Routine Stool Analysis

Test principle

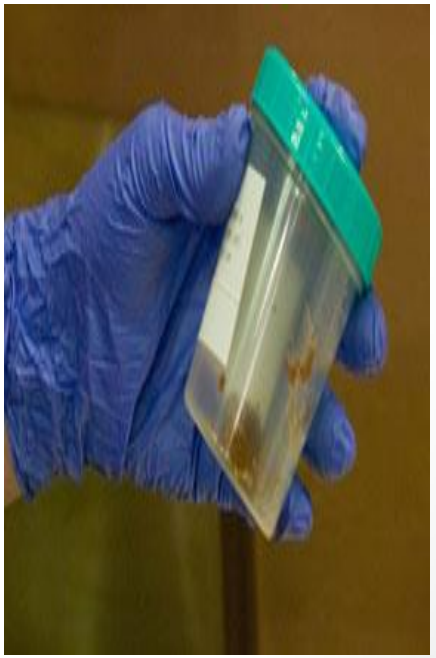
- Naked eye examination of stool sample.
- Microscopic examination of stool sample.

Clinical Significance

- Detection of parasitic infection.

Before analysis

- Stool sample is better provided in the lab.
- Stool samples must be examined within 1 hour .
- Parasites as Giardia lamblia trophozoites ,Entamoeba histolytica trophozoites rapidly disintegrate at room temperature.
- Stool sample contaminated with urine is refused.



Steps of analysis

1- Macroscopical / physical Examination

Inspect by the naked eye

2- Microscobical Examination

1- Color of the sample

- Brown : Normal (stercobilin)
- Light brown : undigested fat
- Greenish : much green vegetables
- Reddish :bleeding or due to some drugs
- Black : occult blood or due to some drugs

2-Assess the pH of diarrhoeic stool specimen using litmus paper.

- Normally it is alkaline.
- It turns acidic e.g. in Entamoeba histolytica infection

3-Inspect for the presence of:

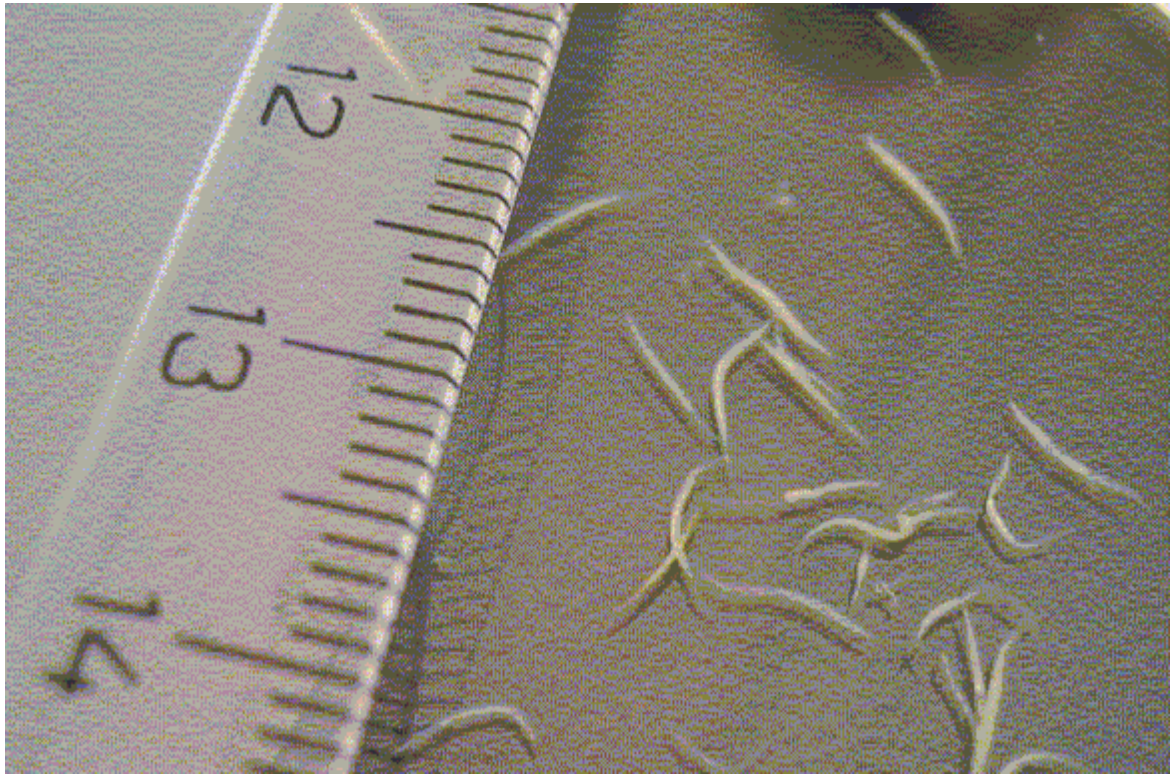
- Mucus especially when mucus is tinged with blood
- Blood(may be due to piles or anal fissure)
- Undigested food (Nil, +, ++, +++)
- Worms(Enterobius, Ascaris, Taenia segments)

4-Consistency :

- Formed (Hard)
- Semi –formed
- Loose (mucus)
- Watery (Diarrhea)

Worms Recovered in stool

- Enterobius vermicularis cylindrical worm about 10 mm long



Worms recovered in stool con.

