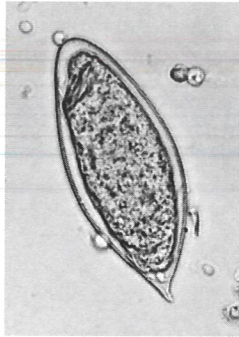


Oval Forms of Calcium Oxalate Crystals vs Schistosoma Eggs

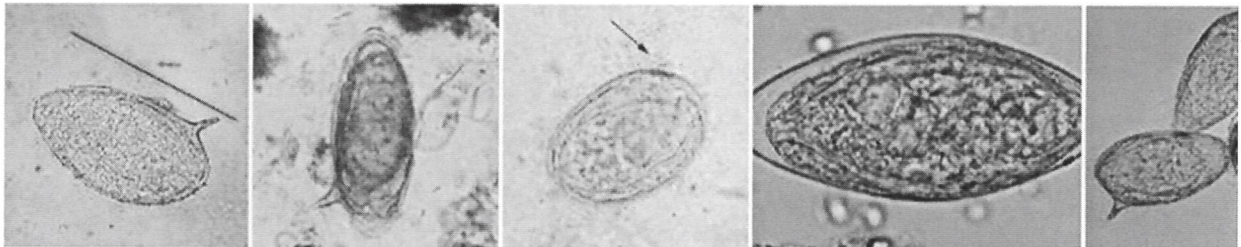
The oval form of calcium oxalate crystals have a very similar appearance to the eggs of Schistosoma.



Schistosoma Egg

The eggs of Schistosoma are the only urine parasite (other than Trichomonas) we may see. These may be obtained by swimming in tropical waters but are not found in the US.

The eggs are large (see below), as compared to oval Calcium Oxalate crystals, which may appear to have a similar shape.



The **eggs** of **Schistosoma** haematobium are large (110-170 μm long by 40-70 μm wide) and bear a conspicuous terminal spine. **Eggs** contain a mature miracidium when shed in urine.

See the attached urinalysis printouts for the calcium oxalate crystals.

Hovering the arrow over the image on the Iris will give you a measurement of the object. The calcium oxalate crystals on the attached Iris printout are only 24 μm in size. They also appear with the typical X form of the crystal or in clusters. The calcium oxalate crystals can cause kidney or bladder stones, which is the case in the urine of this patient.

STANDBY

STANDBY

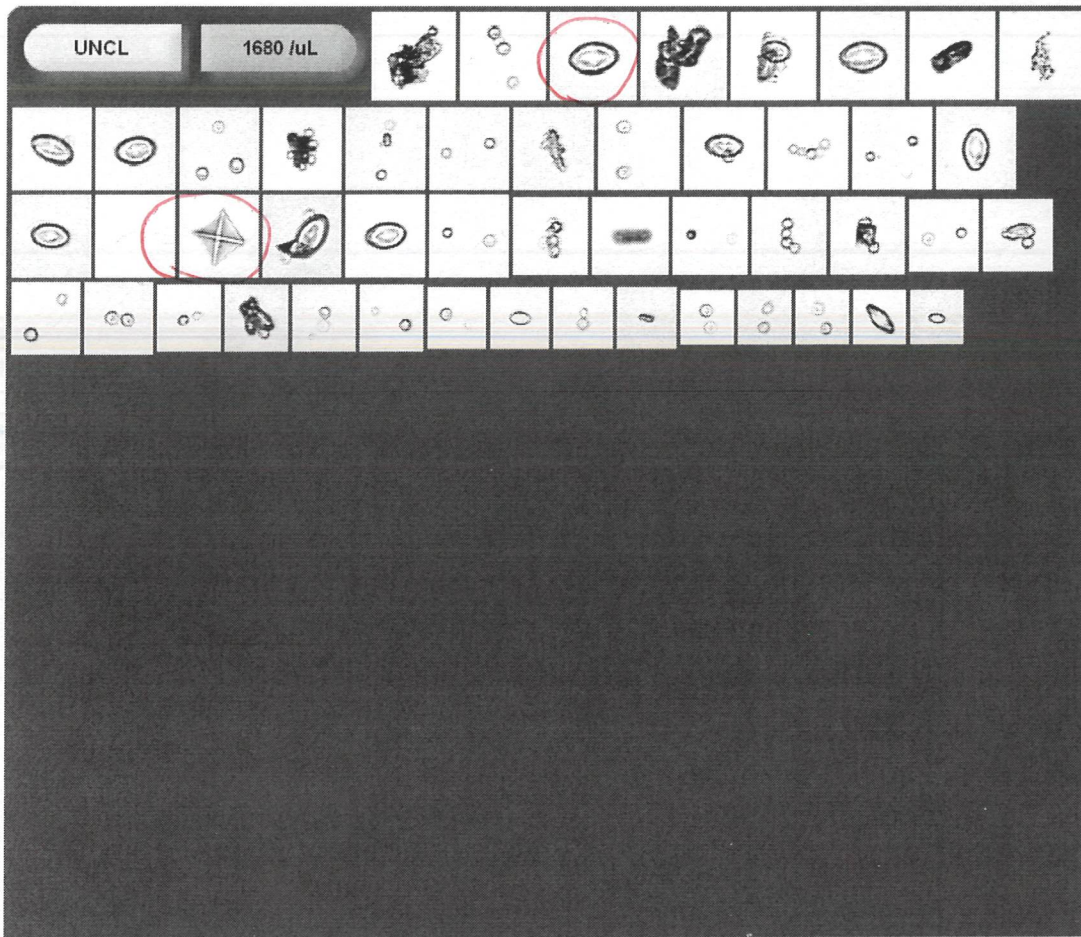
?

