NCPTS

Introducing: The Squamous Spectrum

Unsatisfactory and benign/reactive samples

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March 2021

Bethesda 2001

Atypical Squamous Cells (ASC)

- of undetermined significance (ASC-US)

LSIL: Low-grade Squamous Intraepithelial Lesion

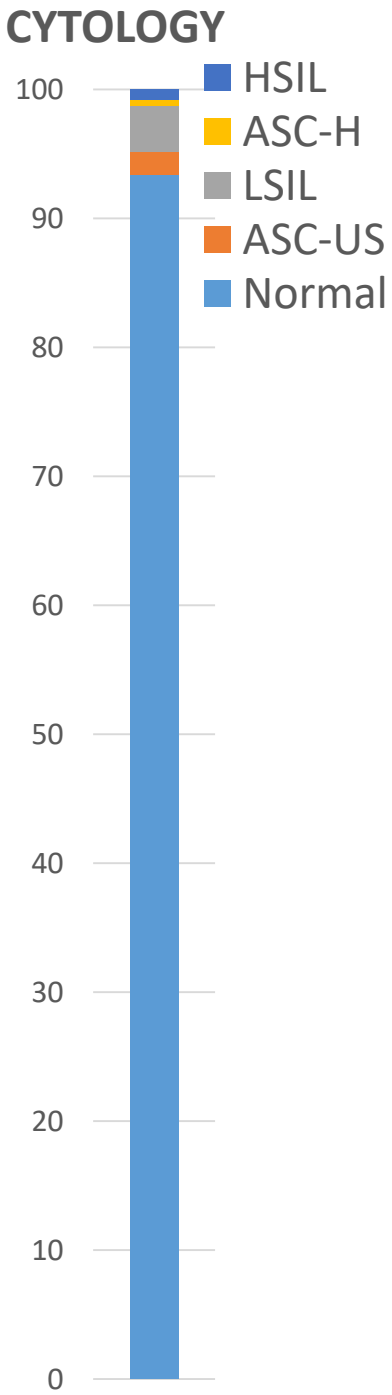
Atypical Squamous Cells (ASC)

- cannot exclude HSIL (ASC-H)

HSIL: High-grade Squamous Intraepithelial Lesion

(+/- with features suspicious for invasion)

Squamous Cell Carcinoma



Squamous abnormalities

Cytology	NZ samples *	
ASC-US	1.8%	
LSIL	3.5%	*Low-grade*
ASC-H	0.5%	*High-grade*
HSIL	0.8%	

- clinical outcome justifies cytology result categories
- ASC-US + LSIL cytology identifies almost as many HSIL histology cases as ASC-H + HSIL cytology