- Ascaris lumbricoides Cylindrical worm about 20 cm long.

Worms recovered in stool con.

- Taenia worm Ribbon-like several meters long

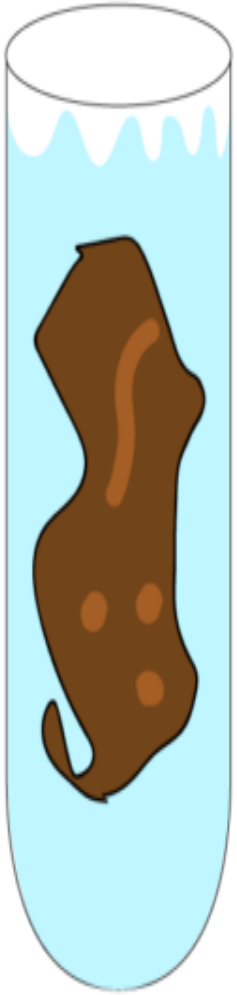
Wet preparation

Materials:

- Cover slips
- 0.85% Sodium chloride solution (NaCl)
- Lugol's Iodine Solution
- Wooden applicator
- Fresh stool
- Gloves

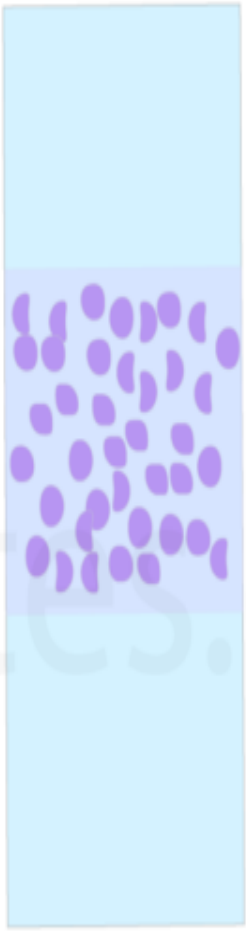
Ova Parasite Stool Test

1. Collect stool stample.



2. Centrifuge separates parasites and ova.

3. Sample is added to slide with contrast dye



4. Technician then looks at sample under a microscope. The technician is looking for for parasite eggs (ova) and full sized parasites.

Microscopic Examination

Digestion:

- Vegetable cells
- Starch
- Muscle fibres
- Fat

Cytology:

- Pus cells / H.P.F.
- RBCs / H.P.F.
- Epithelial cells.
- Yeast cells

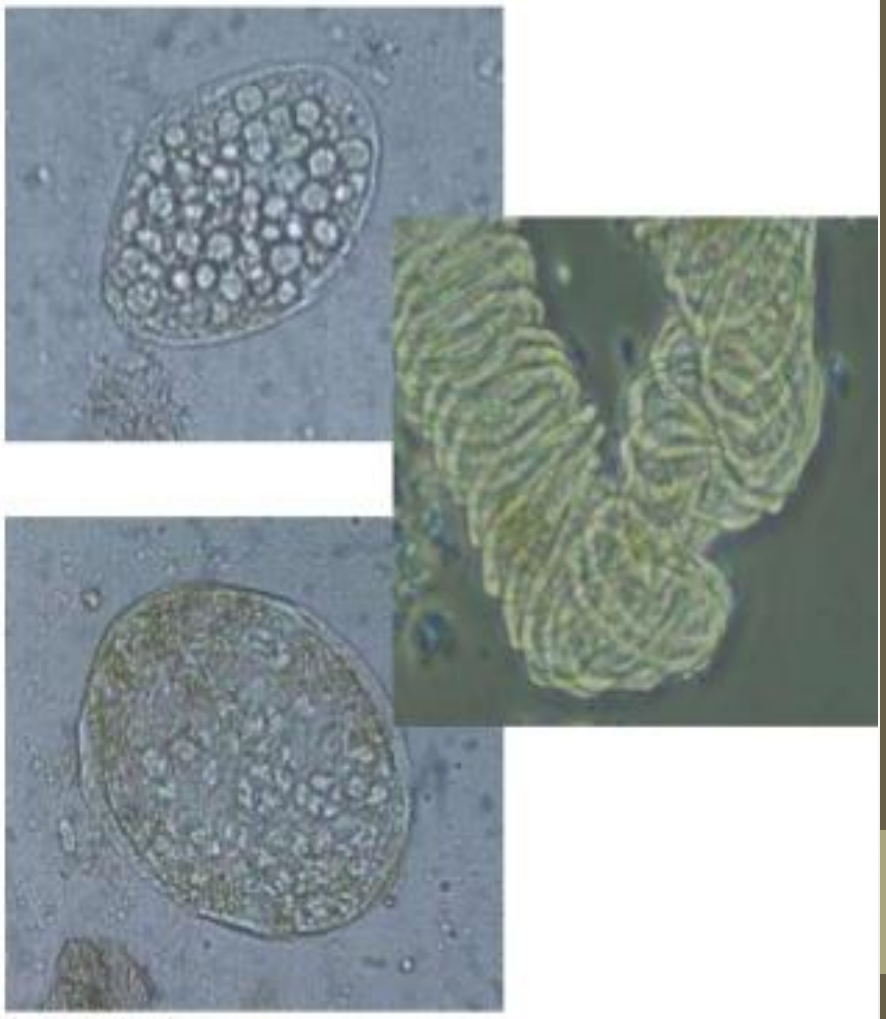
Parasites:

