

SNAIL AND SLUG INGESTION

PRACTICE GUIDELINE[®]

DOCUMENT SUMMARY/KEY POINTS

- Ingestion of snails or slugs may rarely cause eosinophilic meningitis due to the *Angiostrongylus cantonensis* parasite.
- Early prophylactic treatment aims to kill the parasite before it enters the Central Nervous System (CNS) and is likely effective if given 14 days post exposure.
- Anti-parasitic treatment after the parasite has entered the CNS can theoretically worsen the illness and should be avoided unless recommended by an infectious diseases specialist.
 - Prophylactic oral albendazole may be used if:
 - (1) witnessed or suspected ingestion of any part of a snail or slug occurs in a child,
 - (2) there is significant parental concern,
 - (3) the ingestion occurred within the last 7-14 days

CHANGE SUMMARY

- Document due for mandatory review

READ ACKNOWLEDGEMENT

- Poisons information specialist, medical officers, pharmacists and nurses

This document reflects what is currently regarded as safe practice. However, as in any clinical situation, there may be factors which cannot be covered by a single set of guidelines. This document does not replace the need for the application of clinical judgement to each individual presentation.

Approved by:	SCHN Policy, Procedure and Guideline Committee	
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Team Leader:	Staff Specialist	Area/Dept: Infectious Diseases & Microbiology

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This Guideline may be varied, withdrawn or replaced at any time.

Purpose

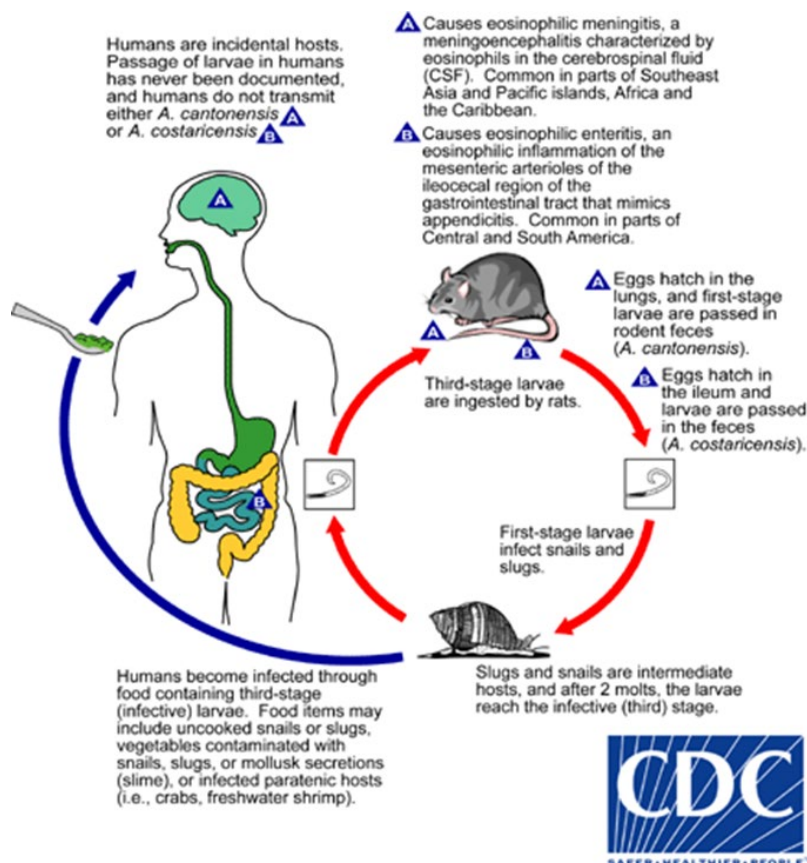
- The purpose of this document is to outline recommendations for prophylactic anti-parasitic treatment against *Angiostrongylus cantonensis* infection in children with a history of snail or slug ingestion.

