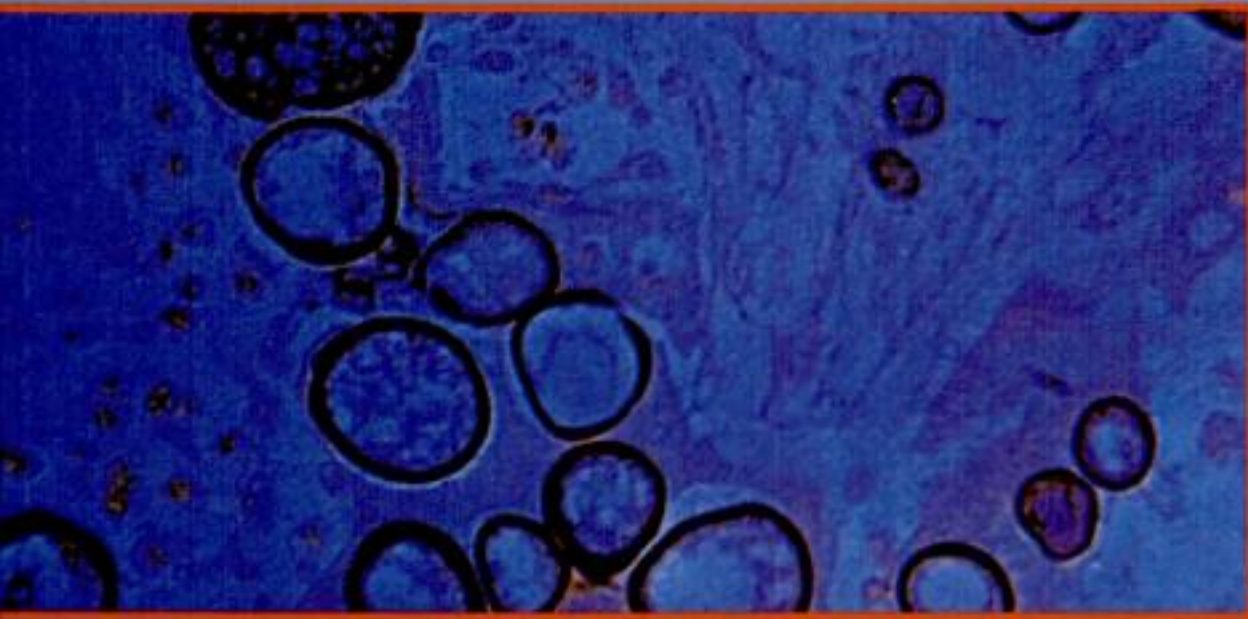
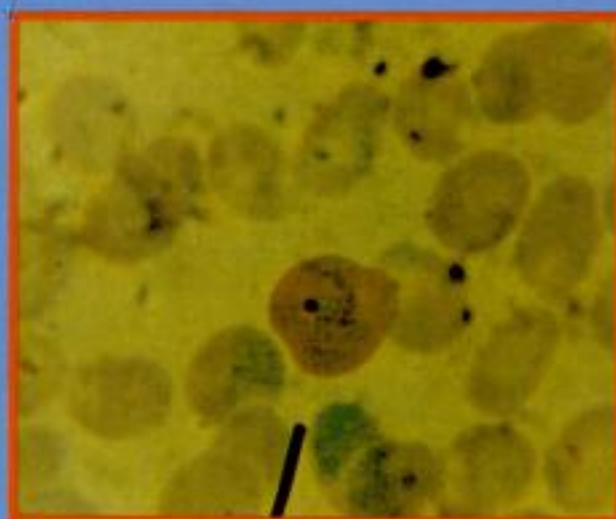
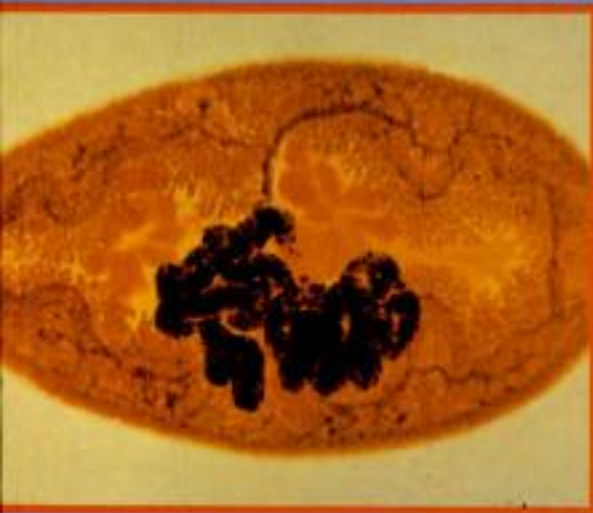


ATLAS PARASITOLOGI KEDOKTERAN



Disusun oleh:
Juni Prianto L.A.,
Tjahaya P.U.,
Darwanto



Editor:
Prof. Dr. dr. Pinardi Hadidjaja, MPH & TM
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Penerbit PT Gramedia Pustaka Utama
Jakarta, 2006

This One



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Prakarsa ini patut dipuji, karena selain dilakukan oleh para mahasiswa, yang seharusnya menjadi tugas para dosen, juga adanya kerja sama antarmahasiswa Fakultas Kedokteran dari ketiga Universitas Swasta di Jakarta.

Dalam kesempatan ini kami juga sangat berterima kasih atas bimbingan dari pakar ilmu di dalam maupun di luar negeri, yang telah rela memberi bimbingan dan pengarahan serta petunjuk yang sangat berharga sehingga prakarsa para mahasiswa ini justru akan menambah kreditabilitas ilmu dari buku tersebut.

Kami yakin bahwa buku Atlas dalam keadaan sekarang ini akan sangat berguna, tidak hanya bagi para mahasiswa kedokteran, juga untuk semua dokter maupun praktisi kedokteran, karena secara komprehensif menerangkan semua macam parasit yang berkaitan dengan ilmu parasitologi dalam segala aspek medisnya.

Semoga Tuhan Yang Maha Esa senantiasa memberkahi usaha kita semua.

Jakarta, September 1994
Rektor Universitas Trisakti

Prof. Dr. R. Moedanton Moertedjo

Pembaca yang budiman,

Indonesia sebagai negara berkembang pada saat ini sedang mengalami transisi epidemiologi dari penyakit menular ke arah penyakit degeneratif. Walaupun demikian, penyakit infeksi yang disebabkan oleh parasit masih merupakan masalah kesehatan yang besar, baik di kota maupun di desa. Untuk itu, para mahasiswa masih dituntut untuk mempelajari parasitologi dengan lebih cermat.

Parasitologi merupakan ilmu yang sangat mendasari diagnosis klinis penyakit infeksi yang ditimbulkan oleh parasit tertentu. Dalam mengenal macam penyakit infeksi yang disebabkan oleh parasit tertentu, seorang dokter harus mengenal dengan baik bentuk parasit apakah yang menyebabkan seorang pasien terkena



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KATA PENGANTAR

Puji syukur kami panjatkan kepada Tuhan Yang Maha Esa atas terlaksananya keinginan kami dalam menyusun *Atlas Parasitologi Kedokteran* ini.

