

## Angiostrongylus cantonensis Infection: Potential Threats to Inhabitants through Consumption of Giant African Land Snail in Democratic Republic of Sao Tome E Principe, West Africa

Fan CK<sup>1\*</sup>, Lin HC<sup>2</sup>, Liao CW<sup>3</sup>, Huang YC<sup>3</sup>, Chou CM<sup>3</sup> and Da Costa Âdos S<sup>4</sup>

<sup>1</sup>Department of Parasitology, Center for International Tropical Medicine, College of Medicine, Taipei Medical University, Taiwan

<sup>2</sup>Department of Gastroenterology, College of Medicine, Taipei Medical University, Taiwan

<sup>3</sup>Department of Parasitology, Center for International Tropical Medicine, Taiwan

<sup>4</sup>Ministries of Health and Social Affairs, Democratic Republic of São Tomé and Príncipe (DRSTP)

Human angiostrongyliasis is primarily due to *Angiostrongylus cantonensis* infection and if *A. cantonensis* larval invasion to the brains may lead to eosinophilic meningitis and eosinophilic meningoencephalitis [1,2]. The major clinical manifestations of this disease include headache, neck stiffness, muscle weakness, nausea, vomiting and paraesthesia. Although the clinical course of infection is usually benign and self-limited, severe infections may lead to irreversible outcomes and even death [3,4].

The life cycle of *A. cantonensis* requires two hosts including an intermediate host and a final definitive host. Reportedly, the giant African land snail *Achatina fulica* and the channeled apple snail *Pomacea canaliculata* are the two most common intermediate hosts for *A. cantonensis* worldwide [5]. Following entry into the intermediate host of giant African land snail, for example, through the oral or percutaneous route, the first-stage larvae undergo two moults and develop into the infective larvae in the lungs within two-three weeks [6]. Wen [6] has also indicated that nearly the whole body is full of this parasite if the 3<sup>rd</sup> larvae of *A. cantonensis* can be detected from the snail's lungs.

Humans may get *A. cantonensis* infection through accidental ingestion of raw or uncooked individuals of intermediate host species e.g., *A. fulica* or contaminated vegetables carrying the 3<sup>rd</sup> stage larvae [7]. These larvae then penetrate the intestinal tract and migrate to the central nervous system, where they molt twice and develop into young adults, approximately one week after infection [3].

The Democratic Republic of Sao Tomes and Principe (DRSTP) is located in the Gulf of Guinea, West Africa and the Equator crosses the southern tip of this country where the weather is suitable for many parasites and the giant African land snail as well [8].

Inhabitants in DRSTP have the habits of eating roasted snail meat or fried rice with snail's meats but the processing of the snail's meats is very dangerous to people because they make the shell broken then pull the body out without wearing any protective glove. Moreover, the tool or place which the snail's meats are usually processed may be also contaminated by the 3<sup>rd</sup> stage larvae and whether people are easily susceptible to *A. cantonensis* infection is seriously concerned. Present study intends to investigate whether any *A. cantonensis* the 3<sup>rd</sup> stage larvae exist in the snail body by examination of the snail's lung tissues [6]. In total, 111 giant African land snails collected from the capital area were examined and the mean largest diameter was  $15.25 \pm 2.70$  cm. The area of  $1.0 \text{ cm} \times 1.0 \text{ cm}$  of lung tissues from each snail was examined for any encapsulated larvae under microscope at  $100\times$  magnifications. Results indicated that 7 out of 111 snails were found harboring *A. cantonensis* the 3<sup>rd</sup> larvae, resulting in the infection rate of 6.3% with larval intensity of  $0.11 \pm 0.45$ . No significant correlation between number of recovered larvae and snail size was found by Pearson's

correlation analysis ( $r=-0.03$ ,  $p>0.05$ ). Although present findings indicated that the infection rate of snail harboring *A. cantonensis* larvae is fairly low as 6.3%, at least, it supports the possibility that when inhabitants eat the roasted snail or fried rice with undercook snail meats may acquire *A. cantonensis* infection as possibly leading to severe cerebral injury or even death should not be overlook. Because lacks of good monitoring system for how severe of this neurotropic parasitosis among DRSTP inhabitants, undertaking a national wide seroepidemiological investigation on whether people had a previous exposure history to this disease is also urgently needed in the very near future. Nevertheless, avoid consumption of raw or undercooked snail's meats or visceral organs as well as mucus released from land snail during preparation of food should be also cleaned up using hot water to kill the possibly contaminated larvae on the table that all are important measures against such neurotropic parasite threats to DRSTP people.

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\*Corresponding author: Fan CK, Department of Parasitology, Center for International Tropical Medicine, College of Medicine, Taipei Medical University, 250 Wu-Xing Street, 11031 Taipei, Taiwan, Tel: +886-2-27395092; E-mail: [tedfan@tmu.edu.tw](mailto:tedfan@tmu.edu.tw)

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