- Helminths (eggs, larvae)
- Protozoa (trophozoite, cyst)

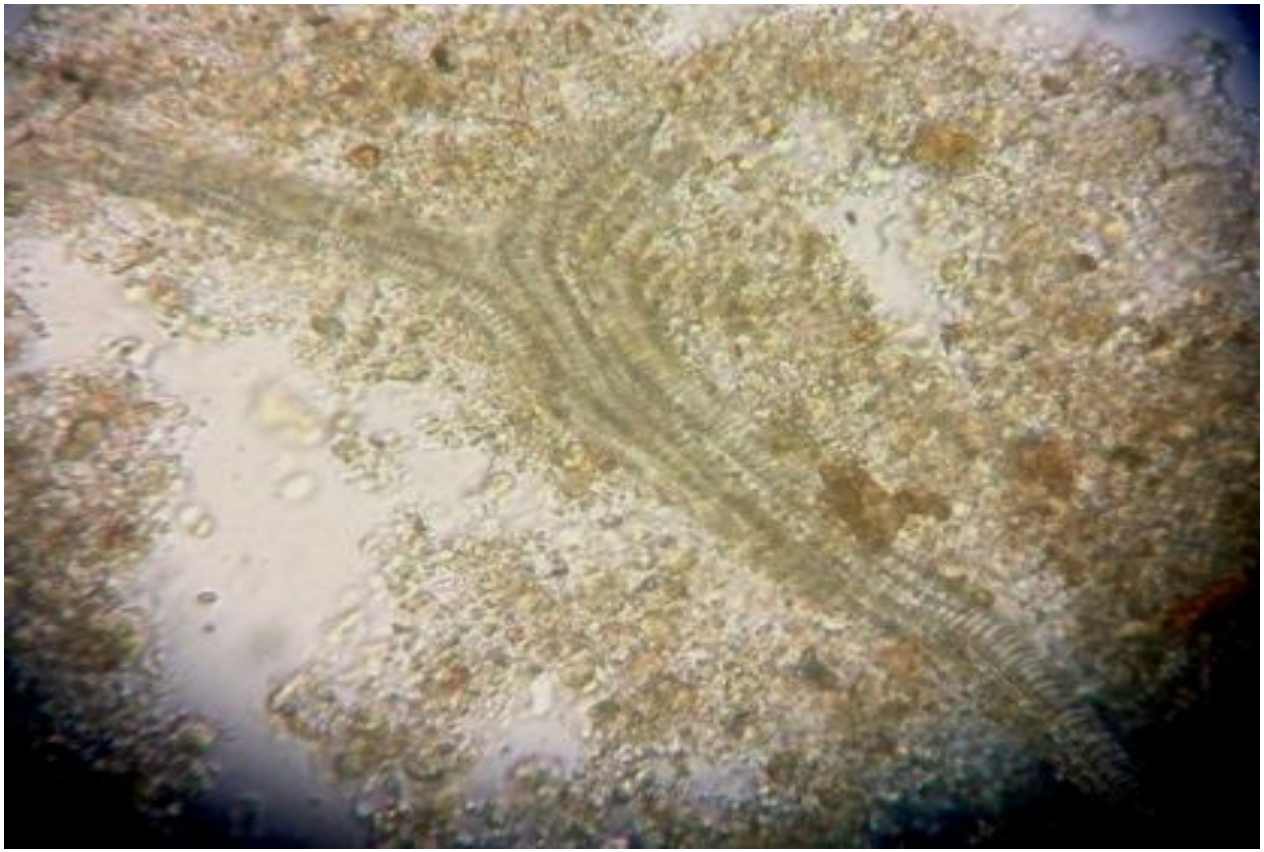
Vegetable cell

- Sometimes causes confusion with ova, eggs, cyst or cell bodies
- IRREGULAR OUTER MARGIN

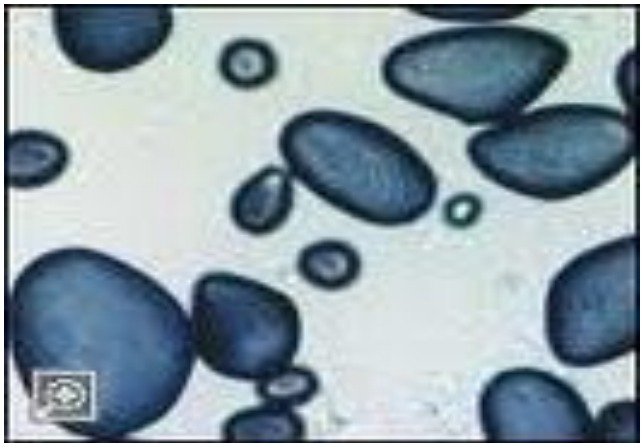
Excess quantity is seen in excess intake of vegetables or indigestion