Sudah cukup lama kami mempersiapkan segalanya untuk penerbitan atlas ini. Walaupun dengan berbagai rintangan dan hambatan, akhirnya kami merasa lega karena dapat menyelesaikannya sesuai dengan rencana.

Penyusunan atlas ini didasari oleh keinginan kami untuk membantu mahasiswa kedokteran dalam mengenal macam-macam parasit yang dapat menimbulkan kelainan pada makhluk hidup. Atlas ini berisikan gambaran makroskopis dan mikroskopis yang lazim dipelajari dalam kegiatan praktikum parasitologi.

Harapan kami, atlas ini tidak hanya berguna bagi mahasiswa kedokteran, tetapi dapat pula dipakai oleh setiap orang yang memiliki kepentingan dengan bagian parasitologi, walaupun dengan sadar kami mengakui bahwa dalam penyusunan atlas ini masih ada kekurangan-kekurangan.

Penyelesaian atlas ini mendapat dukungan dan bantuan dari banyak pihak. Untuk itu, kami mengucapkan terima kasih kepada:

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Penyusun



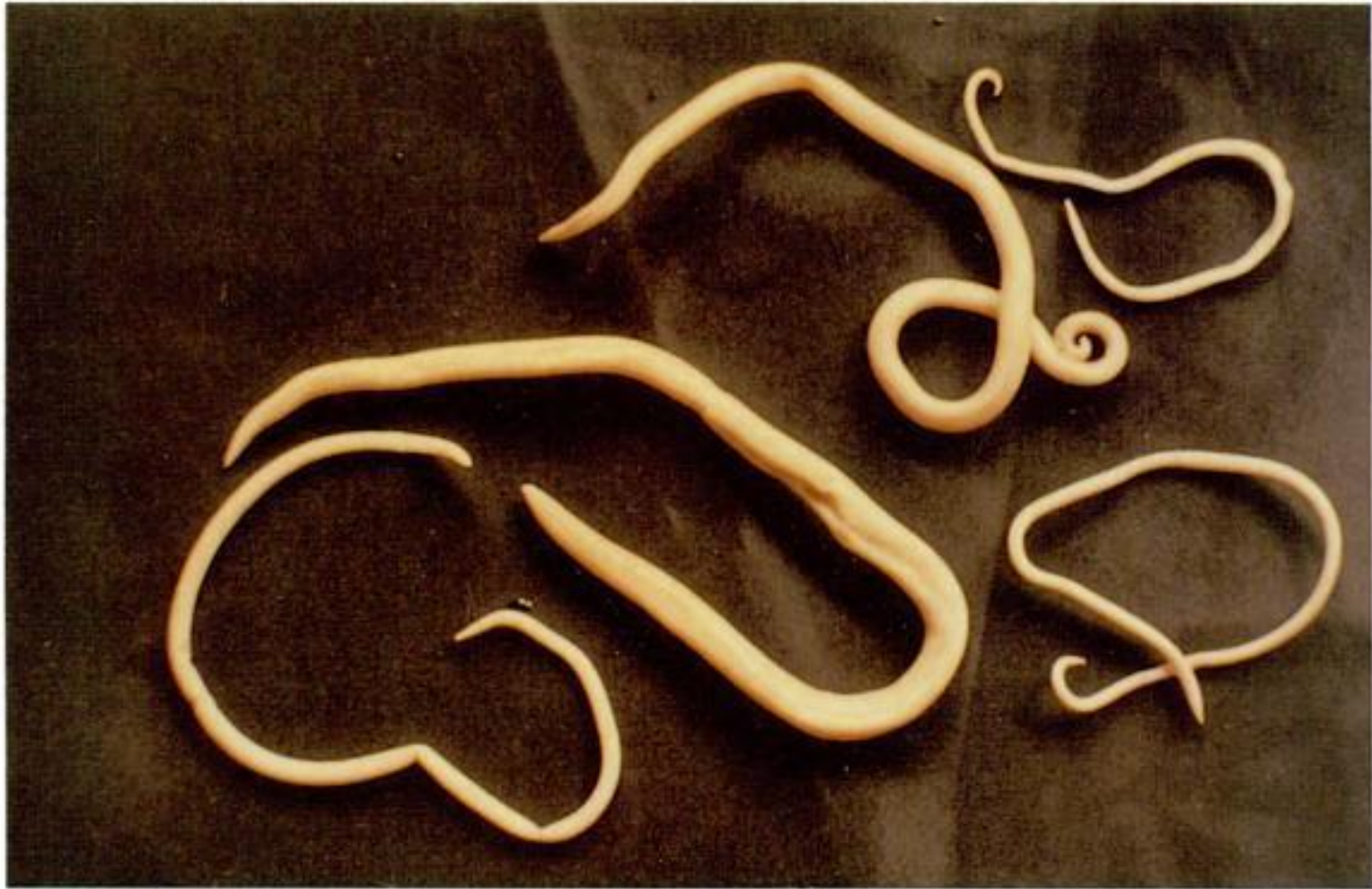
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Gambar 1.1 Cacing *Ascaris lumbricoides* dewasa (makroskopik).



Gambar 1.2 Mulut *Ascaris lumbricoides* (pembesaran 10 x 10).



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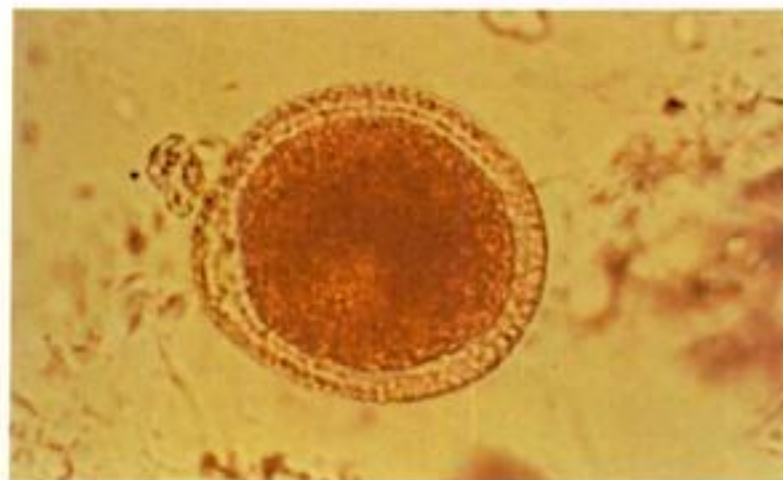
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Gambar 1.6 Cacing *Toxocara* sp. dewasa (makroskopik).



Gambar 1.7 Telur *Toxocara* sp. (pembesaran 10 x 20).



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Gambar 1.12 Mulut *Necator americanus* (pembesaran 10 x 20).



Gambar 1.13 Larva rabditiiform (pembesaran 10 x 40).



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Strongyloides stercoralis

Penyakit

Strongiloidiasis.