**%* *% of satisfactory samples Jan-June 2017 NCSP Monitoring Report 47*

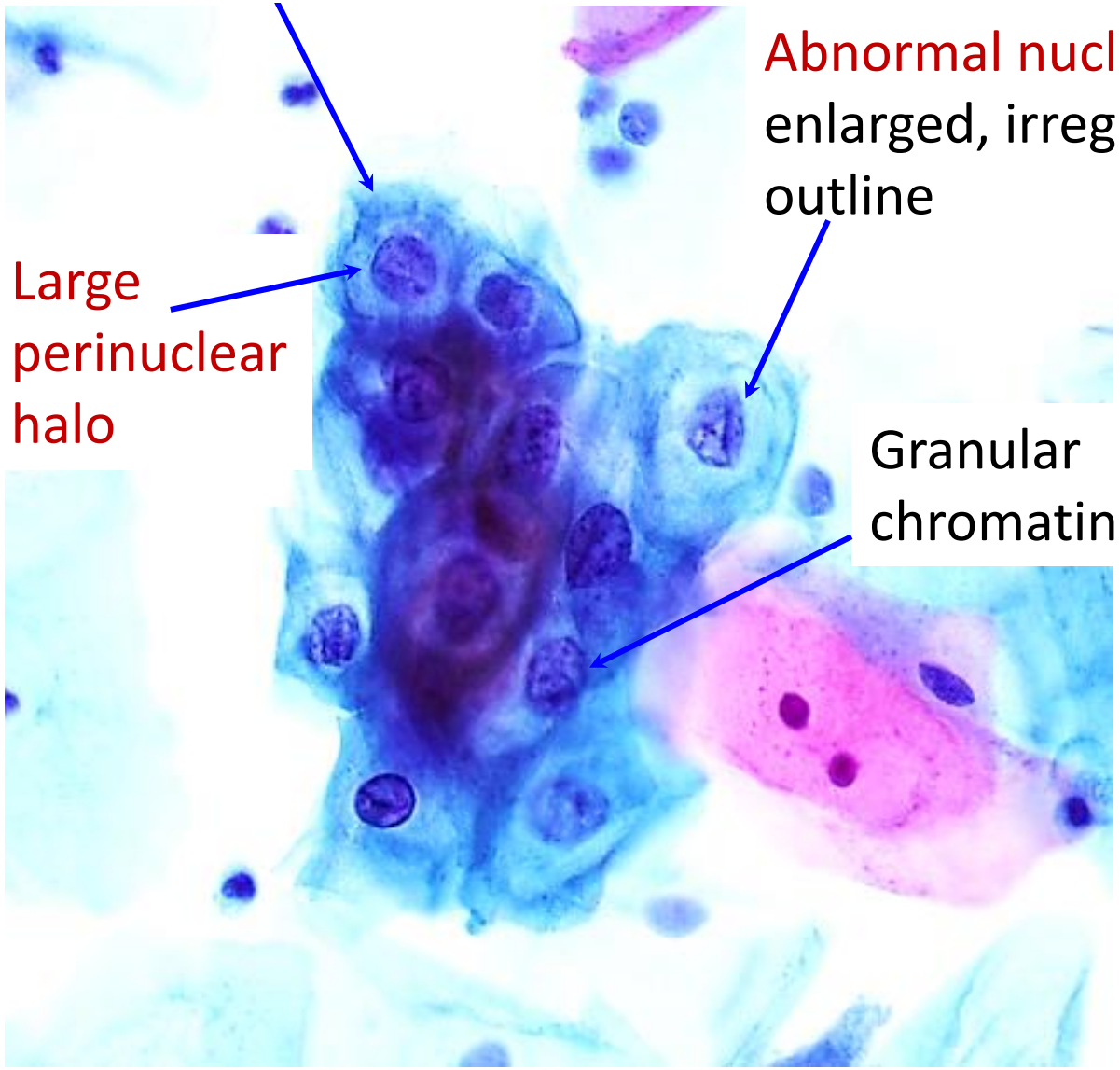
LSIL: classic koilocytes

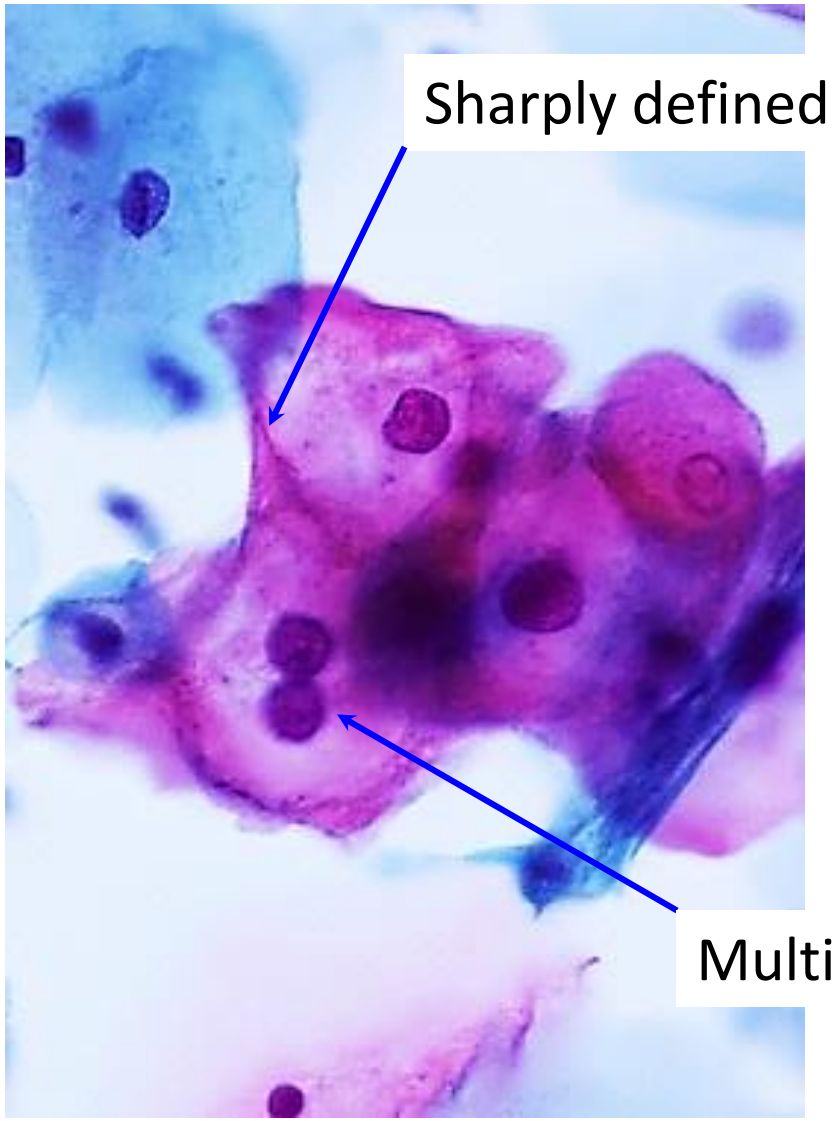
Condensation of peripheral cytoplasm

Abnormal nucleus
enlarged, irregular outline

Large perinuclear halo

Granular chromatin



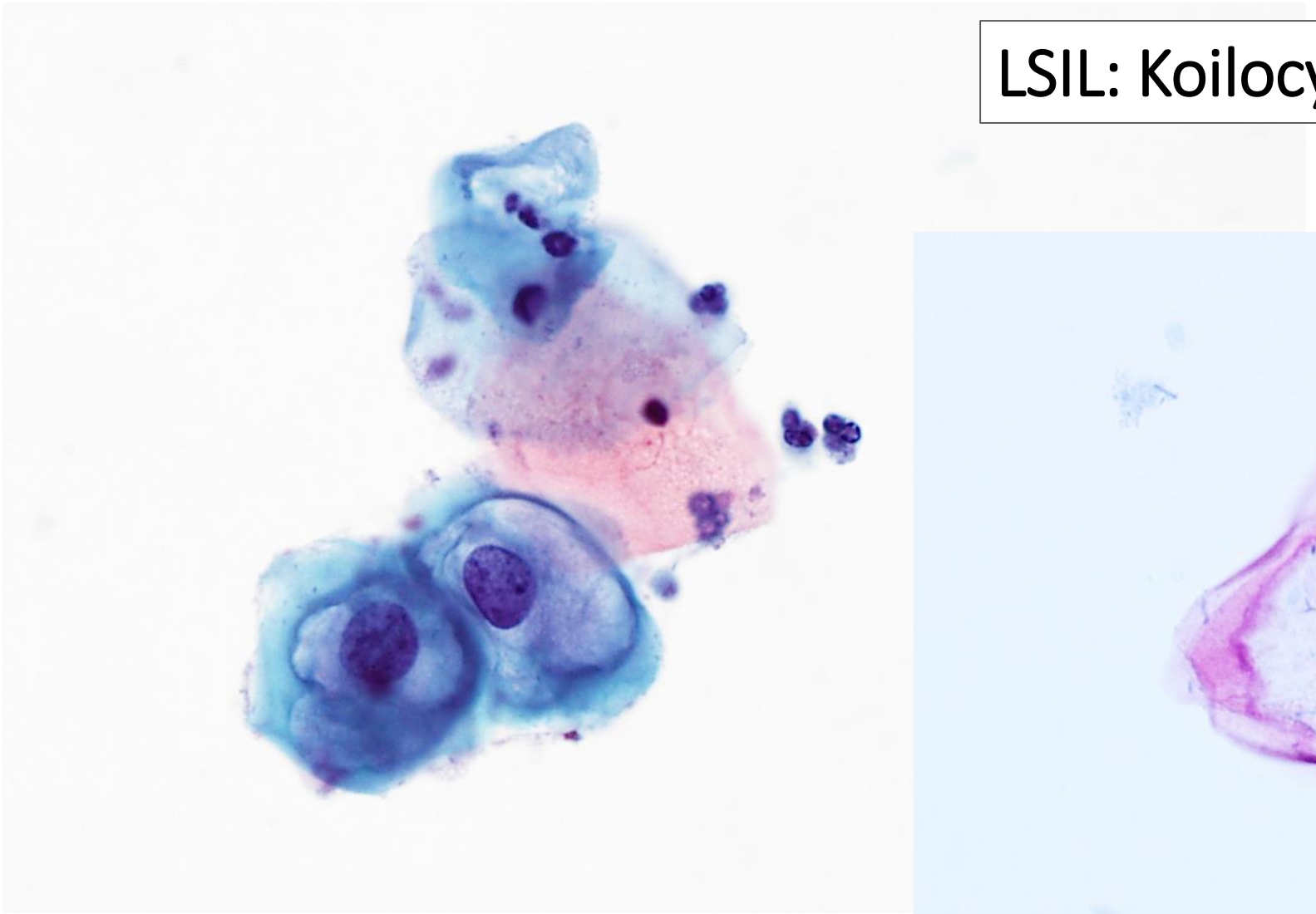


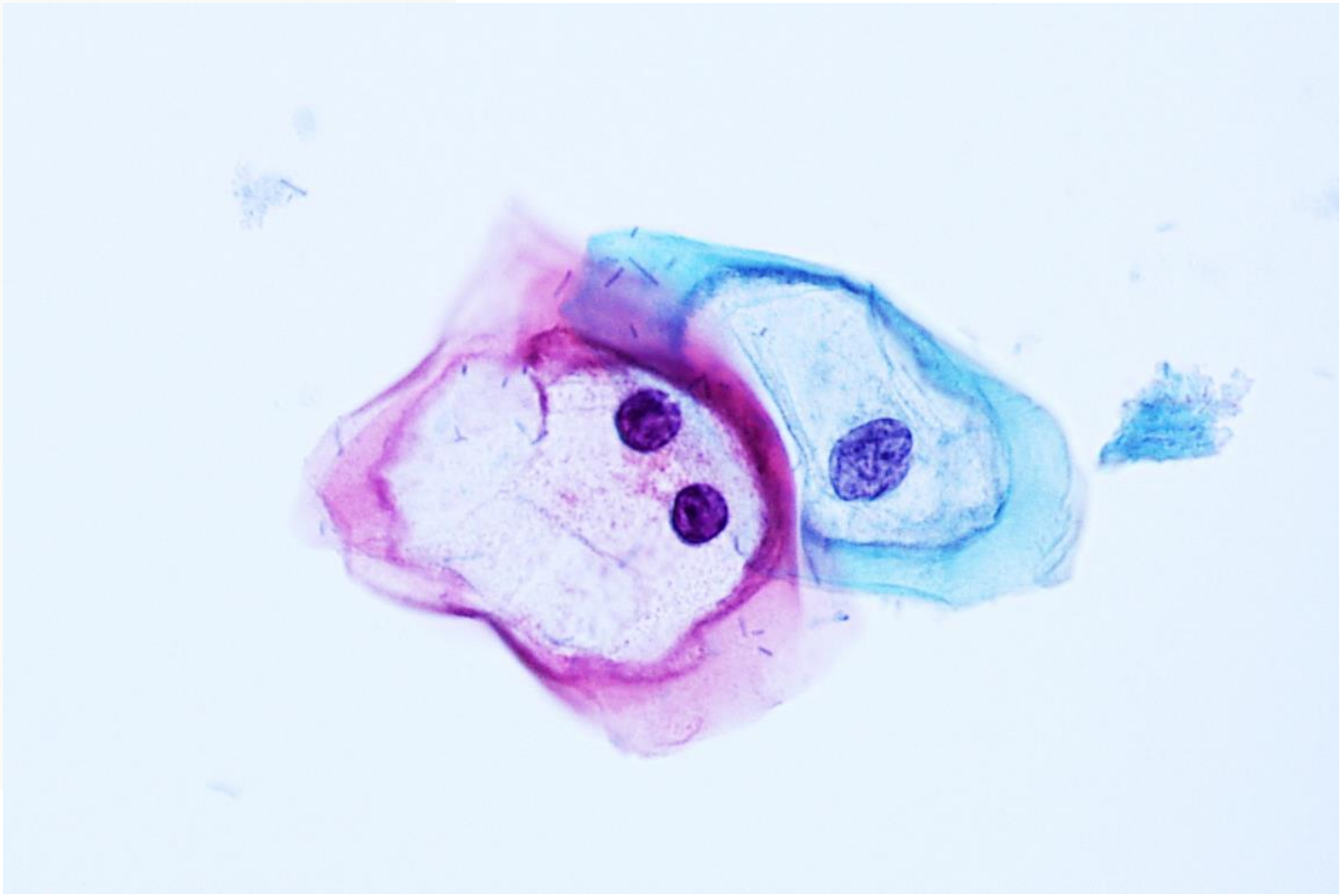
Sharply defined halo rim

Multinucleation

SurePath

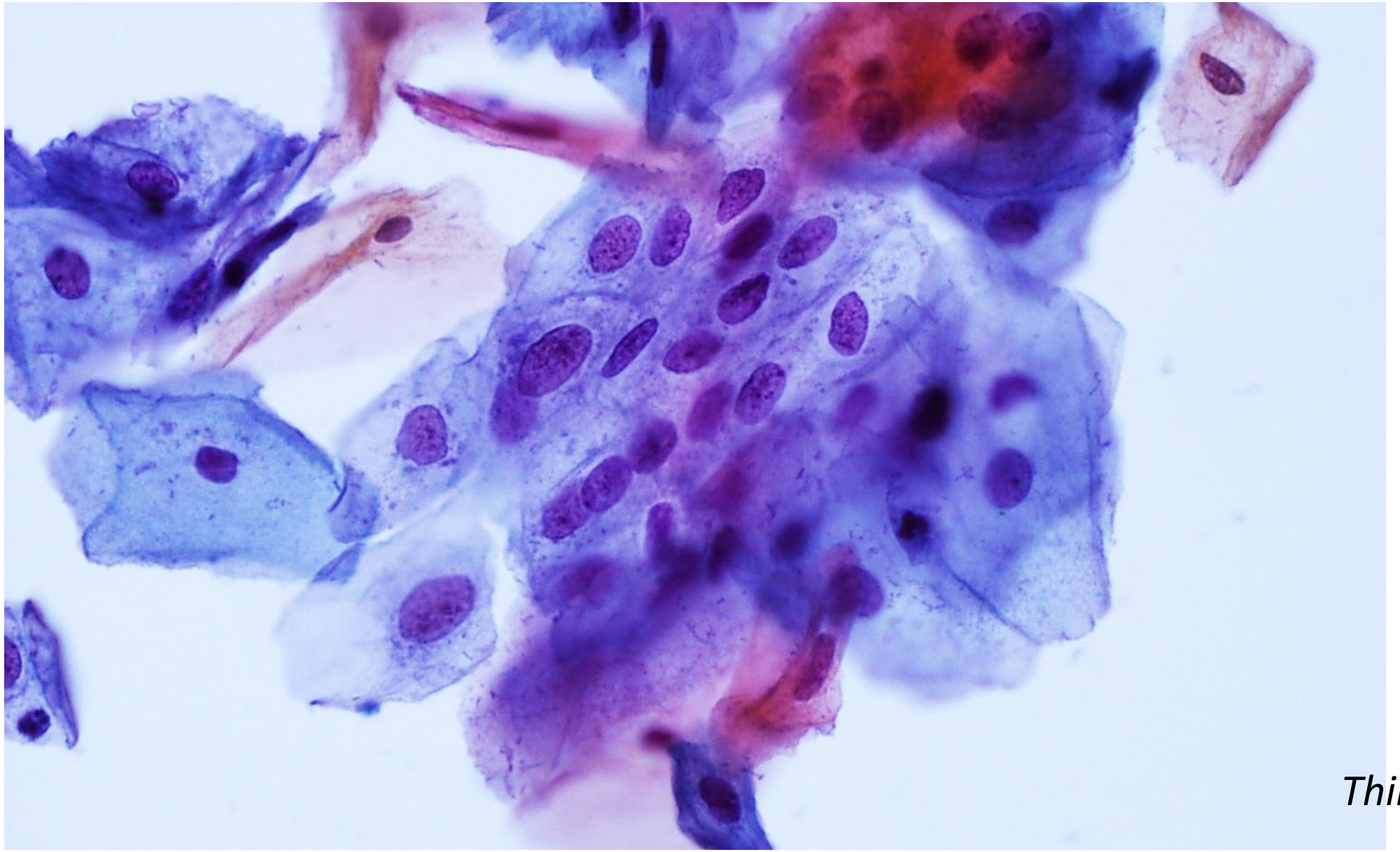
LSIL: Koilocytes





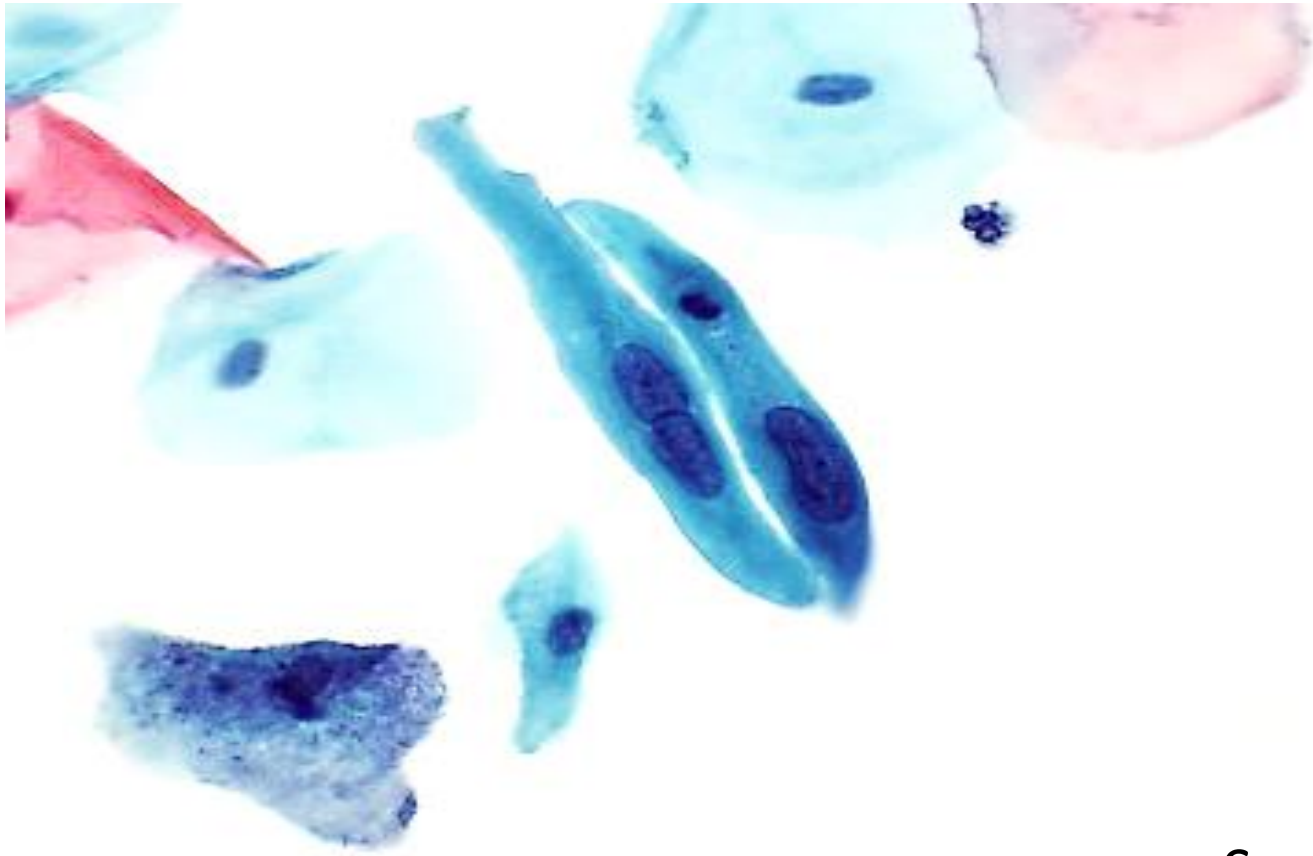
ThinPrep

LSIL: not koilocytes



ThinPrep

ASC-US
Atypical Squamous Cells of Undetermined Significance



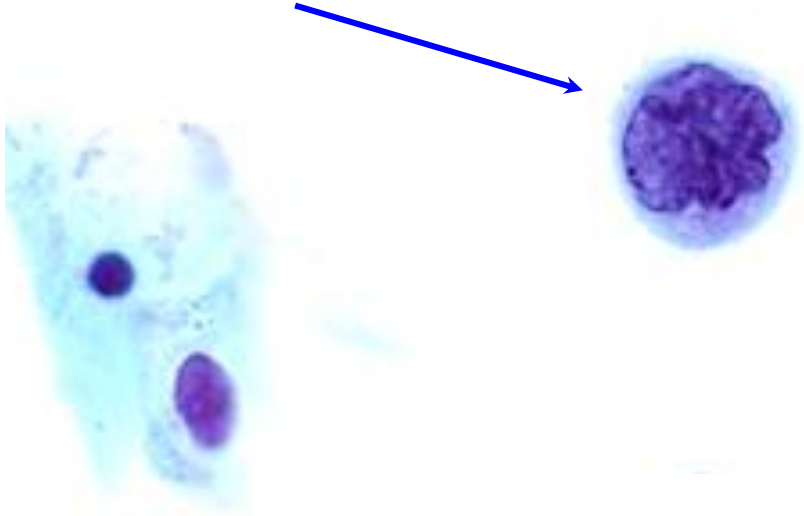
SurePath

HSIL

High N:C ratio

Hyperchromatic granular chromatin

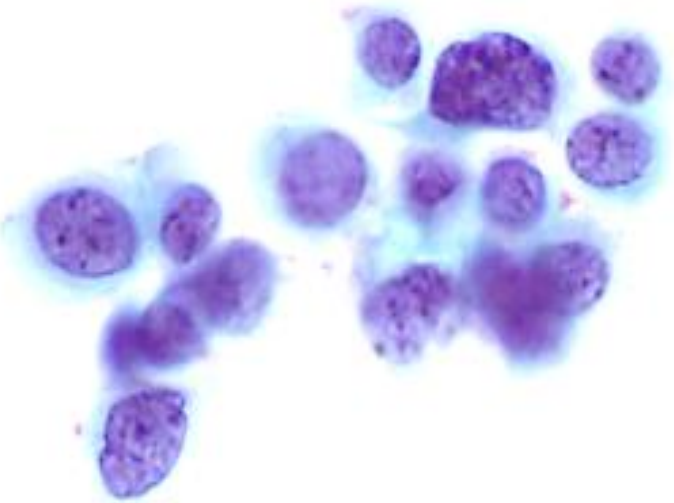
Irregular nuclear outline