Specimens

Found List (1)

Instrument

Operator: Tech. Chemistry: V01298



Navigation and analysis buttons:

- Back
- Next
- WBC
- BACT
- RBC
- SQEP
- Crystals...
- WBCC
- Casts...
- NSE
- Others...
- ART
- Info...

<<Released>>
 211756265A
 2021-06-24 22:03:59
 5/1(84968)
 1:1

H	GLU	50
H	PRO	100
H	BIL	Neg
H	URO	2.0
H	PH	5
H	BLD	Large
H	NET	5
H	NIT	Neg
H	LEU	Neg
H	CLA	Cloudy
H	SPGR	1.032
H	COL	Amber
H	ASA	20

Cleared flags:
 HIGH CONCENTRATION

Results Print Screen Save Screen

CaOx

Good example of 2 forms of CaOx crystals
 Moving the arrow over the image will give
 the size of the structure.

Both forms are often found together in an
 acid pH. They can also be found in clusters (see attached
 image).

STANDBY

STANDBY

?

Specimens

Found List (1)

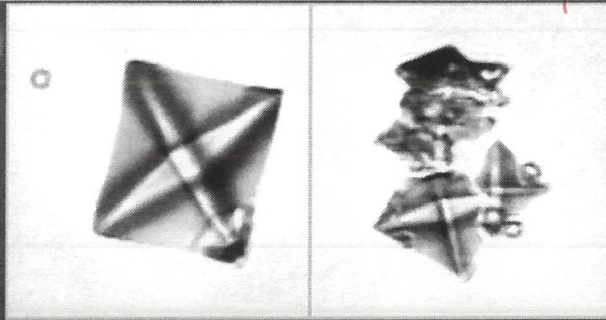
Instrument

Operator: Tech. Chemistry: V01298

Calcium Oxalate pH 5

CAOX

Rare



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Next ▶

WBC

BACT

RBC

SQEP

Crystals...

WBCC

Casts...

NSE

Others...

ART

Info...

CAOX

AMOR

UNCX

URIC

TPO4

CACB

CAPH

CYST

LEUC

TYRO

Results

Print Screen

Save Screen

STANDBY

STANDBY

?

Specimens

Found List (1)

