stain on a cervical biopsy.

Snips: Unstained wet mount preparation

Cervical



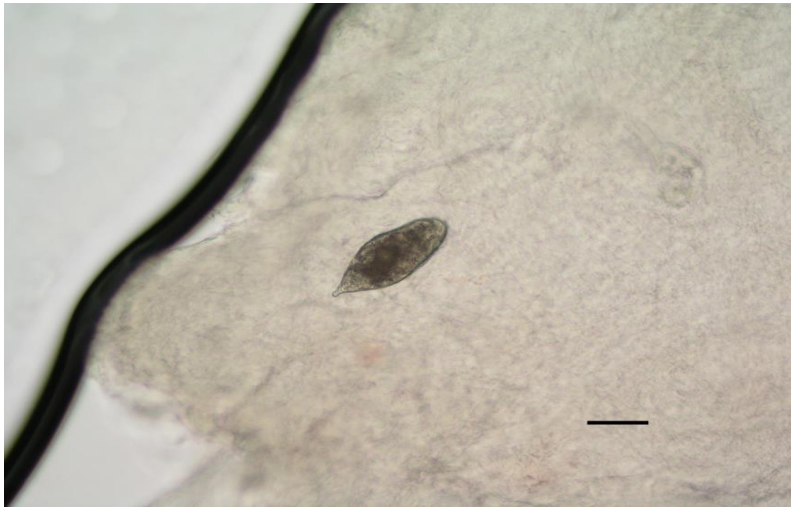
Rectal



Scale bar indicates 50 µm

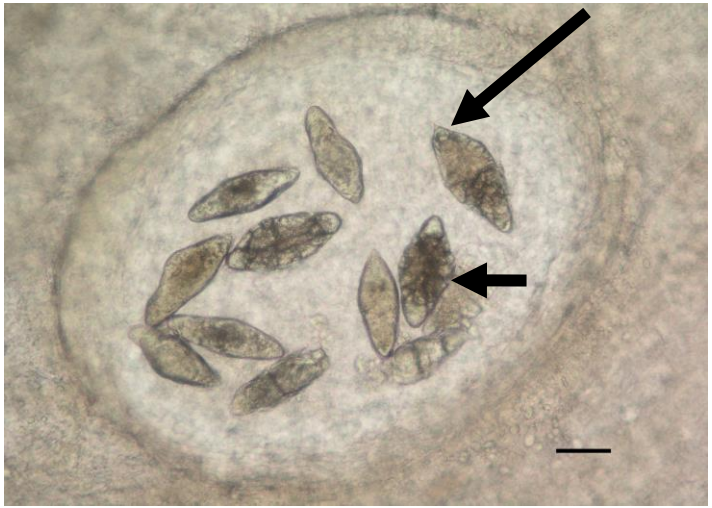
Snips: Unstained wet mount preparation

Cervical



Cervical snip, unstained wet mount preparation. A calcified *Schistosoma* egg with terminal spine.

Rectal



Rectal snip, unstained wet mount preparation. A cluster of *Schistosoma* eggs with different stages of calcification (short arrow indicates advanced calcification) having inconspicuous terminal spines (long arrow) and equatorial bulges.

Further work-up

- ELISA *Schistosoma* ($SEA_{Schistosoma\ Egg\ Antigen}$): pos, ratio 2,26 (ref range < 1.00)
- IHA *Schistosoma* ($WA_{Worm\ Antigen}$): pos, 1/320 (ref range < 1/160)
- Eosinophilia: neg

- Urine Sediment: RBC 18/µl, WBC neg, mucus +, protein -

- Urine: no *Schistosoma* eggs
- Stool: no *Schistosoma* eggs

Female genital schistosomiasis (FGS): from case reports to a call for concerted action against this neglected gynaecological disease

Vanessa Christinet [a], Janis K. Lazdins-Helds [b], J. Russell Stothard [c], Jutta Reinhard-Rupp [d,*]

IJP

Forty-six publications out of the 193 reviewed papers are from Europe, USA and Oceania describing Female Genital Schistosomiasis in migrants or travellers coming from schistosomiasis endemic countries. The table provides an overview of countries of diagnosis, countries of infection, patient number and age, clinical condition and *Schistosoma* spp.

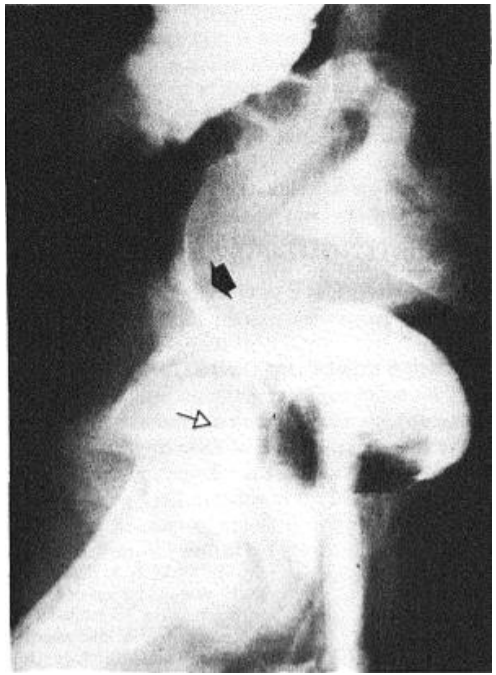
Country of diagnosis	Schistosomiasis infestation origin	Age (years)	Schistosomiasis-associated clinical condition	*Schistosoma* spp.	Publication reference number
UK	Malawi Lake, Zimbabwe (t), Zambia, Nigeria, Zimbabwe (m)	34, 43, 51, 26, 39, 37, 27, 31, 28, 29, 28, 29	Vulvar granuloma (3 cases), adnexal mass, infertility, tubal carcinoma, ectopic pregnancy, teratoma, HPV/HIV infection, cervicitis, cervical carcinoma in situ	*S. haematobium*	14, 17, 37
USA	Senegal, East Africa, Liberia, Guinea, South Africa (m)	27, 20, 28, 41, 22, 20, 63, 32, 37	Cervical dysplasia with HPV, cervical dysplasia with HPV/HIV, sandy patches, ectopic pregnancy, salpingitis, infertility, perianal fistula, cervical cancer without HPV	*S. haematobium*, *S. mansoni* (1 case)	
France	DRC (m), Mauritania (m), Senegal (ms), Tunisia (m), Mali (m), Mali (t), Senegal (m)	28, 34, 22, 29, 32, 35, 29, 21, 33, 27	Infertility, cervical dysplasia, tubal obstruction, hydrosalpinx, adnexal mass, secondary amenorrhea, endometritis, ectopic pregnancy	*S. haematobium*, *S. mansoni* (DRC, 1 case from Senegal)	
Germany	Angola, Sierra Leone, Togo (m)	24, 30, 21	Ectopic pregnancy, leiomyoma, infertility, adnexal tumour	*S. haematobium*	86, 118, 161
Netherlands	Malawi Lake, Mali (t)	37, 33	Leiomyoma, infertility	*S. mansoni*, *S. haematobium*	29, 79
Spain	Nigeria (m) Mali (t)	26	Infertility, vulvitis	*S. haematobium*	15, 50
Switzerland	Egypt, Malawi Lake (t)	54, 26	Vulvar granuloma, asymptomatic ovarian and tubal schistosomiasis, vulvar lesion and cervical lesions	*S. haematobium*	28, 76, 105
Portugal			Ovarian schistosomiasis, external genital mass		104, 179
Australia					91
Belgium	Mali, Senegal (t)	20	Vulvar mass	*S. haematobium*	39
Czech Rep.	Brazil		Hydrosalpynx, tubal schistosomiasis	*S. mansoni*	136
Israel	Ethiopia (m)	19	Recto-vaginal fistula		102
Ireland	Nigeria (m)	31	Ectopic pregnancy, tubal schistosomiasis		67
Italy	South Tunisia (t)		Vaginal mass	*S. haematobium*	23
New Zealand	Malawi Lake	30, 28	Adnexal mass, vulvar lesion	*S. haematobium*	52, 111