Hospes

Manusia.

Morfologi

Larva rabditiform:

- panjangnya ± 225 mikron, ruang mulut: terbuka, pendek, dan lebar.
- esofagus dengan dua bulbus, ekor runcing.

Larva filariform:

- panjangnya ± 700 mikron, langsing, tanpa sarung, ruang mulut tertutup, esofagus menempati $1/2$ panjang badan, bagian ekor berujung tumpul berlekuk.

Cacing dewasa jantan: bentuk bebas

- panjangnya ± 1 mm, esofagus pendek dengan dua bulbus, ekor melingkar dengan spikulum.

Cacing dewasa betina: bentuk bebas

- panjangnya ± 1 mm, esofagus pendek dengan dua bulbus, uterus berisi telur, ekor runcing.

Patologi klinis

- Stadium larva
kulit: "Cutaneous Larva Migrans."
paru-paru: pneumonitis atau bronkopneumonia.
- Stadium dewasa
Hiperinfeksi, autoinfeksi, hipereosinofilia, hepatitis, ileus paralitik.

Diagnosis

Larva dalam tinja, biakan, atau aspirasi duodenum.

Terapi

Tiabendazol, pirvinium pamoat.



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Gambar 1.20 Cacing *Oxyuris vermicularis* jantan (pembesaran 10 x 20).



Gambar 1.21 Cacing *Oxyuris vermicularis* betina (pembesaran 10 x 40).



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Trichinella spiralis

Penyakit

Trikinosis atau trikiniasis.

Hospes

Manusia, babi, tikus, beruang, dan lain-lain.

Morfologi

- Cacing jantan panjangnya $\pm 1,5$ mm, esofagus $1/2$ panjang badan, ujung ekor terdapat dua buah papil.
- Cacing betina panjangnya 3–4 mm, esofagus $1/3$ panjang badan, uterus berisi larva-larva, ekor berujung tumpul.

Patologi klinis

- Cacing dewasa masuk ke mukosa usus menyebabkan sakit perut, diare, mual, dan muntah.
- Larva di otot menyebabkan mialgia (nyeri pada otot) dan miositis (radang otot) yang disertai demam, hipereosinofilia, leukositosis.
- Timbulnya perkapuran dan pembentukan jaringan fibrotik pada fase ekskistasi.

Diagnosis

Klinis dari anamnesis, tes kulit, tes ikat komplemen, flokulasi, dan biopsi.

Terapi

Pengobatan secara simptomatis dan tiabendazol.



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1.2 Nematoda Jaringan

Wuchereria bancrofti

Penyakit

Wukereriasis.

Hospes

Manusia.

Vektor

- Di daerah perkotaan oleh nyamuk *Culex quinquefasciatus*.
- Di pedesaan oleh nyamuk *Anopheles* atau *Aedes*.

Morfologi

- Larva stadium I panjangnya ± 147 mikron, bentuknya seperti sosis, ekornya panjang dan lancip.
- Larva stadium II panjangnya ± 450 mikron, bentuknya lebih gemuk dan lebih panjang daripada bentuk stadium I, ekornya pendek seperti kerucut.
- Larva stadium III panjangnya ± 1200 mikron, bentuknya langsing, pada ekor terdapat tiga buah papil.
- Mikrofilaria panjangnya ± 250 mikron, bersarung pucat (pewarnaan haematoxylin), lekuk badan halus, panjang ruang kepala sama dengan lebarnya, inti halus dan teratur, tidak ada inti tambahan.
- Cacing dewasa (makrofilaria) halus panjang seperti benang, warna putih kekuningan.
- Cacing jantan panjangnya ± 40 mm, ekornya melingkar, mempunyai 2 spikula.
- Cacing betina panjangnya 65–100 mm, ekor lurus berujung tumpul.

Patologi klinis

- Cacing dewasa menyebabkan limfadenitis, limfangitis retrograd, demam, funikulitis, orkitis, hidrokels, elephantiasis mammae dan alat kelamin.
- Mikrofilaria menyebabkan *occult filariasis*.

Diagnosis

Gejala klinis, menemukan mikrofilaria, biopsi, imunologi.



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Brugia malayi

Penyakit

Filariasis malayi.

Hospes

Manusia, kera, kucing, anjing, dan lain-lain.

Vektor

Anopheles barbirostris.

Morfologi

- Mikrofilaria panjangnya ± 230 mikron, bersarung merah pada pewarnaan giemsa, lekuk badan kaku, panjang ruang kepalanya dua kali lebarnya, badannya mempunyai inti-inti tidak teratur, ekornya mempunyai satu-dua inti tambahan.
- Cacing dewasa (makrofilaria) bentuknya halus seperti benang, warnanya putih kekuningan.
- Cacing jantan panjangnya 23 mm, ekornya melingkar.
- Cacing betina panjangnya 55 mm, ekornya lurus.
- Memiliki larva stadium I, II, dan III seperti pada *Wuchereria bancrofti*.

Patologi klinis

Limfadenopati superfisial, eosinofil yang tinggi, elefantiasis tungkai/lengan bagian bawah.

Diagnosis

Gejala klinis, menemukan mikrofilaria, biopsi, imunologi.

Terapi

Dietilkarbamasin.



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Loa-loa

Penyakit

Loiasis (*Calabar swelling*).

Hospes

Manusia.

Hospes perantara

Lalat Chrysops.

Morfologi

- Mikrofilaria berukuran 300 mikron, ditemukan dalam urin, darah, memiliki sarung.
- Cacing dewasa hidup dalam jaringan subkutan, jaringan subkonyungtiva.
- Cacing jantan berukuran 34 mm.
- Cacing betina berukuran 70 mm.

Patologi klinis

Calabar swelling berupa peradangan dan pembengkakan sementara. Dapat menyebabkan gangguan mata dan eosinofilia.

Diagnosis

- Menemukan mikrofilaria dalam darah pada siang hari.
- Menemukan cacing dewasa dari konyungtiva atau jaringan subkutan.

Terapi

Dietilkarbamasin, pembedahan dilakukan bila ditemukan cacing dewasa di mata.



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Dracunculus medinensis

Penyakit

Drakunkuliasis.

Hospes

Manusia, kera, anjing, kuda, dan sapi.

Hospes perantara

Siklops.

Morfologi

- Cacing dewasa dalam jaringan di bawah kulit.
- Cacing jantan panjangnya 2–5 cm, memiliki 2 spikulum.
- Cacing betina panjangnya 60–120 cm.
- Larva panjangnya 500–700 mikron, ekornya panjang dan halus.

Patologi klinis

Ulkus, urtikaria, eritema, sesak napas, muntah, gatal, alergi, eosinofilia.

Diagnosis

Larva atau cacing dewasa pada lesi di kulit.

Terapi

Tiabendazol, Niridazol.



