Gigantobilharzia, possible cause of cercarial dermatitis: Case report

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Abstract

Cercarial dermatitis (swimmer's itch) is a worldwide, often neglected parasitic skin disease characterized by strong maculopapular skin eruption accompanied by intensive itching. A fisherman suffered from forearm dermatitis. Clinical history associated with the recovery of the avian schistosome; *Gigantobilharzia* from little green bee-eater (*Merops orientalis najdanus*) and collected *Lymnaea* snails supported the authors' opinion that patient clinical signs are most likely due to the invasion of avian schistosome cercariae.

Keywords: Cercarial dermatitis, Swimmer's itch, *Gigantobilharzia*

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Introduction

The snail-borne avian schistosome cercarial dermatitis has been repeatedly reported from all over the world. Death of cercariae in the skin provokes reaction involving papule formation and severe itching.[1] The non-human avian schistosomatid species most commonly associated with swimmer's itch in humans belong *Trichobilharzia* and *Gigantobilharzia.* [2]

Case Report

A 27 year old fisherman works in a fish farm in Qassim area, presented to Outpatient Dermatology Clinics, College of Medicine, Qassim University in November 2014 with itchy skin lesions on his forearms. Lesions developed within hours after contacting the pond water and lasted for 7 days after fish harvesting and pond cleaning.

On skin examination, the patient showed multiple erythematous papules and papulo-pustules of 2 to 3 mm in diameter on his forearms (figure 1). Blood examinations showed eosinophils in peripheral blood. The results of laboratory investigations, including hepatic and renal function tests were normal.

Fig. (1). Multiple erythematous papules in the left forearm of the fisherman

Seven little green bee-eaters (*Merops orientalis najdanus*) were hunted and brought to Parasitology laboratory, Department of Veterinary Medicine, College of Agriculture and Veterinary Medicine, Qassim University. Examination of their intestines revealed that one bird was infected with long thread-like and very delicate worms (figure 2).Eggs were found in the macerated intestinal wall (figure 3&4). They were oval or subglobular, yellowish in color, measured 0.104.2±0.040 long X 0.069.6 ± 0.013 mm wide and provided with a minute polar process. Lymnaeid snails (figure 5) may release cercariae that most likely penetrated the skin of the fisherman.

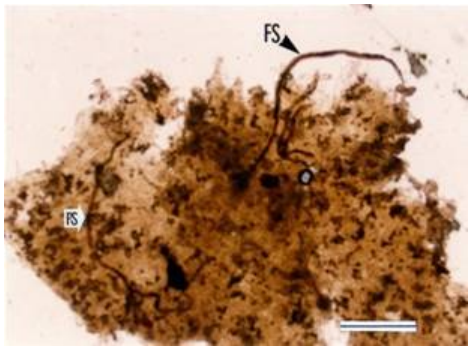

Fig. (2). Female *Gigantobilharzia, FS,* in the macerated intestinal wall showing anterior part arrow and posterior part arrow head. Scale bar = 2.5 mm

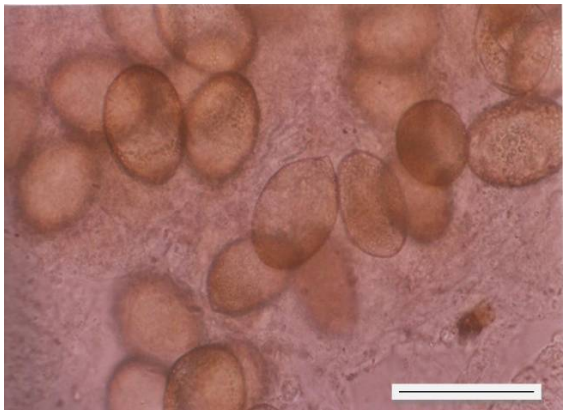

Fig. (3). *Gigantobilharzia* eggs, intestinal scrapings. Scale bar = 0.10 mm

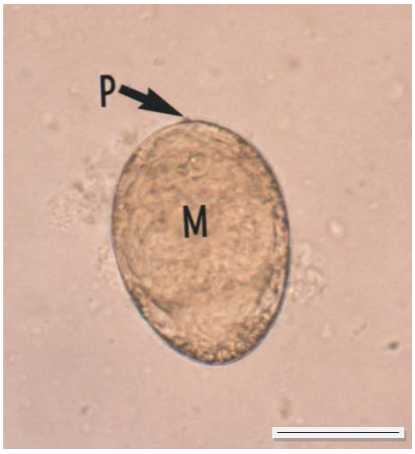

Fig. (4). *Gigantobilharzia* fully mature egg shows the polar process or spine *P* and contains miracidium *M*. Scale bar =0.050 mm

Fig. (5). Dried Lymnaea snail collected from the wastes of the fish pond

The patient was subjected to the treatment program as twice-daily applications of 1% hydrocortisone ointment and an oral antihistamine to control the itching. After 10 days the eruptions subsided. Preventive measures were advised such as avoiding prolonged contact with water ponds without wearing gloves and protecting ponds from fecal contamination from all visiting birds such as *Merops orientalis najdanus.*

Discussion

Cercarial dermatitis **is** globally distributed skin affection mostly associated with fresh water contact and occasionally with sea water contaminated with avian or mammalian schistosome ceracariae. (2)

According to the available literature and due to inadequate worm material recovered from the bee-eater, the encountered schistosome parasites were generically identified as Gigantobilharzia specie. The parasitological aspects associated with *Gigantobilharzia* were extensively dealt with in terms of molluscan and avian hosts. (3)

Populations of Lymnaea snails were identified from different localities in Saudi Arabia. (4) They were found infected with Gigantobilharzia parasites elsewhere. (5)

Several species of gulls, grackles, blackbirds, catbirds, grebes and crow, starling, house wren and house sparrow, herons and pelicans were reported as definitive hosts of *Gigantobilharzia* species. (6)

Differential diagnosis of cercarial dermatitis includes insect bites, human schistosomiasis, contact dermatitis from poison ivy, and sea bather's eruption, which can be distinguished from cercarial dermatitis by the presence of some of the following: eruptions involving skin covered by bathing suits; skin eruptions following bathing in the sea (salt) water; larval forms of crustaceans; remnants of jelly fish tentacles.(7)

The aforementioned clinical and environmental observations are strongly suggested the case to be due to cercarial penetration.

To the best of our knowledge, this is the first record of non-human schistosome cercarial dermatitis in Saudi Arabia. Also the oriental bee- eater, *Merops orietalis najdanus* can be included in the list of the avian hosts for *Gigantobilharzia* species.

Conclusion

This study dealt with a case of an occupational origin where fishermen who have contact with water and such neglected skin infection should be considered in the differential diagnosis.

The close association between clinical findings and the surrounding environmental components in term of snail and avian schistosome parasite support the authors' opinion that this is the first report of cercarial dermatitis in Saudi Arabia and the little green bee-eater, *Merops orientalis najdanus*is a new host record for *Gigantobilharzia* parasites.

Ethical considerations

Written informed consent was taken from the patient for publication of the manuscript. This case report was approved by Department of Veterinary Medicine, College of Agriculture and Veterinary Medicine, Qassim University, Saudi Arabia. Also the authors declare that there is no conflict of interest regarding the publication of this paper.

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