Scope

- The scope of this guideline covers all paediatric patients under the care of the Sydney Children's Hospital Network and/or NSW Poisons Information Centre

Background

- Angiostrongylus cantonensis* is a parasitic worm of rats, also known as rat lung worm. The larvae of this parasite may be ingested by snails and slugs (terrestrial molluscs), then if eaten by humans the larvae can cause infective eosinophilic meningitis.
- Below is a diagram of *Angiostrongylus cantonensis* life cycle and transmission to humans:



Reproduced from: Centers for Disease Control and Prevention. Parasites and Health: Angiostrongyliasis.
Available at: <http://www.cdc.gov/parasites/angiostrongylus/>.

- Children may be infected by swallowing snails/slugs “on a dare”; by accident or by eating raw produce (such as lettuce) that contains a small snail or slug.

- Adults and children may also be infected when eating snail (raw/undercooked) dishes that are a cultural delicacy in some Southeast Asian countries.
- Risk following ingestion appears to be low, as not all apparently exposed children develop the infection. (12)
- Certain animals such as freshwater shrimp, crabs, or frogs and contaminated vegetables, have been found to be infected with larvae of this parasite, although there is limited evidence that ingestion of these animals causes infection.
- The incubation period for the development of central nervous system (CNS) manifestations of *A. cantonensis* infection is typically about 2-6 weeks, coinciding with the time it takes for the parasite to migrate into CNS tissues. (1)
- Early prophylactic treatment aims to kill the parasite before it enters the CNS and is likely effective if given in the first week following exposure. Giving anti-parasitic treatment after the parasite has entered the CNS can theoretically worsen the illness and **should be avoided unless recommended by an infectious diseases specialist**.
- The incidence of *A. cantonensis* infection in children post snail ingestion in Australia has not been well described.
- Symptoms of disease are non-specific features such as: fever, somnolence, weakness, nausea, and vomiting.

Prophylactic treatment

Primary prevention:

- Not ingesting raw or undercooked snails and slugs, freshwater shrimp, land crabs, frogs, and monitor lizards, or potentially contaminated (i.e., unwashed) vegetables, or vegetable juice.
- Removing snails, slugs, and rats found near houses and gardens should also help reduce risk.
- Thoroughly washing hands and utensils after preparing raw snails is also recommended. Vegetables should be thoroughly washed if eaten raw. [Refer to NSW Government Food authority for more information.](#)

Secondary prevention:

- Children with symptoms of possible meningitis/encephalitis:
 - Consider alternative diagnoses.
 - Ask about travel exposure to endemic regions (Southeast Asia, China, USA, Africa and Caribbean)
 - Ask about possible ingestion of snails or slugs.
 - If a lumbar puncture (LP) is clinically warranted, specifically include on the request form **“for possible eosinophilic meningitis”**.

- In the setting of possible snail/slug ingestion without any symptoms of meningitis or other CNS involvement:

Contact Infectious Diseases specialist

- If snail/slug ingestion NOT witnessed or parents/guardians are NOT concerned:
 - No prophylaxis
 - Reassurance, observation for symptoms of neurological disease
- If witnessed or suspected ingestion of any part of a snail or slug in the previous 14 days AND parent/guardians ARE concerned
 - Albendazole (>6 months of age):
 - 10-20 mg/kg/dose (Up to 400 mg/dose) orally 24-hourly for 7 days*
 - Round dose to the nearest 100 mg
 - Best given with food
 - Albendazole is prescription only and is available as 200 mg and 400 mg chewable tablets.

**N.B. There are gaps in evidence for albendazole dosing for prophylaxis. These doses are expert opinion extrapolations from clinical studies that are limited to the treatment of eosinophilic meningitis caused by *Angiostrongylus cantonensis*.*

- If witnessed or suspected ingestion of any part of a snail or slug more than 14 days prior to presentation:
 - No prophylaxis
 - Ongoing observation for symptoms of neurological disease

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