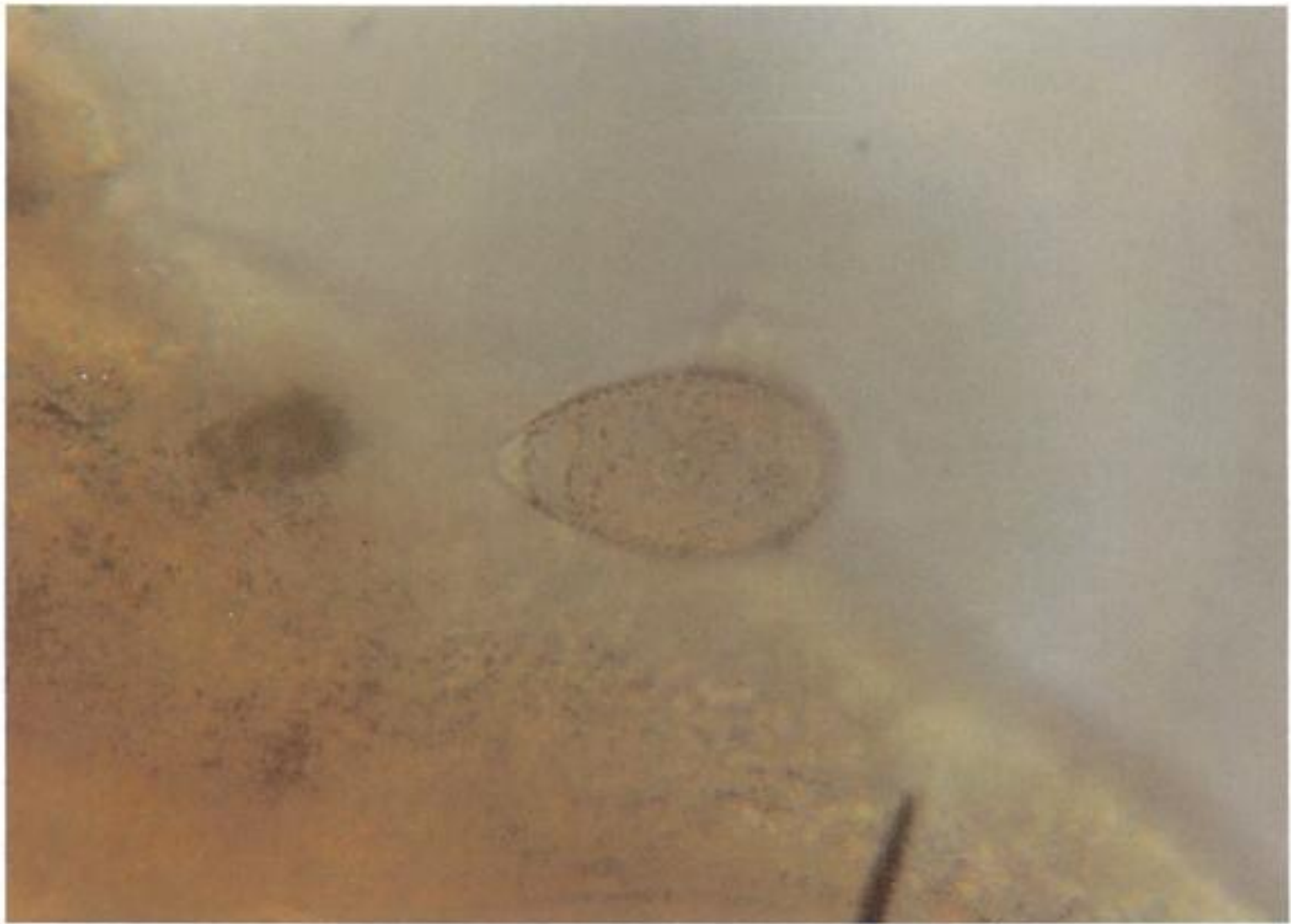
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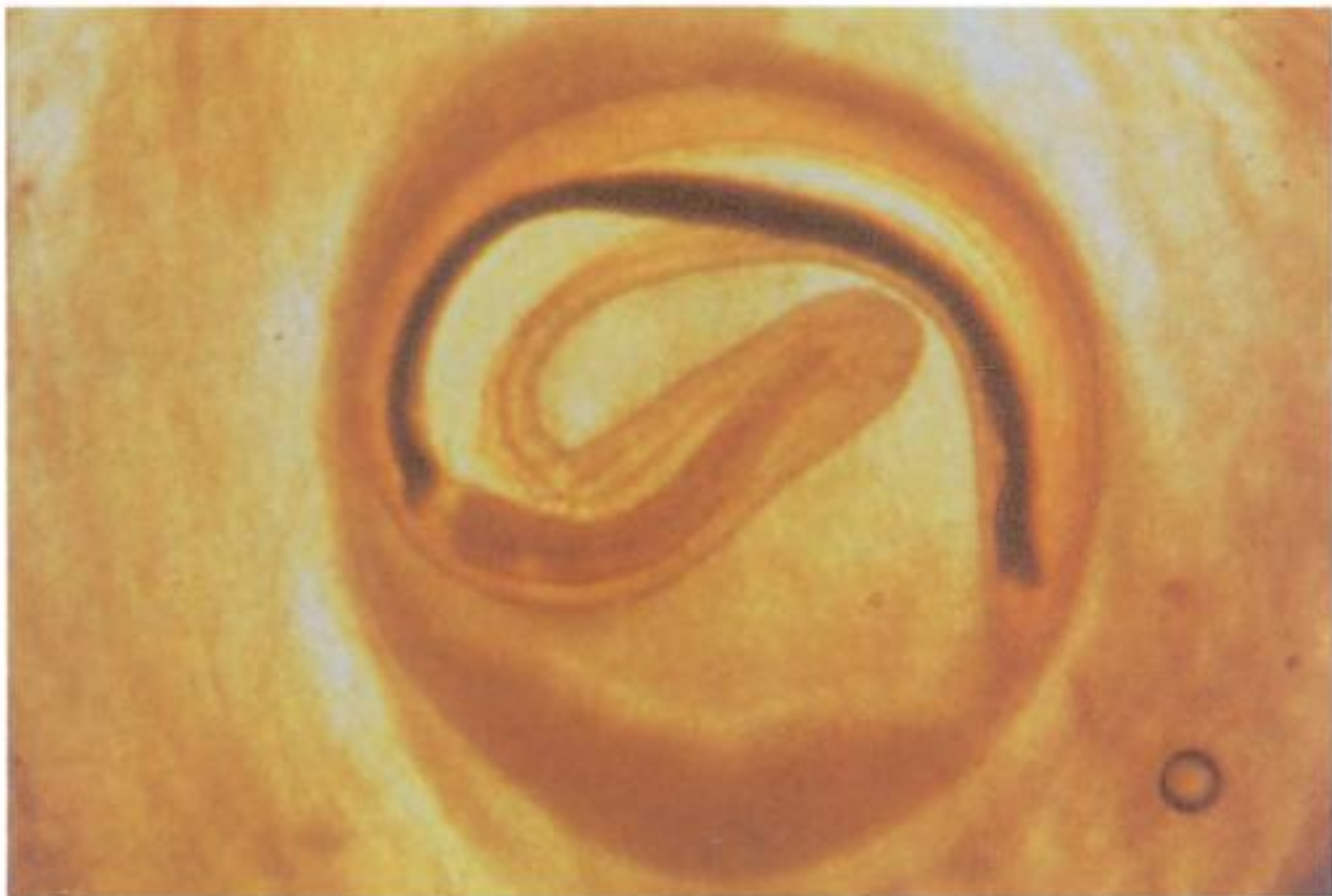
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Gambar 1.39 Telur *Gnathostoma spinigerum* (pembesaran 10 x 40)



Gambar 1.40 Larva *Gnathostoma spinigerum* dalam otot (pembesaran 10 x 40).