ThinPrep

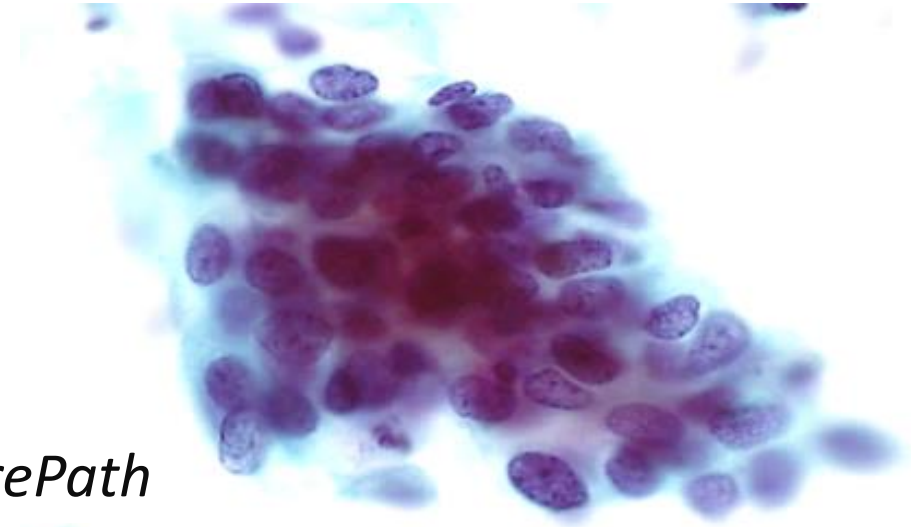
Nuclear Variation

Size, shape, chromatin, outline



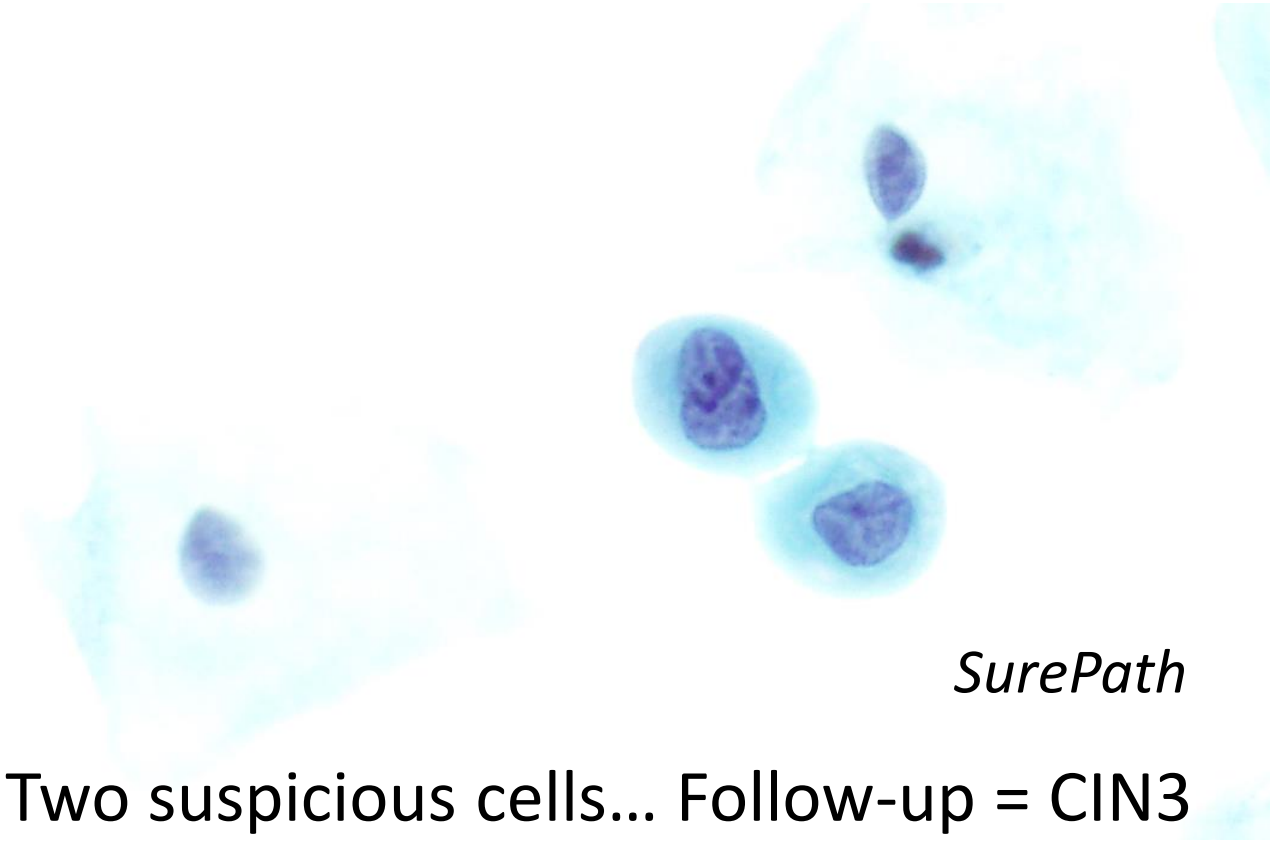
Crowded sheets

Thick, disorganised, high N:C cells, nuclear variability



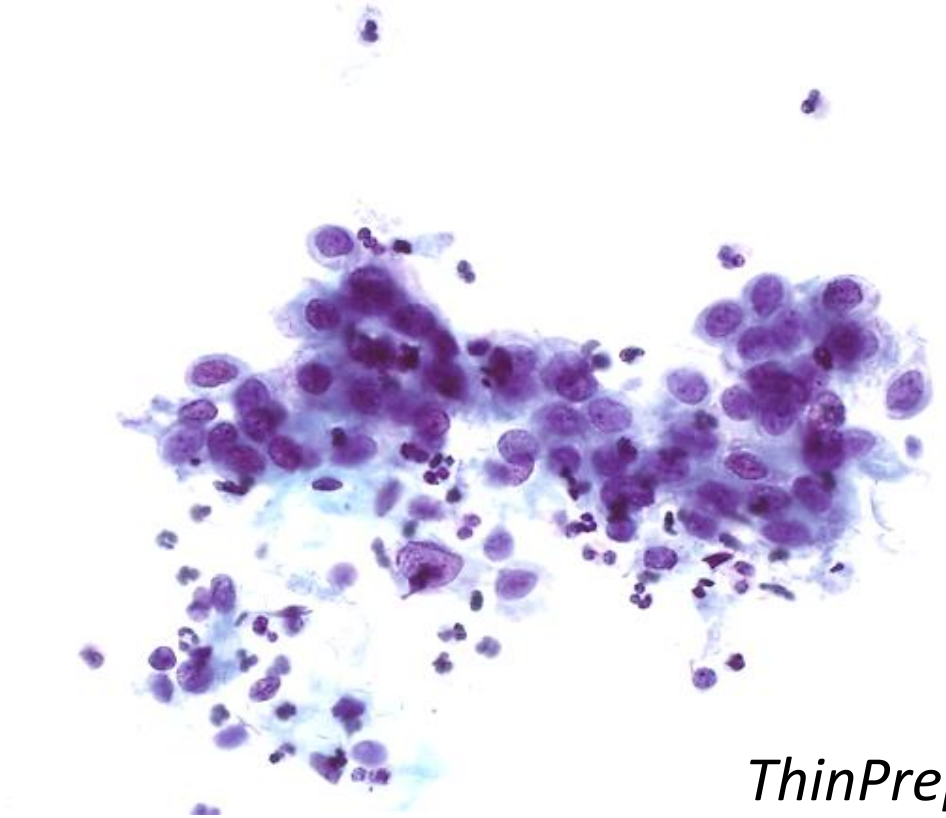
SurePath

ASC-H
Atypical Squamous Cells, possible High-grade



SurePath

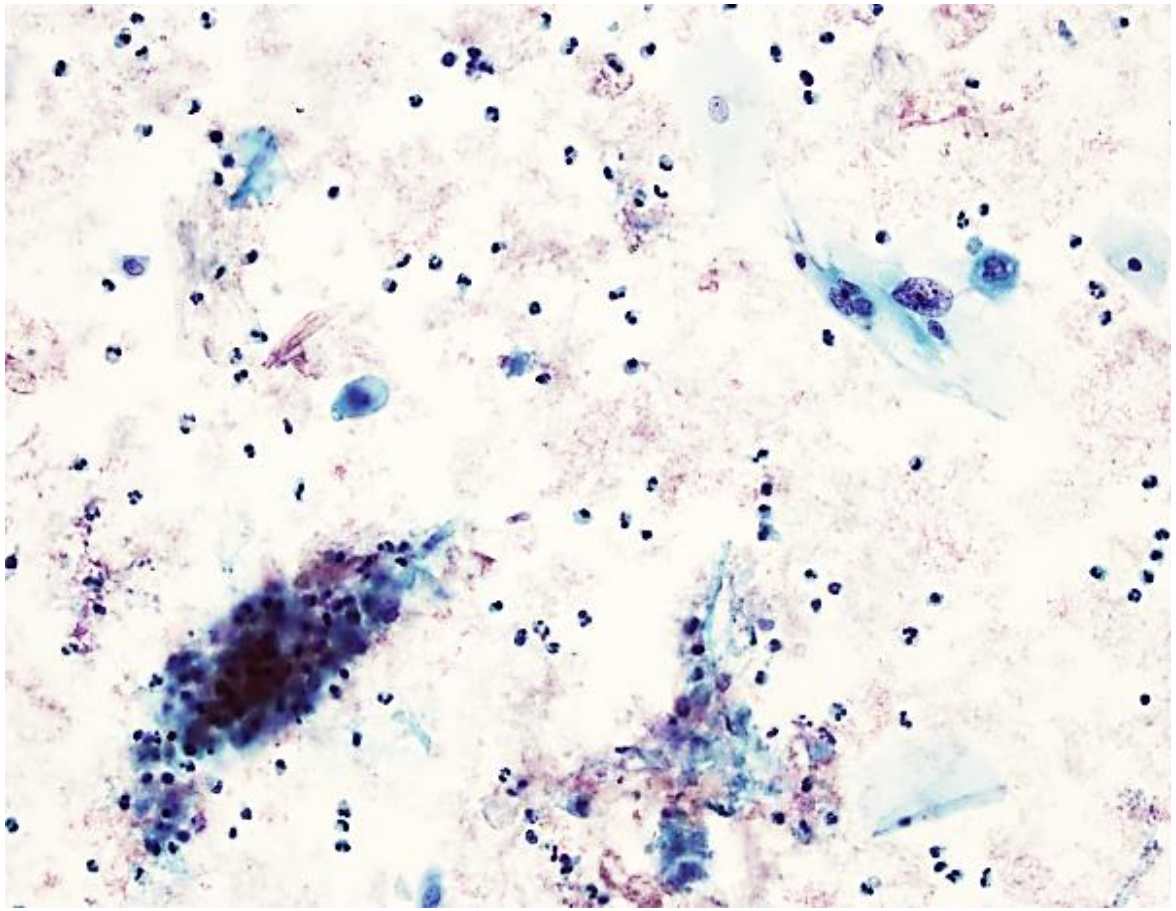
Two suspicious cells… Follow-up = CIN3

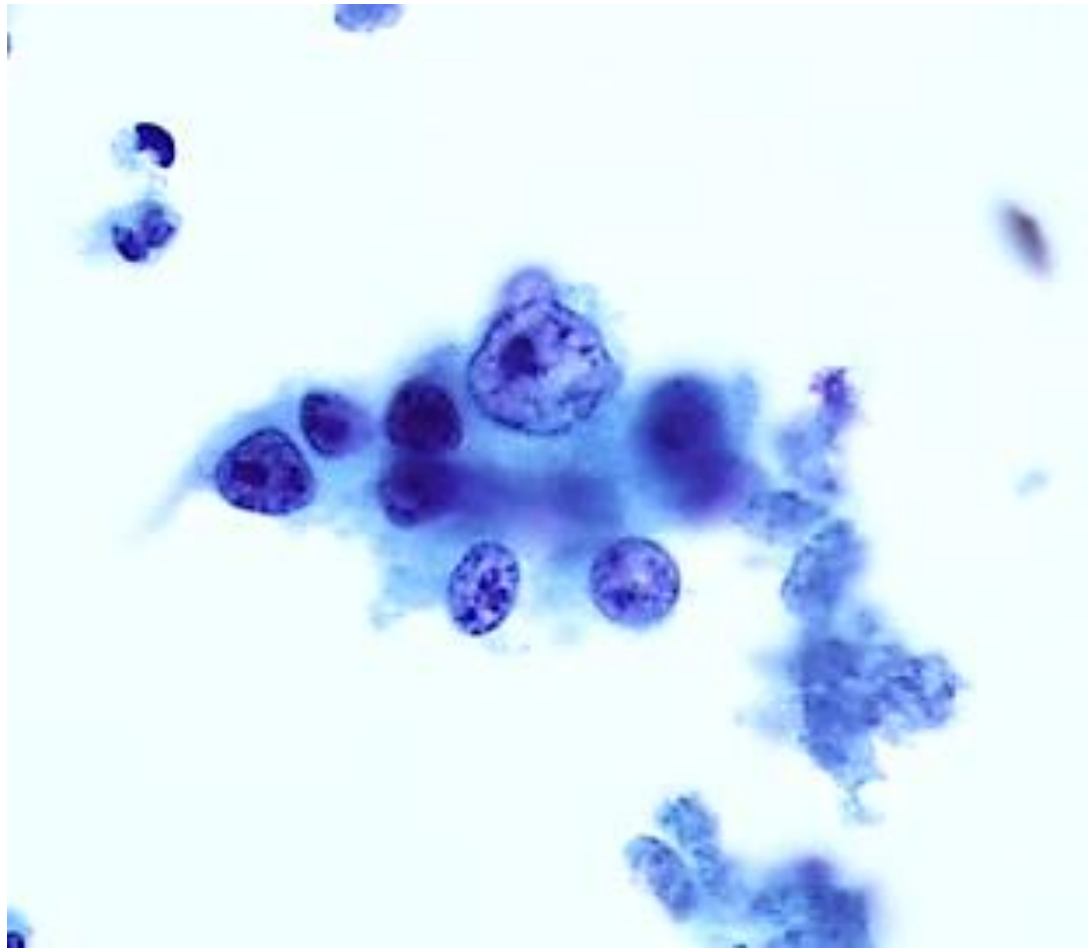


ThinPrep

Suspicious, some reactive features
Follow-up = inflammation, cervicitis

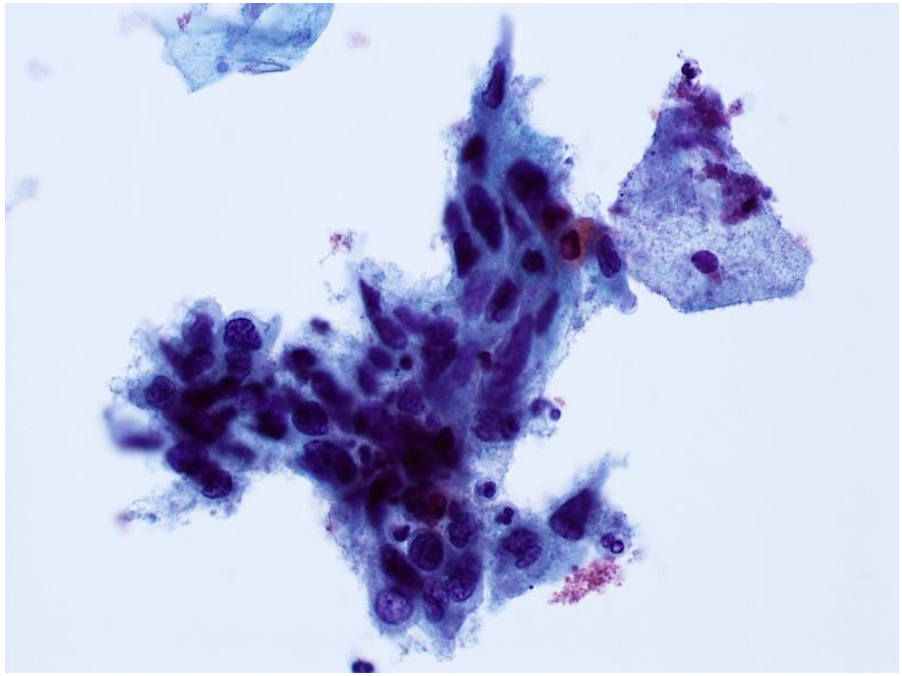
Squamous cell carcinoma

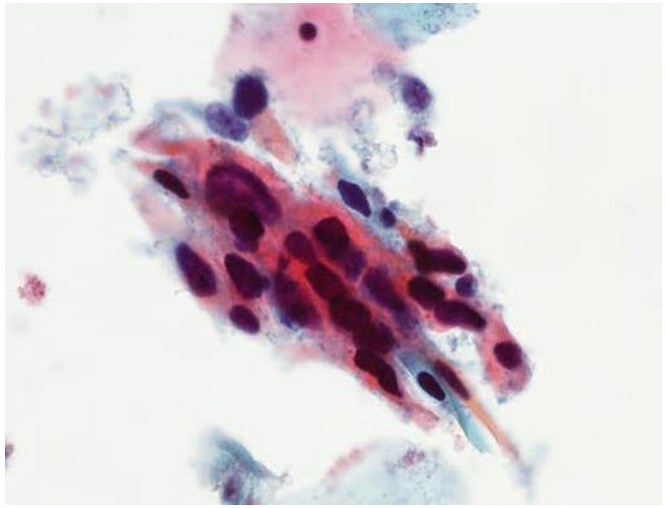


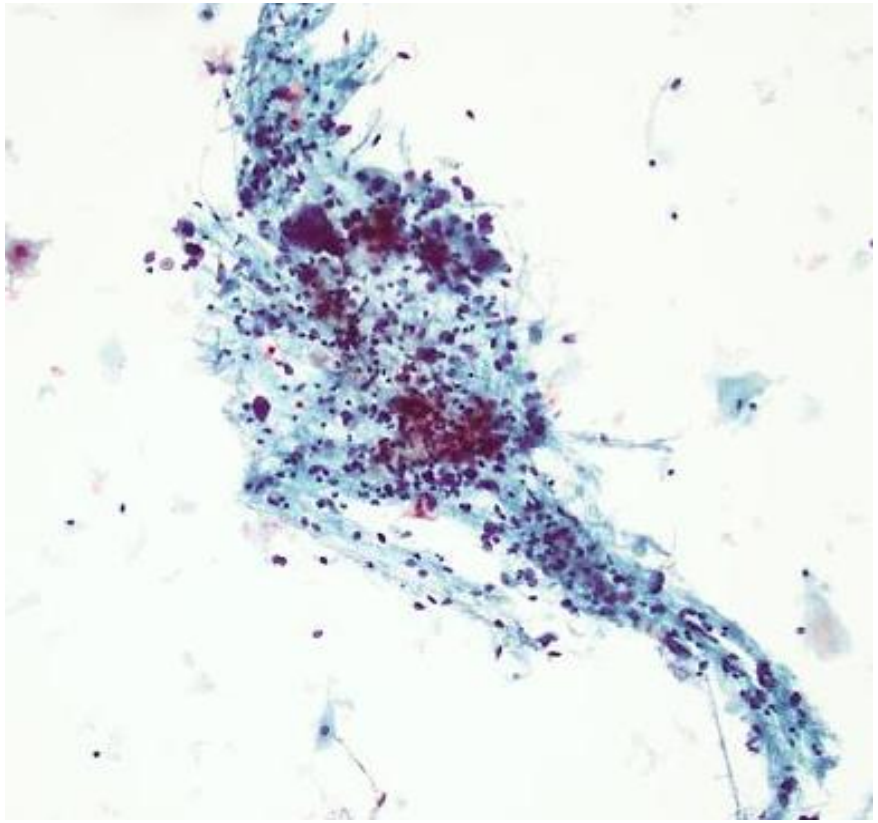


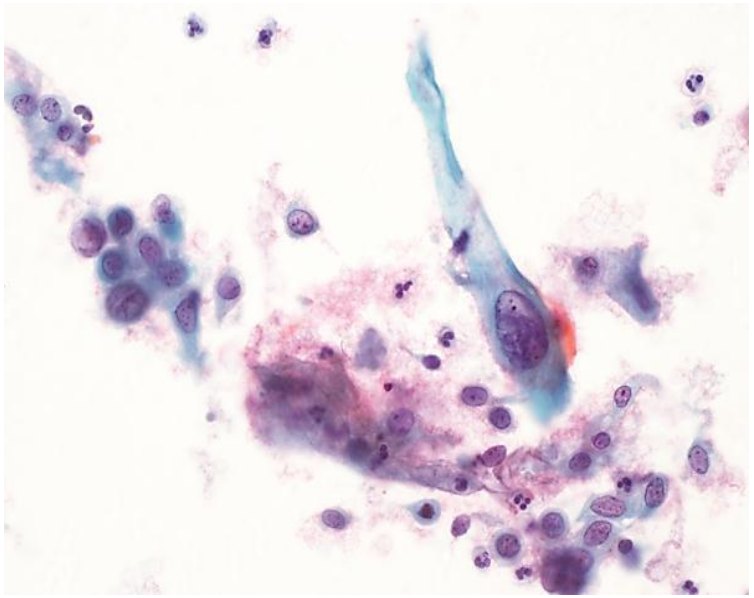
SurePath

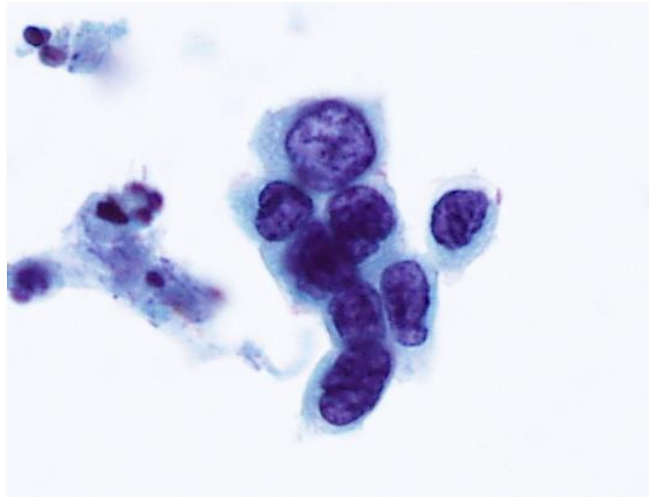
Squamous cell carcinoma





