Thyroid Cytology Adequacy

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Supplies for Preparation

- Glass slides labeled with pencil
- Fixative for Pap
- Air dried slides
- Stains (Diff Quick)
- Preservative for rinse (formalin or Cytolyt)
- Requisition form

Supplies for Preparation

- Glass slides labeled with pencil
- Fixative for Pap and air dried slides
- Stains (Diff Quick)
- Preservative (formalin of Cytolyt)

Different Preparations

- **Direct Smear**- can be done like a peripheral blood smear or “book technique”.
- **Cytospin**-Centrifugation of needle washings onto a slide, to concentrate material.
- **Cell Block**-Needle washing is spun down and clotted to embed and cut like tissue.

Fixation Techniques

- **Air drying**- Cells tend to "spread out" as they air dry, introducing some distortion. This method is used for Diff-Quick and Wright-Geimsa stains.

- **Alcohol fixed** (dip or spray)- Preserves the cytomorphologic detail. Ideal for Pap or H&E stains.

Different Stains

- **Diff-Quick**- A simplified H&E. Similar to Wright-Geimsa in Hematology. Cytoplasm is pink; nuclei are purple. Good for nuclear size and shape. Need air-dried slides.

Different Stains

- **Papanicolaou-** Cytoplasm is pink-orange to green-gray; nuclei are purple to blue. Good for nuclear detail. Need alcohol fixed slides.

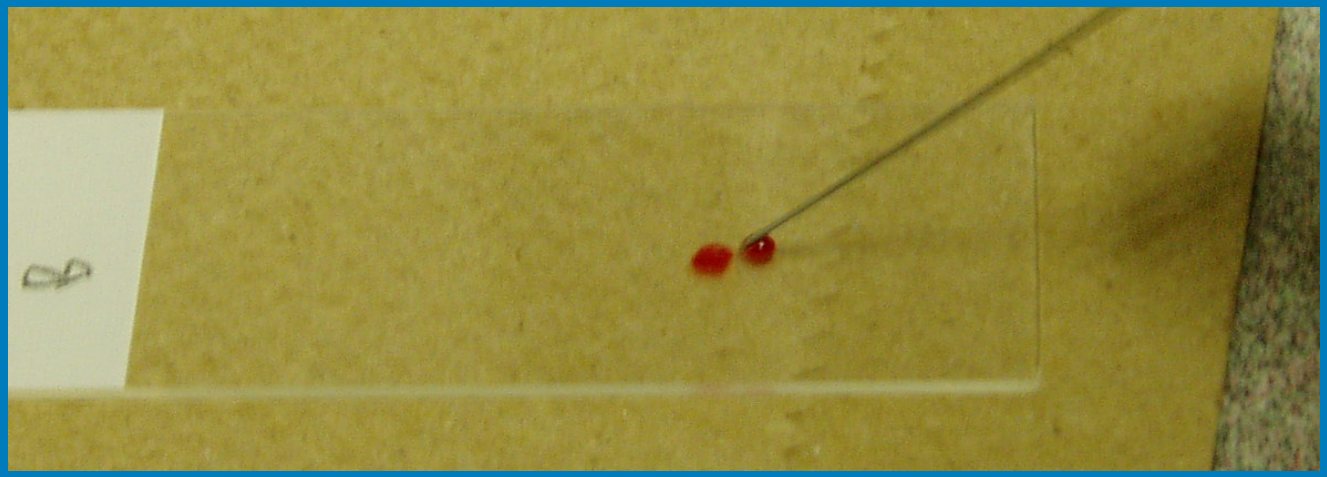
Different Stains

- **Hematoxylin and Eosin(H&E)-** Classic tissue stain for cell block material. Cytoplasm is pink; nuclei are purple. “fixed” or paraffin embedded material.

The Diff-Quick

- First - 95% alcohol
- Second - Orange G
- Third - Hematoxylin

Slide Prep

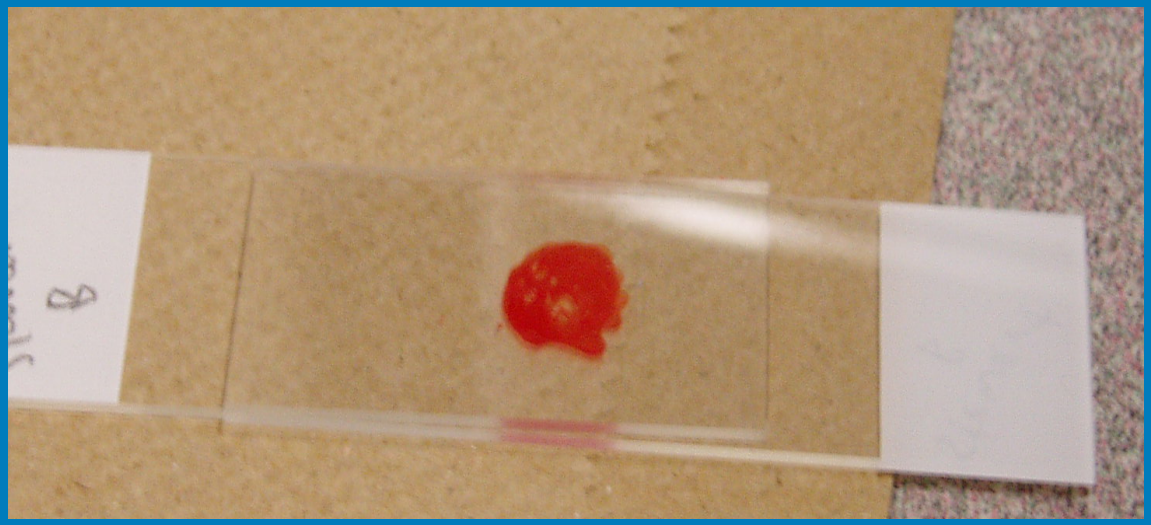


- **Place a small drop of the sample onto the slide.**

Slide Prep

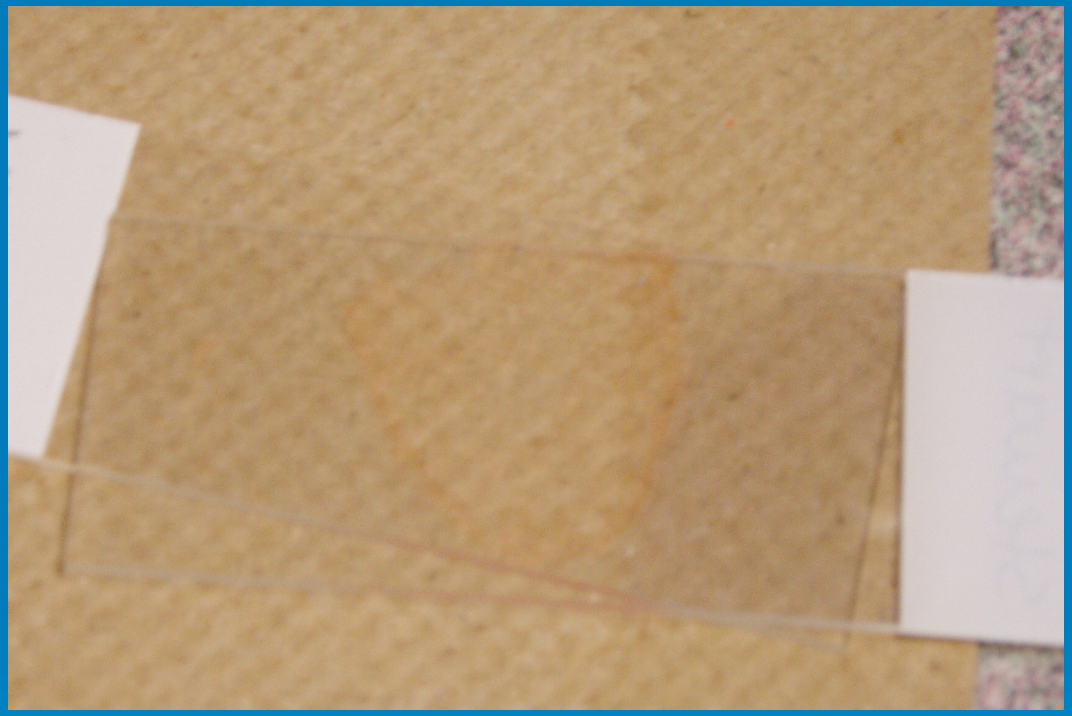
- **Place a second slide onto of the specimen.**