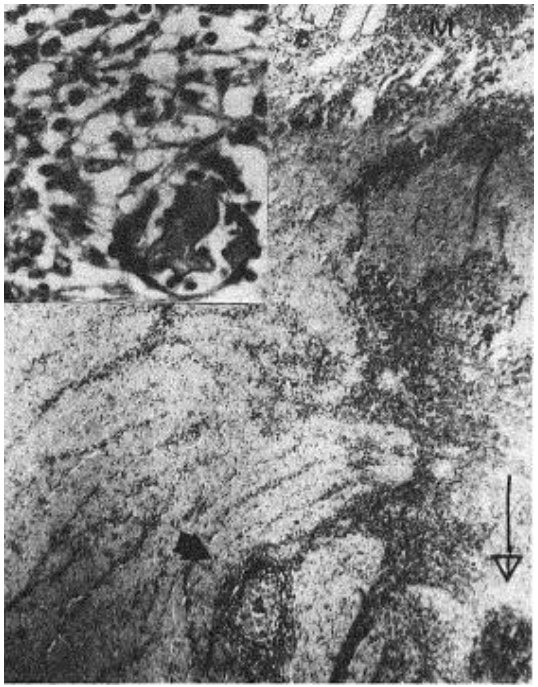
m, migrants; t, travellers; HPV, human papilloma virus; HIV, human immunodeficiency virus.

44 FGS cases in migrants and travelers; < ½ returning travelers

Urinary and rectal presentation at the same time?

SCHISTOSOMIASIS AS A CAUSE OF RECTOVAGINAL FISTULA: A BRIEF CASE REPORT





Isr J Med Sci 1996;32:1109–1111

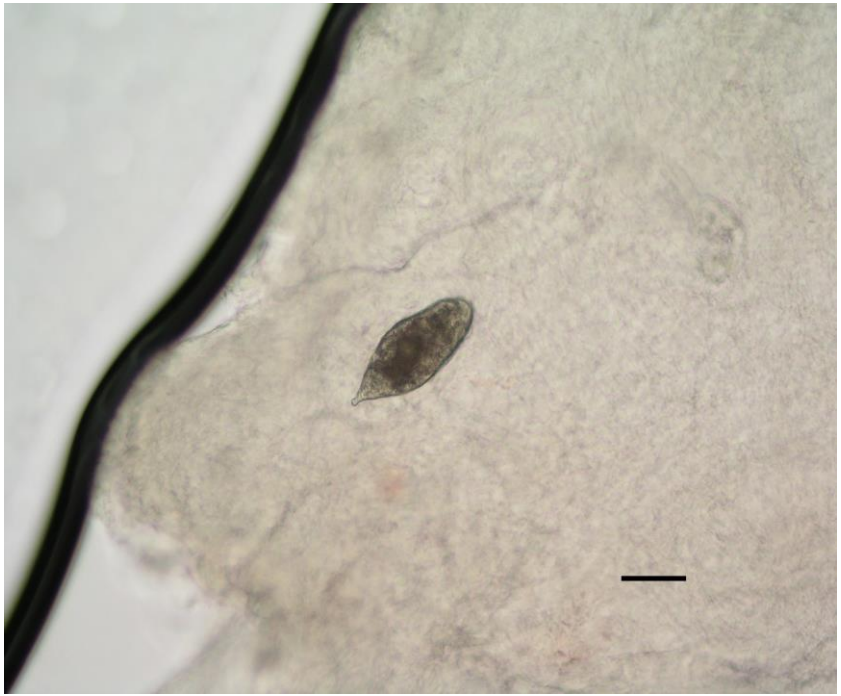
FGS presentations?

- Perineal or vaginal lesions
- Cervicitis
- Endometritis
- Salpingitis
- Infertility
- Fistulae

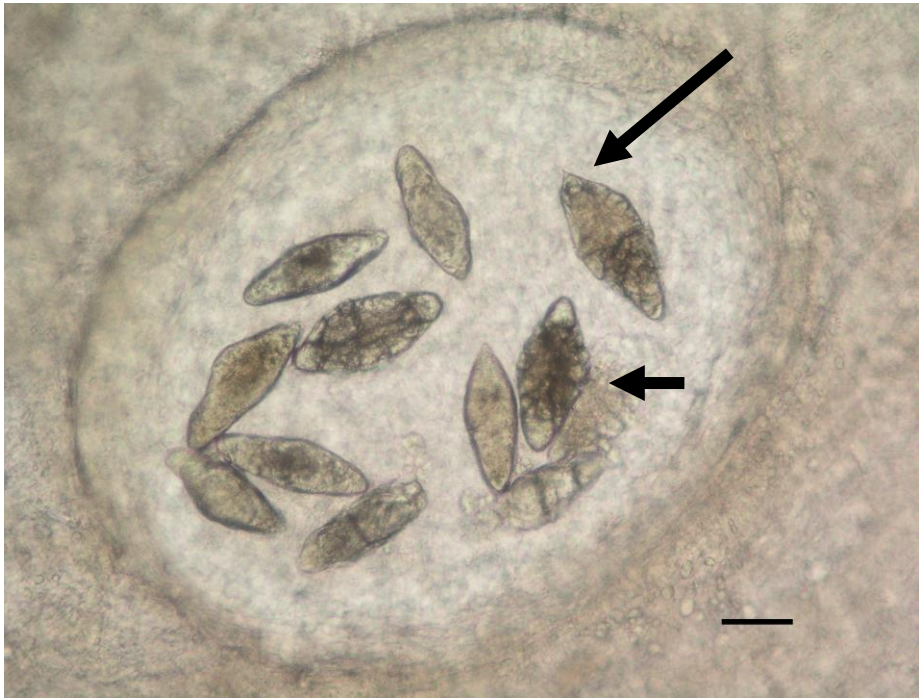
Snips: Unstained wet mount preparation

Species?

