

Practical-3

Demonstration

- ✓ Normal epithelial constituents
 - ✓ Non-epithelial cells
 - ✓ Slides Screening

***IN GYN - SMEAR MICROSCOPICAL EXAMINATION YOU WILL NOTES THE PRESENCE OF: (* whole page)**

1. Epithelial cells- derived from the upper layers of the lining epithelium of the cervix, which could be one of the following:

- 1. Superficial squamous cell**
- 2. Intermediate squamous cell**
- 3. Parabasal squamous cell**

Glandular cells:

- 4. Endocervical cell**
- 5. Endometrial cell**

B. Non-Epithelial cells- those cells derived from non epithelial in origin.

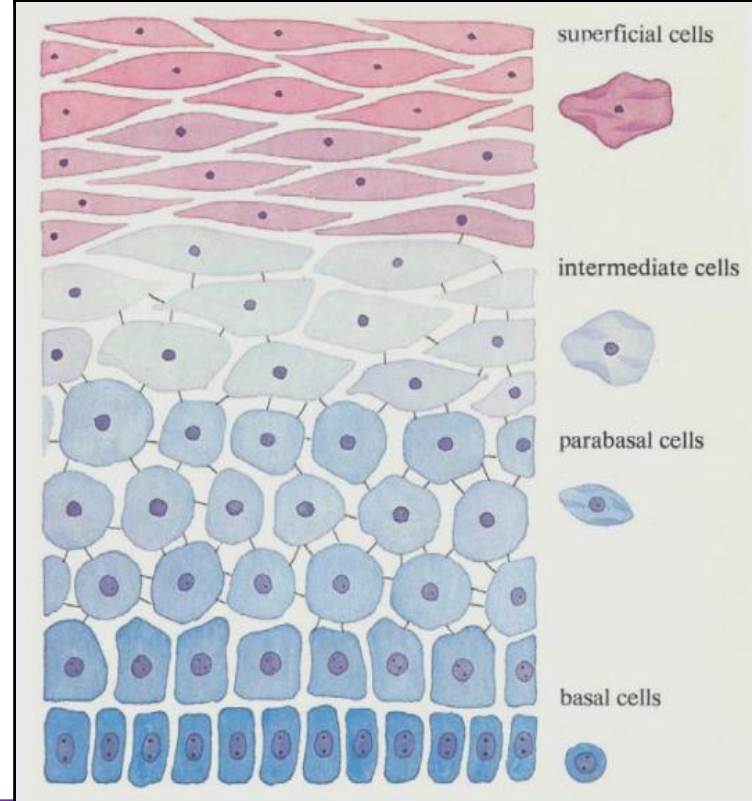
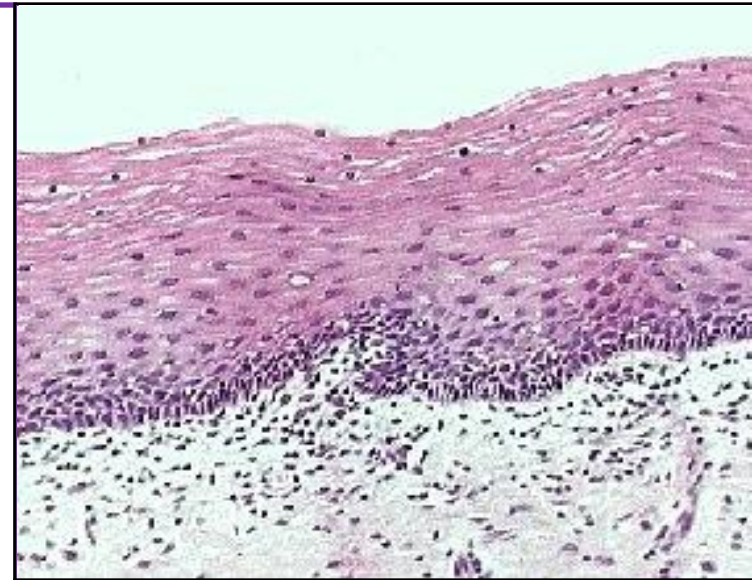
- 1. Polymorphonuclear leucocytes-** normally found in pre-menstrual and menstrual period.
- 2. Histiocytes and multinucleated macrophage**
- 3. Sperms, RBC`s, Lactobacilli**

C. Non-cellular material such as: powder, crystal, cotton fibres.

*Stratified Squamous Epithelium

During sexual maturity three layers (zones) may be observed:

- Basal layer - which is the constant epithelial regeneration.
 - Basal cells (layer)
- Mid zone - which constitute the bulk of the epithelial thickness.
 - Parabasal cells (layer)
 - Intermediate cells (layer)
- Superficial - these cells are not capable of further growth.
 - Superficial cell (layer)