Slide Prep



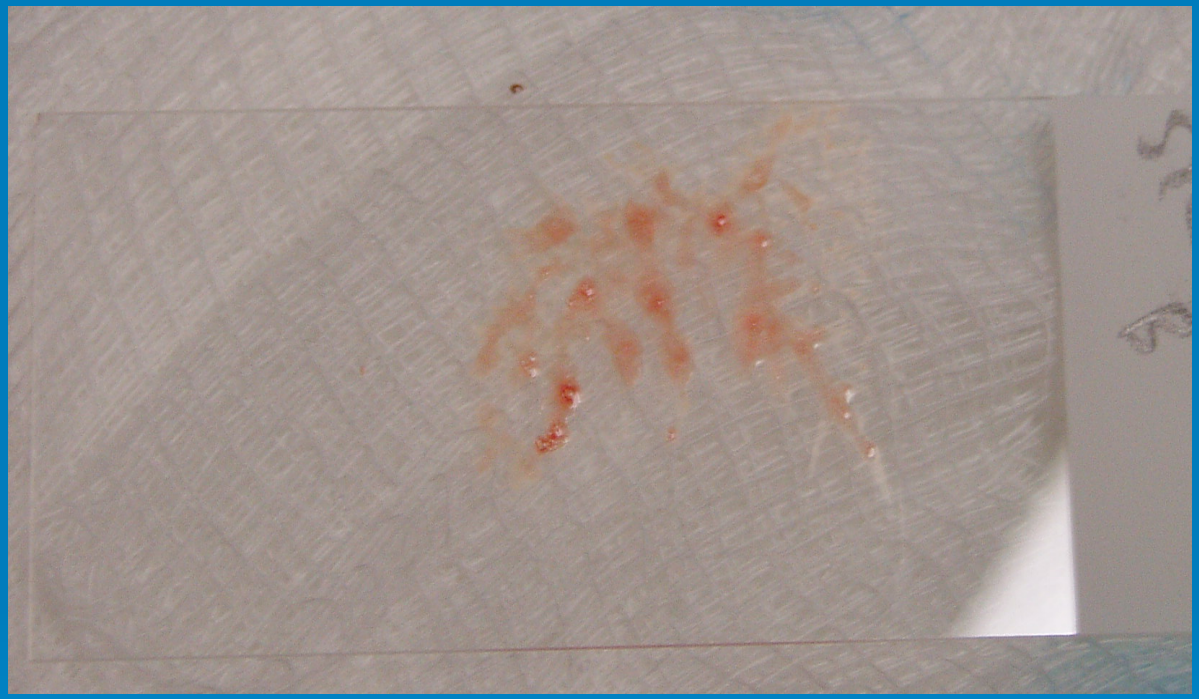
- **Let capillary action spread the sample out over the slides.**

Slide Prep



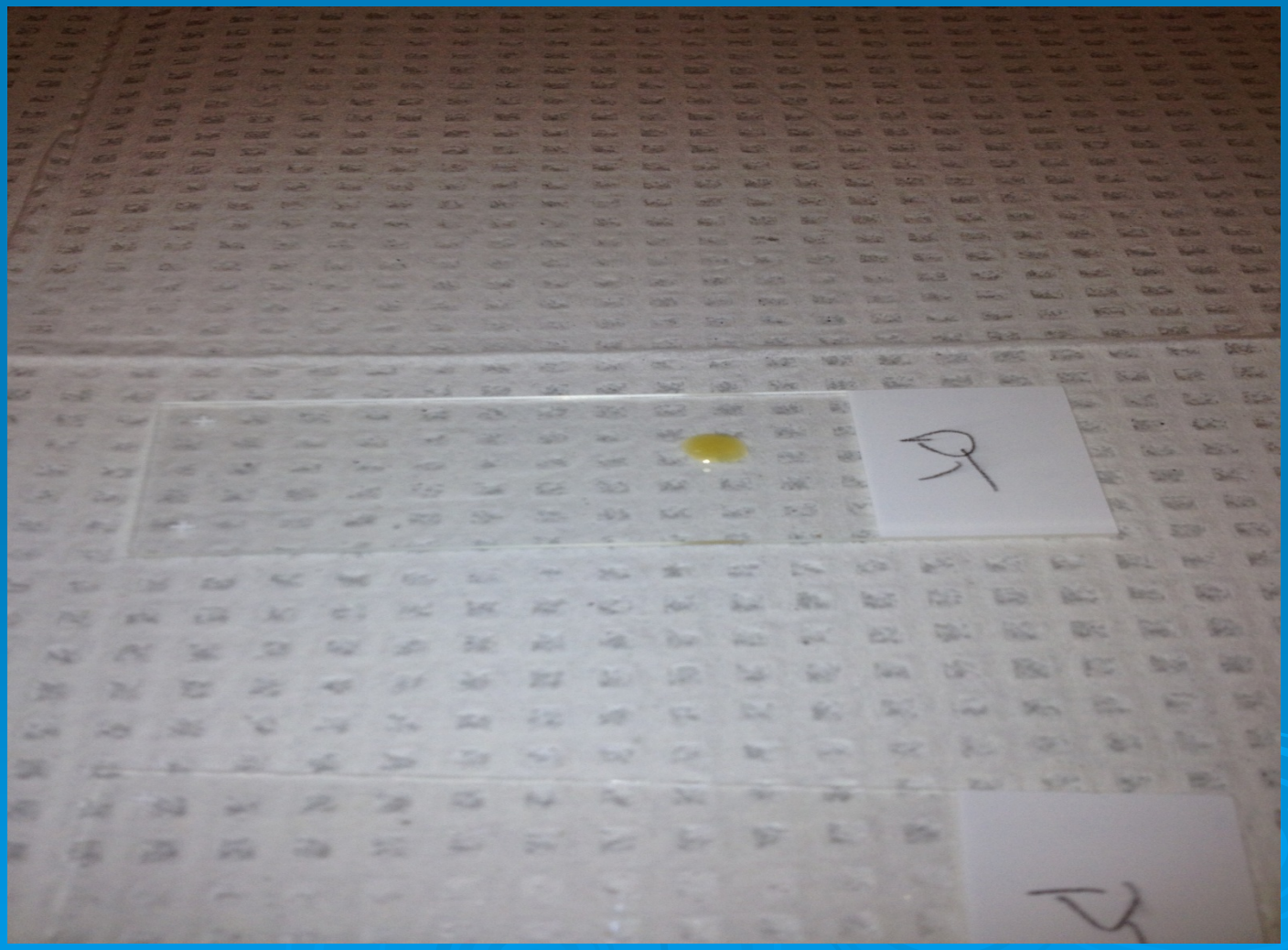
- **Pull the slide apart like opening a book.**