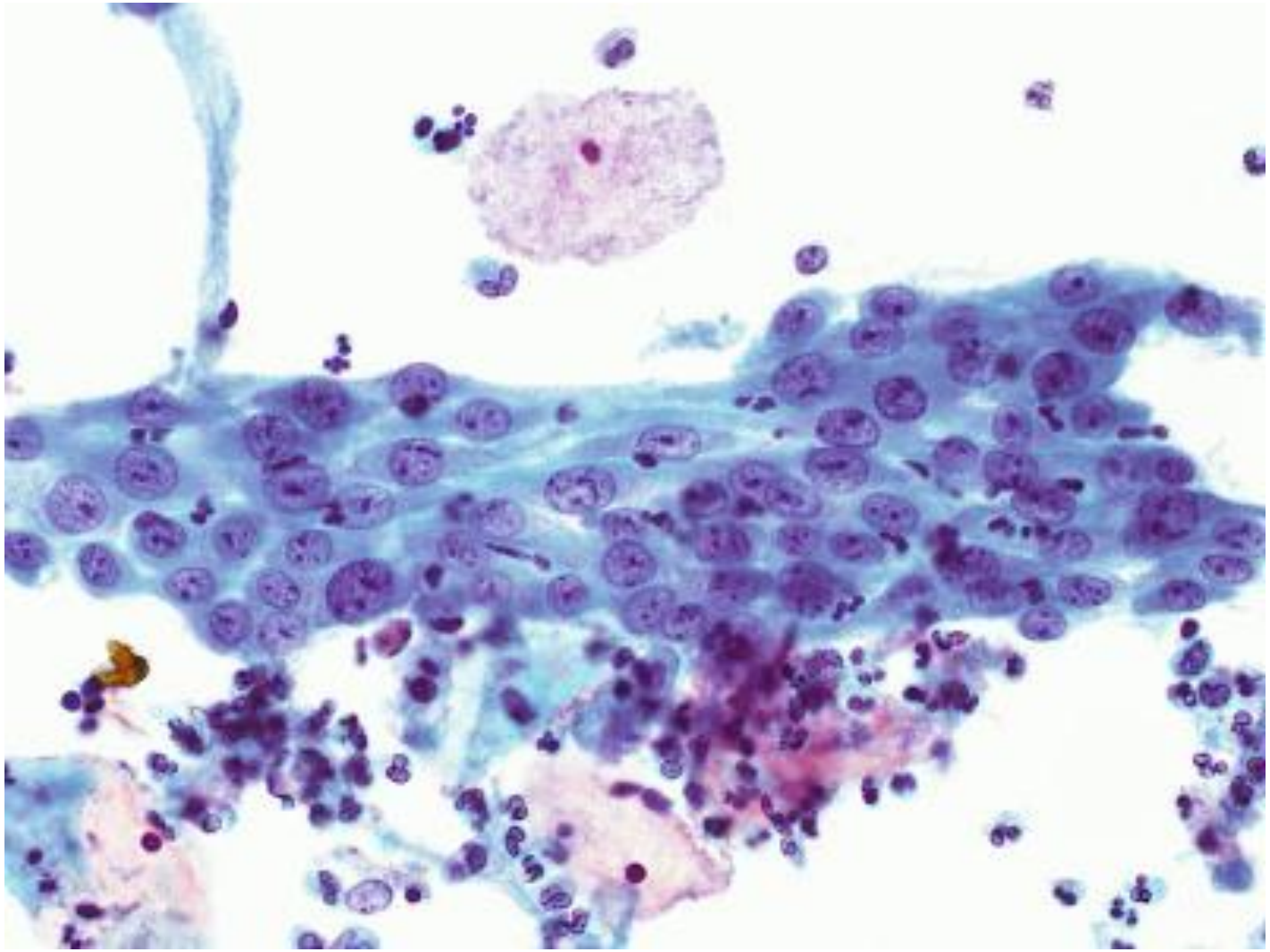






ThinPrep

REACTIVE Sheet



ThinPrep

UNSATISFACTORY SAMPLES

A. Rejected specimens – LBC vial leaking, unlabeled.
B. Specimen examined but unsatisfactory for evaluation

The specimen is unsatisfactory for evaluation because….

of insufficient squamous cells.

of poor fixation/preservation.

foreign material obscures the cells.

inflammation obscures the cells.

blood obscures the cells.

of cytolysis/autolysis.

Bethesda Criteria for adequate cellularity:
Squamous cells well-visualised and well-preserved

Liquid-based samples: at least 5,000 cells

- a minimum of 10 fields counted randomly along a diameter that includes the centre of the preparation

- minimum numbers of cells needed:

SurePath: 9 cells per 40X in each of 10 fields

ThinPrep: 4 cells per 40X in each of 10 fields