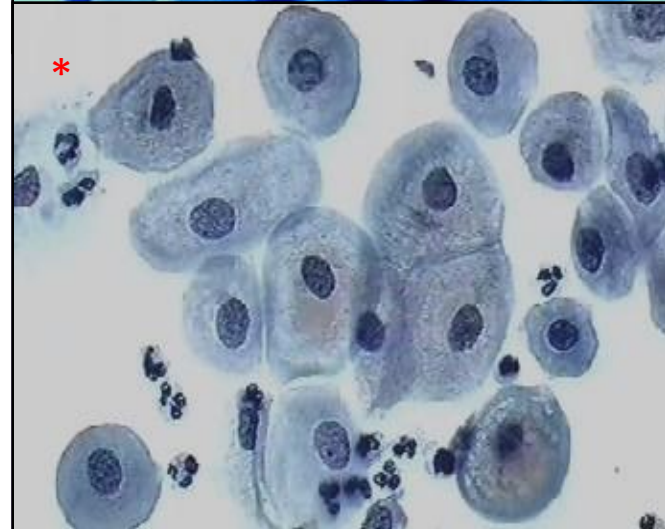
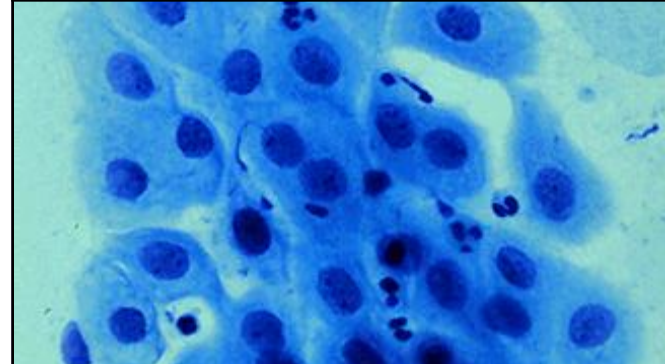
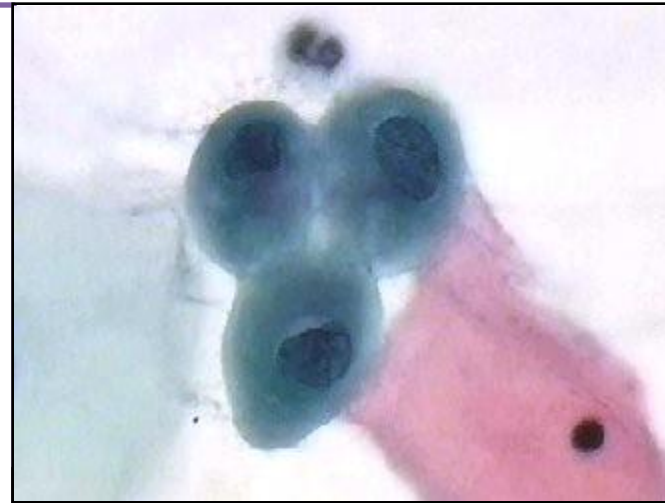


***Normal Gynecological Smear:**

- Evenly distributed superficial and intermediate cells, rarely parabasal cells.
- Clean background
- Cells touch sometimes overlapping
- Translucent cytoplasm
- Smooth nuclear membrane with evenly dispersed chromatin pattern.

