

MISCELLANEOUS ORGANISMS IDENTIFIED ON RARE OCCASIONS IN CERVICAL CYTOLOGY SAMPLES

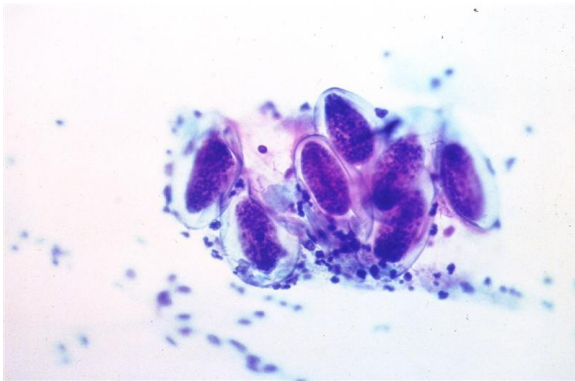
Notes updated: 04.07.14

The following list provides information about organisms or infections that are identified rarely in cervical cytology samples. None of these entities has a specific report code in The Bethesda System. All photographs are from conventional smears, not LBC samples.

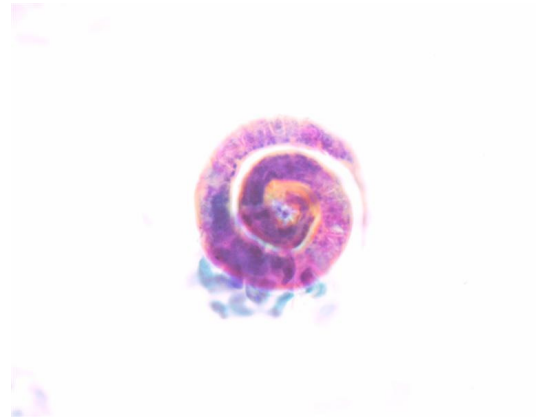
ENTEROBIUS VERMICULARIS

- The pinworm, *Enterobius vermicularis*, is a tiny roundworm whose habitat is the gut. Female worms migrate nightly to the anus to lay eggs, which causes intense pruritus. It is generally passed on from a child to a parent. Highly contagious.
- On rare occasions female worms migrate from the anus into the vagina to reach the fallopian tubes and pelvic peritoneum resulting in a granulomatous reaction and scarring. Identification is important for patient management.

Enterobius vermicularis ova



Enterobius vermicularis larva



Cytology: the ova are oval, 20 - 60µm in diameter with a double walled shell, which is flattened on one side. It usually stains bright lavender or orange with a Pap stain, with a birefringent translucent thick membrane that is folded at one edge. Larvae may be observed within the shells.

MOLLUSCUM CONTAGIOSUM

- A pox virus that causes skin and squamous mucosal infections that can be sexually transmitted. Causes smooth umbilicated 3-6mm papules. Contain large numbers of homogeneous eosinophilic intracytoplasmic viral inclusions.
- Rarely, the dense red or polychromatic molluscum bodies may be seen in Pap smears, either intracellularly or extracellularly.

CERVICAL TUBERCULOSIS

- Genital tract tuberculosis is rare in Australasia but common elsewhere, such as parts of Asia so may be seen here in recent migrants

- Symptoms include menstrual disorder, bloodstained PV discharge, pelvic pain, and infertility.
- Is almost always secondary to an extra-genital tract focus, although this may be healed or dormant at the time of diagnosis.
- **Cytology:** granulomatous inflammation with epithelioid histiocytes and Langhan's giant cells. Can be confirmed by histology and culture.

