

‘We don’t see that in South Africa’



Of all neglected tropical diseases (NTDs), arguably the most neglected are helminthic infections, which comprise the top 5 of the top 10 NTDs in terms of disability-adjusted life years. Despite this, they are often assigned low priority in international public health research funding, and on a national scale, some helminth infections are considered to be non-endemic in particular countries or regions, hence little attention is paid to them. In this issue of the *SAMJ*, Black *et al.*^[1] describe a case series of geographically linked human fascioliasis, an infection about which most physicians are unaware. Indeed, the last recorded case of human fascioliasis originating in South Africa (SA) was reported more than 50 years ago^[2] and there have only been 3 published case reports in total. However, human fascioliasis has the widest latitudinal, longitudinal and altitudinal distribution of any snail-borne disease; *Lymnaea* spp., the main intermediate snail hosts, are widespread; and fascioliasis occurs commonly in livestock in SA, which acts as a reservoir for infection. The remaining question should be ‘How many cases of fascioliasis are we missing?’

Black *et al.*^[1]’s cases illustrate two extremes of the clinical presentation of fascioliasis: pyrexia of unknown origin and endomyocardial fibrosis, both presenting with eosinophilia. A raised total eosinophil count is a common diagnostic challenge for SA’s physicians, and is associated with a long differential diagnosis including allergic disorders, drug hypersensitivity, parasitic infection and rarer causes such as neoplasia, connective tissue diseases and primary eosinophilic disorders.

Helminth infections are the most commonly identified cause of eosinophilia and the clues to diagnosis lie in eliciting a proper exposure history correlated with a compatible clinical presentation. Commonly, this would include a history of immersion in inland rivers and dams for schistosomiasis, pica for ascariasis and trichuriasis (and for toxocariasis, if dog or cat faeces is considered), and soil-skin exposure for strongyloidiasis and hookworm disease. For fascioliasis, the route of infection is ingestion of aquatic plants, most commonly watercress, which carry metacercariae from snails infected via fluke eggs shed by infected animals in their faeces.

Hence, a full dietary history is crucial to identify possible exposure risks, as it would also be for anisakiasis (‘sushi worms’) and gnathostomiasis from raw fish, paragonimiasis from freshwater crabs and crayfish, and trichinosis following ingestion of raw or undercooked pork or more exotic meats such as wild boar, horse, bear or seal, depending on geographic location. Eosinophilia commonly occurs during the tissue migration phase in the pre-patent period prior to egg shedding, in the case of flukes. Consequently, the sensitivity of microscopy to identify ova when patients present with eosinophilia may be low and in such cases serological tests form the mainstay of laboratory diagnosis, particularly for flukes and other migratory helminths. However, availability of these tests is generally limited or absent locally due to lack of demand, this because the diagnosis is never made, in turn because of no requests for tests – a vicious cycle only broken by the astute and educated clinician.

In recent years, other hitherto rarely diagnosed helminth infections have been recognised in SA and neighbouring countries. Gnathostomiasis, a form of cutaneous and visceral larva migrans that can cause unpleasant and sometimes life-threatening illness, is well known in Southeast Asia and Latin America, and is regarded as an emerging imported disease in the developed world. Clusters

of cases have occurred in Botswana and western Zambia linked to consumption of raw bream, *Tilapia mossambicus*, marinated in lemon juice – an African version of *ceviche* to be avoided.^[3,4]

Lung fluke disease, caused by *Paragonimus* spp., although well known in parts of West Africa, has never been regarded as endemic in SA. In the 1920s, KwaZulu-Natal (KZN) Province was suggested to be receptive for paragonimiasis, and some 10 possible, likely, or confirmed cases in cats, dogs and humans (predominantly children) were described between 1928 and 2010.^[5] Potential snail and crab hosts have been suggested but not definitively implicated. Communities that are known to catch and eat river crabs in KZN could be at risk if they do not cook them adequately. Lung, central nervous system and other organ involvement in paragonimiasis can mimic tuberculosis or other infections.

The rat lungworm, *Angiostrongylus cantonensis*, traditionally found in the Asia-Pacific region, has been identified recently for the first time in rats in KZN at a substantial prevalence of 14%.^[6] Land snails and slugs are intermediate hosts and human infections occur when these infected molluscs, or paratenic hosts such as frogs and lizards, are ingested, usually accidentally. A less obvious route of infection is via snail or slug slime trails contaminating leafy vegetables, such as lettuce, that are eaten raw. Human infection typically manifests as acute eosinophilic meningitis or meningoencephalitis; in up to 30% of cases there is a peripheral eosinophilia. Clinically, while most infections are mild and self-limiting, long-term neurological involvement may occur. Occasionally, young children and immunocompromised patients are at risk for severe or fatal patent infections involving the lungs.

From these examples it is clear that infections with helminths previously assumed to be absent locally, or acquired in the course of exotic travel, pose a risk for certain individuals. Unusual dietary preferences in a patient with eosinophilia may be a clue for the prepared clinician, who takes the trouble to seek out the necessary diagnostic expertise. However, the high burden in some of our communities of less exotic helminth parasites, such as schistosomes and the geohelminths, must always be remembered when investigating cases of eosinophilia.

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- Black J, Ntusi N, Stead P, Mayosi B, Mendelson M. Human fascioliasis in South Africa. *S Afr Med J* 2013;103(9):658-659. [<http://dx.doi.org/10.7196/SAMJ.7184>]
- Scott WF, Irving KG. Fascioliasis in South Africa. *S Afr Med J* 1964;38:73-75.
- Freen J, Carey C. Gnathostomiasis acquired in Botswana. *Promed mail*, archive no. 20081113.3579. [<http://www.promedmail.org/direct.php?id=20081113.3579> (accessed 1 August 2013)].
- Herman JS, Wall EC, van Tulleken C, Godfrey-Faussett P, Bailey RL, Chiodini PL. Gnathostomiasis acquired by British tourists in Botswana. *Emerg Infect Dis* 2009;15(4):594-597. [<http://dx.doi.org/10.3201/eid1504.081646>]
- Appleton CC. Paragonimiasis in KwaZulu-Natal Province, South Africa. *J Helminthol* 2012;20 Dec [Epub ahead of print]. [<http://dx.doi.org/10.1017/S0022149X12000831>]
- Archer CE, Appleton CC, Mukaratirwa S, Hope KJ. The rat lung-worm *Angiostrongylus cantonensis*: A first report in South Africa. *S Afr Med J* 2011;101(3):174-175.

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