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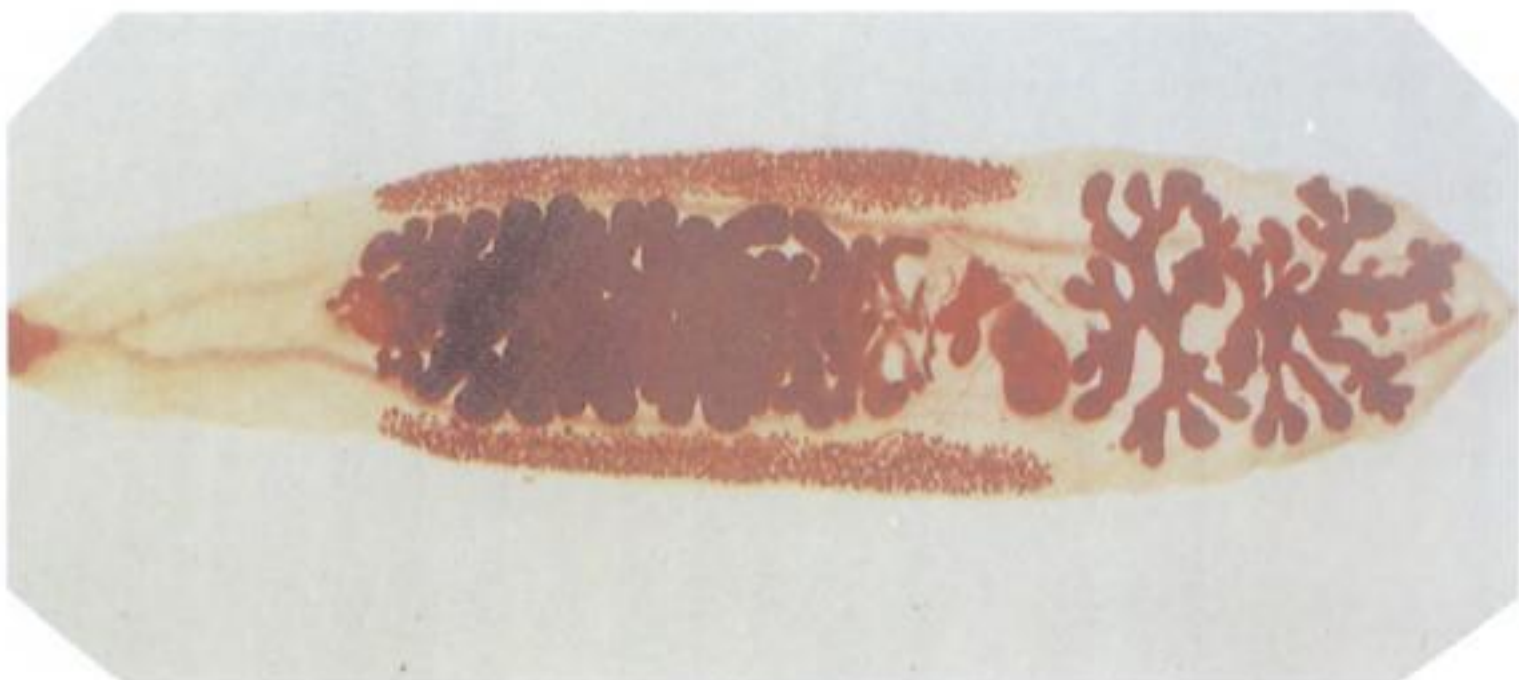
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Gambar 2.4 Cacing *Clonorchis sinensis* dewasa (makroskopik).



Gambar 2.5 Cacing *Clonorchis sinensis* dewasa (pembesaran 3.3 x 0.7).



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Fasciola sp.

Penyakit

Fasioliasis.

Hospes

Kambing, sapi, dan manusia.

Hospes perantara

- Keong air (*Lymnea*) sebagai hospes perantara pertama.
- Tanaman air sebagai hospes perantara kedua.

Morfologi

- Cacing dewasa *Fasciola hepatica* panjangnya $\pm 2,5$ cm, batil isap kepala dan batil isap perut berdekatan, bagian kepala seperti kerucut, dua sekum bercabang-cabang, ovarium bercabang-cabang, dua testis juga bercabang-cabang, kelenjar vitelaria hampir mengisi seluruh bagian tubuhnya.
- Telur *Fasciola hepatica* berukuran $\pm 140 \times 80$ mikron, operkulum kecil, berisi morula.
- Cacing dewasa *Fasciola gigantica* dibedakan dengan *Fasciola hepatica* karena lebih panjang, kerucut kepala lebih pendek, batil isap perut lebih besar, alat reproduksi lebih anterior dan telurnya lebih besar.

Patologi klinis

Kerusakan parenkim hati, peritonitis, kolesistitis, sirosis periportal.

Diagnosis

Telur dalam tinja, cairan duodenum atau cairan empedu, reaksi serologi.

Terapi

Emetin HCl, diklorofenol (Bitionol), prazikuantel.



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Schistosoma mansoni

Penyakit

Skistosomiasis usus.

Hospes

Manusia, kera, babon.

Hospes perantara

Keong air tawar (*Biomphalaria*, *Tropicorbis*).

Morfologi

- Cacing jantan panjangnya ± 1 cm, gemuk, testis 6–9 buah, kanalis ginekoforus, integumen bertonjolan.
- Cacing betina panjangnya $\pm 1,4$ cm, langsing, ovarium terletak pada pertengahan bagian anterior, terletak dalam kanalis ginekoforus cacing jantan.
- Telur berukuran $\pm 155 \times 65$ mikron, duri besar di lateral, berisi mirasidium.

Patologi klinis

Gejala mirip *Schistosoma japonicum*, tetapi lebih ringan, juga menyebabkan splenomegali.

Diagnosis

- Telur dalam tinja atau dalam jaringan biopsi.
- Reaksi serologis: COPT, IHT, ELISA, FAT.

Terapi

Niridazol, prazikuantel.



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CESTODA

3.1 Ordo Pseudophyllidea

Diphyllobothrium latum

Penyakit

Difilobotriasis.

Hospes definitif

Manusia.

Hospes reservoir

Anjing, kucing, beruang.

Hospes perantara

- Siklops, Diaptomus sebagai hospes perantara pertama.
- Ikan air tawar (ikan salem) sebagai hospes perantara kedua.