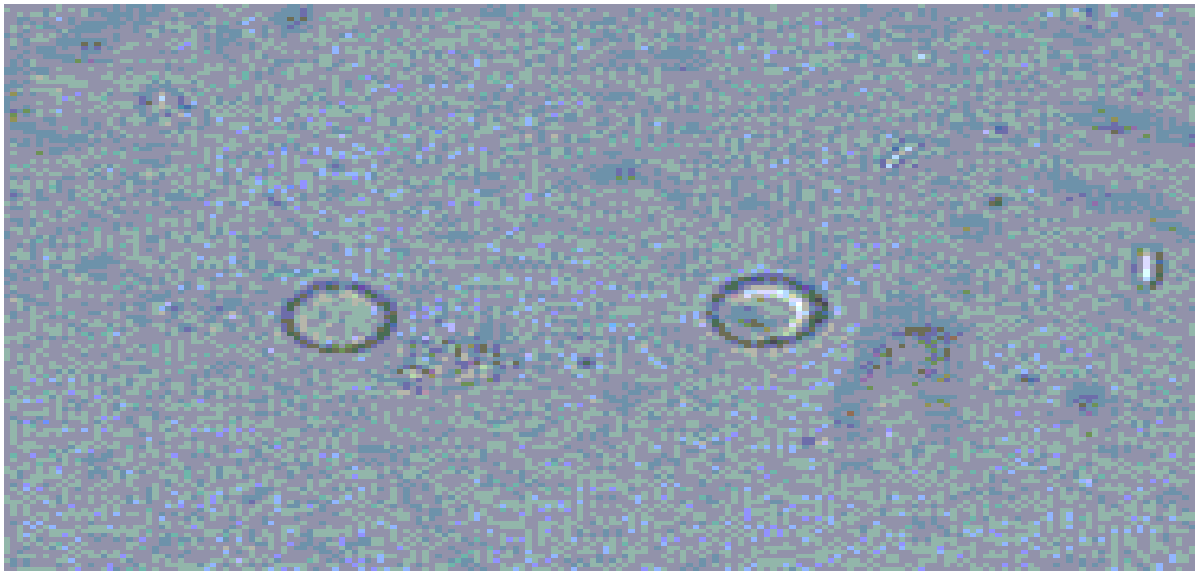
Muscle Fibers



Starch



Fat droblets



Epithelial cells

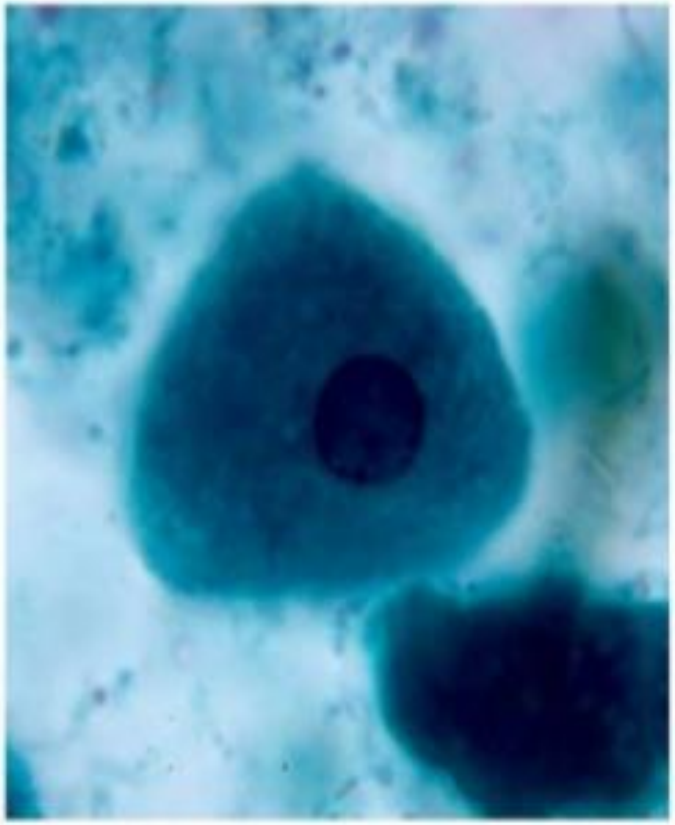


Figure C: Epithelial cell in a trichrome-stained stool smear.

- Excess presence due to inflammatory conditions of colon, rectum, anal canal

Pus cells

- Commonly found in normal stool, help to ease the passage of stool
- Normally not visible to human eye.
- If visible indicates disease
- Bacillary dysentery, UC, acute Amoebic dysentery, malignancy of rectum, drug induced enterocilitis

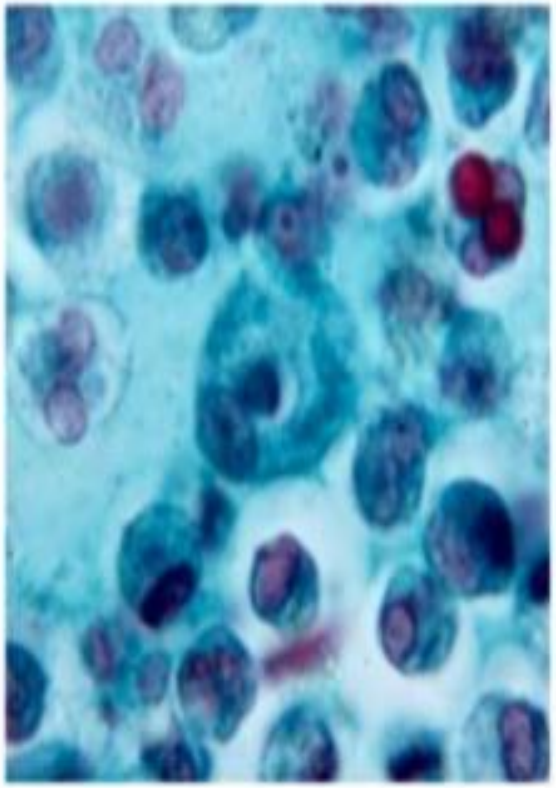


Figure A: White blood cells in a trichrome-stained stool smear.