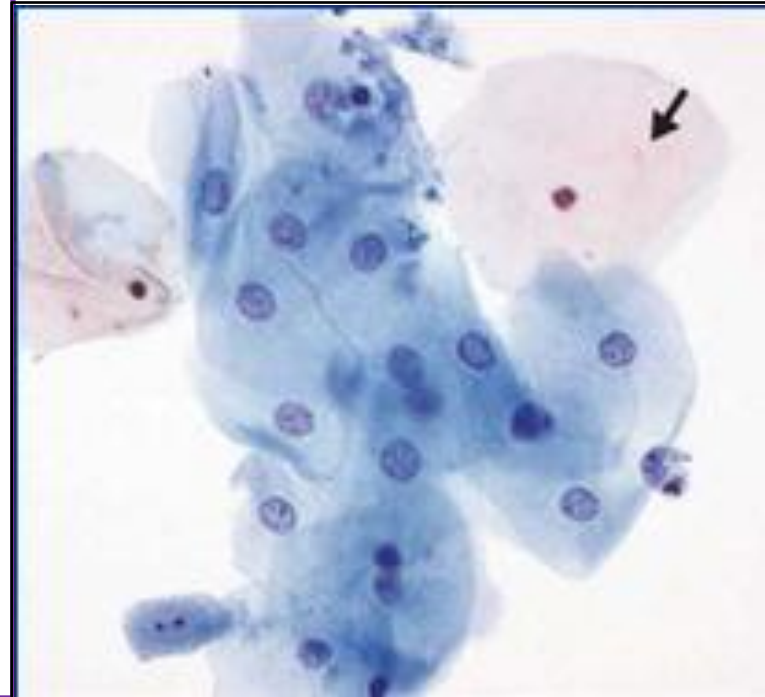
*Parabasal squamous

- Shed singly in small groups or hyperchromatic cells.
- Vary in size from small round cell to very large polygonal cells.
- Nuclei round to oval, centrally placed, have a delicate membrane. With small chromocentres, and powdery chromatin (finely granular chromatin).
- Cytoplasm stains cyanophilic with common dyes. Smooth cytoplasmic borders.



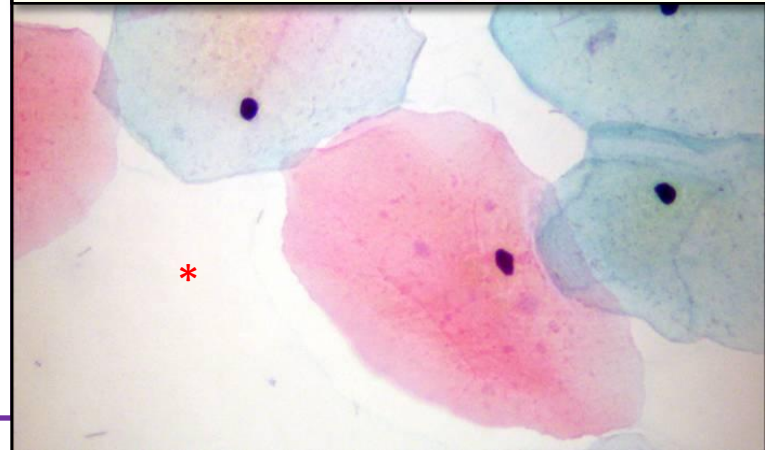
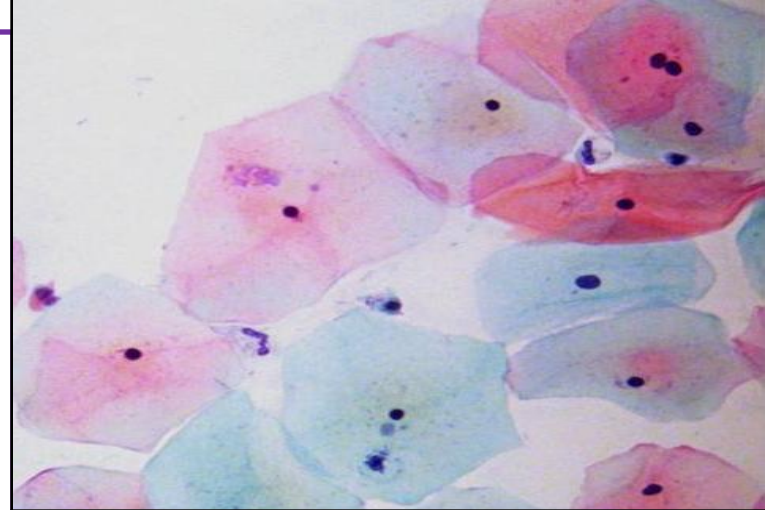
*Intermediate cells

- Single cells or sheets of cells
- Cell in polygonal shape
- Delicate basophilic cytoplasm with clean background
- Nucleus is large vesicular in shape
- Reticulated chromatin granules