Cervical



Rectal



Scale bar indicates 50 µm

Question: Which type of *Schistosoma spp.*?

Clinical Infectious Diseases

BRIEF REPORT

Diagnosis and Clinical Management of *Schistosoma haematobium–Schistosoma bovis* Hybrid Infection in a Cluster of Travelers Returning From Mali

Patrick Soentjens,[1,3] Lieselotte Cnops,[1] Tine Huyse,[2,5] Cedric Yansouni,[6,7] Daniel De Vos,[4] Emmanuel Bottieau,[1] Jan Clerinx,[1] and Marjan Van Esbroeck[1]

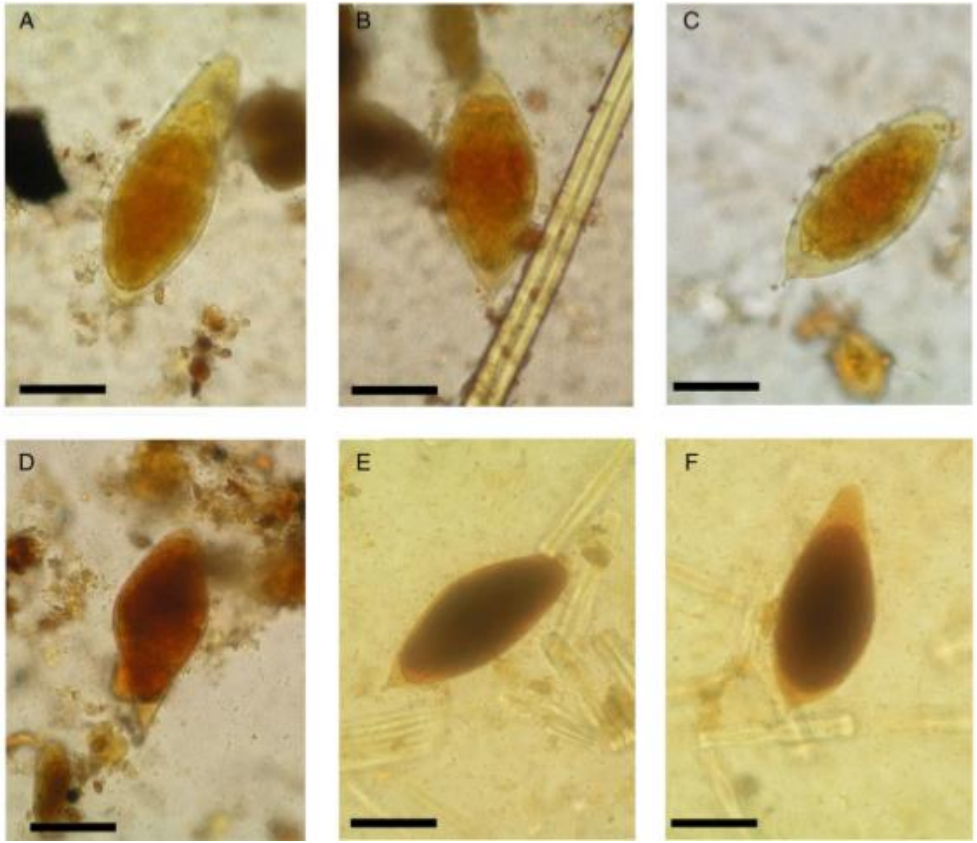
Parasitology Research

November 2015, Volume 114, Issue 11, pp 4127–4133 | Cite as

Introgressive hybridizations of *Schistosoma haematobium* by *Schistosoma bovis* at the origin of the first case report of schistosomiasis in Corsica (France, Europe)

G Patient	Time From Exposure to Diagnosis, d	Eosinophil Count, $\times 10^9$/L	ELISA	IHA	Eggs in Stool, No./g	Genus PCR (Stool)	Microscopy (Urine)	Genus PCR (Urine)	Dra PCR (Serum)	Sm1–7 PCR (Serum)
1	39	2.13	Positive	Negative	Negative	NA	Negative	NA	Positive	Positive
2	58	0.88	Negative	1/640	Negative	NA	Negative	NA	Positive	Negative
3	88	1.78	Negative	Negative	360	Positive	Negative	NA	Positive	Positive
4	88	3.94	Negative	Negative	40	Positive	Negative	NA	Positive	Negative
5	81	4.51	Negative	1/160	10	Positive	Negative	NA	Positive	Positive
6	95	0.67	Negative	1/1280	80	Positive	Negative	Negative	Positive	Negative
7	109	1.02	Negative	Negative	60	Positive	Negative	Negative	Positive	Negative
8	109	0.59	Negative	1/160	580	Positive	Positive	Positive	Positive	Negative
9	116	0.3	Negative	Negative	140	Positive	Positive	NA	Positive	Positive
10	719	0.95	Positive	1/160	Negative	NA	Positive	Positive	Positive	Positive