Slide Prep

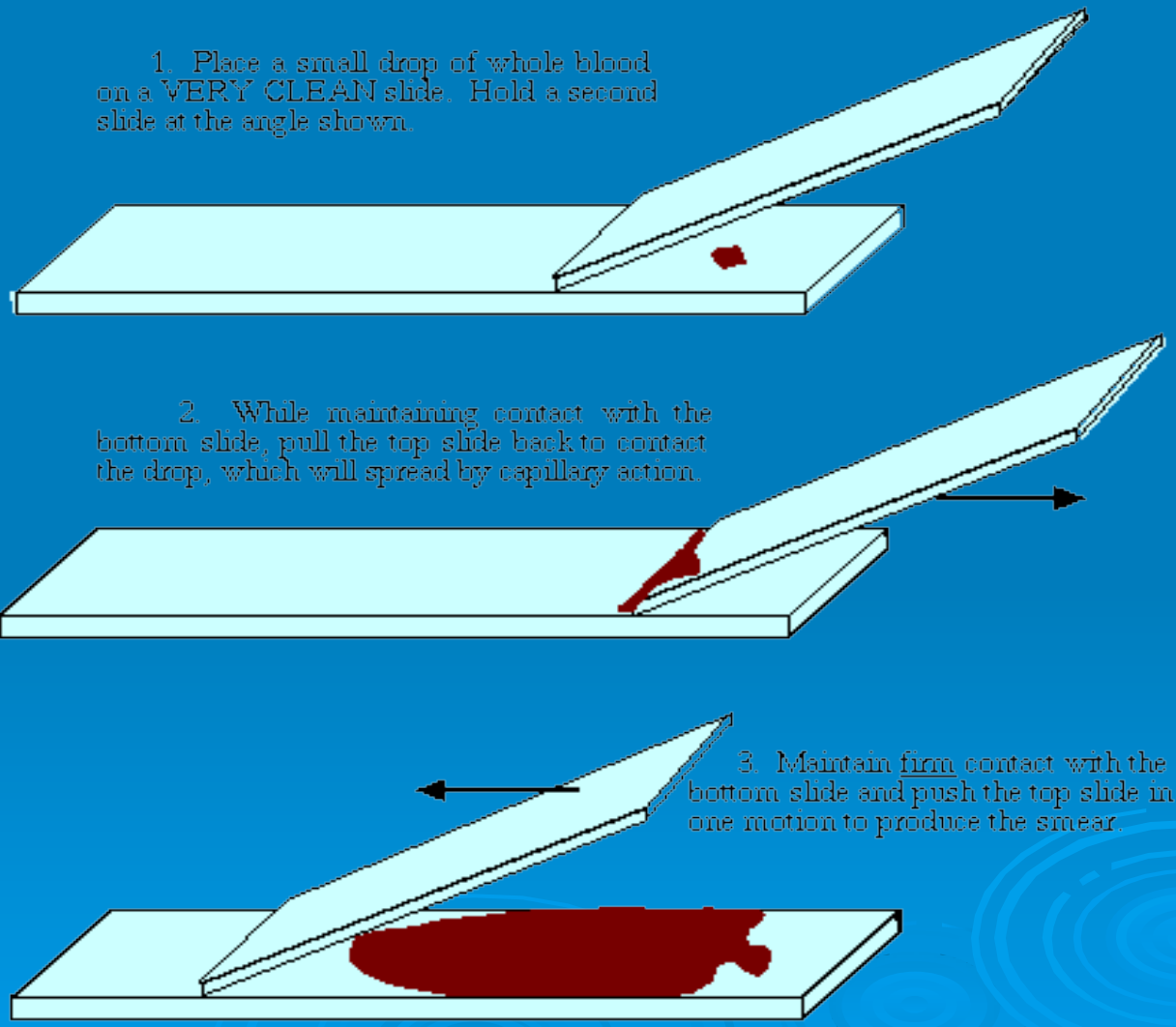


- **A set of mirror image slides will have created.**

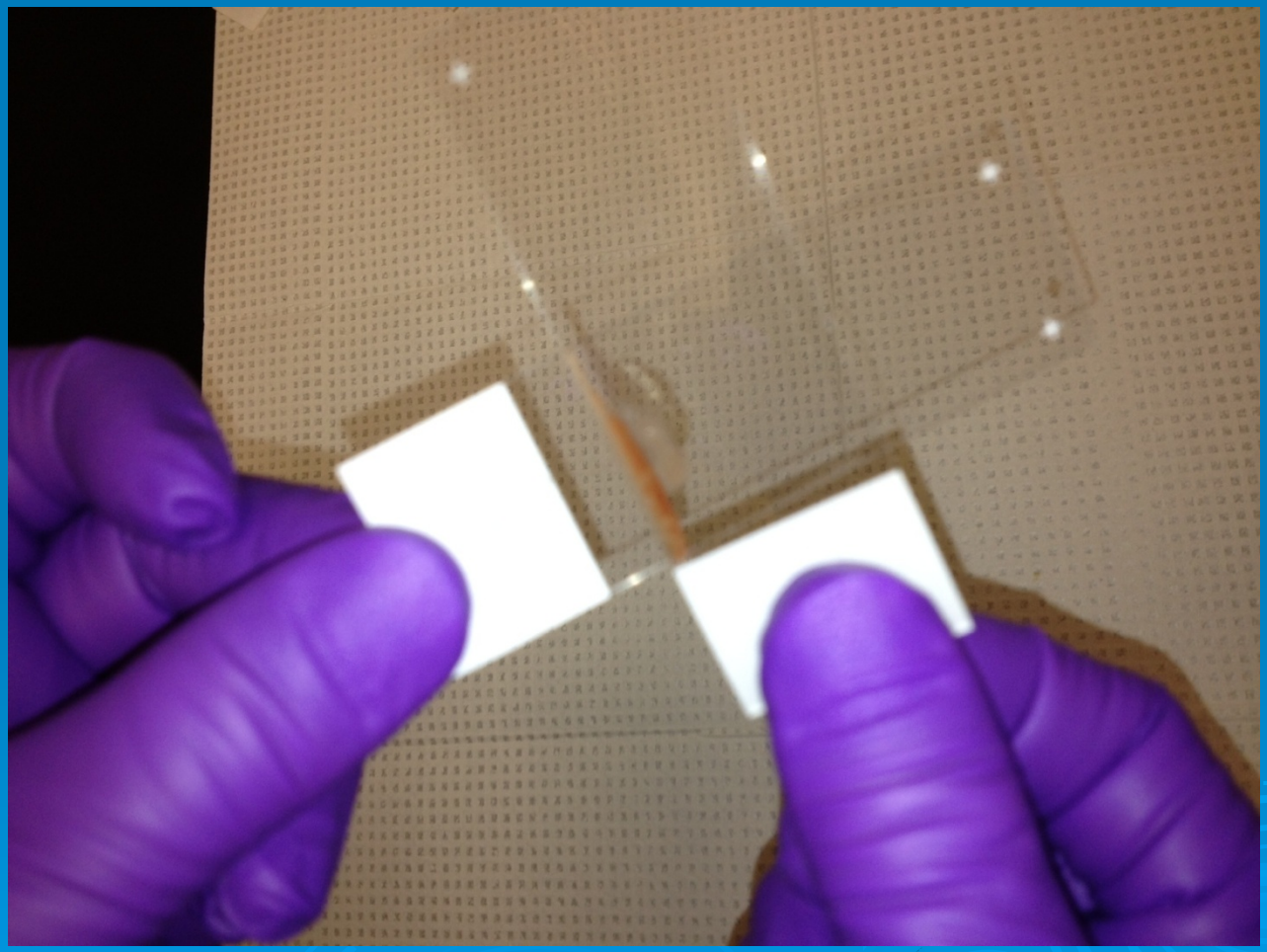
Smear Prep



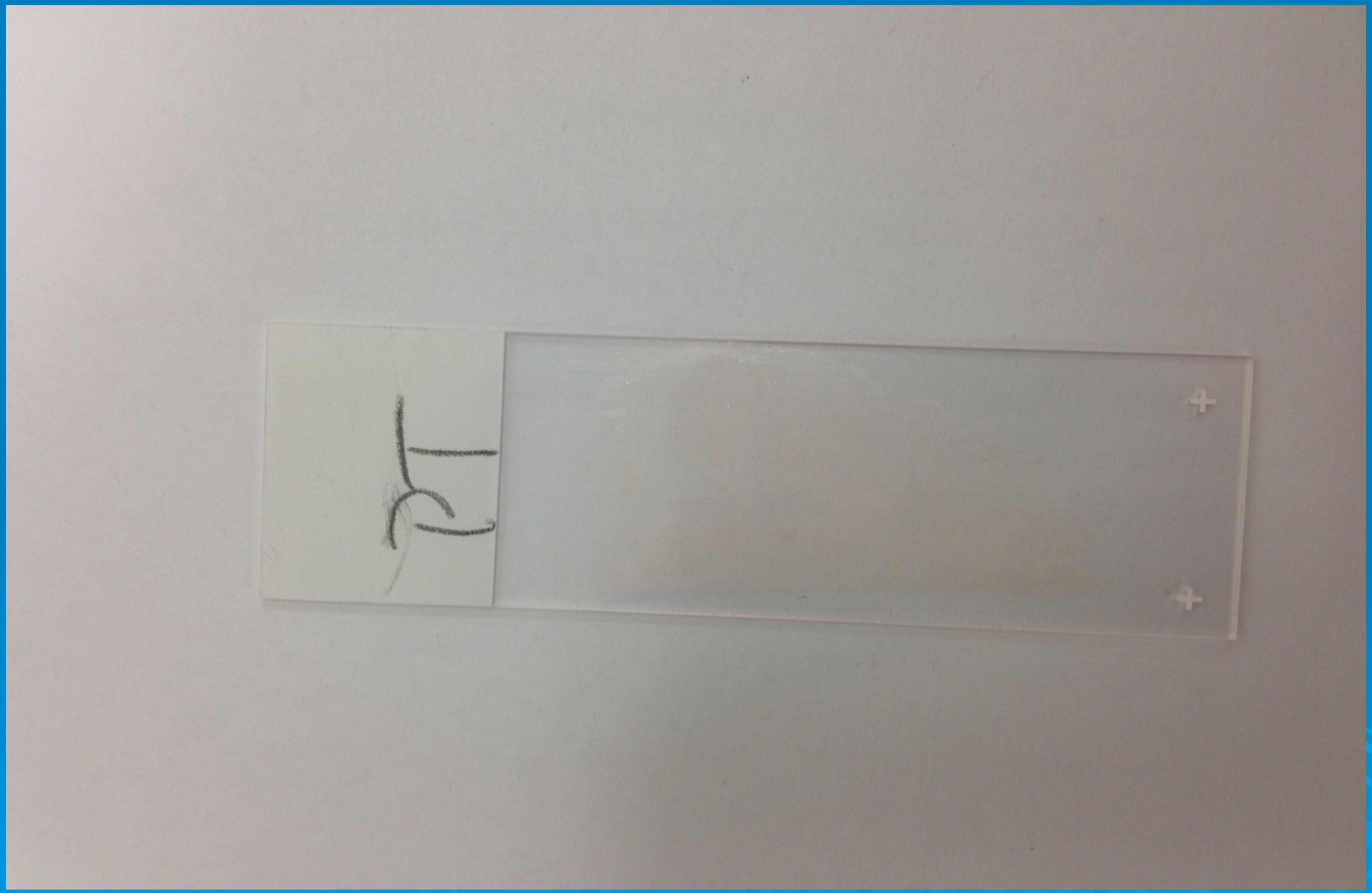
Smear Prep


1. Place a small drop of whole blood on a VERY CLEAN slide. Hold a second slide at the angle shown.
2. While maintaining contact with the bottom slide, pull the top slide back to contact the drop, which will spread by capillary action.
3. Maintain firm contact with the bottom slide and push the top slide in one motion to produce the smear.

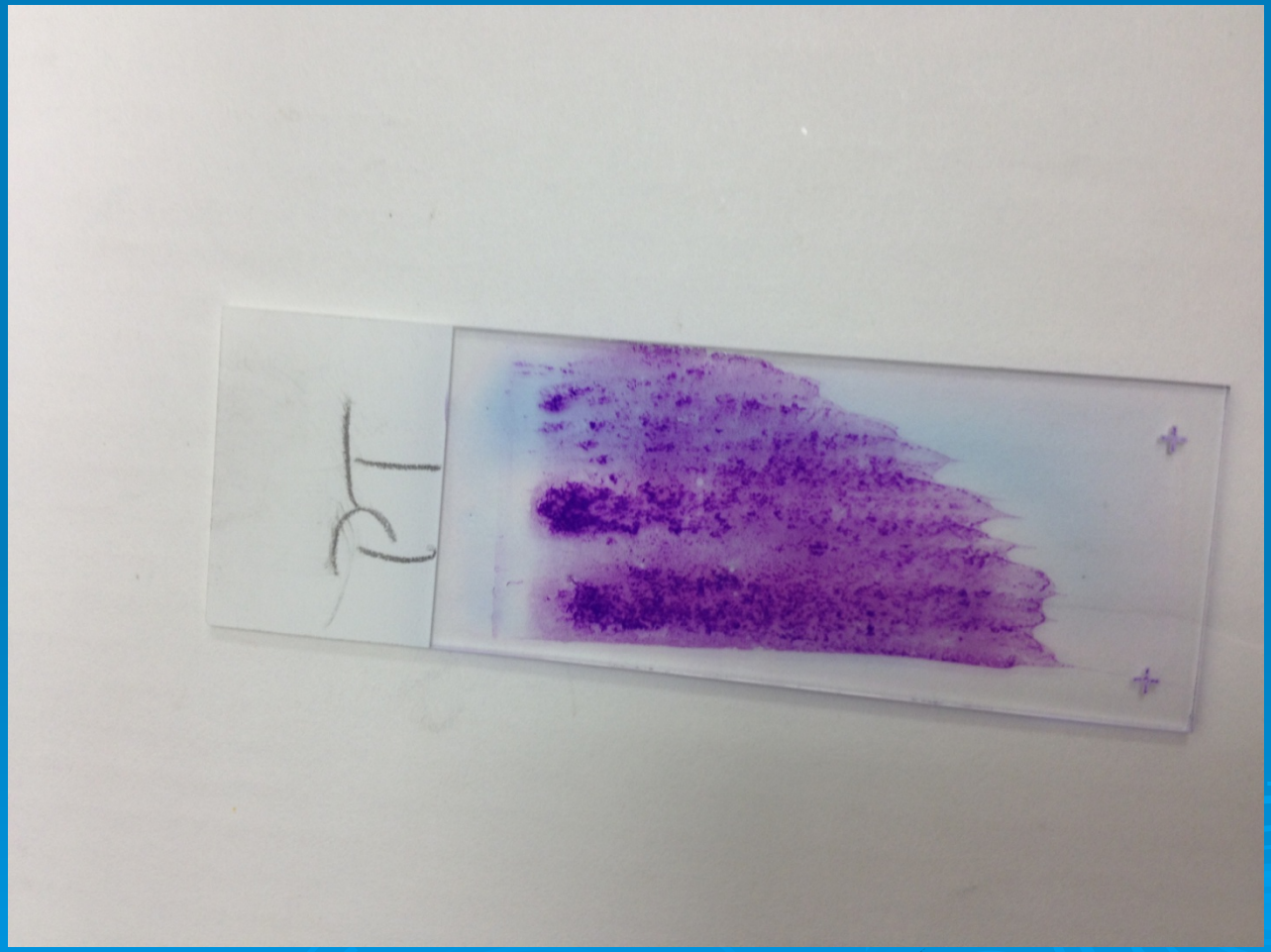
Smear Prep



Smear Prep



Smear Prep



Stains

- Diff Quick:
  - Air dry the slide
  - Place into 95% alcohol for 30 seconds
  - Dip into Fast Orange for 30 seconds
  - Dip into Hematoxylin for 30 seconds
  - Rinse in water

Adequacy

- Adequacy is assessed on the air dried slides (Diff Quick).
  - Cellularity
  - Cell types
  - Colloid
  - Architecture

What is adequate?

- Unfortunately there are several definitions of what is considered adequate.
  - 5-6 groups of well-preserved cells with each group having at least 10 to 15 cells.
    - Curaso D and Mazzaferri EL. *Endocrinologist*.1991
    - Goeller JR, et al. *Acta Cytol.* 1987
  - Greater than 8 cell groups with at least 10 well-preserved cells per group.
    - O'Malley ME, et al. *Radiology*.2002
    - Gutman PD and Henry M. *Clin Lab Med*.1998