Morfologi

- Cacing dewasa berwarna kuning keabu-abuan panjangnya 3–10 m, memiliki lebih dari 3000 buah proglotid.
- Proglotid matang dengan uterus berisi banyak telur terletak di tengah menyempai roset, lubang genitalia dan lubang uterus di tengah atas, kelenjar vitelaria dan testis tersebar di bagian lateral.
- Telur berukuran $\pm 65 \times 45$ mikron, operkulum besar, penebalan berupa penonjolan kecil di bagian posterior, berisi morula.

Patologi klinis

Gangguan gastrointestinal seperti diare, tidak nafsu makan, anemia pernisirosa, obstruksi usus.

Diagnosis

Telur dalam tinja.



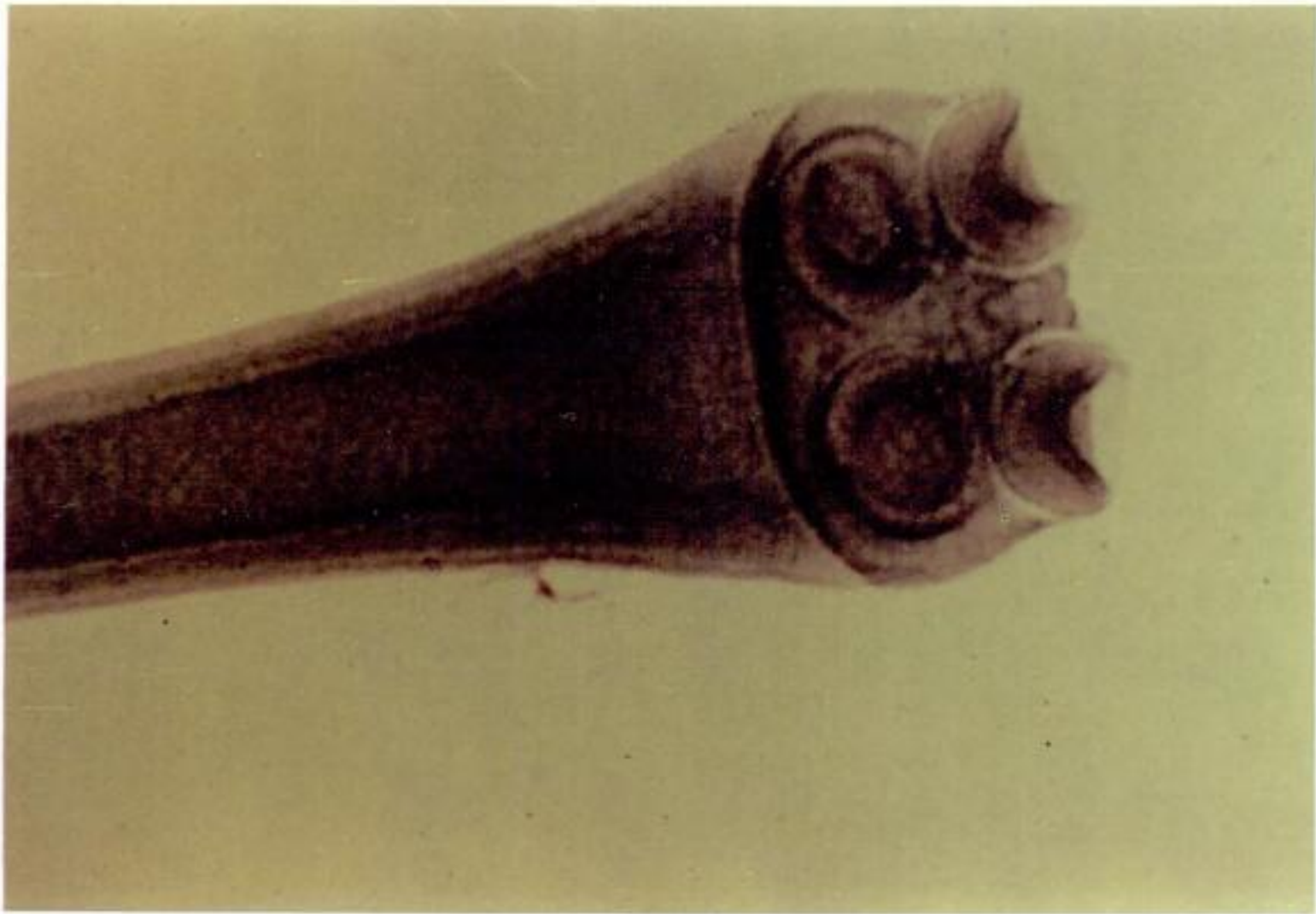
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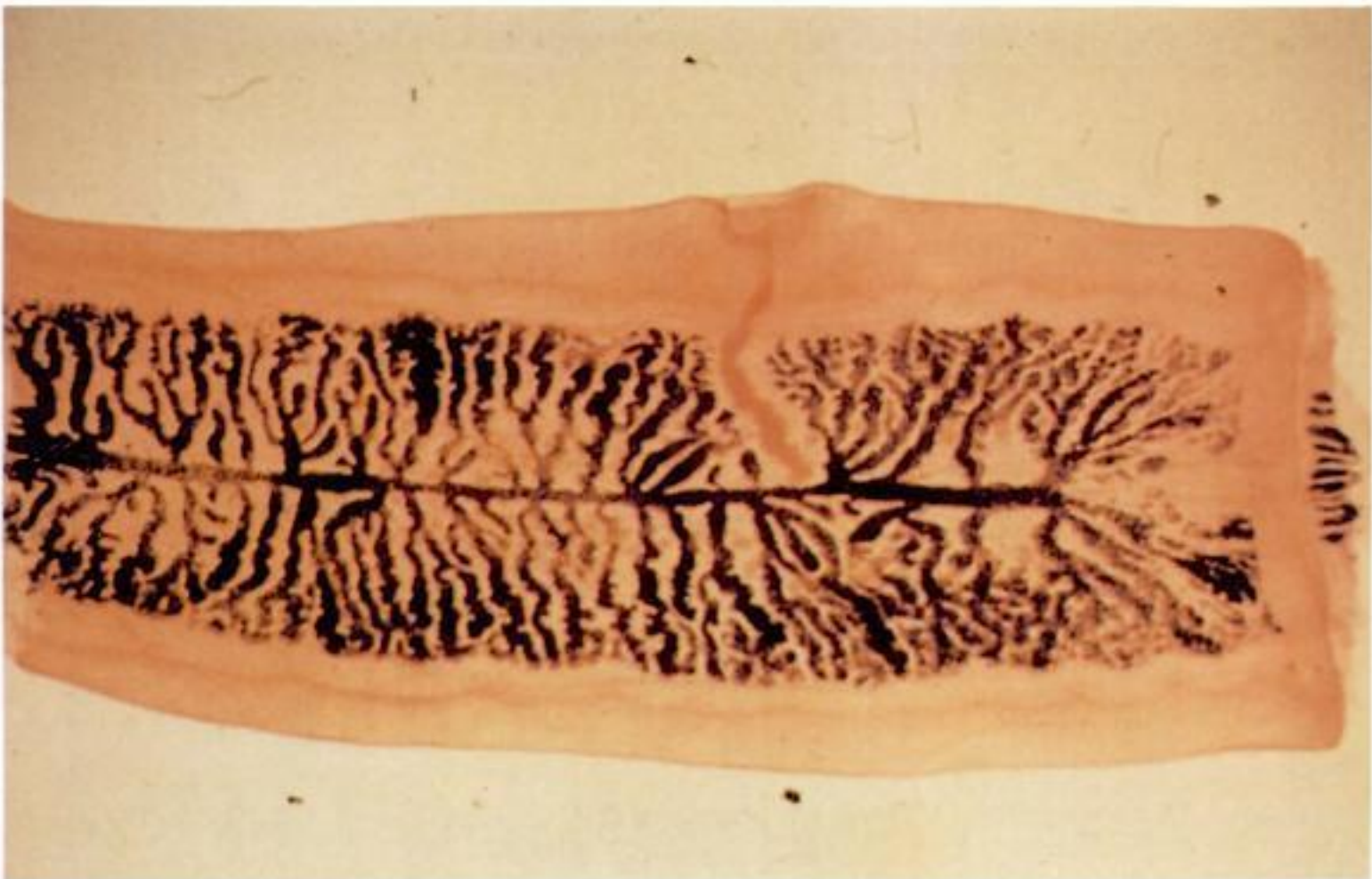
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Gambar 3.4 Skoleks *Taenia saginata* (pembesaran 3.3 x 2).