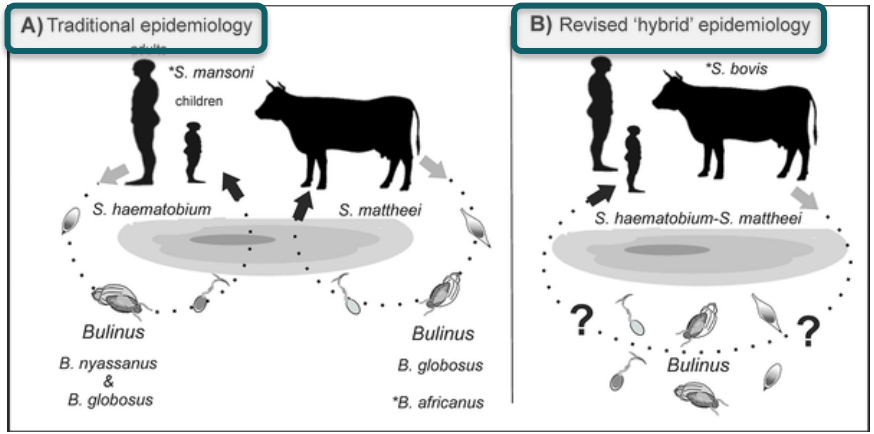
Schistosoma haematobium-bovis Hybrids



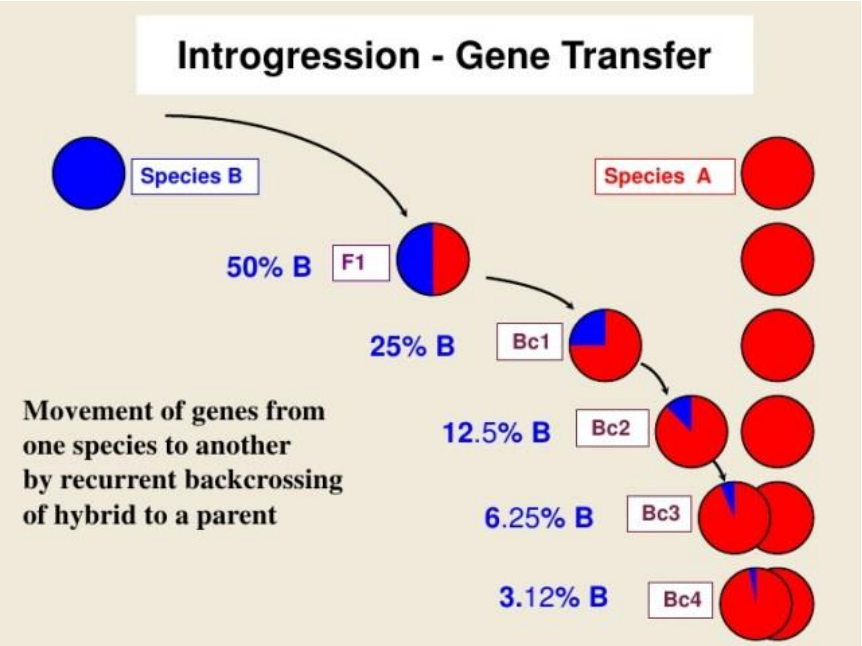
Polymorphic eggs seen in parasitological examination of stool sample from patient 8. The eggs looked similar to those of Schistosoma guineensis (formerly Schistosoma intercalatum) (140–240 µm); but were smaller, 135–175 µm in length. Their shape was intermediate **between the typical round to oval Schistosoma haematobium and the more elongate, spindle-shaped Schistosoma bovis eggs**. Some eggs were more stretched, with an oval to diamond shape (D, E), and were larger (A) than the typical S. haematobium type,110–170µm long ; some other eggs were smaller (B,C). Although S.haematobium has a characteristic small terminal spine (C, F), some eggs had a somewhat enlarged terminal spine (A, D). Scale bars represent 50 µm.

CID 2016:63 (15 December)

Fig 1. Reconciling schistosome hybridization with epidemiological models of schistosomiasis transmission.



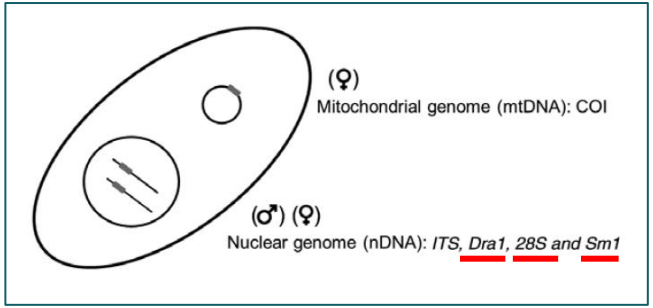
(A) The current model of urogenital schistosomiasis in Malawi involves discrete transmission cycles and does not formally take into account the importance of multi-species coinfections. **(B)** A revised model of urogenital schistosomiasis with overlapping transmission potentials with schistosome worms also being influenced or interacting with other species present (e.g., *S. mansoni* within coinfected people or *S. bovis* in cattle). Note **S. mansoni*–intestinal schistosomiasis is now emerging along the Lake Malawi shoreline and is transmitted by *Biomphalaria* (which is not depicted here for brevity), **B. africanus* has now been detected in the lake (MH Al-Harbi *personal observation*) and is a known intermediate host of several other *S. haematobium* group species, which might drive novel environmental transmission opportunities. https://doi.org/10.1371/journal.pntd.0008201.g001



Stothard JR, Kayuni SA, Al-Harbi MH, Musaya J, Webster BL (2020) Future schistosome hybridizations: Will all Schistosoma haematobium hybrids please stand-up!. PLOS Neglected Tropical Diseases 14(7): e0008201. https://doi.org/10.1371/journal.pntd.0008201
https://journals.plos.org/plosntds/article?id=10.1371/journal.pntd.0008201

PCR Results on cervical smear, rectal- and cervical snips

- Genus PCR: CT 33,69 (all *Schistosoma* species), targets 28S rRNA
- Dra 1 PCR: CT 22,78 (*Haematobium* complex)
- Sm1-7 PCR: **neg** (*Mansoni* complex)
- Sequencing

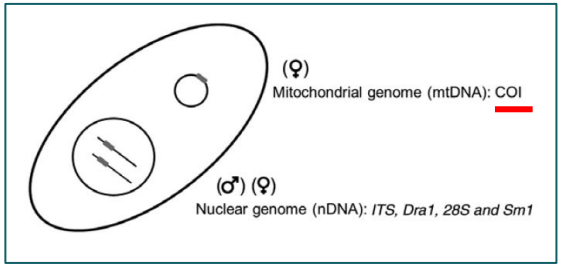


Cnops L, Tannich E, Polman K, Clerinx J, Esbroeck M Van. Schistosoma real-time PCR as diagnostic tool for international travellers and migrants. *Trop Med Int Heal*.

