

Managing Parasites

Screening

Consider screening for intestinal parasites by taking a faeces sample if the client presents with ;

- recurrent abdominal pains
- diarrhoea
- poor weight gain or weight loss
- itchy bottom or vagina
- anaemia
- raised eosinophils (a type of white blood cell).

Remember that a single faeces sample may be negative even though the patient has a parasite infection. Collect 2-3 faeces samples if possible. These faeces samples should ideally go hot and fresh to the lab, but if that is not possible they should be stored in the fridge until taken to the pathology lab.

If ;

- unable to collect faeces OR
- faeces negative but strongyloides strongly suspected OR
- there is a need to exclude strongyloides,

take blood for strongyloides serology (see section on strongyloides)

Case Definition

- A positive faeces result from the laboratory
- Worms seen with the naked eye
- positive strongyloides serology (see strongyloides section)

(Parasite definition; a creature living in another and drawing nourishment from it).

Principles of Management

1. Readily give treatment after taking the faeces sample without waiting for the result if symptomatic.
2. If you can't get a faeces sample go ahead with treatment if symptomatic or eosinophilia.
3. All children under 6 months should be discussed with the doctor
4. Prevention is the most important measure in a parasite

control program (see prevention)

5. Other household members will often have the same infection and need treatment
6. Strongyloides hyper-infection can be life threatening (see strongyloides section).

Therapeutic Protocols

1. Any acutely unwell child or adult should be referred to the doctor immediately.
2. Discuss with the doctor all cases where there is fever, rigors, blood in the stool or dehydration
3. Observe the first dose of medication in children
4. When treating before pathology result known (Blind treatment):- Give Albendazole 400mg(≤ 10kg:200mg) once daily for 3 days after collecting faeces specimen(s) without waiting for the result, as this will cover most of the infections.
5. Specific treatments – see table 1 to right
6. **Managing eosinophilia** (a type of white blood cell):- In high risk areas, ie all the Kimberley, if eosinophilia is an incidental finding, then give Albendazole 400mg(≤ 10kg:200mg) once daily for 3 days . This applies to any raised level of eosinophils but be particularly vigilant in treating the patient if the eosinophils are over 1.0×10^9 .
7. Offer treatment to the whole household
8. In communities where hookworm is commonly being identified consider carrying out community de-worming of all the children using a single dose of Albendazole (use Pyrantel if any chance of pregnancy). Treatment should be repeated in children 6 months -16 years old every 6 months.

Women of Child Bearing Age

Albendazole is contra-indicated in pregnancy.

Replace Albendazole with Pyrantel if there is any chance of pregnancy. Use 750mg if over 45Kg and 500mg if adult under 45Kg.

Commonly Seen Faeces Results (Table 1)

Parasites	
Giardiasis	1st choice;Metronidazole 30 mg/kg(max 2g) once daily for 3 days 2nd choice; tinidazole 50mg/kg (max 2g) as one single dose 3rd choice; Albendazole 400mg(≤ 10kg:200mg) once a day for 3 days. For resistant cases use 10 day course of tds metronidazole (10mg/kg tds up to max 400mg tds).
Hookworm	Albendazole 400mg (≤ 10kg:200mg) once only
Strongyloides	Albendazole 400mg(≤ 10kg:200mg) once a day for 3 days repeated after a week OR Ivermectin 0.2mg/kg for adults and children ≥ 5 yrs old and ≥ 15kg, repeated after one week
Threadworm (Pinworm)	Albendazole 400mg(≤ 10kg:200mg) once only
Trichuris trichiuria (Whipworm)	Albendazole 400mg(≤ 10kg:200mg)once daily for 3 days
Hymenolepis nana (Dwarf Tapeworm)	if not symptomatic then treatment not required. However treat if malnourished or subtle symptoms such as insomnia, restlessness and behavioural problems. If symptomatic give praziquantal 25mg/kg as a single dose
Blastocystis hominis	No treatment needed
Bacterial infections commonly seen	
Shigella	Always discuss with the doctor. Co-trimoxazole 4/20mg/kg up to 160/800mg bd for 5 days or norfloxacin 400mg bd for 7 days (not available in paediatric form) or ciprofloxacin 500mg bd for 5-7 days (child give 10mg/kg up to 500mg bd).
Salmonella	No treatment needed for mild infections but if associated with fever, septicaemia or in an immuno-compromised patient give Ciprofloxacin 500mg bd for 5-7 days (child give 10mg/kg up to 500mg bd)
All others	Refer to the Therapeutic Guidelines on Antibiotics or talk to the microbiologist at Path West (SCGH) for all other positive lab results