Gambar 3.5 Proglotid gravid *Taenia saginata* (pembesaran 3.3 x 2).



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Hymenolepis nana

Penyakit

Himenolepiasis nana.

Hospes

Manusia, tikus.

Morfologi

- Cacing dewasa panjangnya 2,5 cm, skoleks kecil, strobila terdiri atas \pm 2000 proglotid dan makin ke posterior makin lebar.
- Skoleks memiliki empat batil isap dan rostelum kecil yang berkait-kait.
- Proglotid gravid berbentuk trapezium, mengandung 80–180 telur.
- Telur berukuran \pm 47 x 37 mikron, berbentuk bulat/bujur, memiliki dinding luar, dinding dalam terdiri atas dua kutub, masing-masing dengan 4–8 filamen halus, berisi embrio heksakan.

Patologi klinis

Tidak menyebabkan gejala, bila infeksi berat menyebabkan mual, muntah, diare, eosinofilia, anemia.

Diagnosis

Telur dalam tinja.

Terapi

Atabrin, Bitionol, prazikuantel, niklosamid, amodiakuin.



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Gambar 3.19 Coenurus (pembesaran 3.3 x 1).



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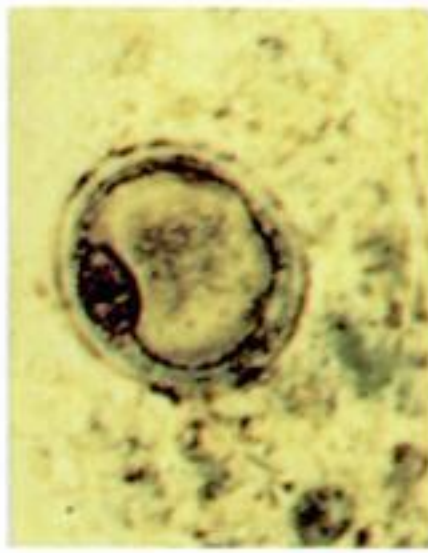
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Gambar 4.3 *Entamoeba histolytica* bentuk kista
(pembesaran 12 x 100, pewarnaan Iron Haematoxylin).



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Gambar 4.5 *Entamoeba coli* bentuk kista berinti 1 (pembesaran 12 x 100, pewarnaan Iodin).



Gambar 4.6 *Entamoeba coli* bentuk kista berinti 8 (pembesaran 12 x 100, pewarnaan Iodin).

Endolimax nana

Penyakit

Tidak menimbulkan penyakit (komensal di usus).

Hospes

Manusia.

Morfologi

Terbagi atas dua bentuk yaitu:

- (1) Bentuk trofozoit: besarnya 6–15 mikron, sitoplasmanya bergranula dan ber-vakuol, inti sentral, mempunyai kariosom yang nyata.
- (2) Bentuk kista: besarnya 5–14 mikron, mempunyai 4 inti yang letaknya tidak teratur.

Patologi klinis

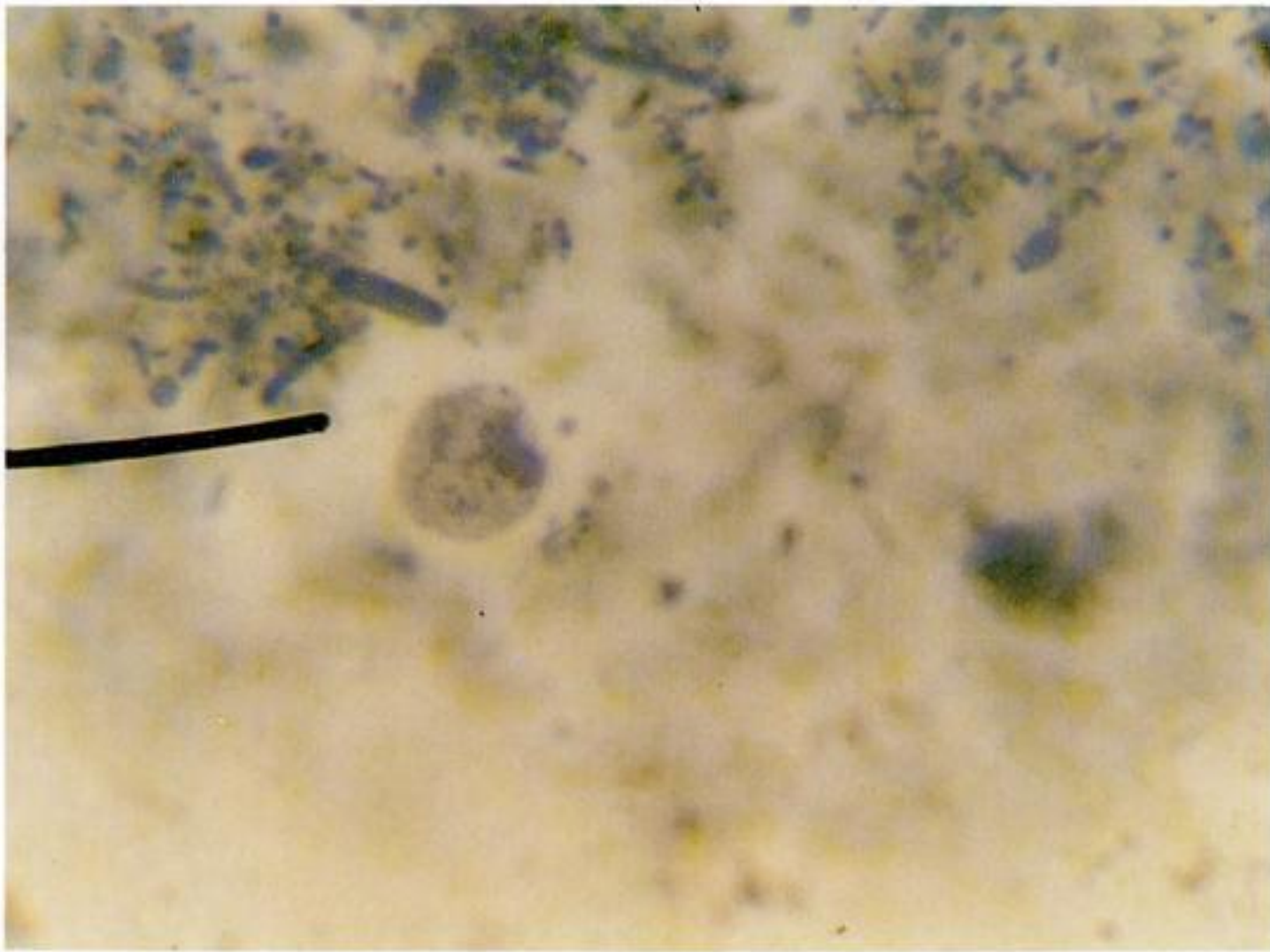
Tidak ditemukan gejala.