Ref: The Bethesda System for Reporting Cervical Cytology 3rd Edition. Nayar and Wilbur (eds). Springer.

Inadequate rates UK

Health Technology Assessment 2015 (Kitchener et al)

http://www.journalslibrary.nihr.ac.uk/hta/volume-19/issue22#abstract.

Conclusion: SurePath slides: 15,000 minimum

ThinPrep slides: 5,000 minimum

2013-14 Inadequate rate across UK = 2.4%

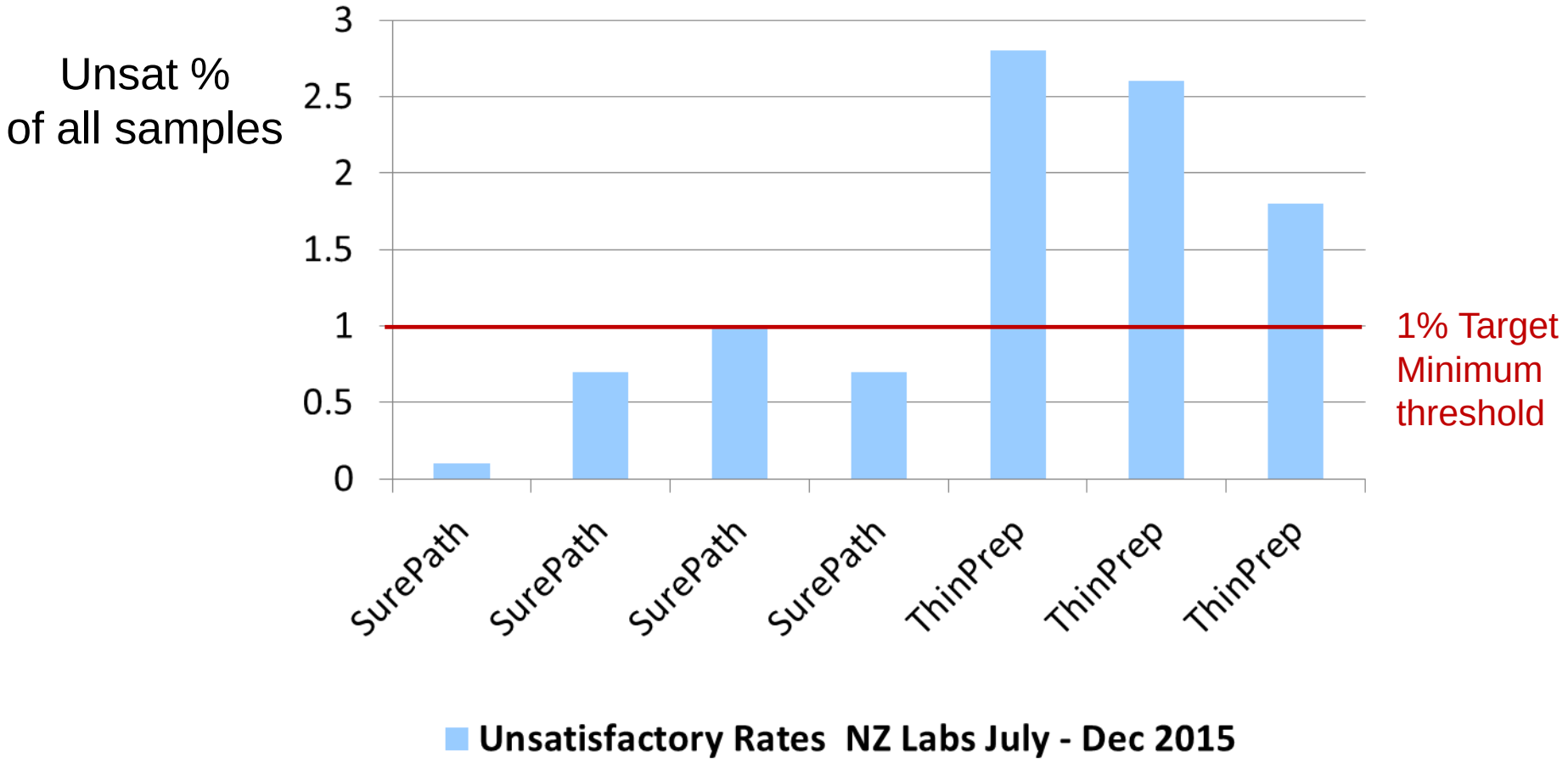
Reference:

ABC3 and LBC – Adequate or not?

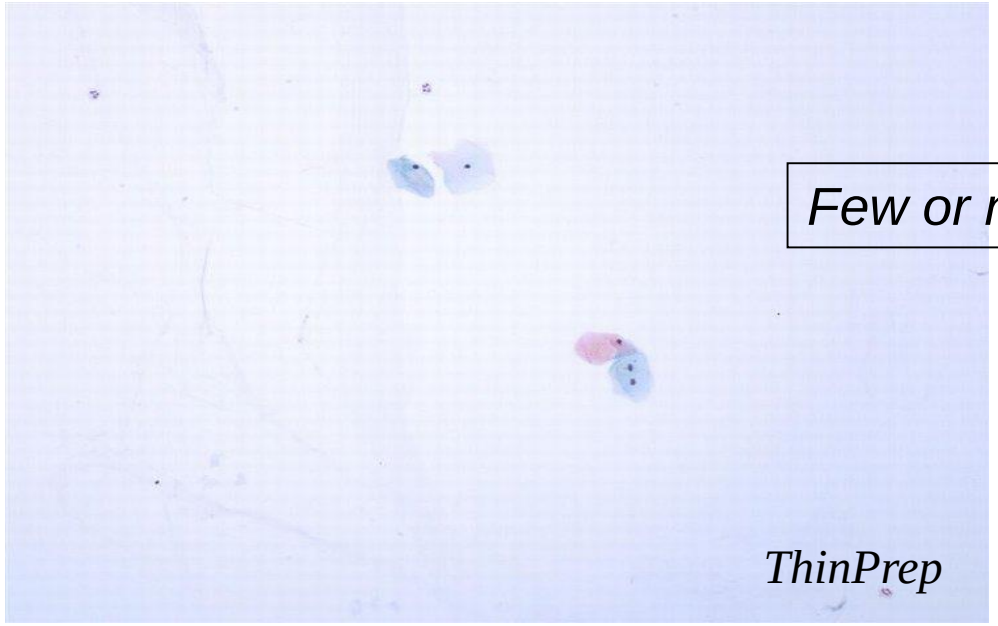
Duval E. (editorial) *Cytopathology* 2013, **24**, 211-5

Unsatisfactory rates in New Zealand
Total for NZ samples July - Dec 2015: 1.3%

Target: 1-5% of all LBC samples reported as unsatisfactory

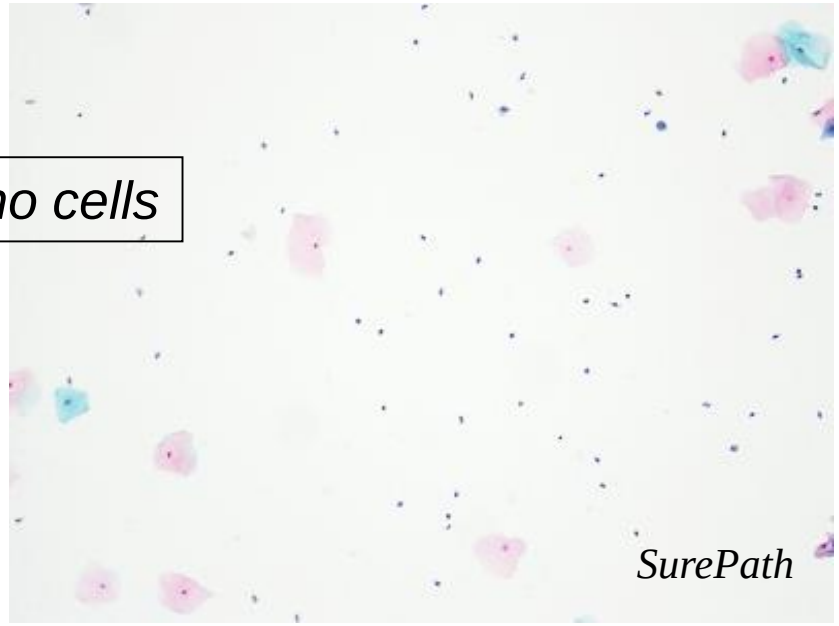


The specimen is unsatisfactory for evaluation because of insufficient squamous cells.