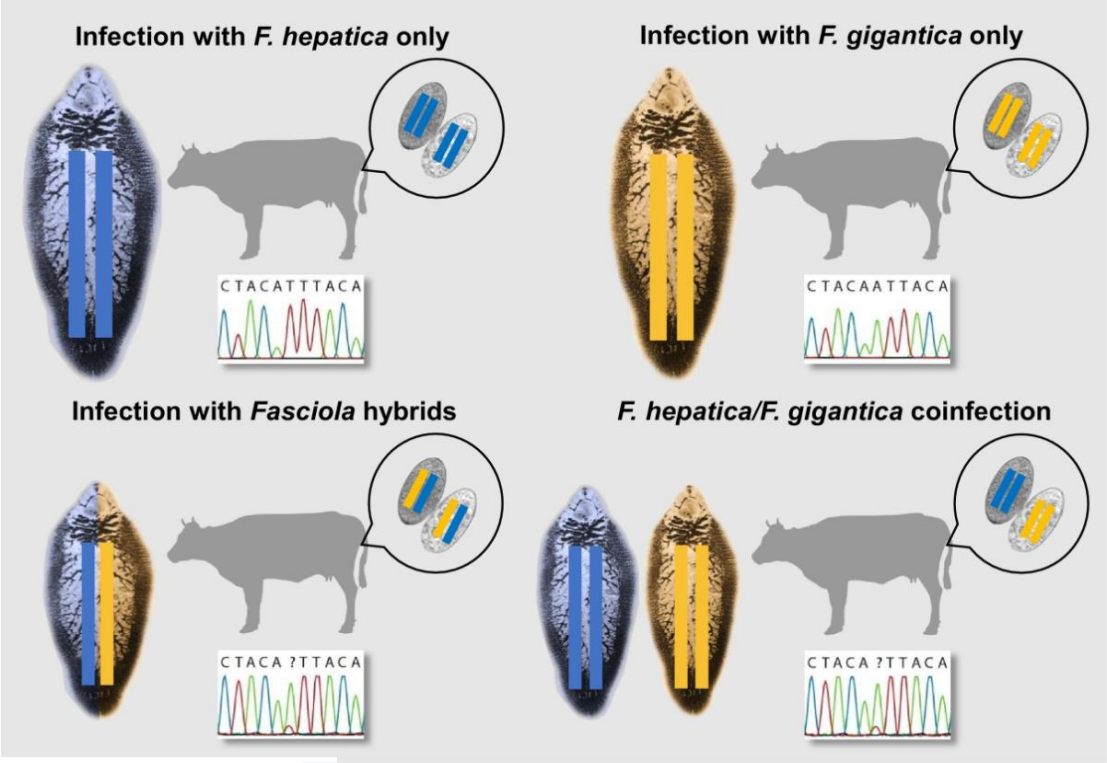
Cnops L, Soentjens P, Clerinx J, Esbroeck M Van. A Schistosoma haematobium-Specific Real-Time PCR for Diagnosis of Urogenital Schistosomiasis in Serum Samples of International Travelers and Migrants. *PLoS Negl Trop Dis*. 2013;7(8):1-7. doi:10.1371/journal.pntd.0002413

Further testing

- 28S rRNA fragment sequencing -- > Could not distinguish between *S. haematobium*, *S. bovis*, or *S. intercalatum / S. guineensis*
- RD-PCR on **cervical** biopsy: strong *S. bovis* band and weak *S. haematobium* band
  - Sequencing: 100% ***S. bovis*** match
- **Rectum** snip CO1 (cytochrome oxidase subunit I) fragment sequenced
  - 99.76% ***S. haematobium***



Explanation?



- So either:
  1. Mixed *S. bovis* + *S. haematobium* infection

  vs

  2. Hybrid infection

- Hybrid

Trends in Parasitology
CellPress OPEN ACCESS
Opinion
Fasciola Species Introgression: Just a Fluke or Something More?
Nichola Eliza Davies Calvani and Jan Šlapeta

S haematobium × *S bovis* hybrids have already been reported in a Nigerian village that is also situated in the Niger River basin (EID **2016**; 22:2212–4)

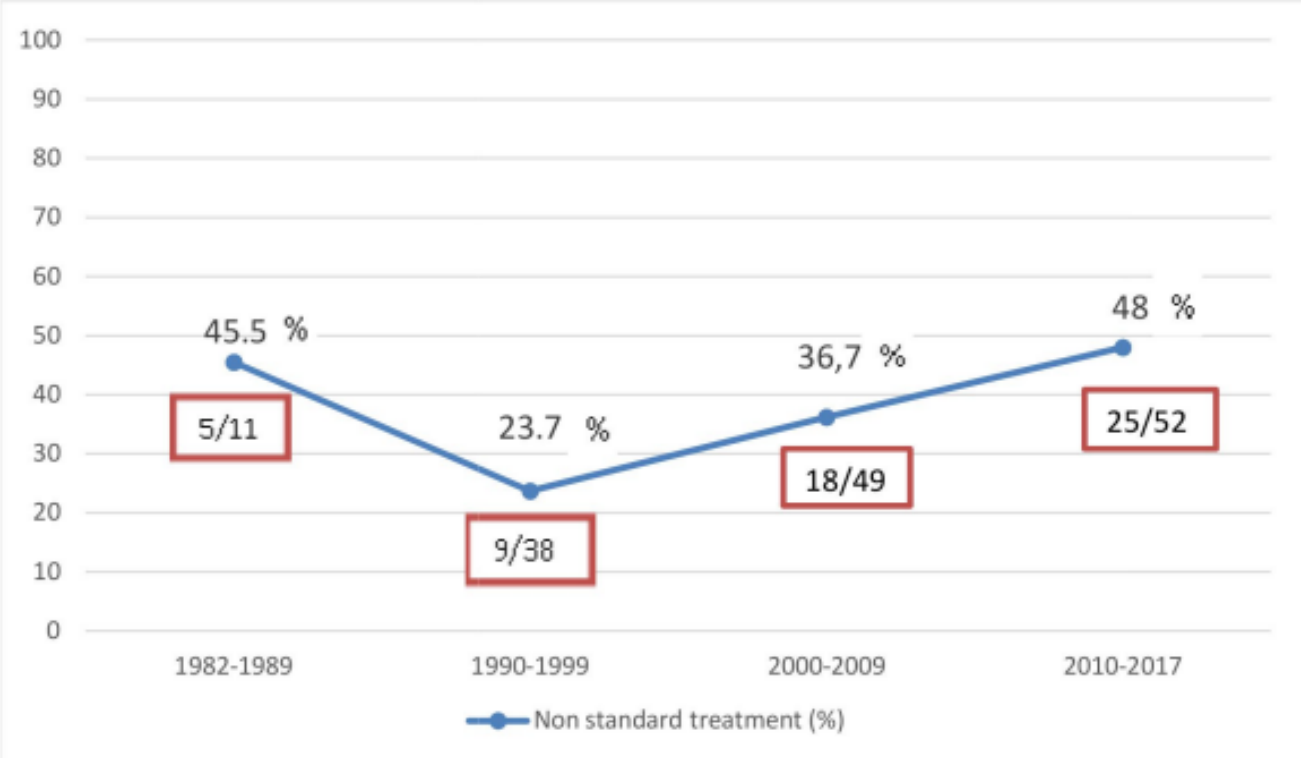
Treatment?