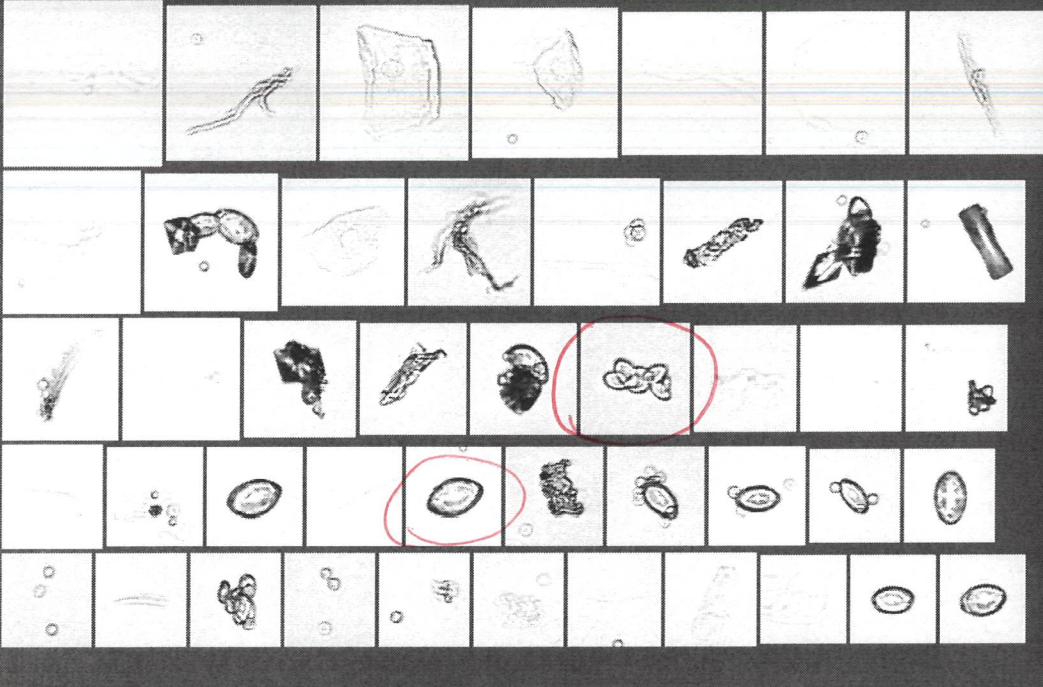
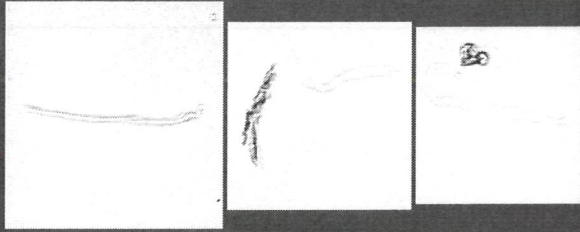
Instrument

Operator: Tech. Chemistry: V01298

Calcium Oxalate

UNCL

1680 μ L



Back Next

WBC BACT

RBC

SQEP Crystals...

WBCC Casts...

NSE Others...

ART Info...

<<Released>>
 211756265A
 2021-06-24 22:03:59
 5/1(84966)
 1:1

H	GLU	50
H	PRO	100
	BIL	Neg
H	URO	2.0
	PH	5
H	BLD	Large
H	KET	5
	NIT	Neg
	LEU	Neg
	CLA	Cloudy
	SPGR	1.032
	COL	Amber
	ASA	20