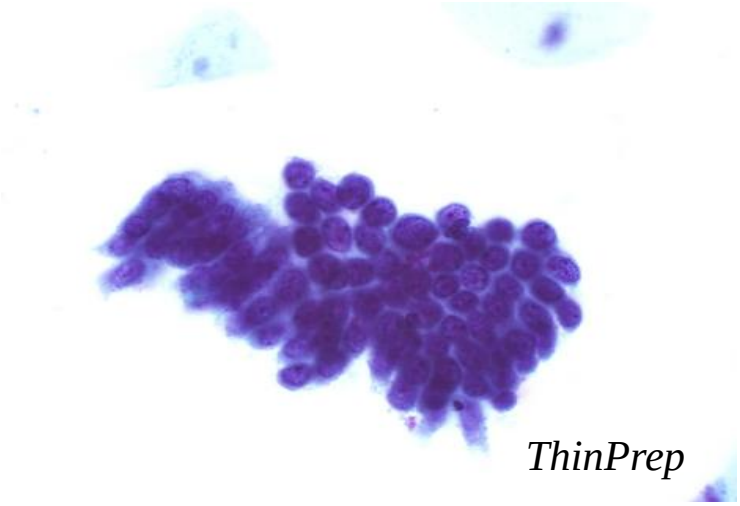


Few or no cells

ThinPrep



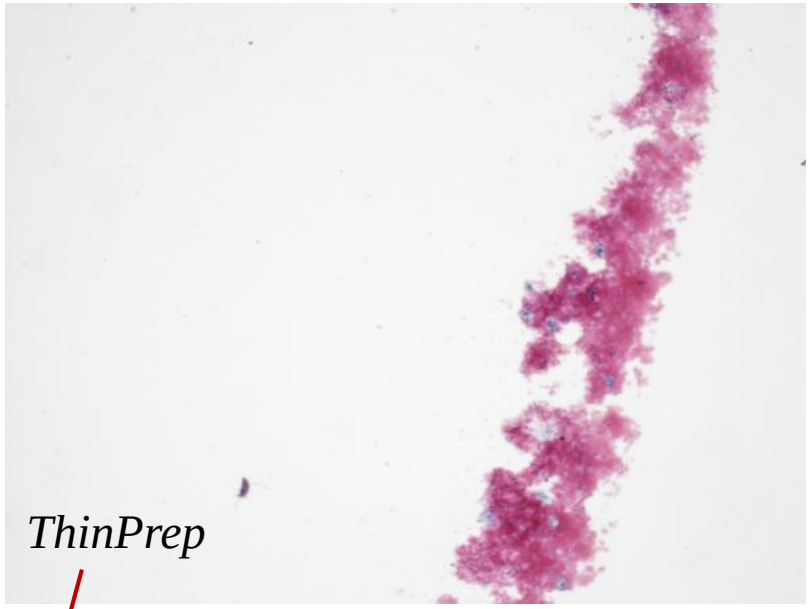
SurePath



Mainly endocervical cells

ThinPrep

The specimen is unsatisfactory for evaluation because blood obscures the cells.



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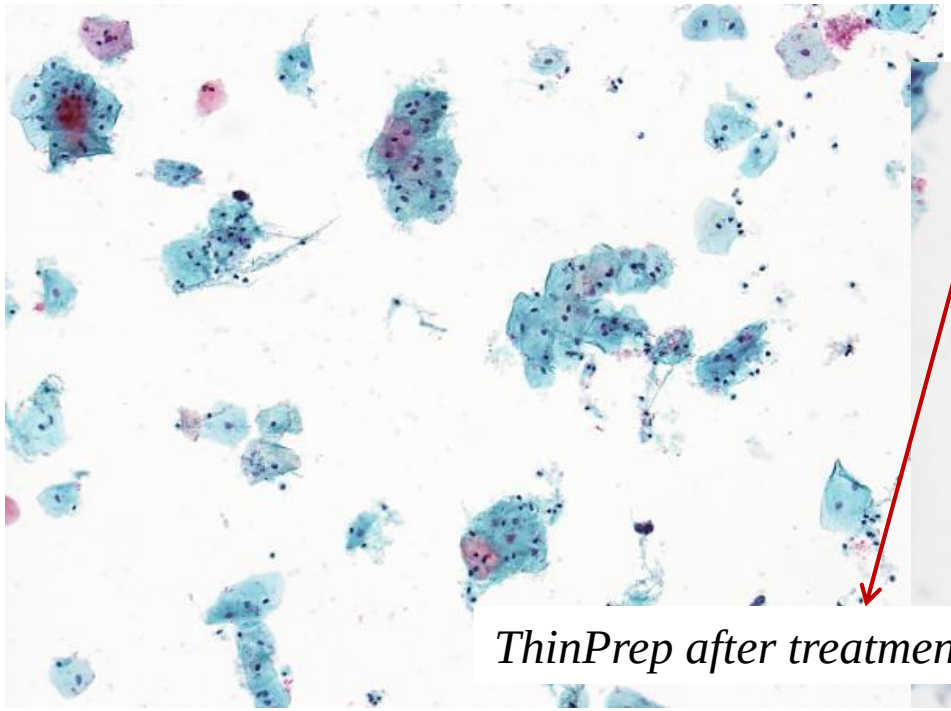
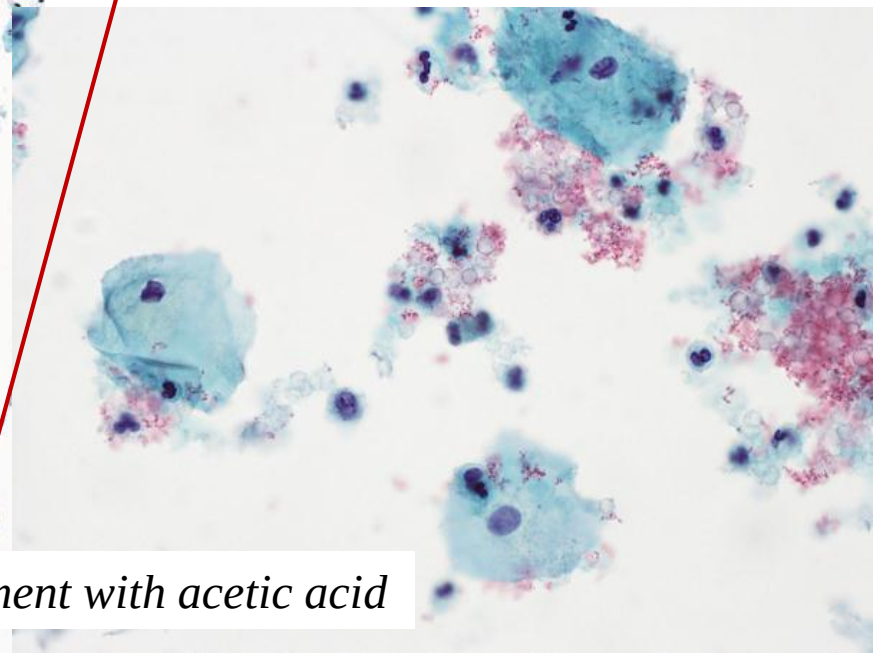




ThinPrep after treatment with acetic acid

Organisms

There are organisms consistent with *Trichomonas vaginalis*

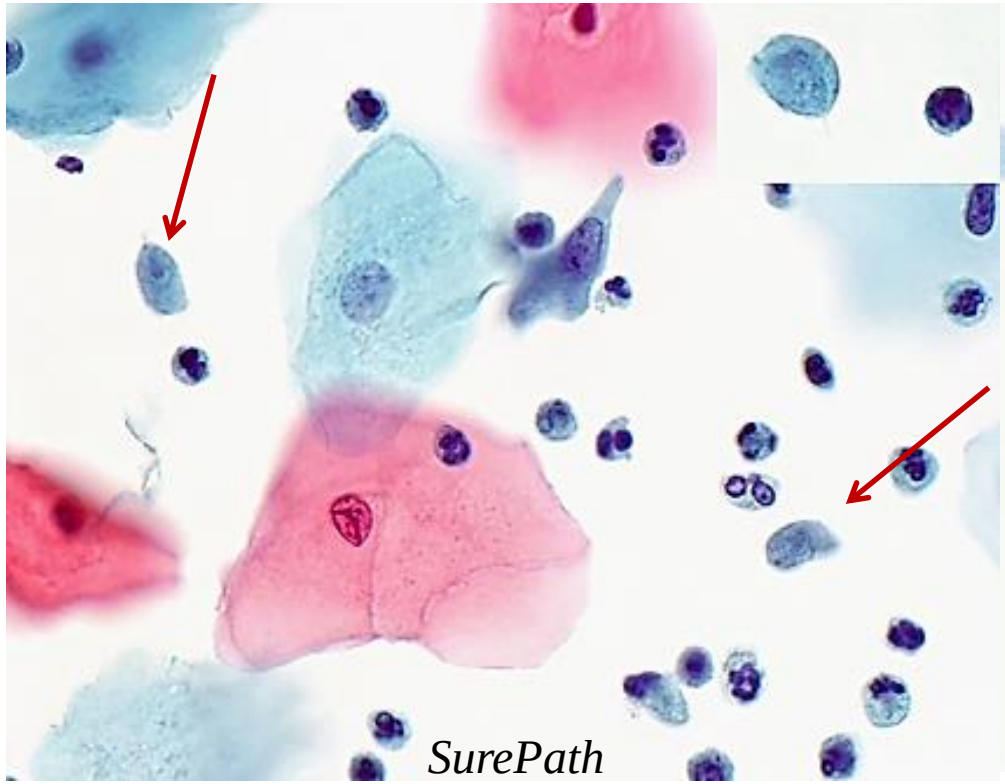
There are fungal organisms morphologically consistent with *Candida* species

There is a shift in microbiological flora suggestive of bacterial vaginosis

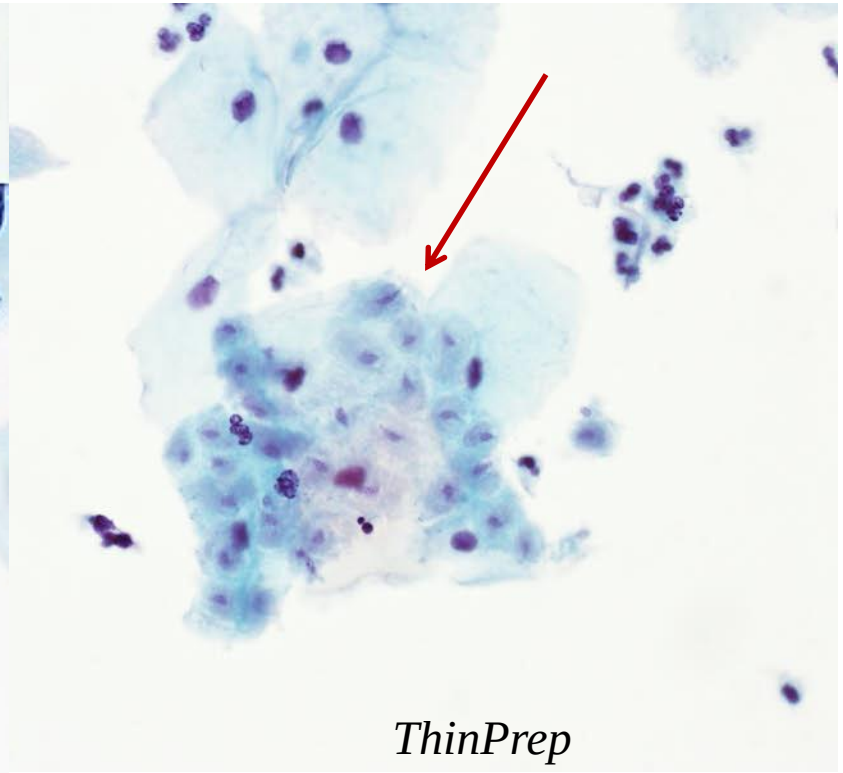
There are bacteria morphologically consistent with *Actinomyces* species