After Analysis

- If pus cells (more than 10 / H.P.F. or with clumps) and no parasite is seen during examination:
- -**Recommend for stool culture.**

Parasite eggs in stool

- Big sized egg

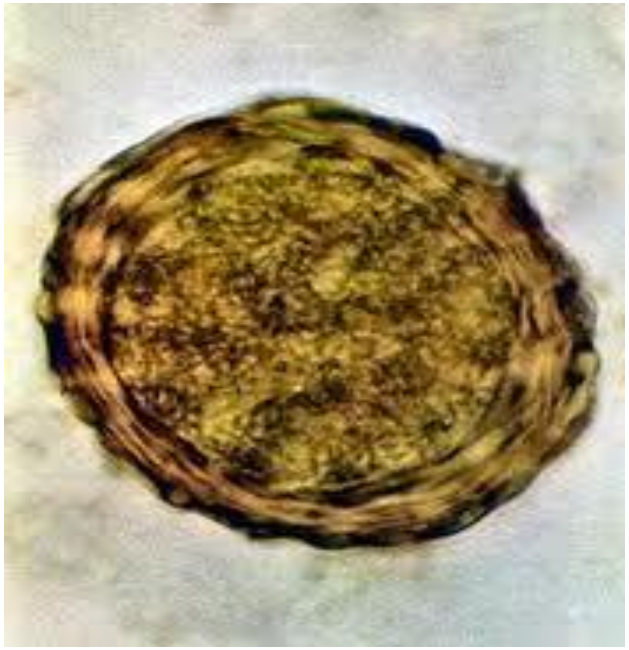
I. Schistosoma mansoni

Parasite eggs in stool

- 2)Fasciola

Medium sized egg

- 1) Ascaris

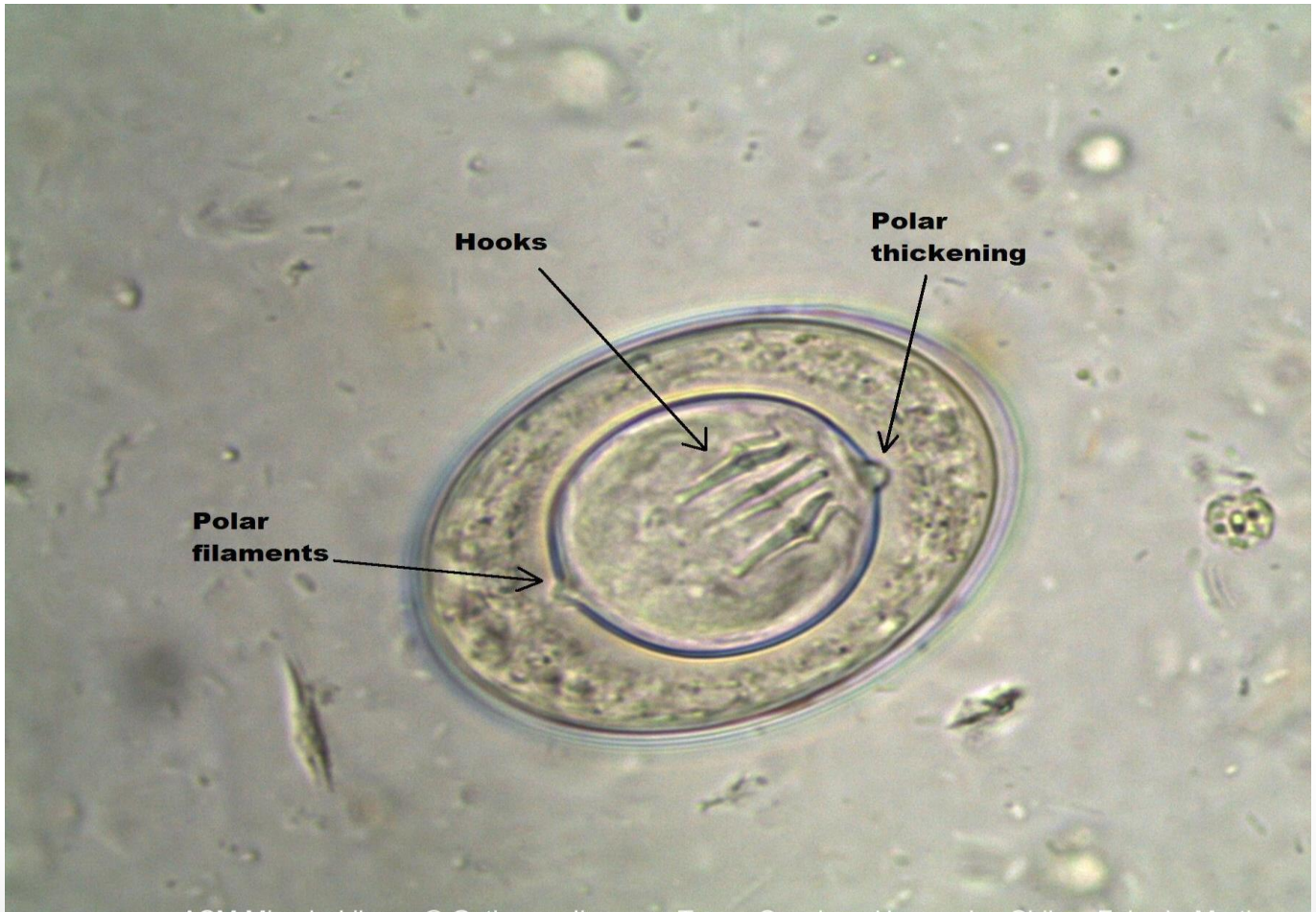


Medium sized egg

- 2)Anclystoma

Medium sized eggs

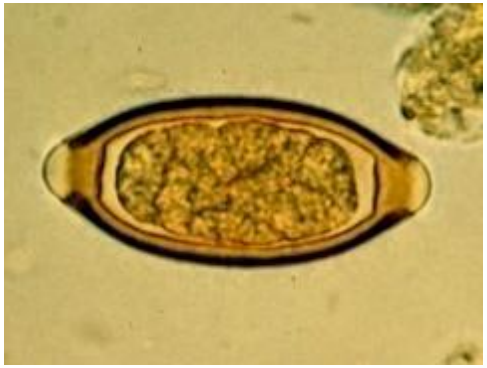