Diagnosis

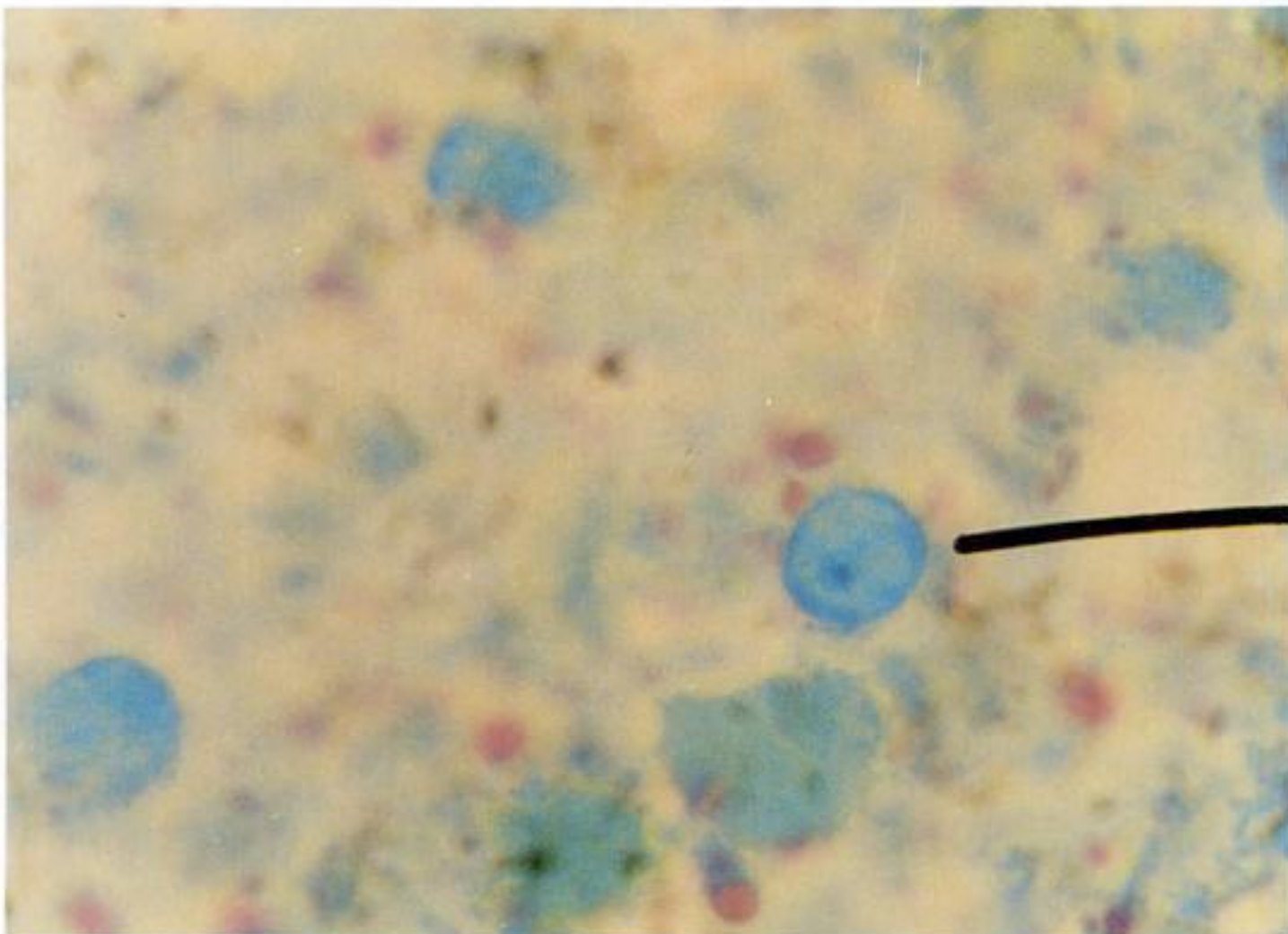
Ditemukan bentuk kista.

Terapi

Tidak memerlukan terapi, higiene perorangan dan kebersihan perorangan atau lingkungan harus diperhatikan.



Gambar 4.7 *Endolimax nana* bentuk trofozoit
(pembesaran 12 x 100, pewarnaan Iron Haematoxylin).



Gambar 4.8 *Endolimax nana* bentuk kista
(pembesaran 12 x 100, pewarnaan Trichrom).



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ATLAS PARASITOLOGI KEDOKTERAN

Indonesia, dengan kepadatan penduduk yang tinggi, masih banyak mengalami kasus penyakit infeksi. Salah satu penyebab atau faktor pencetusnya adalah karena jumlah penduduk tidak sesuai dengan jumlah tenaga medis yang menanganinya. Dalam data statistik, penyakit infeksi masih menduduki urutan teratas dalam jumlah kasus yang ditemukan. Untuk itu, dalam penanganan banyak kasus, ilmu parasit menjadi titik tolak dalam menentukan diagnosis terhadap penderita.

Dalam atlas ini disajikan macam-macam parasit yang dapat menimbulkan kelainan fungsi pada manusia yang dihindarkannya. Selain foto parasit, juga dipaparkan nama penyakit yang disebabkan oleh parasit tersebut, disertai hospes yang dihindangi. Untuk mengenal macam parasit yang telah menginfeksi makhluk hidup, kita harus mengetahui patologi klinis yang ditimbulkan, cara mendiagnosisnya, dan bagaimana mengobati kelainan yang timbul akibat parasit tersebut. Semua disajikan secara singkat dan sistematis dalam atlas yang mencakup seluruh bidang parasitologi ini.