There are cellular changes consistent with *Herpes simplex virus*

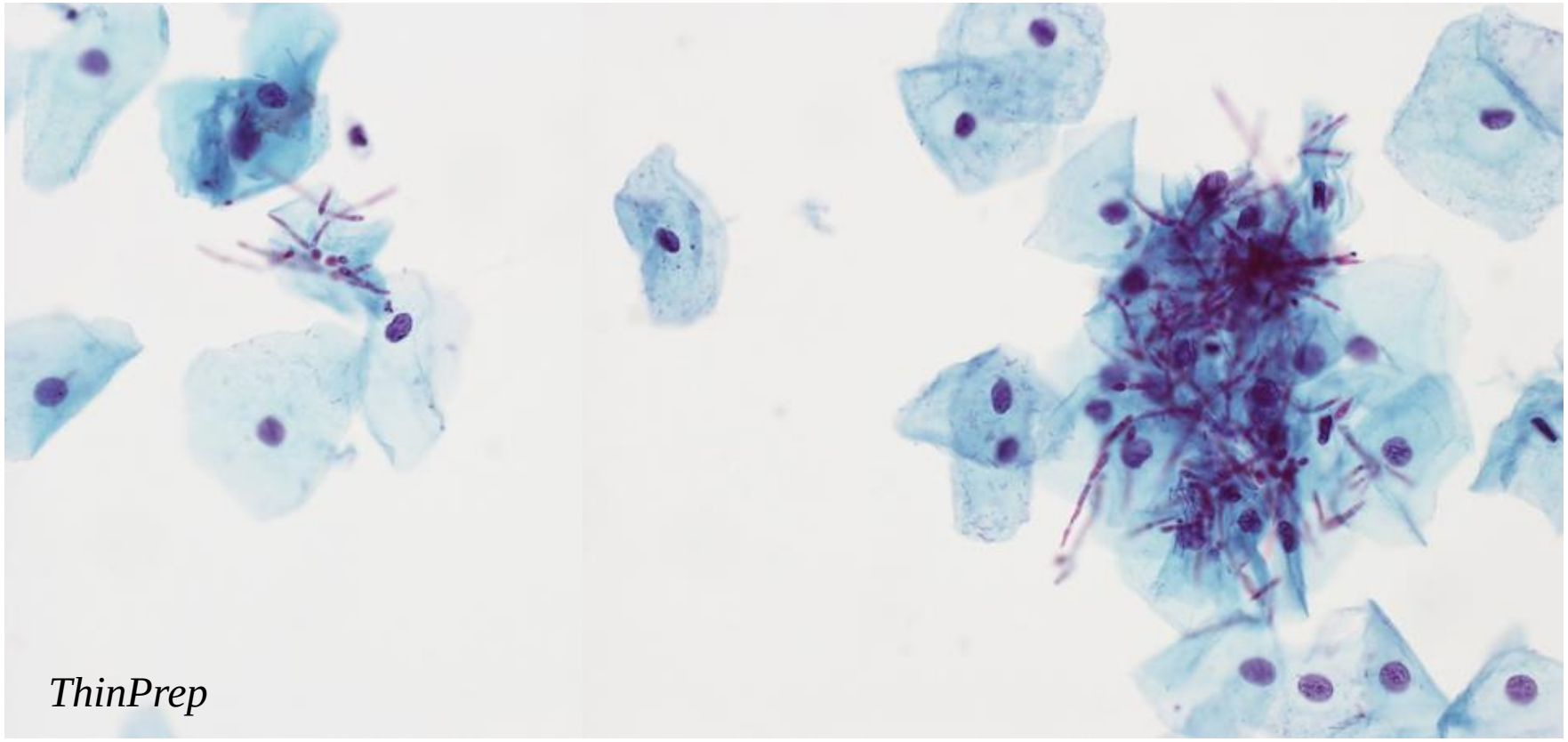
Trichomonas vaginalis



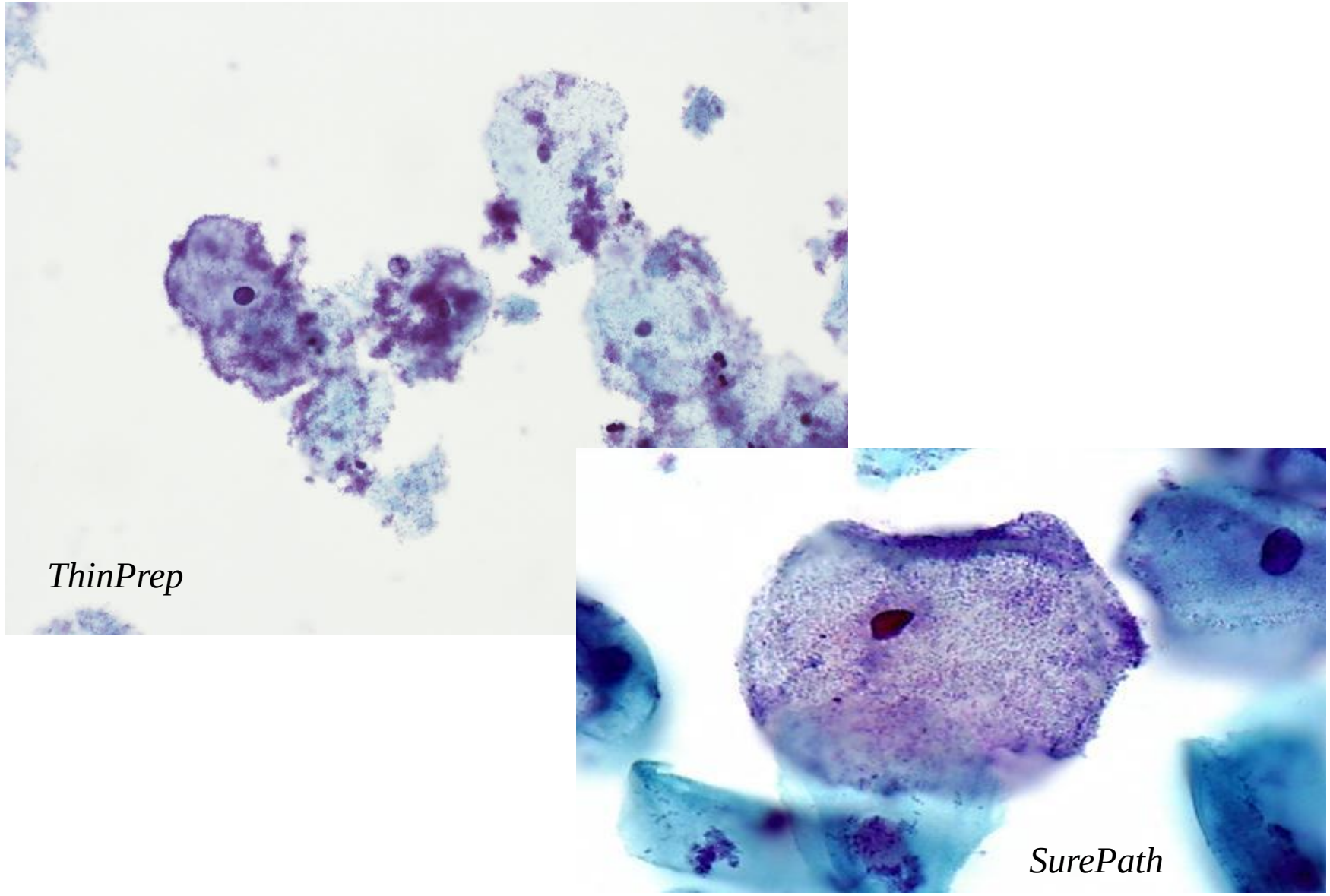
Single trichomonads
insert: flagellum



Large cluster of
trichomonads

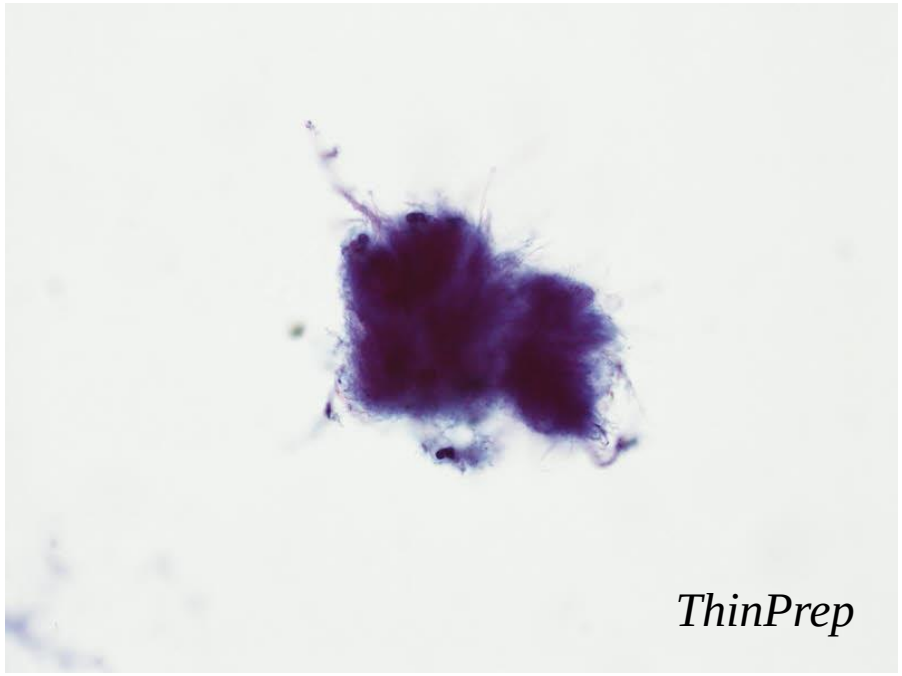


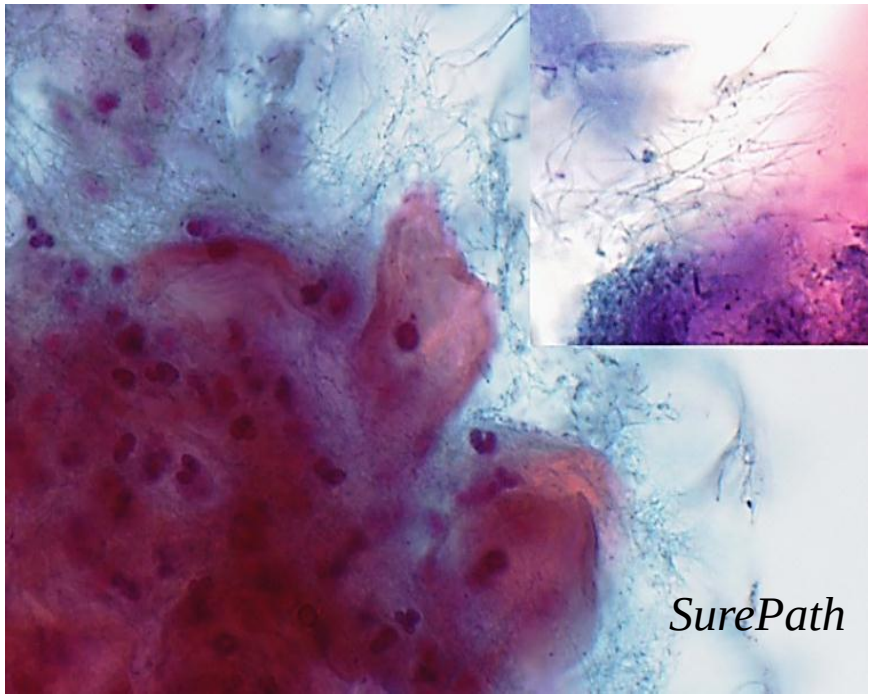
Fungal organisms consistent with *Candida* species

