case[9] an obstetrician was present for each treatment.

The first case of ECT in pregnancy was actually reported in 1941[12] and there were several reports in the 1950s.[13,14] In 1978 various guidelines for the use of ECT during pregnancy were delineated[15] and a later report expanded these guidelines so that they included the need for the high-technology monitoring already mentioned.[9]

The case of Ms A confirms the reports in the literature that ECT is a safe procedure in pregnancy. Ms A was in the third trimester of her pregnancy and this would logically, with regard to the health of the fetus, seem to be the safest time to give ECT in pregnancy if it has to be given. Low-voltage unilateral ECT was deliberately used to minimise any trauma to the fetus. Intubation of the mother's larynx was clearly necessary to reduce the risk of aspiration.

The guidelines that are already documented in the literature regarding ECT in pregnancy are clearly sensible.[9,15] Patients who require ECT during pregnancy should be treated in a general hospital unit where high-technology monitoring and specialist obstetric, paediatric, and anaesthetic skills are available.

Acknowledgements

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Unidentified trematode eggs in faeces of Australian Aboriginal children

Paul Prociv, Russell A Luke and Phillip A Quayle

ABSTRACT In routine surveys for intestinal parasites among Aboriginal/Torres Strait Islander populations, eggs of unidentified trematode species have been found in the faeces of three children. In two of these, the eggs appeared to belong to a schistosome, or perhaps monogenean, species, and in the third, they were most likely from a monostome of dugongs. Although these probably represent cases of spurious parasitism, one or more may have been a true infection.

(Med J Aust 1990; 153: 680-682)

In Australia, the only trematode infection known to be acquired locally by humans is fascioliasis, which is prevalent in sheep and cattle in the southern States. Other liver, intestinal and blood fluke infections are sporadically detected in migrants or travellers returning from tropical countries, usually southeast Asia. Animal schistosomes have been found in aquatic birds, and sometimes cause swimmer's itch in humans,[1] but other species have not been reported from the non-avian vertebrates of the continent or its surrounding islands.

In the course of routine screening for intestinal parasitic infections in Aboriginal children from the Cape York region over the last five years, we have found three cases of unidentified fluke eggs being passed in faeces.

Clinical records

Case 1

In 1984, a 2 g formalin-preserved faecal sample from a boy of unrecorded age, living in a Cape York community, was found to contain a single unidentified egg. This was spindle-shaped (Figure 1), had features of either a schistosome or monogenean egg, with one spine much larger than the other, and contained a well-formed miracidium (or oncomiracidium). A follow-up faecal specimen about one month later, assumed to be from the same child, did not yield similar eggs.

Case 2

In 1986, in a 2 g formalin-fixed faecal sample from a Torres Strait Island boy, we found 20 unidentifiable eggs (Figure 2), similar in size and appearance to that in the first case. They were spindle-shaped with unequal spines, many of which terminated in hammer-like swellings. Most contained miracidia (or oncomiracidia, if from monogeneans). It was not possible to clearly identify haptors on the embryos, which would have confirmed them as monogeneans. The central body of each egg was about one-third of the total length, and the miracidia were 60–70 μm long. Follow-up specimens could not be obtained.

Case 3

In September, 1989, a formalin-fixed faecal sample from a nine-year-old girl in another Cape York community was found to contain approximately 1000–2000 trematode eggs per gram.

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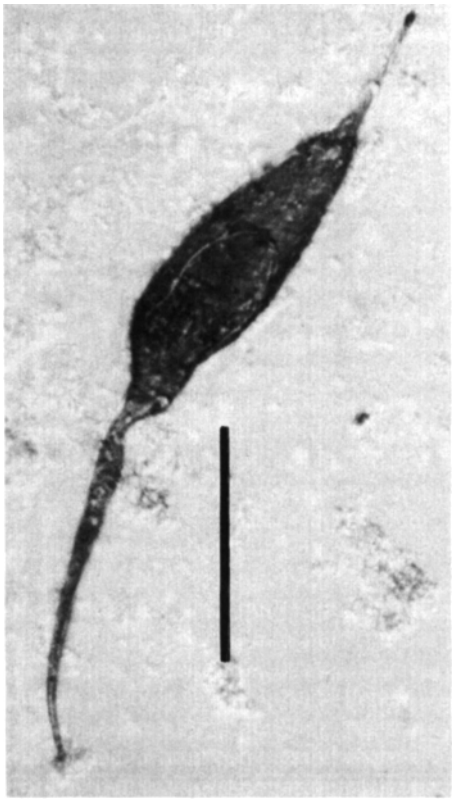

FIGURE 1: Single, 305 μm long egg found in Case 1. Note miracidium in central portion. Bar = 100 μm.