*Superficial cells

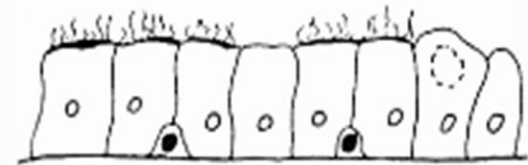
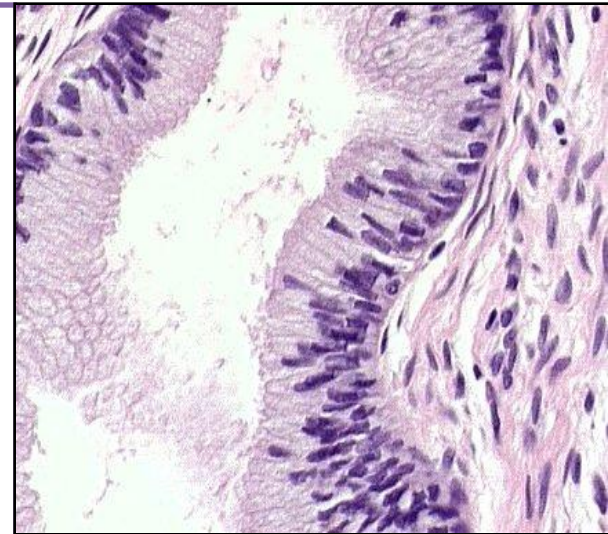
- Derived from the upper layer of the epithelium and referred as “karyopyknotic”.
- Cells are Large and polygonal in shape with flat delicate translucent cytoplasm and small dense or dot nucleus.
- Cytoplasm stains acidophilic, but some basophilic cells can be seen.
- Nuclear pyknosis in mature cells constitutes excellent morphologic evidence of peak **estrogenic activity**.



*Endocervicals:

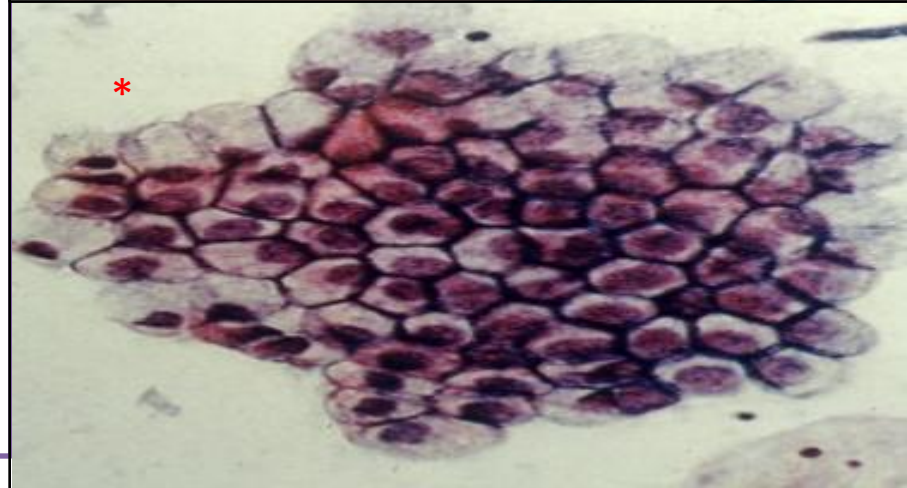
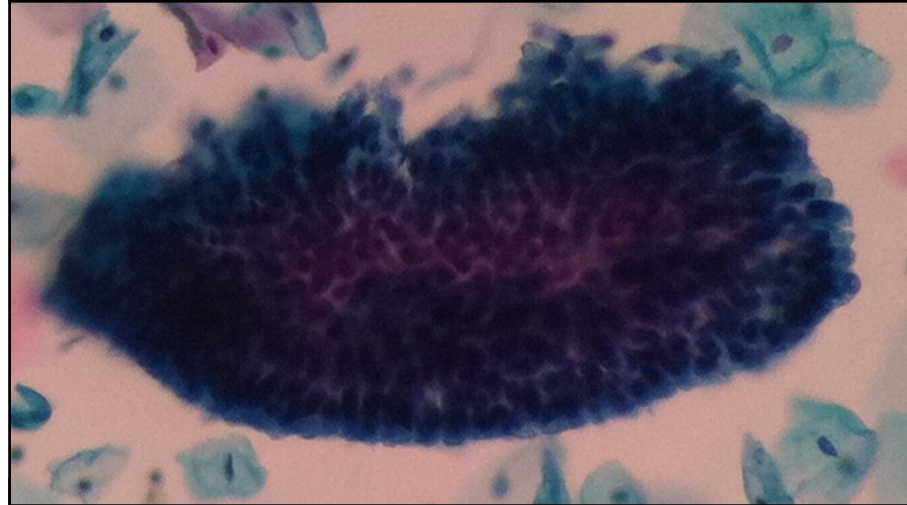
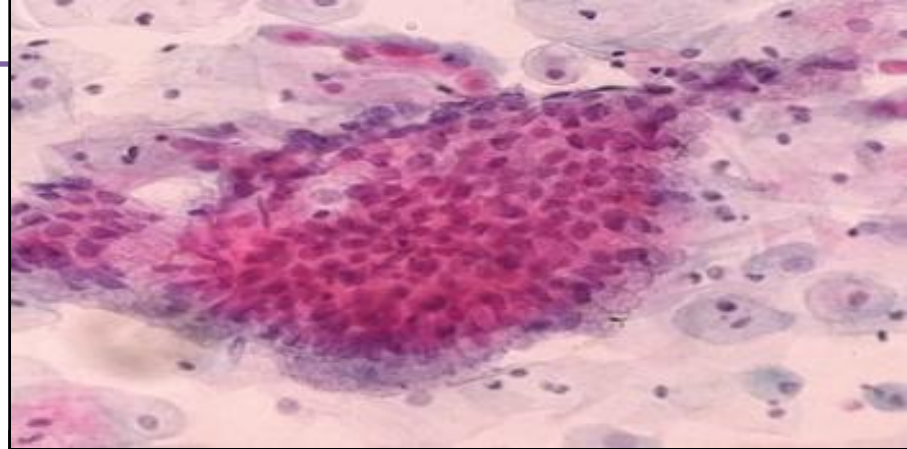
The epithelial lining of the endocervical canal and of the endocervical glands is formed by a single layer of mucus producing epithelium composed of:

- Columnar or tall clear cells with oval nuclei, usually basal in location.
- Well preserved vacuolated cytoplasm
- Smooth chromatin
- Single endocervical cells more event but Honey comb arrangement or papillary arrangement may be seen.



***A)Endocervical cells**
(Honey comb
arrangement)

- Cells appear in tight cluster, may observe a fitting network of cells resembling a honey comb arrangement.
- The cytoplasm usually very finely vacuolated but occasionally filled with clear mucus.



*B) Endocervical cells (papillary arrangement)

- Cylindrical in shape, with flattened upper pole bearing cilia.
- Rounded large nucleus.
- Endocervical cells showing cilia supported by **Terminal plate** which may be observe.

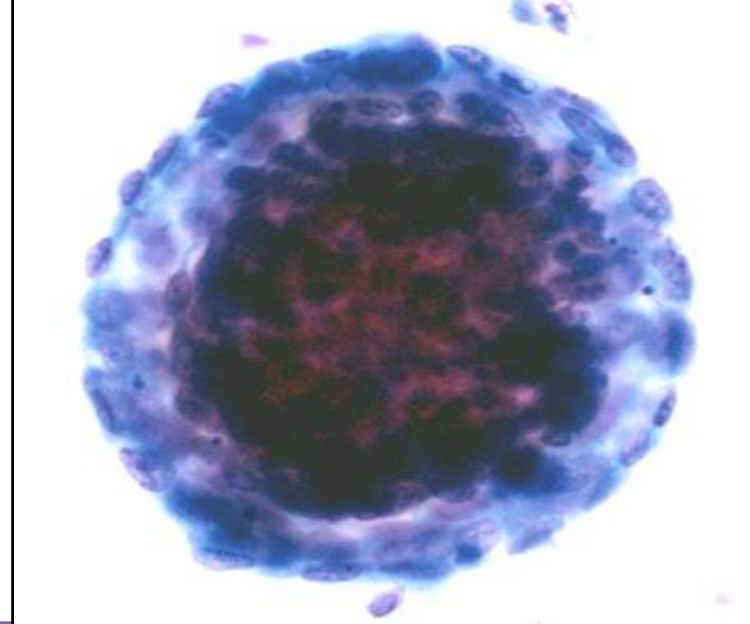
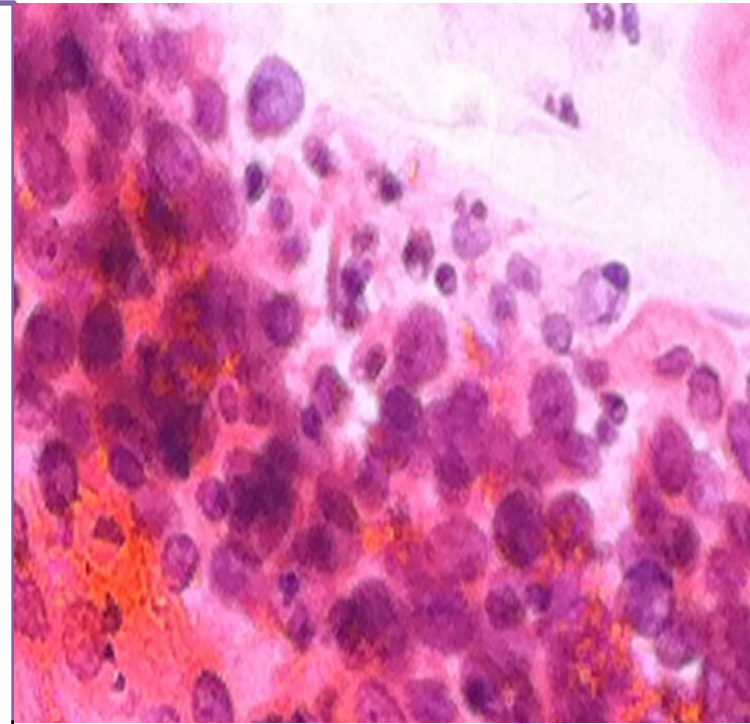


***Endometrial cells & blood**

Secretory cells when removed from the normal environment tend to assume the shape of the small, soap bubbles and often appear round cells.