- 3)H.nana



Small sized eggs

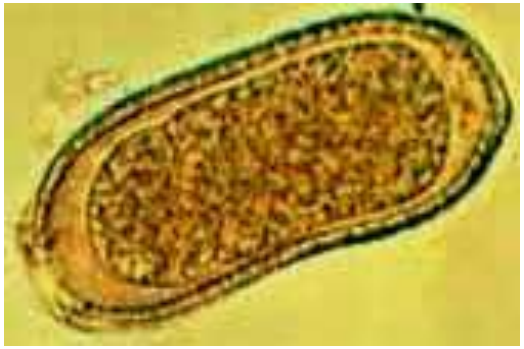
1)Taenia egg

2)Trichuris

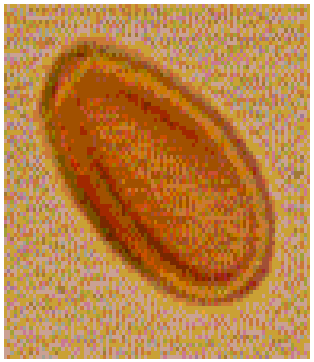


Small sized eggs

- 3)capillaria



- 4)Heterophyes egg



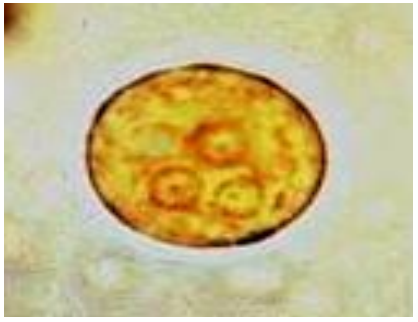
Small sized eggs

- 5)Enterobius

Protozoa in stool

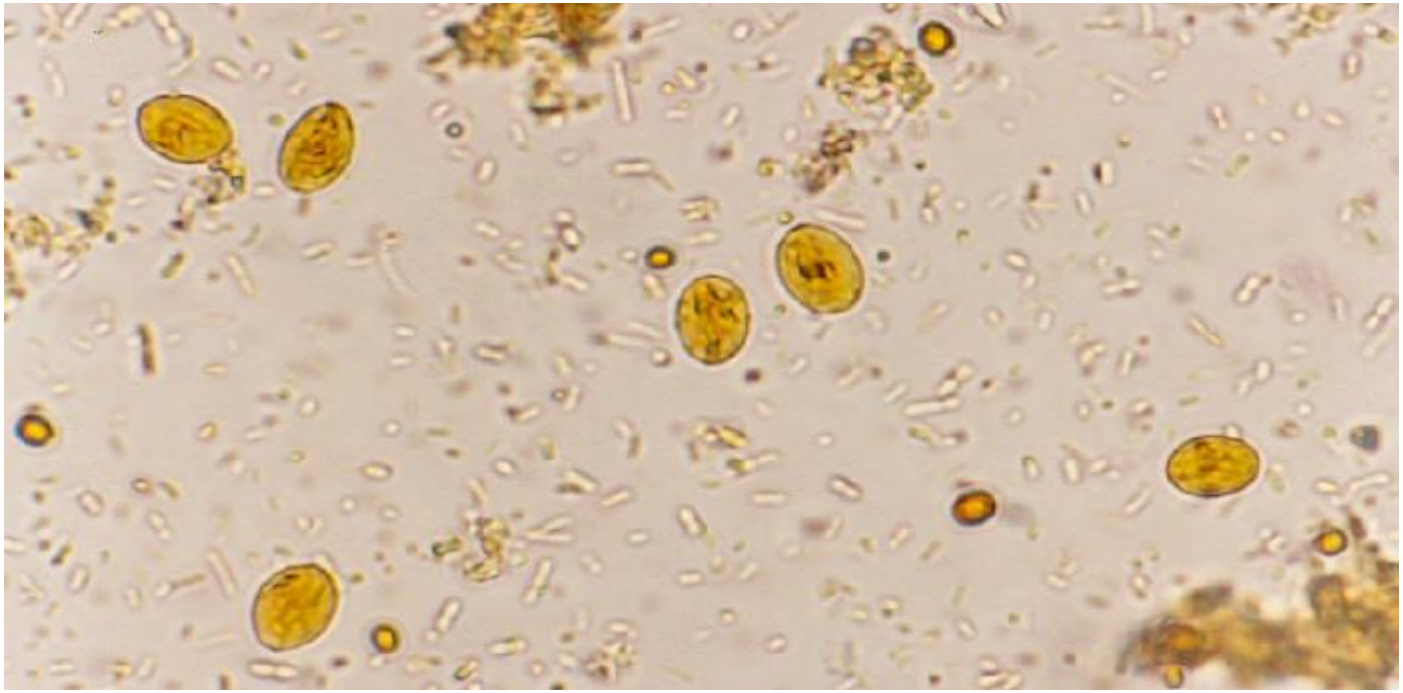
- 1)E.coli cyst

- 2)E.histolytica cyst



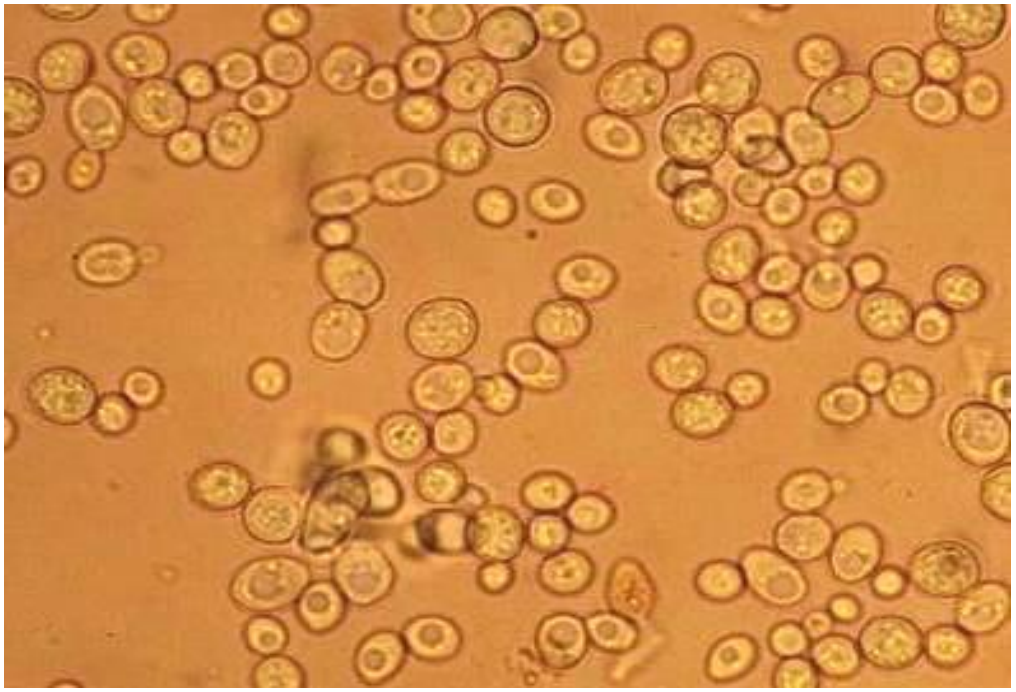
Protozoa in stool