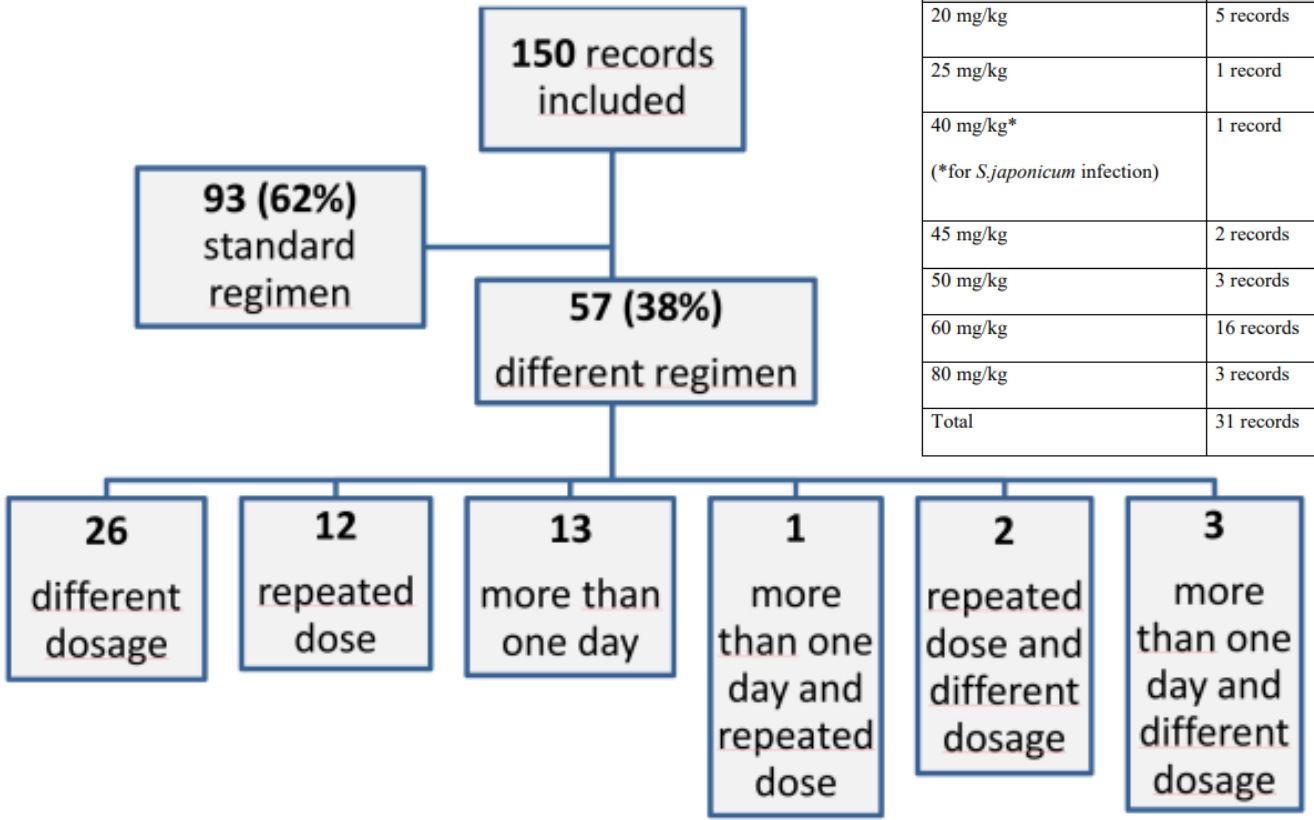
PZQ is the first-line medication for chronic schistosomiasis. According to the WHO recommendations, the treatment regimens are: 40 mg/kg/day orally, in single dose or divided in two doses, for *S. haematobium* and *S. mansoni,* 60 mg/kg/day in three divided doses for *S. japonicum* and *S. mekongi*.[7, 8] The CDC guidelines suggest, in particular in lightly infected patients, to give a second course of treatment after 2 to 4 weeks.[8] Current recommendations and guidelines for the treatment of schistosomiasis are based on trials conducted in endemic countries, where morbidity control is the main objective. No trials have been performed in non-endemic areas where, in absence of possible re-exposure to an infective source, cure should be the goal of treatment.

J Travel Med. 2019 Jul 16. pii: taz050. doi: 10.1093/jtm/taz050. [Epub ahead of print]

High-dose or Multi-day Praziquantel for Imported Schistosomiasis? A Systematic Review.

Cucchetto G[1,2], Buonfrate D[3], Marchese V[4], Rodari P[3], Ferrari A[5], Zanotti P[4], Bottieau E[6], Silva R[3], Bisoffi Z[2,3], Gobbi F[3].





Dosage of praziquantel	Number of records
20 mg/kg	5 records
25 mg/kg	1 record
40 mg/kg* (*for *S.japonicum* infection)	1 record
45 mg/kg	2 records
50 mg/kg	3 records
60 mg/kg	16 records
80 mg/kg	3 records
Total	31 records

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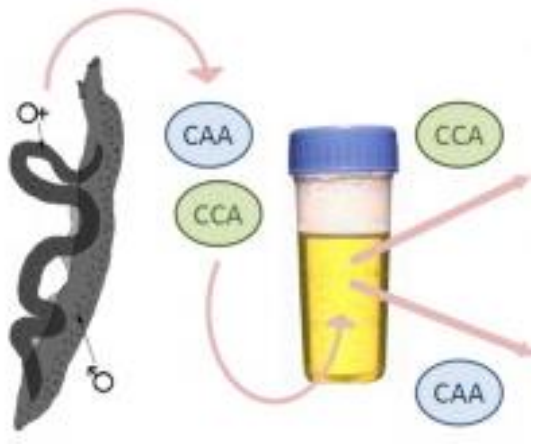
Treatment patient

- Praziquantel 20 mg/kg 3x/d D1 and D14
- Improvement for 6 weeks, but recurrence of symptoms
- What would you do?
- Are the complaints due to established fibrosis?