***Endometrial cells (benign)**

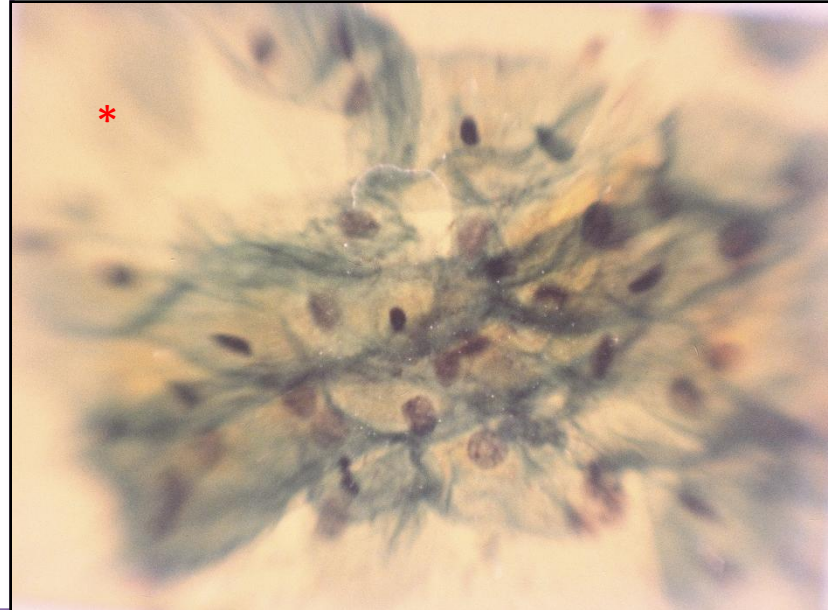
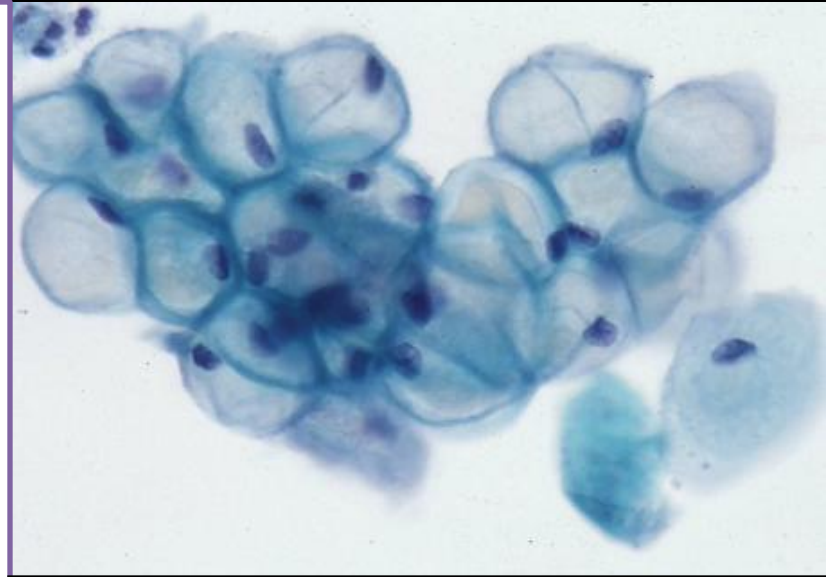
- Three-dimensional balls
- Dense hyper chromatic centers
- High N/C ratios
- Vacuolation, Bubblegum appearance
- Chromatin evenly distributed
- Clean background
- Small groups of stromal cells
- Cells can appear disorderly with variation in nuclear shape and size;
 - Nucleus is round or oval,
 - Chromatin is reticulated,
 - Cytoplasm is more often shed in groups.



Other Normal Variation

*Pregnancy

- Intermediate Cells are referred as **Navicular cells**.
- Cell rich in glycogen, take a boat shaped.
- Elongated cigar shaped nucleus.
- Surrounded by the yellow stained glycogen cytoplasm.