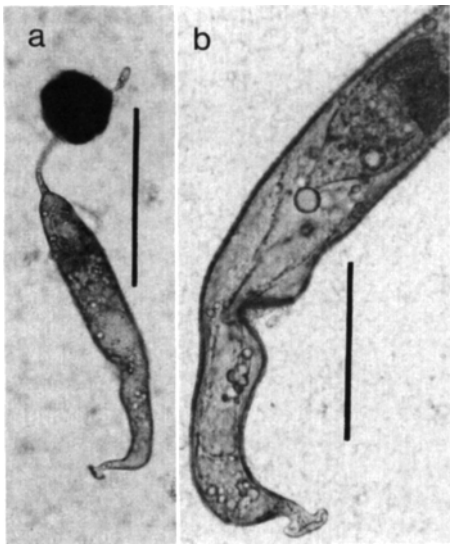

FIGURE 2: (a) Egg from Case 2, showing terminal swellings on spines. Miracidium is out of focal plane. Bar = 100 μm. (b) Another egg from Case 2, showing 63 μm miracidium and hammer-like tip of spine. Bar = 50 μm.

These eggs were minute (Figure 3), 13–14 μm in length, with an operculum at one end. Most eggs had two long polar filaments (Figures 3a and 3b), each up to 300 μm long. The opercular filament was slightly thinner (Figure 3c) than its partner. Occasional eggs had only one filament (Figure 3a), but none could be found without filaments or with only short filaments. The contents of each egg appeared granular, without a discernible embryo. The faecal sample also contained numerous cysts of *Giardia lamblia*, as well as eggs of *Trichuris trichiura* and *Hymenolepis nana*. Follow-up specimens are still being awaited.

Discussion

The first case is likely to represent spurious parasitism, as the faeces obtained at follow-up from this boy were clear. In the second case, even though the child was passing large numbers of eggs (about 10 per gram of faeces) which contained unhatched, well-preserved miracidia, he still may have simply eaten viscera from an animal which was the normal host to these trematodes. The girl in the third case was passing very large numbers of eggs of a trematode species distinct from the first two, but these again may have been ingested in flukes which were residing in the viscera of their normal host. An alternative, but less likely, explanation is that all were cases of zoonotic infection, with intermittent or short-lived output of eggs. No medical, social or other histories were available and, with the extended lines of communication, attempts to follow up the last two cases have been fruitless.

Schistosome species known to produce eggs with prominent spines include *Schistosoma bovis, Schistosoma leiperi* and *Schistosoma spindale* of ruminants, and *Trichobilharzia physellae* and *Trichobilharzia ocellata* of birds.[2] However, none of the mammalian schistosomes has been found in Australia, and the eggs from Cases 1 and 2 were distinct from these as well as from eggs so far described from avian schistosomes. Literature searches and consultation with several authorities have failed to provide records of similar eggs, which therefore are likely to belong to a new species. In the locations from which these specimens were sent, fish, dugongs, and marine turtles are eaten regularly, and waterfowl less frequently. We did not find schistosome eggs in 24 faecal samples from dugongs (*Dugon dugon*) obtained from southern Papua New Guinea by Dr Helene Marsh, of the Zoology Department at the James Cook University in Townsville, Queensland. Schistosome infections have not yet been reported from turtles or other non-avian marine vertebrates in the Pacific. Should the eggs from the first two cases be of monogeneans, then they may have been ingested on fish gills, which are frequently eaten with intact fish.

The eggs from Case 3 resembled those of notocotylids,[3] which inhabit the intestines of birds, but were smaller; notocotylid eggs range in size from 18 μm upwards.[4] However, various monostome flukes found in dugongs also produce eggs of similar morphology;[5] those with eggs of a comparable size-range include *Lankatrema minutum* from the dugong stomach wall