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Prevention

a) Route of Transmission of Infections

Most parasites are ingested into the gut from dirty hands food or water, but strongyloides and hookworm infect the body through the skin, in particular through the soles of the feet eg from walking without shoes on. (see diagram1)

The Strongyloid and Hook Worm can stay alive for up to a few weeks in the soil.

a) Individual issues:

- Encourage everyone to wear shoes outside the house.
- Encourage everyone to use the toilet and not the yard/ surrounding bush.
- Wash hands after going to the toilet and before eating.
- Dispose of kimbies carefully into the bins.
- Wash fruit and vegetables before consuming them.
- Wash hands after dealing with rubbish.
- Encourage a healthy lifestyle. (see healthy living protocol)

b) Community issues:

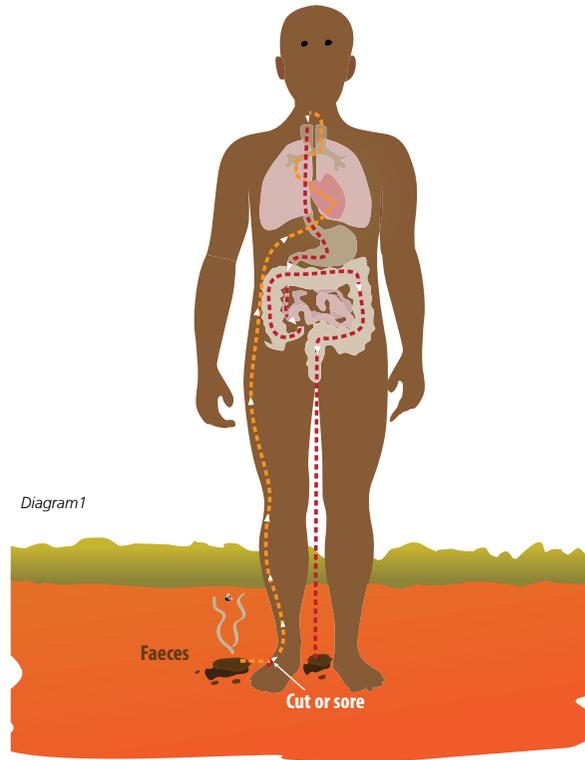
- Improved sanitation.
- Ensure the water source is clean.
- Ensure active dog de-worming programs (Contact Environmental Health if sanitation, water purity or dogs are thought to be an issue).
- Have a regular rubbish collection.
- Maintain a rubbish tip well away from the community and ensure that it is regularly covered with soil.
- If there are many cases of worms in the community consider offering a de-worming program for the whole community

Strongyloides

Strongyloides infection enters the body through the skin usually through the soles of the feet (see diagram 1). It can be in the body for many years going undetected. Consider taking blood for strongyloides serology (IgG strongyloides ELISA test) in the following clinical scenarios ;

- unable to get a stool culture
- unexplained raised eosinophils
- chronic cough and wheeze with no cause found

- when considering long term steroid treatment
- an acutely unwell patient with no clear cause (in case of Strongyloides Hyperinfection)



Strongyloides Hyper-infection

This is rare but life threatening and makes people acutely unwell. It may occur at times of low immunity and years after someone has been infected with the Strongyloides worm.

Risk factors:

- Long term steroid use
- low immunity eg from cancer treatment or AIDS/HIV
- Immunosuppressive drug
- renal dialysis

Prevention:

Before long term steroid treatment, check the faeces culture, then if the faeces is negative or unavailable, take a blood sample for strongyloides serology. If either the faeces or blood is positive for Strongyloides, give 2 doses of Ivermectin a week apart. If the serology was positive, retest in 6 months and if still positive, repeat the 2 doses of Ivermectin. If the initial serology was negative, but faeces positive then automatically repeat the Ivermectin every 6 months while immuno-suppressed.

Follow-up

Follow Up for all parasites

Follow up faeces specimens are not necessary unless symptoms persist after treatment.

Follow up for diarrhoea

Increase the monitoring of children with diarrhoea, especially young ones, until symptom free and any weight loss has been regained

Refer/ discuss

The doctor should complete a notification report when a 'notifiable disease' is identified on the pathology report. (Notification forms are available from Kimberley Population Health Unit - ph 91941630)

Refer to Therapeutic Guidelines on Antibiotics or talk to the microbiologist at Path West (SCGH) tel 13 7284 for all other positive lab results not covered in the table on page 1.

Discuss with microbiologist or refer to specialist; any persistent cases not responding to treatment

- all cases where patient is immunocompromised (ie HIV, leukaemia or on chemotherapy)
- when hyper-infection of strongyloides is suspected.
- children who continue to fail to thrive after adequate treatment