Immature metaplastic squamous:

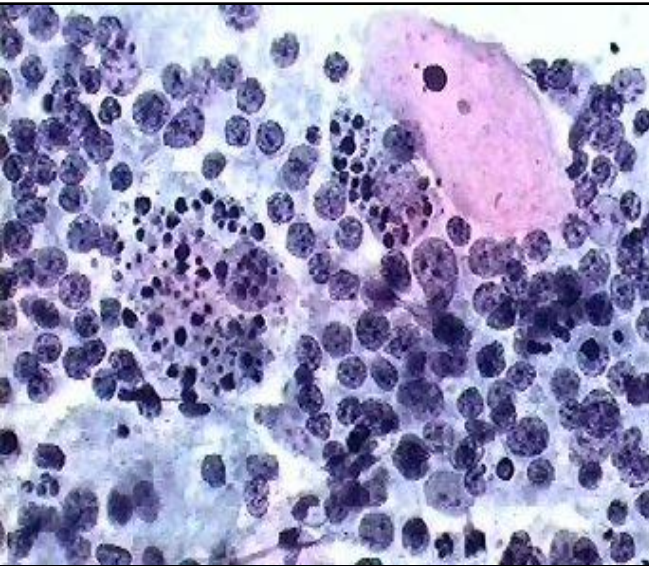
- Small parabasal cells with dense cytoplasm, centrally placed nuclei and round cell borders,
- Often present singly but may form groups,
- Cytoplasm cyanophilic, Dense cytoplasm with pulled out edges,
- Nuclei slightly large, round or oval with finely granular chromatin and small nucleoli. Nuclear folds and finely serrated nuclear outlines common.



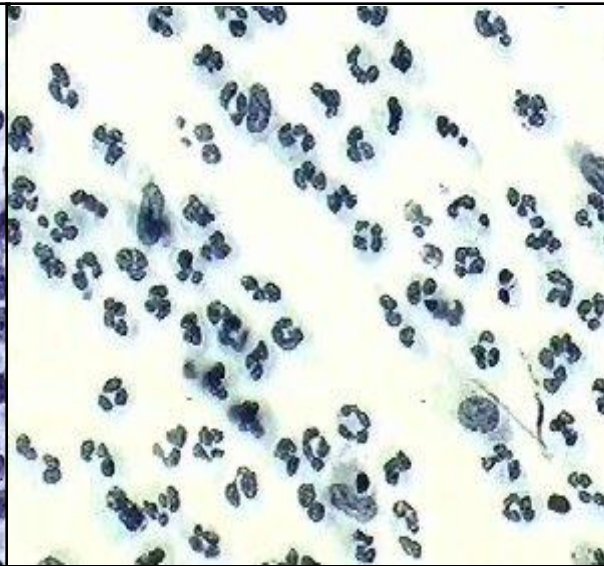
*Non-Epithelial cells

- The main non-epithelial constituents seen in Pap smears, those cells derived from non epithelial origin.

