



**Dr Laurens Manning**

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# Schistosomiasis: Risk Awareness

By Dr Laurens Manning, Infectious Diseases Physician



Schistosomiasis (also known as Bilharzia) is a parasitic disease caused by several species of blood flukes of the genus *Schistosoma*, found in Africa, South America, China and South East Asia. Schistosomiasis, after malaria, is one of the most common parasitic diseases in humans, and generally rates second only to malaria, in terms of socioeconomic impact. With changing patterns of travel and migration, Schistosomiasis may be increasingly encountered in Australian general practice.

## Host cycle

After excretion of eggs into fresh water via stool or urine from infected individuals, fresh water snails effectively amplify these into the free-living larval forms known as cercariae. The cercariae then penetrate unbroken skin, enter the circulation and migrate through the lungs, before the adult worms settle in the perirectocolic

or perivesical

venous plexuses. Adult

worms produce large numbers of ova that migrate through the bowel or bladder wall to be excreted back into the environment.

## Clinical aspects

Generally, clinical disease is associated with acute or chronic inflammatory responses to ova as they pass transmurally or are embolised to the liver or elsewhere in the body.

In general practice, the clinical presentation maybe broadly separated into two groups: the returned traveller; and, migrants from endemic countries.

### Schistosomiasis in the returned traveller:

- Is usually acquired from fresh water lakes (e.g. Lake Malawi, Lake Victoria and Lake Tanganyika) in Africa, where predominates.
- May be diagnosed in up to 76% of at risk asymptomatic travellers on routine post travel screening.
- May be preceded by a history of 'swimmers itch' in up to a third of cases. This transient rash is caused by skin penetration of cercariae.
- May present with acute illness called 'Katayama fever', characterised by fever, non-productive cough, peripheral eosinophilia and/or gastrointestinal symptoms.
- Is generally associated with a low worm

burden and therefore long term sequelae and disease specific mortality are rare.

### In migrants with schistosomiasis:

- Infection is often asymptomatic or chronic, with symptoms related to urinary schistosomiasis (from areas where is transmitted): dysuria, urinary frequency, haematuria or haematospermia indicate schistosomiasis.
- Intestinal disease presents with bloody diarrhoea, occult faecal blood loss or vague gastrointestinal symptoms.
- Hepatic manifestations include early granulomatous hepatosplenomegaly and portal hypertension caused by late fibrotic disease.

## Diagnosis

Microscopic examination of urine or faeces remains the gold standard diagnostic test for schistosomiasis. Detection of eggs allows identification of the infecting species and quantitative egg counts correlate well with overall worm burden. At low worm burdens egg counts are often low and may escape detection even after optimisation of specimens.

Urine and stool samples should be taken between 10 am and 2 pm as egg production fluctuates during the day. A terminal urine sample, rather than the traditional MSU, is recommended as the last muscular contraction increases the recovery of ova in the urine sample. It is important to note that ova may not be detectable until at least 6 weeks after initial infection. Multiple specimens should be considered, if initial samples are negative.

*Schistosoma* serology may be useful with a sensitivity of up to 90%. However, antibody may not be detectable until 4-12 weeks after infection, and may therefore be negative with the onset of acute Katayama fever. In addition,



serology does not allow differentiation between different species nor between active and previous treated infection.

## Treatment

Praziquantal (Biltricide) is an effective and safe treatment, with two doses of 20mg/kg, 4 hours apart recommended. Artemisinin antimalarial compounds also show promise for post exposure prophylaxis as they have an effect on the developing worm prior to egg production and sero-conversion.



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