Circulating anodic antigen (CAA)

- 5 Months after 1° treatment:
  - Serum CAA: 1.44 pg/ml (ref range < 1.00 pg/ml)
  - Urine CAA: negative
- Praziquantel 40 mg/kg single dose
- 11 Months after 1° treatment:
  - Serum CAA: 0,88 pg/ml
  - All complaints have disappeared
  - In follow-up in fertility center



Contents lists available at ScienceDirect

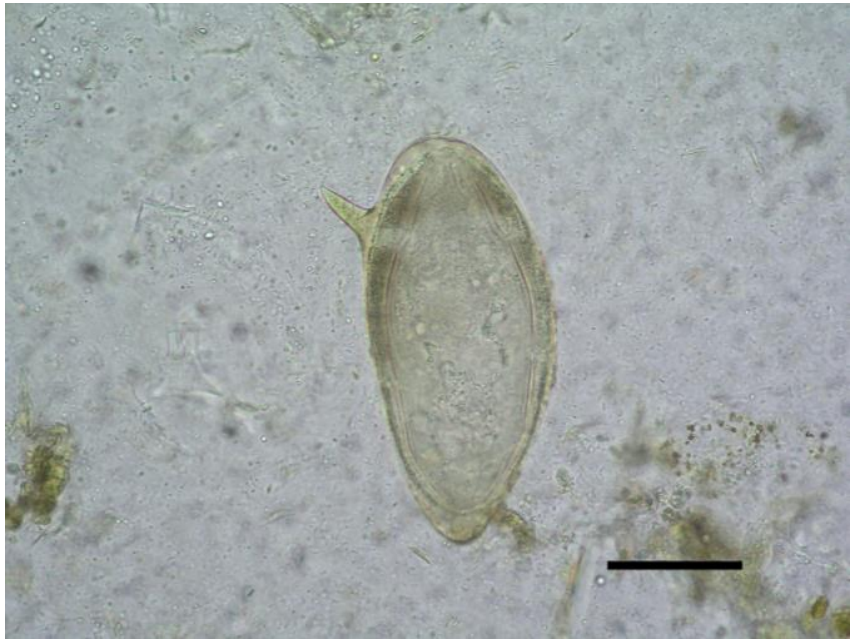
Clinical Microbiology and Infection

journal homepage: www.clinicalmicrobiologyandinfection.com

Picture of a Microorganism

Intestinal schistosomiasis: a very long-lived tropical parasite

I. Potters [1,*], L. Van Duffel [2], G. Broeckx [3], E. Bottieau [1]



31y old immigrant from Sierra Leone, since 20 years in Belgium

ER: acute slightly bloody diarrhea, abdominal pain and vomiting

Schistosoma mansoni egg after glycerol sedimentation of stools. The egg has a large lateral spine, typical for *S. mansoni*, and has a clearly defined miracidium inside. Scale bar represents 50 µm.

The Lancet 1924, viable worms 28 years after exposure

LONGEVITY OF PARASITIC WORMS:

THE TERM OF LIVING EXISTENCE OF SCHISTOSOMA HÆMATOBIUM IN THE HUMAN BODY.

BY J. B. CHRISTOPHERSON, C.B.E., M.D. CAMB., F.R.C.P. LOND.,

ASSISTANT PHYSICIAN TO THE CITY OF LONDON HOSPITAL, VICTORIA PARK; LATE MEDICAL DEPARTMENT, SUDAN GOVERNMENT.

LONGEVITY in biology is the term of living existence, without reference to its being a long or a short term or comparatively a long or a short term. The word needs definition because, being one about which dictionaries are not precise, its meaning is ambiguous. In an essay on comparative longevity, published about 1870, Ray Lankester[1] found it necessary to define its uses. Chalmers-Mitchell, in his Notes on the Theory of Longevity,[2] accepts Ray Lankester's definitions, and we cannot do better than accept them also.

Longevity: Normal and Potential.

Ray Lankester refers to "specific longevity" as the average span of life of the species, and "potential longevity" as the possible length of life of the individual. Specific longevity is the longevity of the species, the length of time a living being may expect to survive under natural conditions—the "expectation of life at birth." This is a problem of mathematics rather than physiology, is largely determined by accidents and external conditions, and does not interest us here. Potential longevity, on the other hand, depends on the inherent *vitality* of the individual. Accidents, diseases, and external conditions have no relation to it. It is said to be *normal* or *absolute*. If all untoward external conditions, diseases, and accidents could be eliminated, the animal surviving as long as his store of vitality lasts, no longer and no shorter, we should have absolute potential longevity, and the biologist could study longevity without any qualifications.

Absolute potential longevity is rarely if ever attained; we must therefore examine longevity as we find it, normal potential longevity, length of life under normal conditions. Although the subject of potential longevity has been much studied by philosophers and biologists, no great distance has been traversed, possibly because investigations have been limited in the main to man and the higher animals. The question as to why one animal lives longer than another is still without a satisfactory answer. Is there in truth any causative relation between high longevity and complex structure or mass? Has personal energy or generative expenditure anything whatever to do with potential longevity? Why is the distribution of "vitality" apparently so arbitrary?

Practically speaking, little is known of the potential longevity of the higher animals[3]; of that of wild animals nothing. Of potential longevity we know little concerning domesticated animals and nothing

longevity of a
have been stu
increasing the
of tissue and
longevity, esp
influences are
in fluke parasi
lute longevity
in other living

The Bilharzia Worm.

The potential longevity of the bilharzia worm in the human body is well worth attention. It is a tissue and blood parasite, and as such little subject to changes in environment, surroundings, or external conditions. G. M. Vevers,[5] in a review of the entozoa collected from animals which died in the Zoological Gardens of London during eight months in 1919, reporting a case of *Gastrodiscus aegyptiacus*, the trematode of equines in Africa, draws attention to the small amount of information we possess on the length of life of parasites of various groups in their hosts. (*Gastrodiscus aegyptiacus* is a species of parasite not altogether unrelated to bilharzia.) Dr. Vevers found this parasite in a Grevy's zebra which had been in the Gardens for six years. As it does not breed in the host, but requires an intermediary host to complete the life-cycle (*Cleopatra bulimoides*, a fresh-water snail), and as an intermediary host has not yet been reported in this country, the parasite must have been six years old at least at the death of the zebra. Further, as the zebra was in Hagenbeck's collection at Hamburg for three years previously we may fairly certainly assume that the potential longevity of *Gastrodiscus aegyptiacus* is at least nine years—probably longer. This is a long time for a parasite to live in the body of the host, and, as Dr. Vevers points out, the more remarkable in that the parasite lived in the intestines, where the vicissitudes of existence are greater and more numerous than in the blood or tissues. But remarkable as is this evidence of great longevity in a small living thing, it is not so remarkable as the long span of life of the bilharzia worm.

During the South African war many British soldiers contracted bilharzia disease. In 1920, 18 years after, many of the survivors, who had not been out of England and so could not have been reinfected, were passing live ova in the urine; in other words, some of the worms which the men had acquired in South Africa in 1902 were alive in 1920. The potential longevity of the bilharzia worm must therefore be 18 years. It is in point of fact longer. A well-known zoologist and doctor of medicine, living in England, contracted bilharzia in 1878, when he was 28 years of age, between the Limpopo and Zambesi rivers, whilst on a naturalist's expedition. He was probably infected in the Northern Transvaal on the borders of the Kala Hari river. He read a thesis on Endemic Hæmaturia in 1881, for which he obtained his M.D. degree, and became an acknowledged authority on bilharzia disease. Twenty-eight

was, as usual, taking the
summer holiday.
question of the longevity
, practically speaking, is
. We have counted at
worms in the portal vein
ach worm is a separate
may be many strains of
ost, each strain having its
worms in
own potential longevity. Some of the worms, no
doubt, die each year, it being common experience, if
no complications intervene, that symptoms improve
with time. The weaker strains die first, and those
with higher potential longevity live longer, it may be
over 20 years, while a few live longer still.