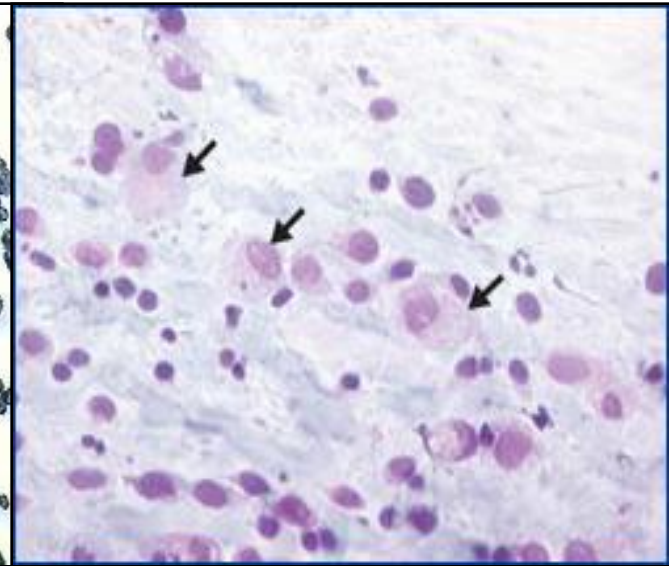
Lymphocytes



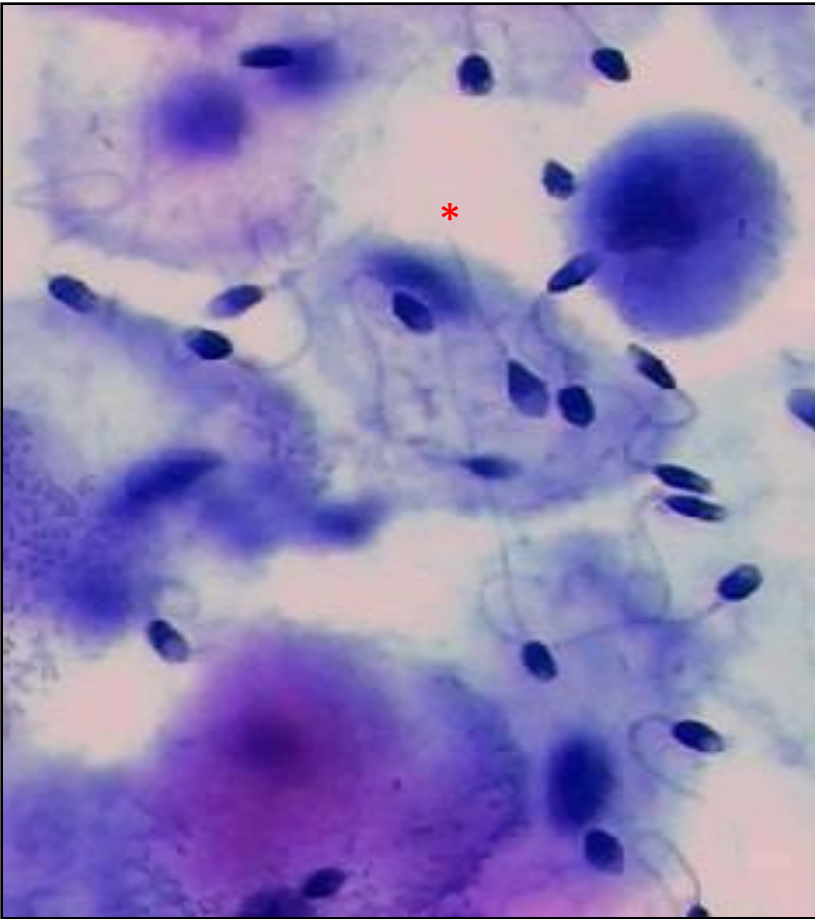
Polymorphs



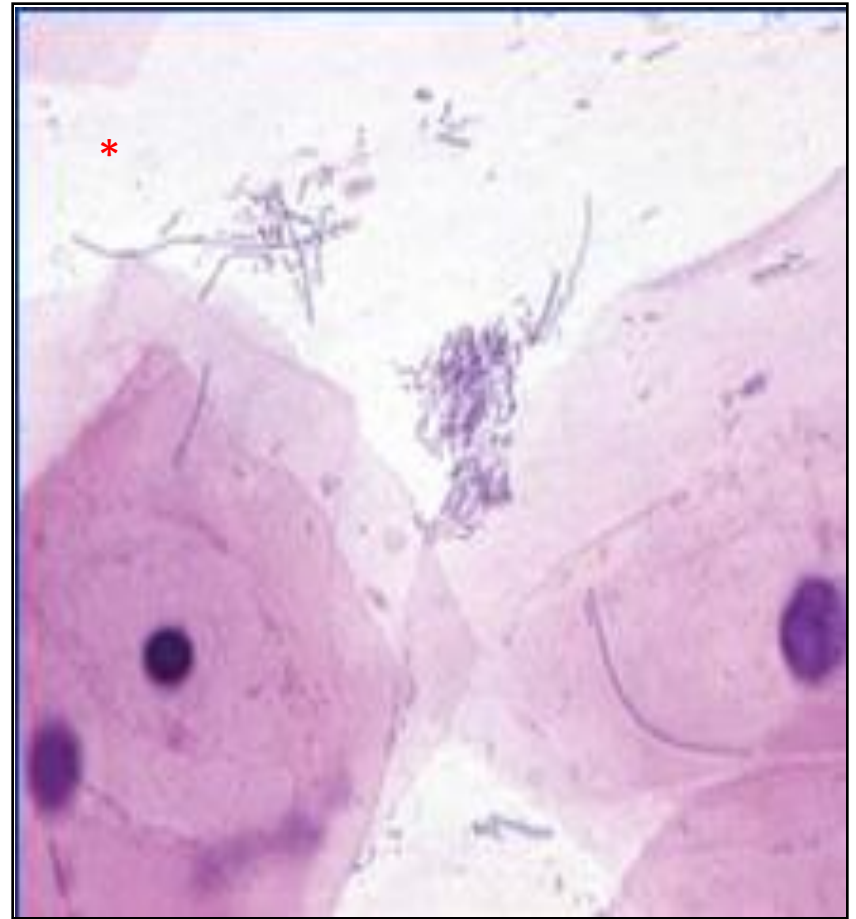
Histiocytes



Sperms



Lactobacilli



Thank You