Dracunculiasis

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## Classification of Nematodes

<table>
<thead>
<tr>
<th>Subclass</th>
<th>Order (suborder)</th>
<th>Superfamily</th>
<th>Genus and Species</th>
<th>Probable prevalence in man</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secernentea</td>
<td>Spirurida (Camallanina)</td>
<td>Dracunculoidea</td>
<td>Dracunculus medianesis</td>
<td>10 million</td>
</tr>
</tbody>
</table>
General

- Etiology - Dracuncula medianensis causing Guinea Worm Infection
- Geographic distribution – Africa (12 countries West, Central and East Africa)
- 32,000 cases with 63% in Sudan (2003)
General Recognition Features

- **Size** – Female 60-120 cm, male 1.2-2.9 cm
- **Larvae** – 500-750 um long
Life Cycle

- **Definitive host** – man
- **Where the adults live in the body** – deep connective tissues
- **Stage leaving the body** – L1 larvae from an adult worm in a skin lesion
- **Intermediate host** – Cyclops (copepod) small crustacean
- **Infectious stage for the definitive host** – ingestion of an infected cyclops
Ingestion of an infected Cyclops

Deep connective tissues
Migrate for about 1 year

Gravid female moves to skin

Discharges larvae through cutaneous ulcer (into water)

Cyclops
L3 larvae in 10d – 2w
Life Cycle

- Prepatent period – 12 months
Disease Characteristics

- Generally no symptoms in the prepatent period
- Prodrome stage – few hours prior to skin lesions an erythematous urticarial rash is seen with pruritus, nausea, diarrhea, dyspnea, syncope, giddiness
- Skin lesion – red papule, vesicle with indurated margin (1.5-2.0 cm) mainly on feet and ankles. With rupture some of the symptoms abate but may recur with removal of the worm.
- Sterile abscess – if the worm fails to reach the skin surface and dies
- Secondary infection is common
- When close to joints may cause a debilitating arthritis
- Can rarely migrate to critical organs
Diagnosis

Clinical suspicion – prodrome followed by the classic skin lesion.
Treatment

► Slow extraction of the worm combined with wound care

► Metronidazole
  - Adults – 250 mg tid X 10 days
  - Children – 25 mg / kg / day (maximum 750 mg) divided into 3 doses X 10 days
  - Not curative but decreases inflammation and facilitates worm removal
  - Metronidazole 400-800 mg / day for 6 days has been reported to kill the worm directly

The Medical Letter, August 2004, Drugs for Parasitic Infections, pp 1-12
Metronidazole Adverse Reactions

► Avoid – 1st trimester
► Use with caution CNS disease, blood dycrasias, severe liver or renal disease (GFR < 10 mL/min)
► Adverse reactions – nausea, diarrhea, urticaria, dry mouth, leukopenia, vertigo, metallic taste, peripheral neuropathy
► May worsen candidiasis
► May cause disulfirim type reaction with alcohol consumption within 24-48 hours after dose given
► May increase levels of toxicity of phenytoin, lithium, and warfarin.
► Phenobarbital and rifampin may decrease metronidazole metabolism
Control Measures

- Protected wells and water supplies
- Temphos (Abate) treatment of water supplies
- Appropriate treatment of infected individuals
- Boiling or filtering (e.g., nylon filter) of potentially infected water