AMOEBA

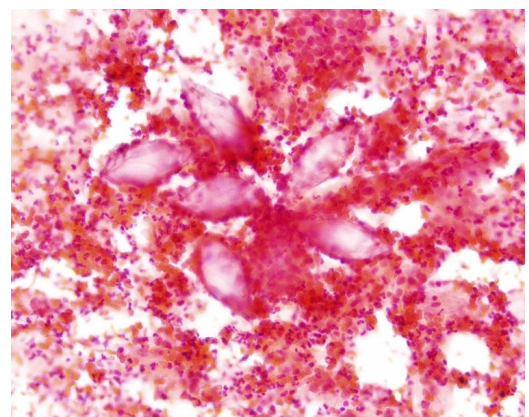
- Protozoa causing amoebiasis, found mainly in tropical/subtropical countries.
- Two types have been seen in Pap smears: **Entamoeba histolytica** and **E. gingivalis**, of similar morphology
- *E. histolytica* lives in the intestine and *E. gingivalis* in the oral cavity/oropharynx.
- Extraintestinal manifestations are rare but *E. histolytica* has been identified in a cervical smear in New Zealand
- Other types of amoebae have been seen in Pap smears as contaminants (e.g. from water)
- **Cytology:** large round to oval trophozoites have a single eccentric nucleus with a distinctive small central karyosome, hazy cytoplasmic borders and finely vacuolated to foamy cytoplasm. *E. histolytica* may contain ingested red blood cells or neutrophils. May be seen in association with actinomyces infection.

SCHISTOSOMA HAEMATOBIIUM

- Schistosomiasis is endemic in Africa and Asia.
- *S. haematobium* causes fibrosis and calcification, polyposis and ulceration of the mucosa, and urothelial hyperplasia, squamous metaplasia, dysplasia and ultimately squamous cell carcinoma of the bladder, particularly in Egypt, where 80% of bladder cancers may have schistosoma eggs in the bladder.
- **Cytology:** Schistosomal eggs are up to 150µm in length, with a yellow translucent envelope containing a miracidial embryo. *S. haematobium* has a terminal spine, whilst *S. mansoni* has a lateral spine.



S. haematobium with a terminal spine



Schistosoma egg shells

STRONGYLOIDES STERCORALIS

- *Strongyloides stercoralis* is a nematode with both parasitic and free-living forms.
- Strongyloides is most common in tropical and sub-tropical climates.
- It usually affects the small intestine or lungs and can be life-threatening in immunocompromised individuals.
- **Cytology:** The rhabditiform larvae are very rare in cervical smears. The larva is 180-380µm in length.



Strongyloides stercoralis

CYTOMEGALOVIRUS (CMV)

- CMV infection of the cervix is very uncommon but cases detected by either cytology or histology are described.
- Some patients are immunocompromised/immunosuppressed and associations with HIV are described. Many are immunocompetent.
- Transmission can be by sexual contact. Other routes include infection via transplantation.
- **Cytology:** intracytoplasmic inclusions are seen in intermediate squamous cells or endocervical glandular cells. See nuclear enlargement and large intranuclear viral inclusions with a prominent halo. Small perinuclear cytoplasmic inclusions can also be seen (*c.f.* herpes)
- Endocervical cells are most often affected and can be difficult to distinguish from a mononuclear presentation of herpes simplex which has large intranuclear inclusion bodies.
- can stain for CMV using immunohistochemistry.
- CMV can co-exist with malignancy because of immunosuppression

NOTE: RE CHLAMYDIA

- Chlamydia are bacteria which cause relatively common female genital tract infections and significant pelvic inflammatory disease. Significant infection can be asymptomatic.
- Identification of chlamydia-related epithelial cell changes such as intracytoplasmic inclusion bodies, cytomegaly and multinucleation have been described, but these are not specific enough to be diagnostic.
- We do not attempt to diagnose Chlamydia by cervical cytology.

References

1. College of American Pathologists "Practical Guide to Gynecologic Cytopathology". David Wilbur and Michael Henry. Published CAP Press 2008

Acknowledgement

Photos of rare organisms obtained from the Normal and Benign Cervical Cytopathology Australian Society of Cytology Continuing Education CD, compiled by Debbie Reich, Gabriele Medley and Grant King.

Dr Margaret Sage
Cytopathologist, NCPTS