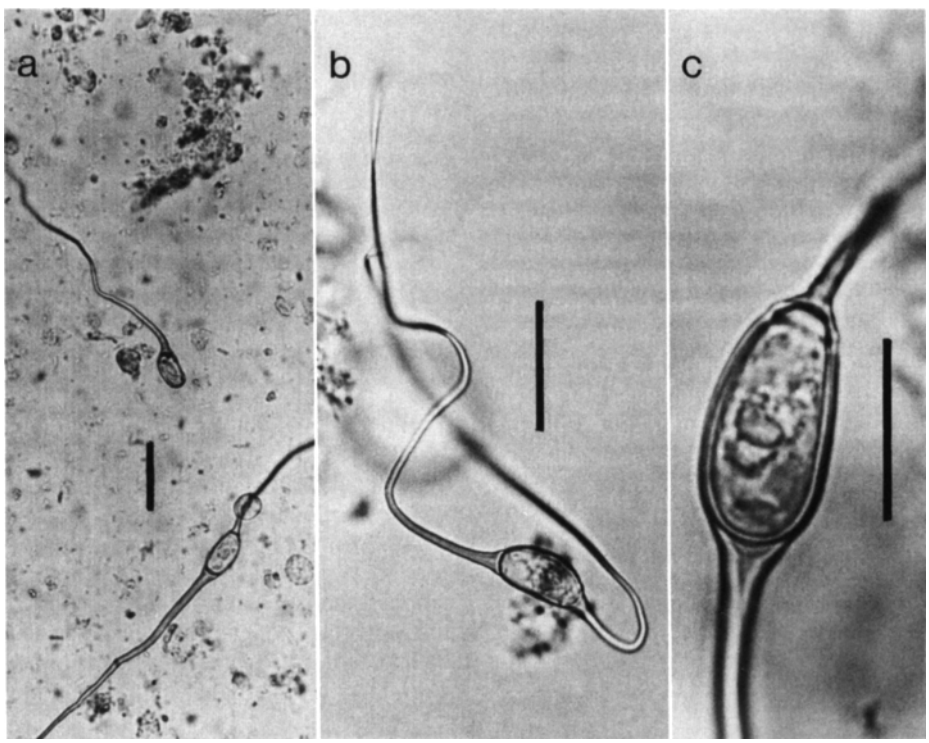

FIGURE 3: (a) Two eggs from Case 3, one with only a single and the other with long bipolar filaments. Bar = 20 μm. (b) Egg from Case 3 with twisted bipolar filaments. Bar = 20 μm. (c) Oil immersion view of another egg from Case 3, showing granular contents not filling case, operculum at one end, with thinner opercular filament. Bar = 10 μm.

and *Lankatrema microtyle* from the ileum. Related species from the pancreas, biliary tract and caecum of dugongs release slightly larger eggs. All these dugong viscera, including the intestine, are eaten by the Aboriginal and Islander people of the Cape York–Torres Strait region (personal communication, Dr David Blair, Department of Zoology, James Cook University, Townsville). All 24 dugong faecal specimens examined (see above) contained small, operculated, bifilamentous eggs identical in size and appearance to the eggs found in Case. 3.

Were this a case of spurious parasitism, in which the eggs were released from intact flukes ingested in dugong organs, presumably eggs with filaments at all stages of development would have been seen, as the filaments are added to eggs within the uterus of the worm.[3] Despite careful searching, no such eggs could be found. Presumably, their thick shells would have distinguished them from the similarly sized *Giardia* cysts also present. Were this a true infection, the child may have acquired it while playing, by chewing on sea-grass harbouring the metacercariae of this fluke.

Even if they represent spurious rather than true parasitism, these cases are of biological and medical interest. They reinforce the need to promote research into the parasitic fauna of this region; with the inevitable growth in the local human population, increasing contact with wildlife will lead to the detection of more such cases.

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PUBLIC HEALTH

Lung cancer and passive smoking at work: the Carroll case*

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ABSTRACT Passive smoking is now an acknowledged risk to health and this has given rise to a public health liability for employers. More and more workplaces are becoming smoke free, but past practices mean that there is an increasing number of individuals seeking compensation for health damage caused by passive exposure to smoke. The case brought by Sean Carroll, a bus driver, against his employer, the Melbourne Transit Authority, was the first suit in Australia seeking compensation for lung cancer caused by passive smoking. Evidence at the hearing of the case indicated that there was at least a 75% probability that Carroll's cancer was attributable to passive smoking at work. Carroll accepted $65 000 in an out-of-court settlement. The case should prompt other victims of passive smoking to seek compensation and move more employers to ban smoking from the workplace.

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There is no doubt that the 1980s have signalled a turning point for the tobacco industry in Australia. The single most important contemporary issue in tobacco and health has been the accumulation of evidence that exposure to others' tobacco smoke can damage health.[1,2] This has brought to the foreground arguments about the rights of smokers and non-smokers, especially in the workplace. It has even given rise to court cases in which non-smokers have been able to argue successfully that they have suffered ill-health due to exposure to others' smoke.[3]

For the tobacco industry, it must be a nightmare come true. The industry has been taking rearguard action against the evidence linking passive smoking with ill health for some years now. In 1978, a public opinion polling company undertook a major survey on behalf of the US Tobacco Institute.[4] The survey focused on future directions for the industry, and prominent among the findings was the fact that a majority of Americans believed that passive smoking was hazardous. In its report on the survey, the company commented that the passive smoking issue was "the most dangerous development to the viability of the tobacco industry that has yet occurred", and went on to suggest that "the strategic and long run antidote to the passive smoking issue is, as we see it, developing and widely publicising clear cut, credible, medical evidence that passive

*The Carroll case was the subject of a paper presented by the authors at the Seventh World Conference on Tobacco and Health, April 1–5, 1990, Perth, Western Australia. A synopsis of that paper will appear in the conference proceedings.

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