Cleared flags:
 HIGH CONCENTRATION

Results

Print Screen

Save Screen

STANDBY

STANDBY

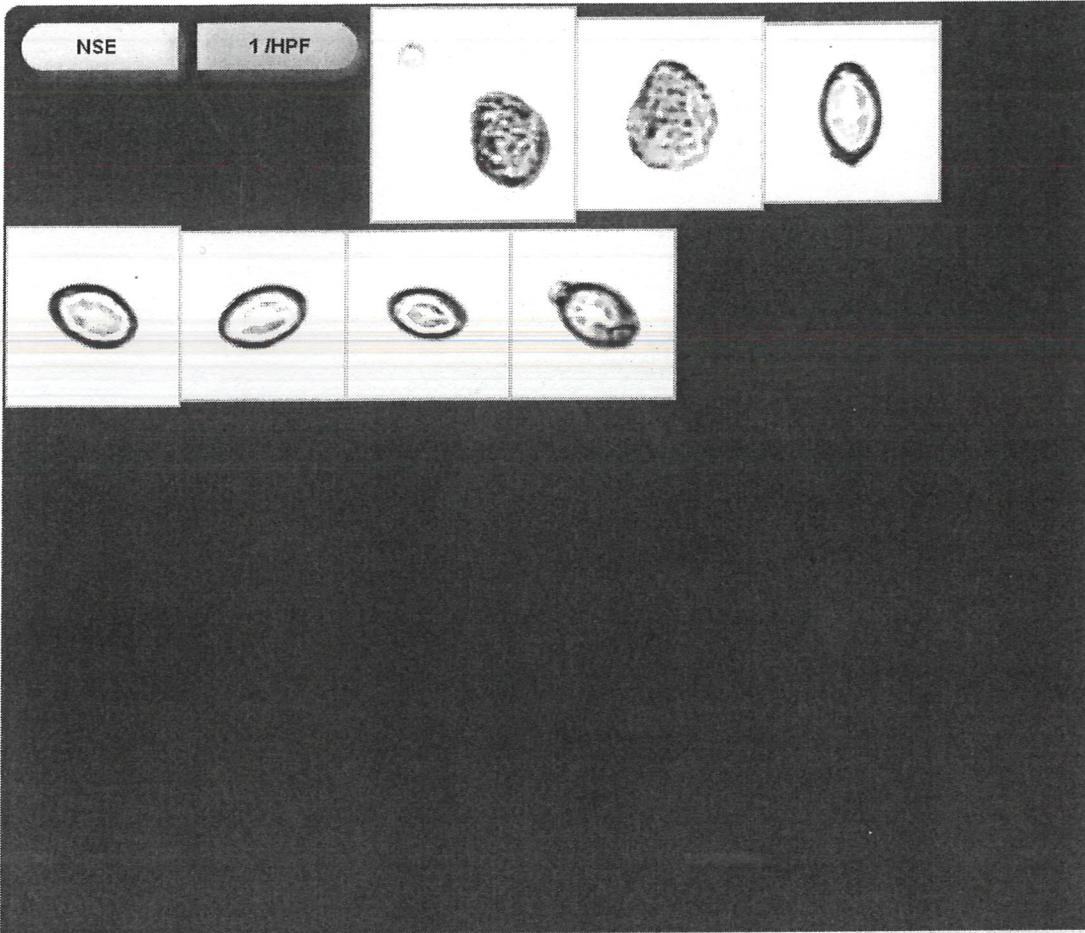
Specimens

Work List (1)

Instrument

Operator: Teoh. Chemistry: W01298

Calcium Oxalate



◀ Back Next ▶

WBC BACT

RBC

SQEP Crystals...

WBCC Casts...

NSE Others...

ART Info...

Z11756265A
 2021-06-24 22:03:59
 5/1(84966)
 1:1

H	GLU	50
H	PRO	100
	BIL	Neg
H	URO	2.0
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	SPGR	1.032
	COL	Amber
	ASA	20

Cleared flags:-
 HIGH CONCENTRATION

Results

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Parasites - Schistosomiasis

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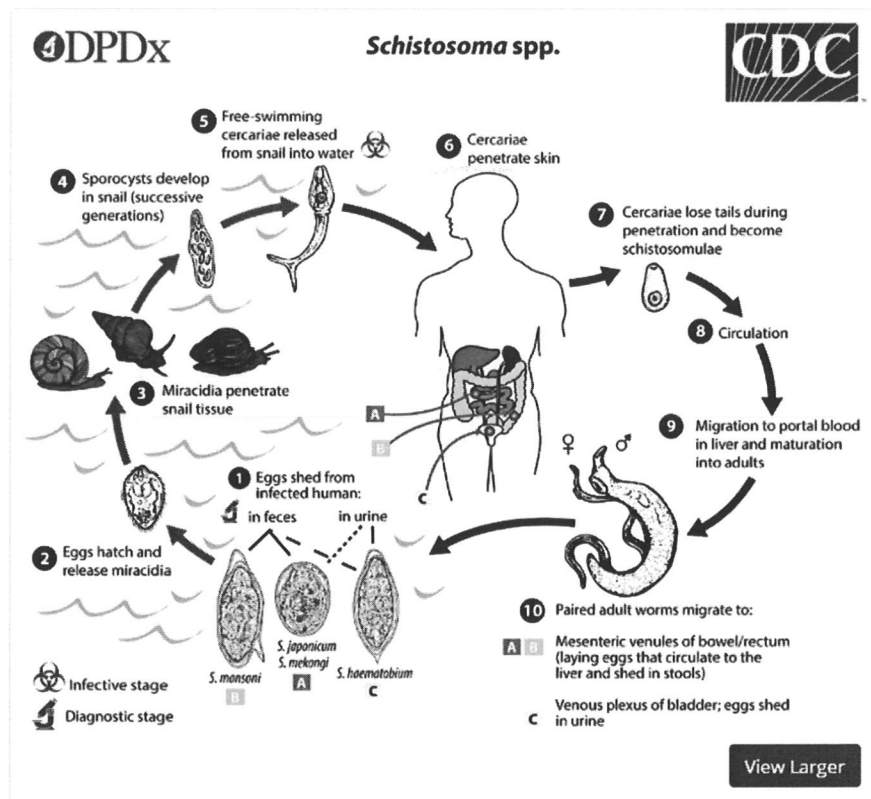
Causal Agents

Schistosomiasis (Bilharziasis) is caused by some species of blood trematodes (flukes) in the genus *Schistosoma*. The three main species infecting humans are *Schistosoma haematobium*, *S. japonicum*, and *S. mansoni*. Three other species, more localized geographically, are *S. mekongi*, *S. intercalatum*, and *S. guineensis* (previously considered synonymous with *S. intercalatum*). There have also been a few reports of hybrid schistosomes of cattle origin (*S. haematobium*, x *S. bovis*, x *S. curassoni*, x *S. matthee*) infecting humans. Unlike other trematodes, which are hermaphroditic, *Schistosoma* spp. are dioecous (individuals of separate sexes).