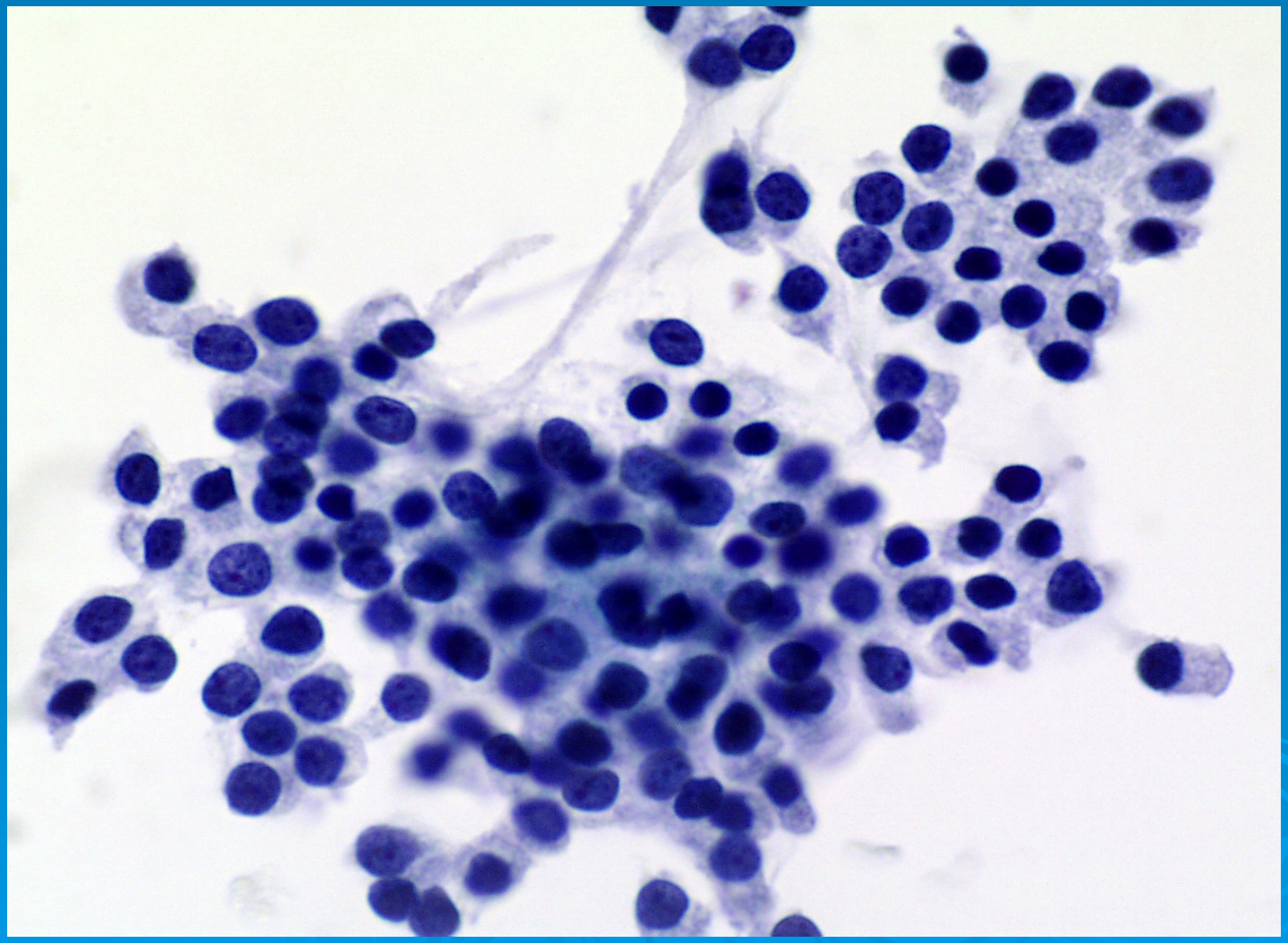
Definitions of Adequacy

- The Papanicolaou Society of Pathology defines an adequate thyroid FNAB as:
  - **Six to eight groups of well-preserved follicular cells (10 or more cells per group)**

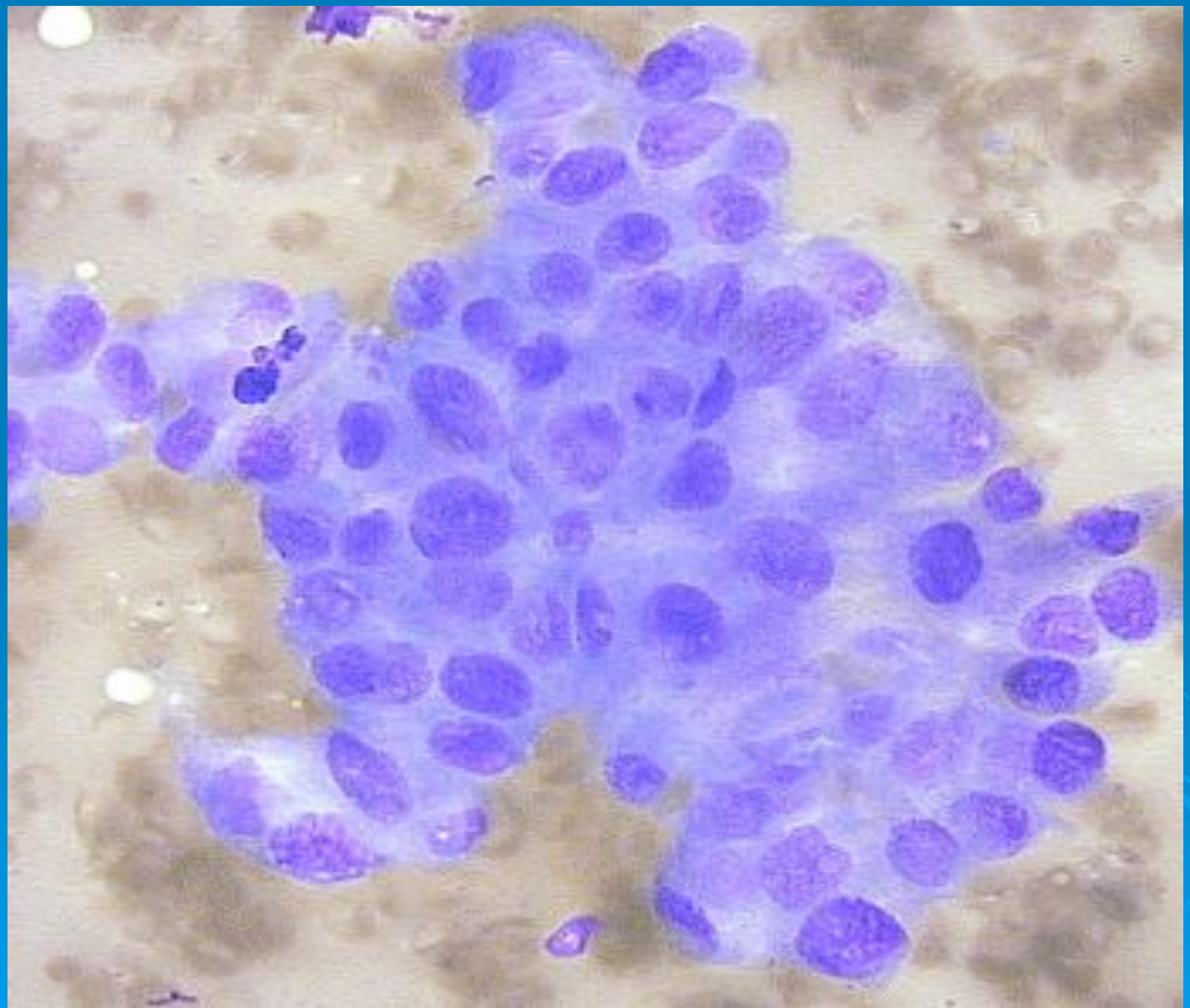
    »OR
  - Six groups of follicular cells on at least two slides from separate passes with a minimum of 10 clusters of follicular cells (20 cells/cluster)

(Papanicolaou Society of Cytopathology Task Force. *Diagn Cytopathol*. 1997.)