- 3)Giardia lambilla cyst



Protozoa in stool

- 4) yeast cells

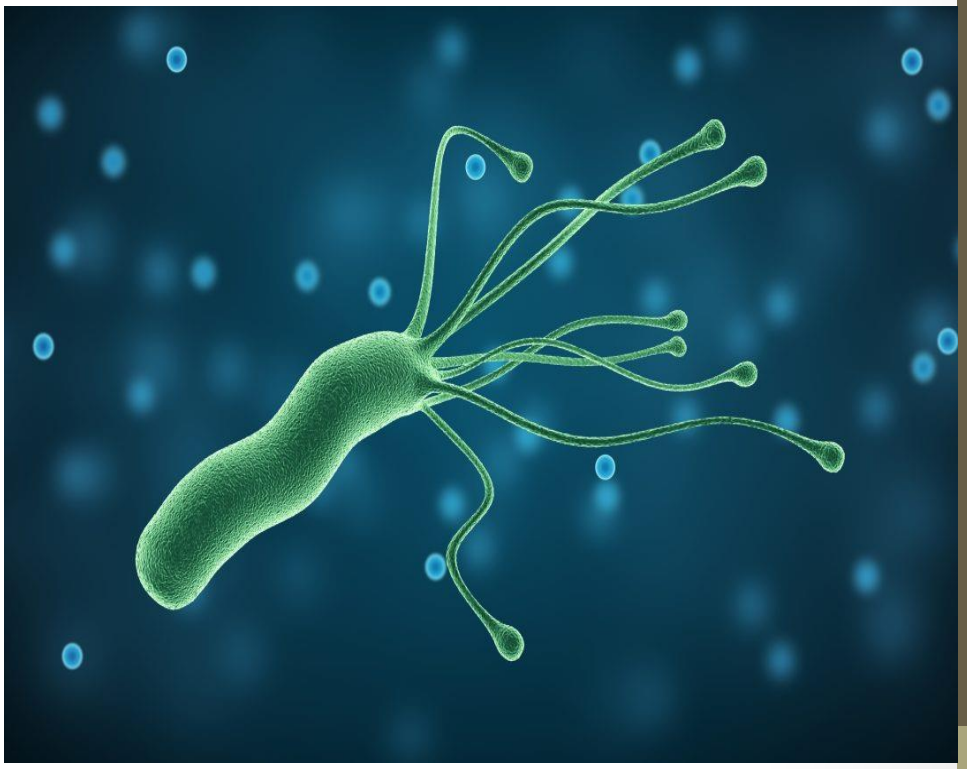


Laboratory stool report

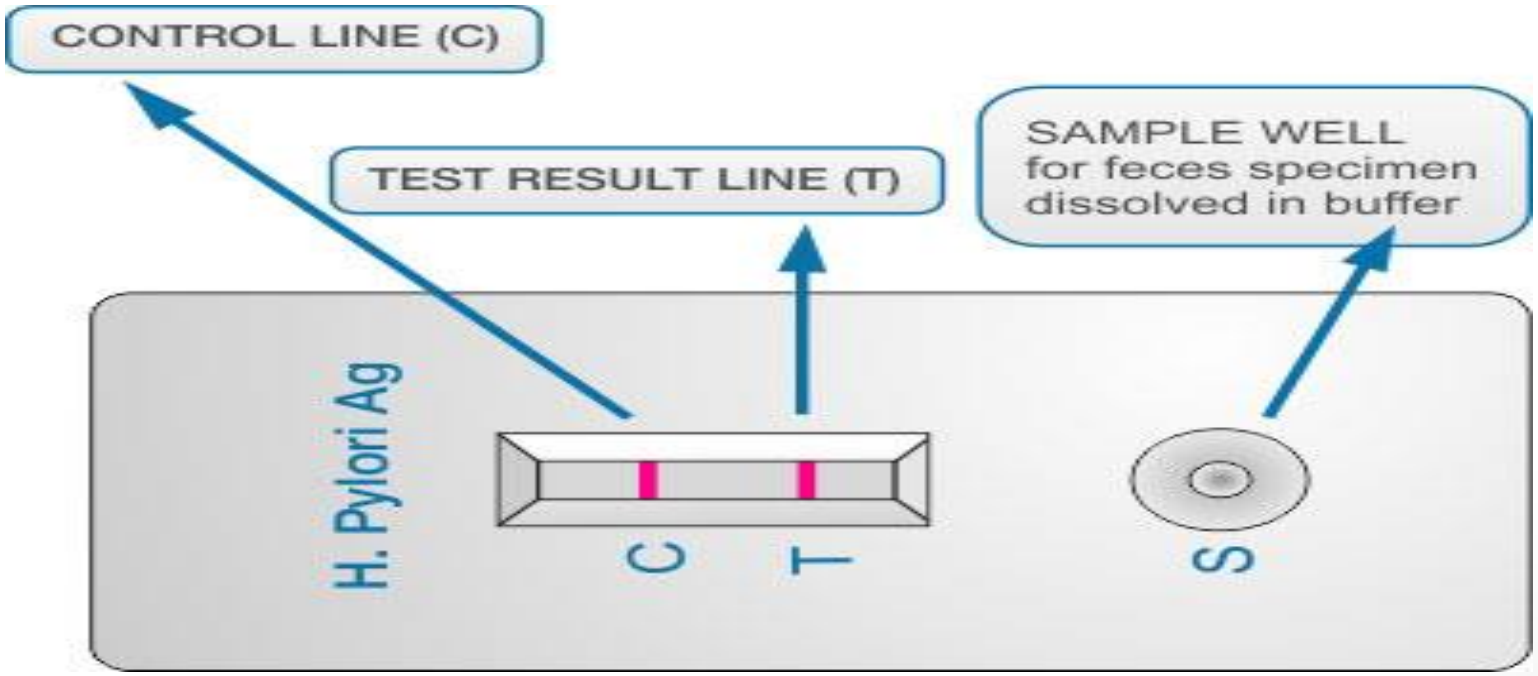
Stool Examination

Test	Result	Normal
Physical examination		
Color	Brown	Brown
Odour	Offensive	Offensive
Reaction	Variable	Variable
Consistency	Formed	Formed
Mucus	Absent	Absent
Appearance Pus	Absent	Absent
Blood Gross	Absent	Absent
Parasite (naked eye)	Absent	Absent
Microscopic examination		
Pus cells	20-25	0 - 5 / HPF
RBCs	5-6	0 - 3 / HPF
Epithelial cells	Absent	Absent
State of digestion		
Starch granules	+	+
Fat globules	++	+
Vegetable cells	+++	+
Muscle fibers	+	+
Parasites		
Protozoa : Vegetative	Absent	Absent
: Cysts	Absent	Absent
Helminthes : Larvae	Absent	Absent
: Ova	H. nana	Absent

H. Pylori



H. Pylori Ag


CONTROL LINE (C)
TEST RESULT LINE (T)
SAMPLE WELL
for feces specimen
dissolved in buffer
H. Pylori Ag
C
T
S