In addition, other species of schistosomes, which parasitize birds and mammals, can cause cercarial dermatitis in humans but this is clinically distinct from schistosomiasis.

Life Cycle

Life Cycle



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Schistosoma eggs are eliminated with feces or urine, depending on species ①. Under appropriate conditions the eggs hatch and release miracidia ②, which swim and penetrate specific snail intermediate hosts ③. The stages in the snail include two generations of sporocysts ④ and the production of cercariae ⑤. Upon release from the snail, the infective cercariae swim, penetrate the skin of the human host ⑥, and shed their forked tails, becoming schistosomulae ⑦. The schistosomulae migrate via venous circulation to lungs, then to the heart, and then develop in the liver, exiting the liver via the portal vein system when mature, ⑧ ⑨. Male and female adult worms copulate and reside in the mesenteric venules, the location of which varies by species (with some exceptions) ⑩. For instance, *S. japonicum* is more frequently found in the superior mesenteric veins draining the small intestine ⑪, and *S. mansoni* occurs more often in the inferior mesenteric veins draining the large intestine ⑫. However, both species can occupy either location and are capable of moving between sites. *S. intercalatum* and *S. guineensis* also inhabit the inferior mesenteric plexus but lower in the bowel than *S. mansoni*. *S. haematobium* most often inhabits the vesicular and pelvic venous plexus of the bladder ⑬, but it can also be found in the rectal venules. The females (size ranges from 7–28 mm, depending on species) deposit eggs in the small venules of the portal and perivesical systems. The eggs are moved progressively toward the lumen of the intestine (*S. mansoni*, *S. japonicum*, *S. mekongi*, *S. intercalatum/guineensis*) and of the bladder and ureters (*S. haematobium*), and are eliminated with feces or urine, respectively ⑭.

Hosts

Various animals such as cattle, dogs, cats, rodents, pigs, horses, and goats, serve as reservoirs for *S. japonicum*, and dogs for *S. mekongi*. *S. mansoni* is also frequently recovered from wild primates in endemic areas but is considered primarily a human parasite and not a zoonosis.

Intermediate hosts are snails of the genera *Biomphalaria*, (*S. mansoni*), *Oncomelania* (*S. japonicum*), *Bulinus* (*S. haematobium*, *S. intercalatum*, *S. guineensis*). The only known intermediate host for *S. mekongi* is *Neotricula aperta*.

Geographic Distribution

Schistosoma mansoni is found primarily across sub-Saharan Africa and some South American countries (Brazil, Venezuela, Suriname) and the Caribbean, with sporadic reports in the Arabian Peninsula.

S. haematobium is found in Africa and pockets of the Middle East.

S. japonicum is found in China, the Philippines, and Sulawesi. Despite its name, it has long been eliminated from Japan.

The other, less common human-infecting species have relatively restricted geographic ranges. *S. mekongi* occurs focally in parts of Cambodia and Laos. *S. intercalatum* has only been found in the Democratic Republic of the Congo; *S. guineensis* is found in West Africa. Instances of infections with hybrid/introgressed *Schistosoma* (*S. haematobium* x *S. bovis*, x *S. curassoni*, x *S. mattheei*) have occurred in Corsica, France, and some West African countries.

Clinical Presentation

Symptoms of schistosomiasis are not caused by the worms themselves but by the body's reaction to the eggs. Many infections are asymptomatic. A local cutaneous hypersensitivity reaction following skin penetration by cercariae may occur and appears as small, itchy maculopapular lesions. Acute schistosomiasis (Katayama fever) is a systemic hypersensitivity reaction that may occur weeks after the initial infection, especially by *S. mansoni* and *S. japonicum*. Manifestations include systemic symptoms/signs including fever, cough, abdominal pain, diarrhea, hepatosplenomegaly, and eosinophilia.

Occasionally, *Schistosoma* infections may lead to central nervous system lesions. Cerebral granulomatous disease may be caused by ectopic *S. japonicum* eggs in the brain, and granulomatous lesions around ectopic eggs in the spinal cord may occur in *S. mansoni* and *S. haematobium* infections. Continuing infection may cause granulomatous reactions and fibrosis in the affected organs (e.g., liver and spleen) with associated signs/symptoms.

Pathology associated with *S. mansoni* and *S. japonicum* schistosomiasis includes various hepatic complications from inflammation and granulomatous reactions, and occasional embolic egg granulomas in brain or spinal cord. Pathology of *S. haematobium* schistosomiasis includes hematuria, scarring, calcification, squamous cell carcinoma, and occasional embolic egg granulomas in brain or spinal cord.