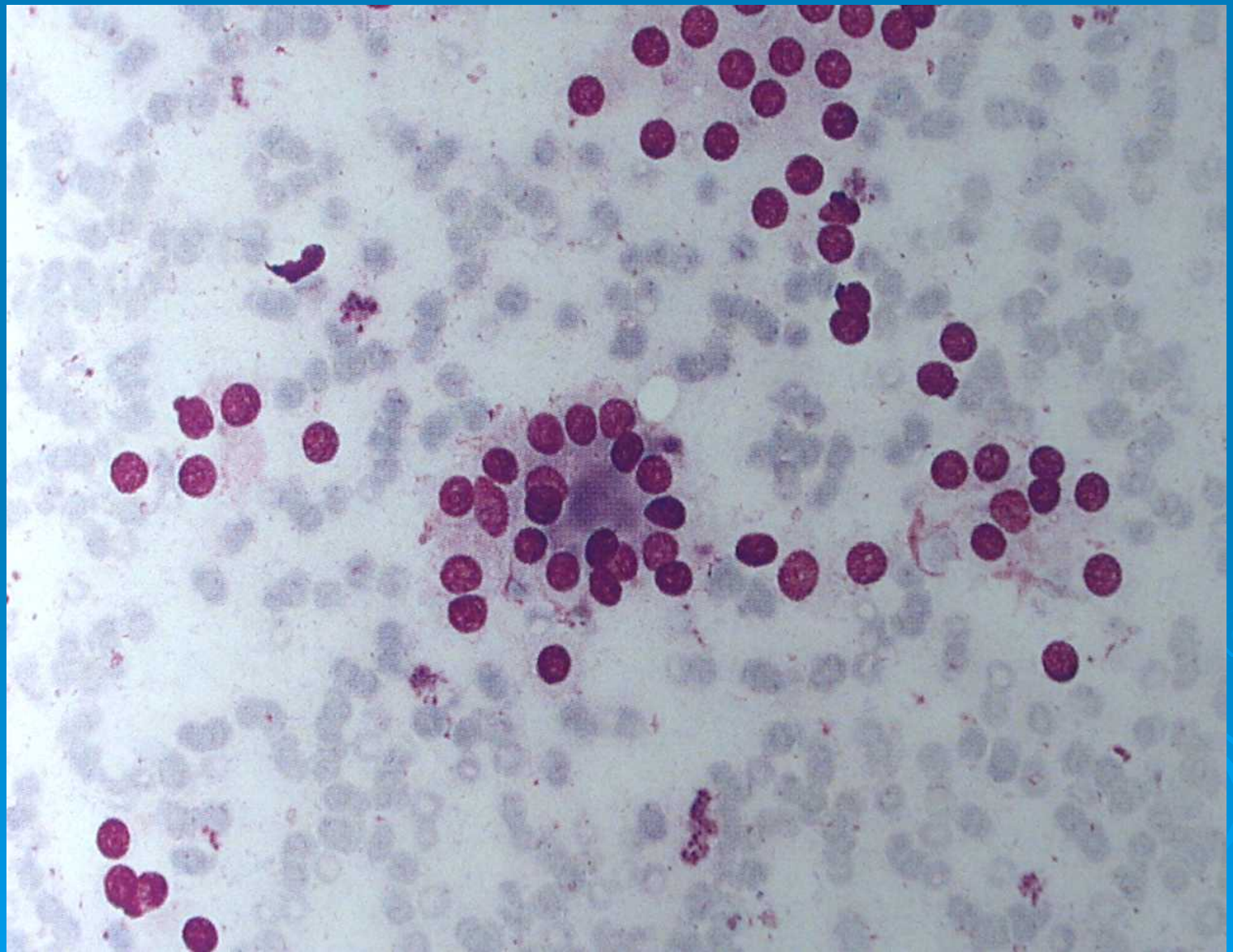
Follicular Cells



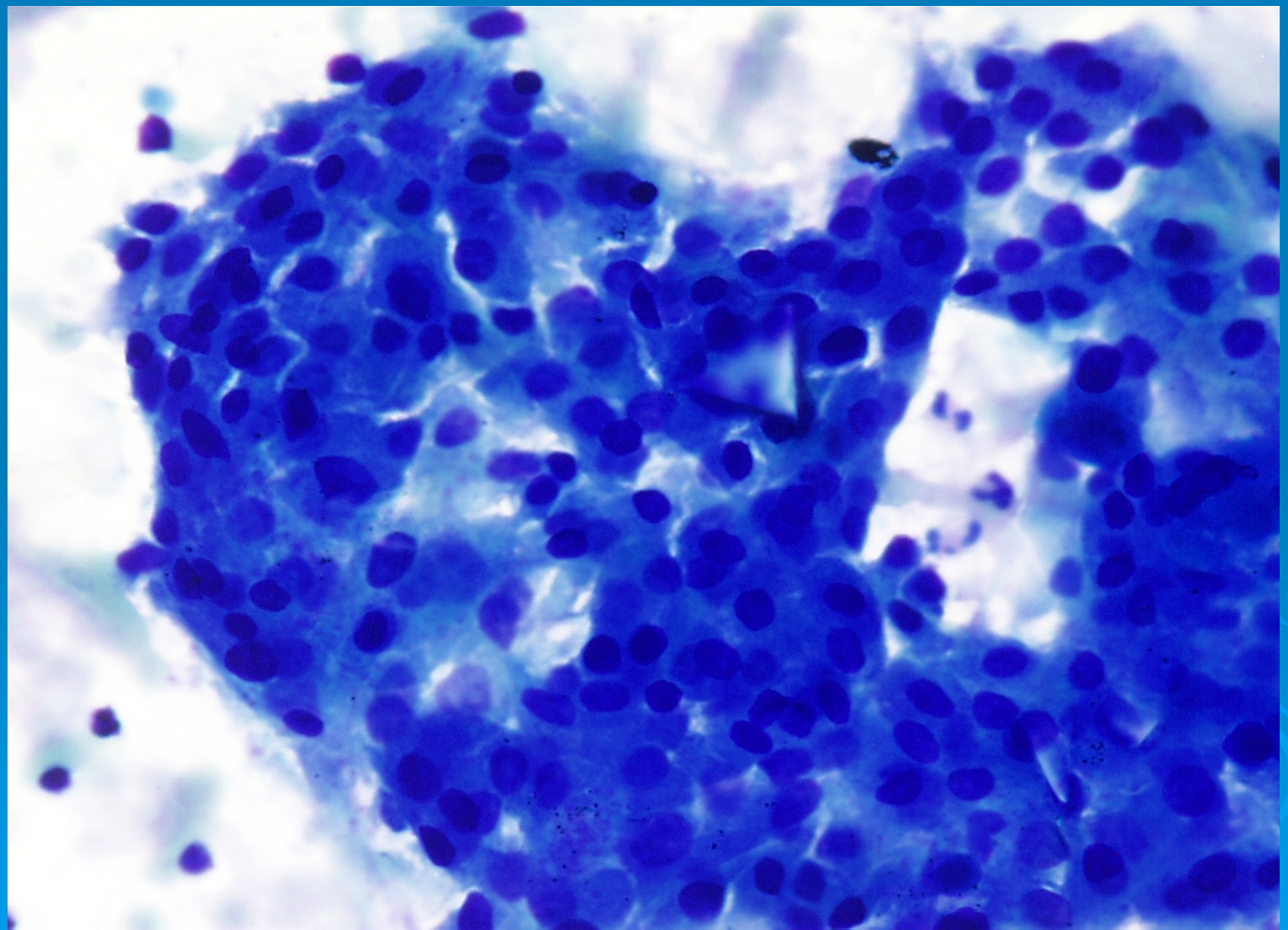
Follicular Cells



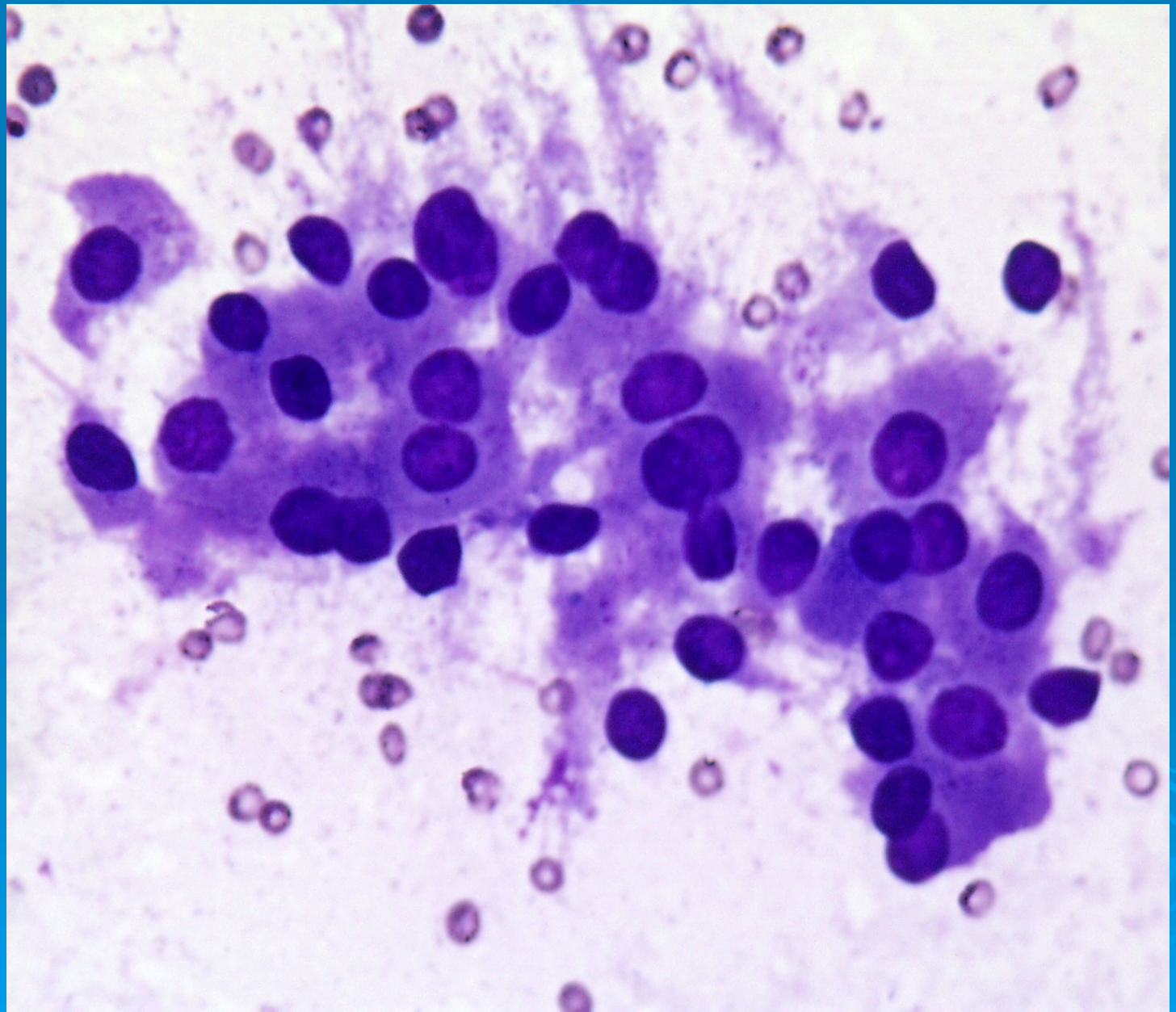
Follicular Cells



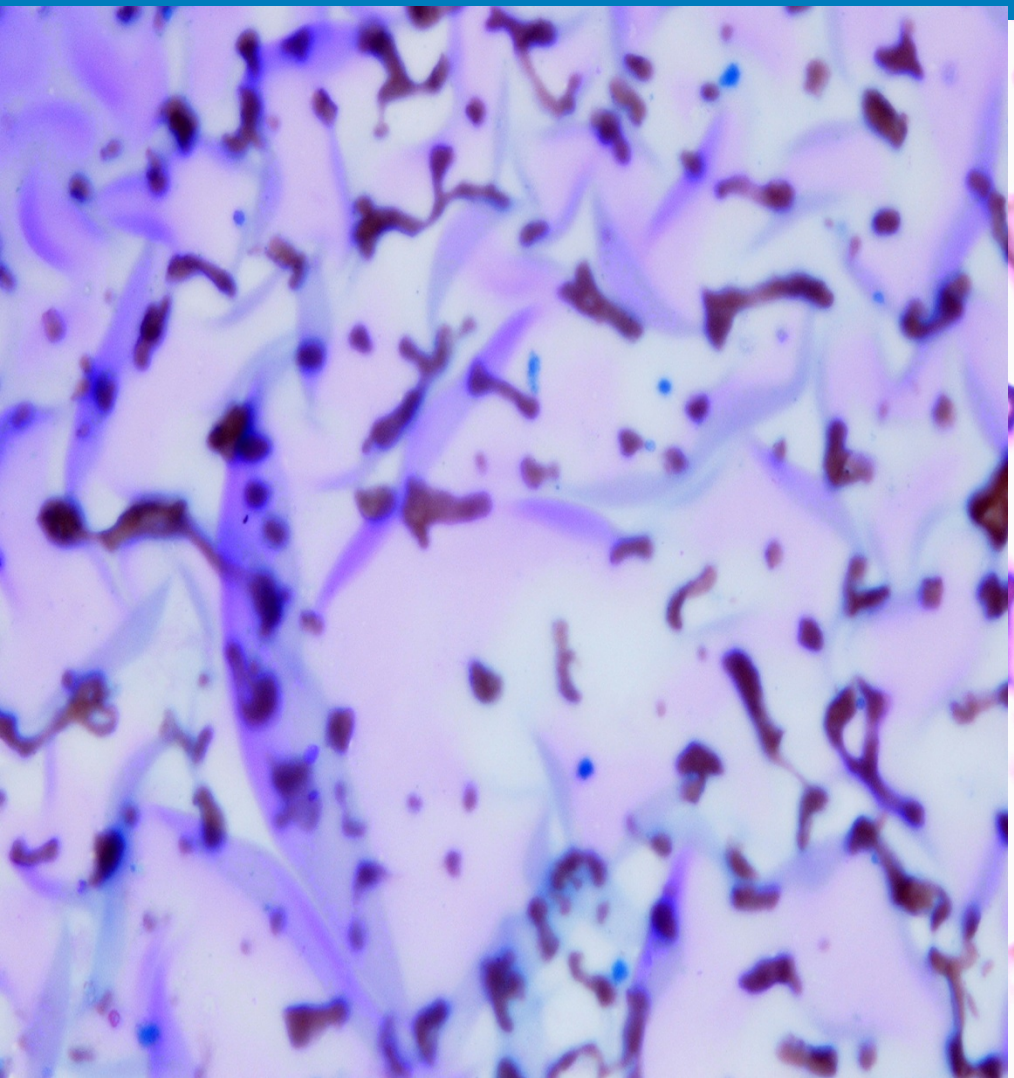
Hurthle Cells

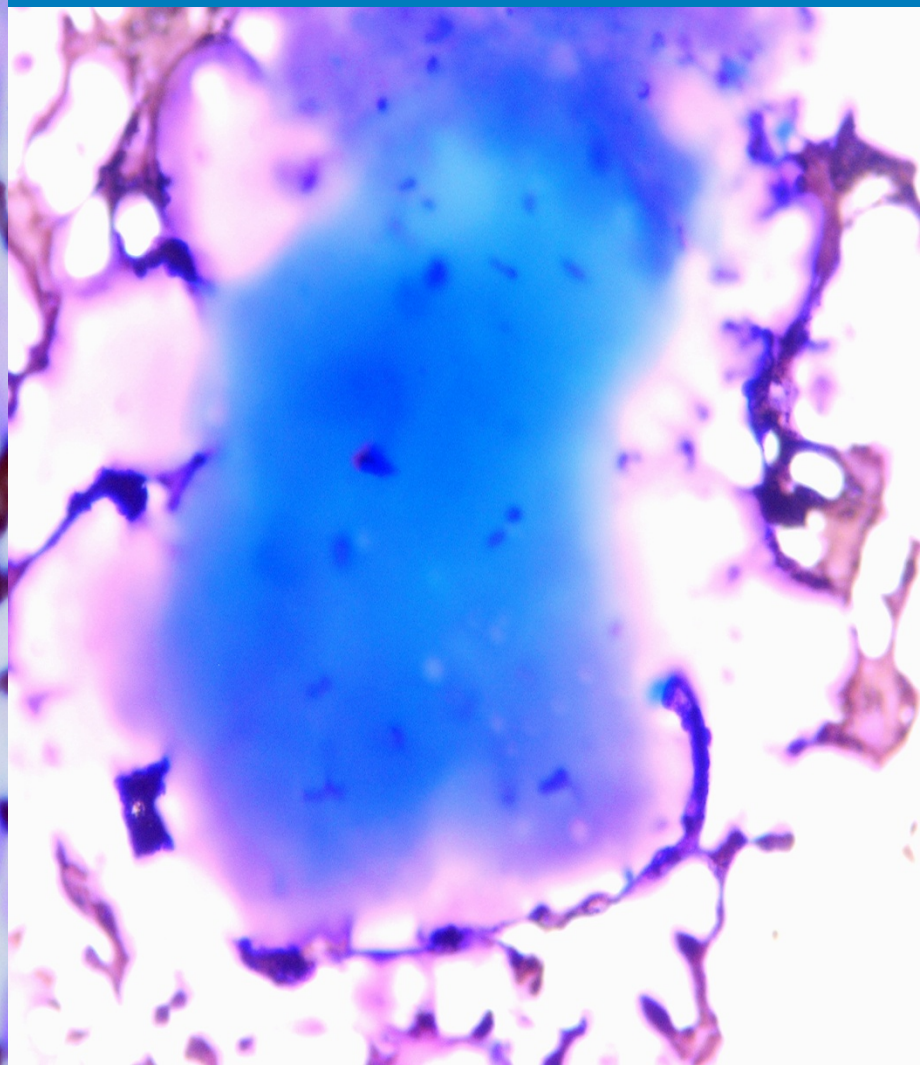


Hurthle Cells

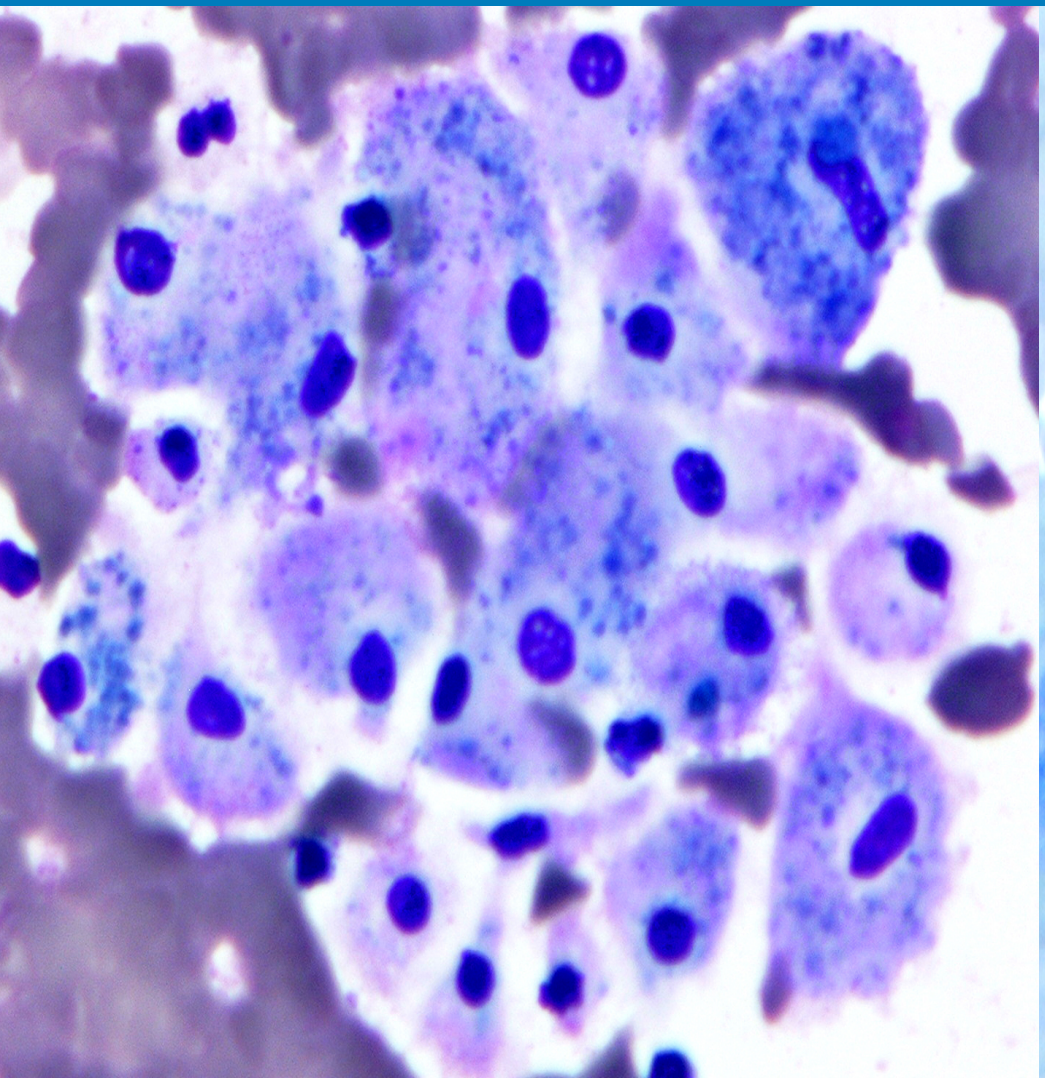


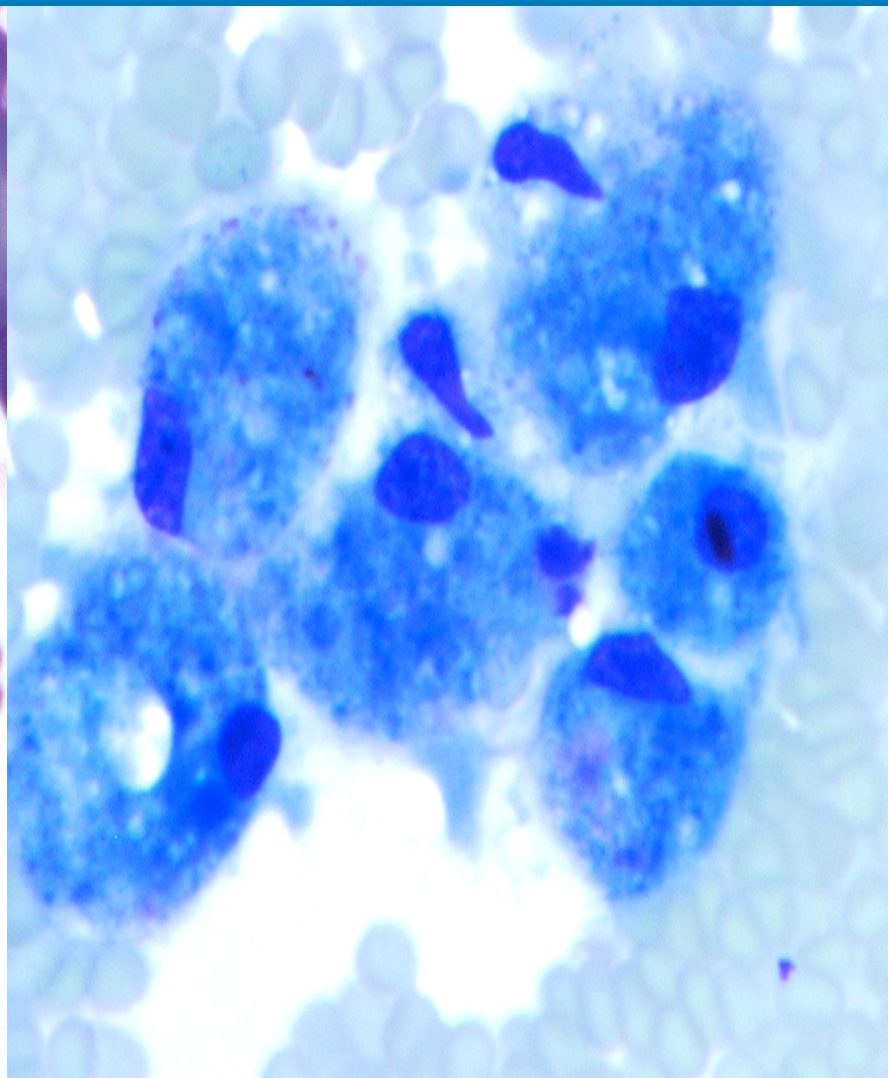
Colloid





Macrophages





Requirements

- **CLINICAL LABORATORY IMPROVEMENT AMENDMENT (CLIA) NO LONGER REQUIRED FOR EVALUATION OF FINE NEEDLE ASPIRATE**

- Effective January 1, 2011, with an implementation date of April 4, 2011, CPT® codes 88172 (Cytopathology, evaluation of fine needle aspirate; immediate cytohistologic study to determine adequacy for diagnosis, first evaluation episode, each site) and 88177 (new code for 2011) (Cytopathology, evaluation of fine needle aspirate; immediate cytohistologic study to determine adequacy for diagnosis; each separate additional evaluation, same site) are no longer subject to CLIA editing and do not require a facility to have any CLIA certificate to

Requirements

- The billing code is 88172for the first evaluation.
- The billing code is 88177 for the subsequent evaluation.

- Documentation must exist stating what was seen on each pass an if it was adequate or not.

LET’S GIVE IT A TRY