The reason of the variability in the longevity of individual worms is an interesting question. Is it that different strains have arrived at various stages in their endeavour to adapt themselves to the span of life of the host? A tissue and blood parasite, subject to no adverse external influences to speak of, with no great changes in environment, no anxiety about food, &c., the only accident to which it is liable being the death of the host, would be more likely than another to live out its full span of life, fulfilling its destiny, and adapting itself to the span of life of its host more rapidly on this account. The longer-lived worms of the brood endowing their progeny with higher potential longevity than the shorter-lived, one might suppose the longevity to increase as generation succeeded generation. Bilharzia is an ancient disease in Egypt; it possibly originated there. It was prevalent about 1000 B.C.,[4] and the early papyri (Ebers) record a remedy for hæmaturia.

Relation of Longevity in Parasite and Host.

The worm having probably had time to adapt itself to the life-span of the host, one might expect parasites of a host with a shorter potential longevity than man to have a shorter potential activity than bilharzia worms. In the case of trematodes, cestodes, and nematodes[7] with intermediate hosts, when the patient has been moved from the focus of infection to a non-infected locality and the danger of reinfection eliminated, the longevity of the parasite can be studied with a fair amount of certainty, as we have an approximate date of infection and external harmful influences are reduced to a minimum. If certain parasites have potential longevity corresponding to the average longevity of the host, we might expect to find that the longevity of the bilharzia worm infecting cattle was of shorter duration than that infecting human beings.

It has been suggested to me that some of the diptera lay many eggs and have short longevity, and that parrots lay two eggs in about three years and have high longevity. Let these facts be admitted. It is not clear that the diptera die early because they lay many eggs, or that the parrot would live a shorter time if she laid more eggs. Bilharzia lays many eggs

has a maximum longevity of about 28 hours as a free swimming entity, but when it pierces and penetrates the human skin it discards its tail and develops into the bilharzia adult worm having a potential longevity of 28 years. Can this be explained in general terms?

Conclusion.

To conclude, it seems clear that bilharzia worms have a long potential longevity, and do not conform to the conditions which Ray Lankester has laid down as favouring longevity. Their *individuation* is not high, their structure is not complex or their bulk large. They display considerable energy throughout their (frequently) long life, traversing the portal veins between the liver and bladder (or rectum). Their generative energy is great, commencing early and continuing through life; they deposit enormous numbers of eggs.

It is probable that the study of the life-history of living things shorn of most of the obscuring and overwhelming external conditions of environment will bring us nearer to fundamental principles which apply to more complex and more developed organisms and lead to a revision of our present conclusions regarding potential longevity.

IDIOSYNCRASY TO ADRENALIN,

WITH REFERENCE TO ITS EMPLOYMENT WITH LOCAL ANÆSTHETICS AND IN GOETSCH'S TEST FOR HYPERTHYROIDISM.[8]

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AT the joint meeting of various Sections of the Royal Society of Medicine on cocaine substitutes, as reported in THE LANCET of Dec. 15th, 1923, adrenalin, which is often given with drugs of this class, received little notice when toxic effects were being reviewed. Adrenalin is not a cocaine substitute, and it was not, strictly speaking, under discussion. It seems, therefore, a suitable time to consider its toxic effects.

The Employment of Adrenalin with Local Anæsthetics.

The following instance of the occurrence of disquieting symptoms after the injection of novocaine and adrenalin for the extraction of teeth has recently come to my notice. Incidentally, the patient gave a positive reaction to Goetsch's test for hyperthyroidism, though the dentist did not have this test in view when making the injection.

A married woman of average nervous stability, aged 38, had novocaine and suprarenin injected into the gum by Mr. S. D. Corbett for the extraction of two lower incisor teeth on July 2nd, 1923, and the following symptoms appeared almost immediately after the injection: limpness and chilliness, succeeded by mental agitation, severe palpitation, rapid panting breathing, flushing of the face, and tremor

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Open Forum Infectious Diseases

ID CASE

A Woman With Chronic Lower Abdominal Pain, Vaginal Discharge, and Infertility After a Stay in Mali

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Keywords. female genital schistosomiasis; *Schistosoma* infection.

A 28-year-old Belgian women presented with hypogastric pain, vaginal discharge, menorrhagia, dysmenorrhea, dyspareunia, and fatigue, which persisted over 8 years. These complaints started a few weeks after an accidental fall in the Niger river during a trip to Mali, after which she had noticed an itching rash localized on the abdominal wall. There were no urinary complaints. Various attempts to conceive in the previous 2 years had failed. She also reported intermittent hematochezia but no diarrhea. During the past 8 years, the patient consulted several gynecologists and had extensive investigations, including a hysterosalpingography without diagnostic yield.

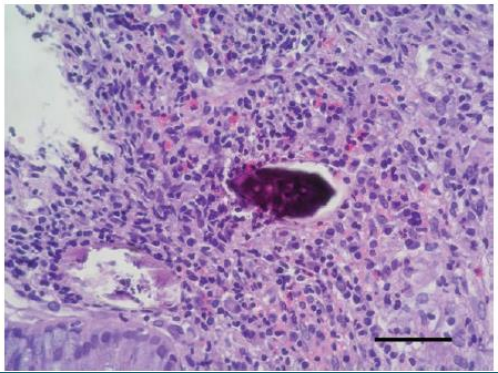
There was no significant medical history except for hay fever for which no maintenance treatment was required. Further travel history revealed a 1-month stay in Ecuador 10 years ago

erythrocytes/μL, no leucocytes, and the presence of mucus. No proteinuria was detected. Atypical inflammation was reported on a Pap smear, and a cervical biopsy was performed by the treating gynecologist and showed calcified structures within nonnecrotic granulomas (Figure 1).

WHAT IS YOUR DIAGNOSIS?

ANSWER: GENITAL SCHISTOSOMIASIS

The biopsy of the cervix showed calcified *Schistosoma* eggs in the center of granulomas containing eosinophils and other inflammatory cells (Figure 1). We performed cervical,



Thank you!

Spooning:
Schistosomiasis is a distinctly one-sided **love affair**. The male worm is shorter and fatter and equipped with a groove, a **love canal** where the longer, thinner female lodges, enabling the pair to mate for decades.

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