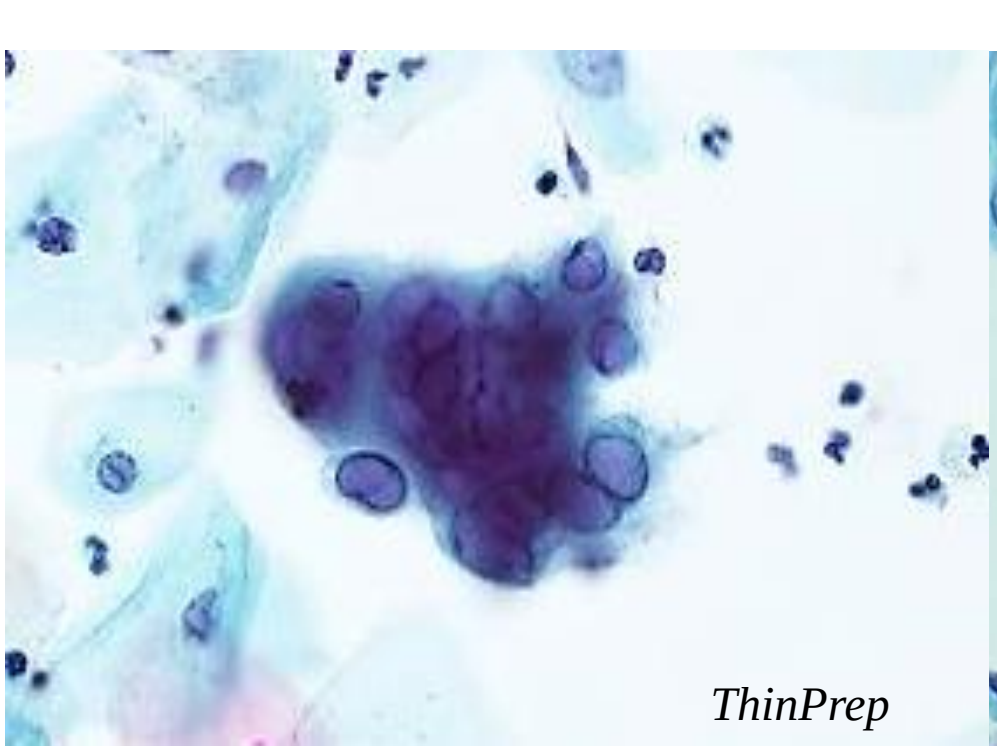


Shift in bacterial flora suggesting bacterial vaginosis

Bacteria consistent with *Actinomyces*







Molding, multinucleation and margination of chromatin

Intranuclear viral inclusions

Cell changes consistent with *Herpes simplex* virus

Reactive/non-neoplastic changes

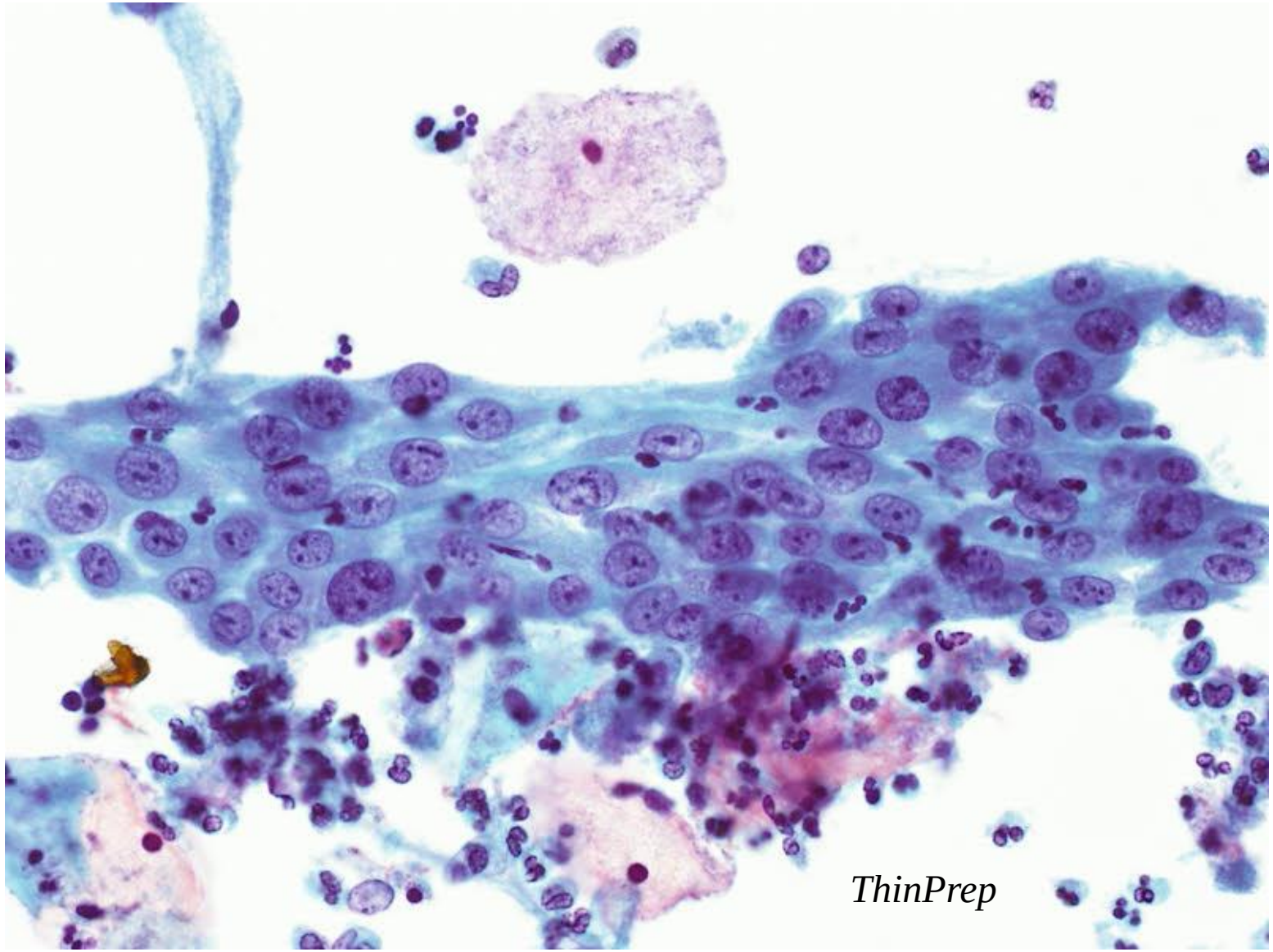
There are reactive cellular changes present.

There are endometrial cells present in a woman over the age of 40 years.*

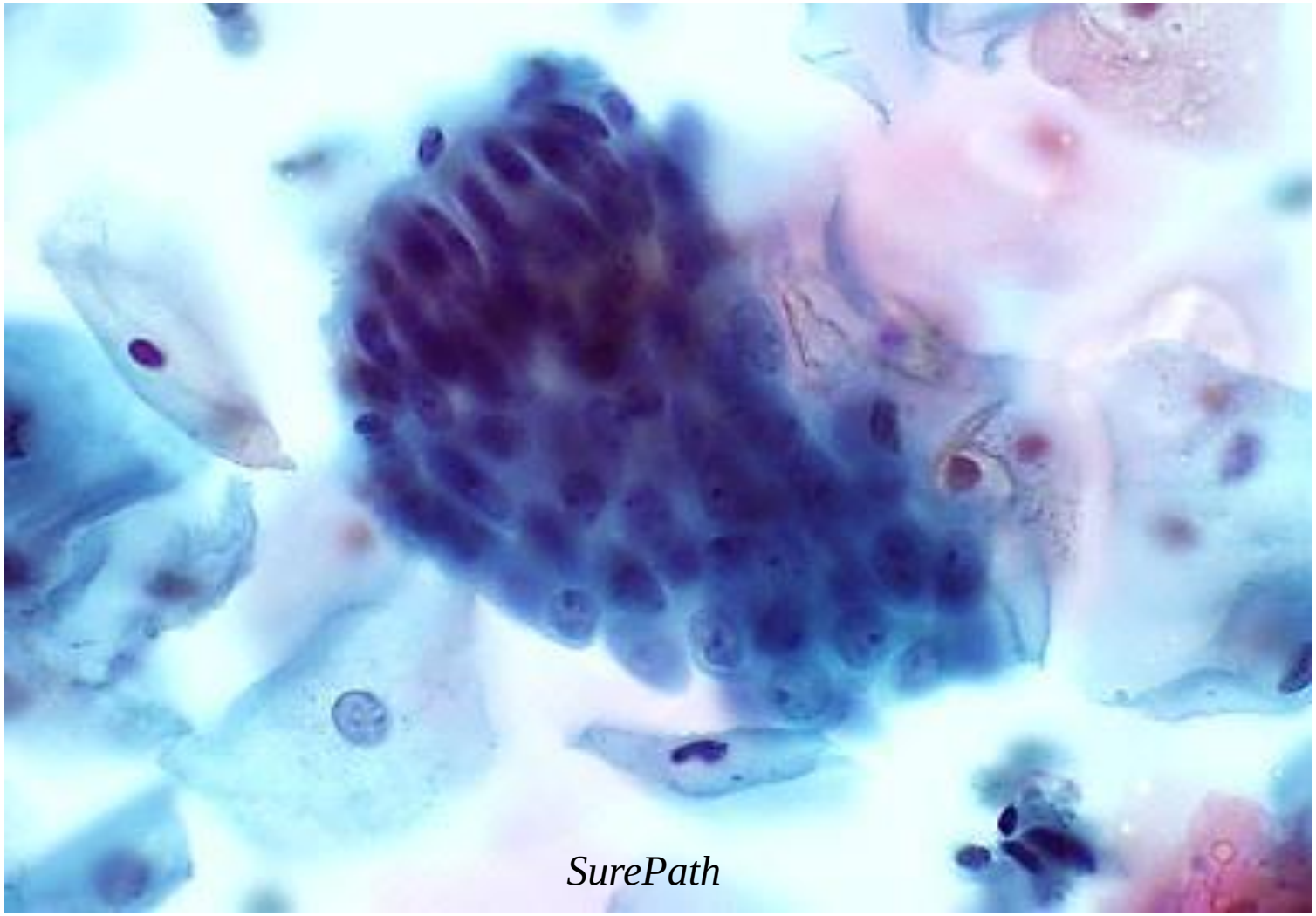
There are atrophic cellular changes present.

**The presence of endometrial cells in a woman over the age of 40 years can be a normal finding, or seen in association with hormone replacement therapy , or rarely, associated with endometrial pathology including hyperplasia or neoplasia. Please correlate this finding with any symptomatology of uterine pathology, for example abnormal uterine bleeding and refer/investigate appropriately.*

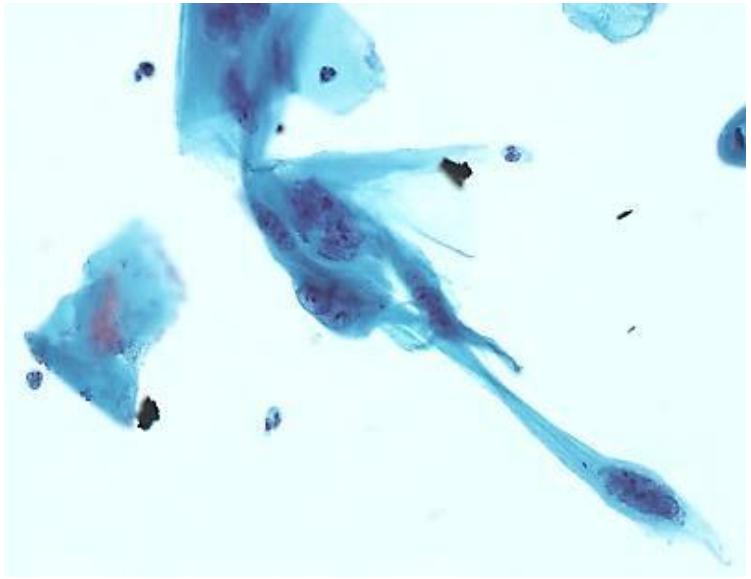
Reactive squamous cells

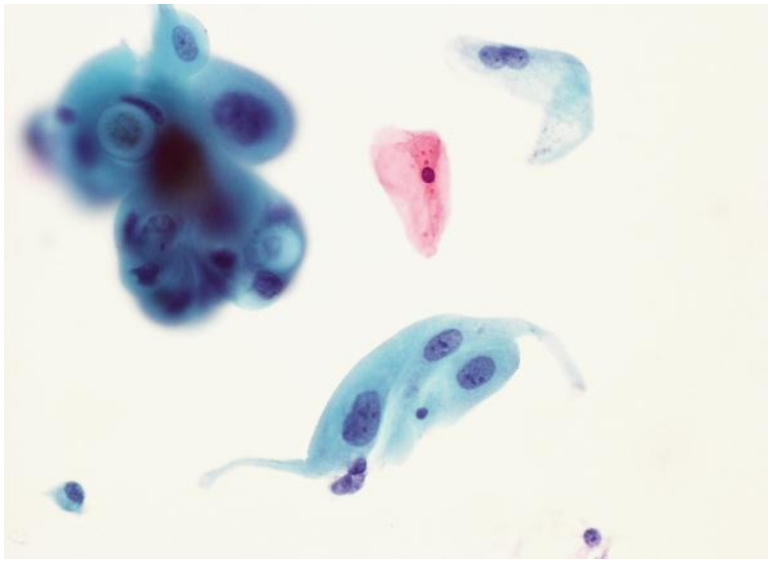


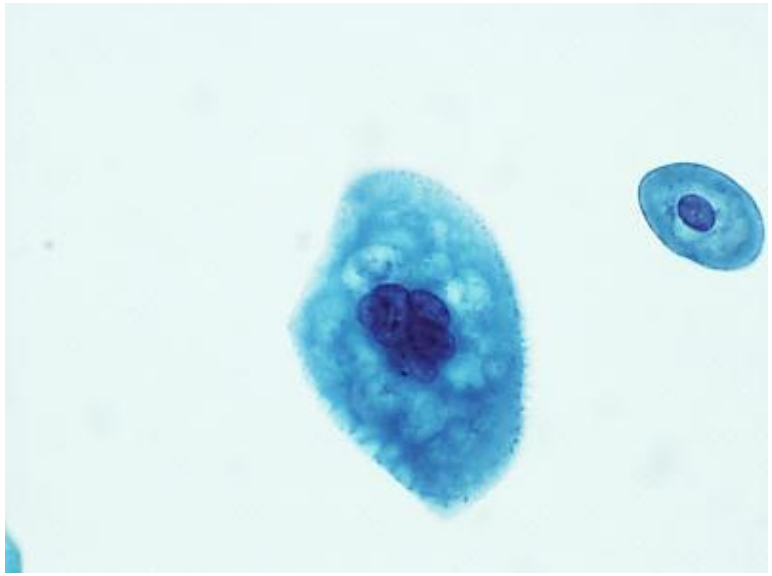
Reactive endocervical cells

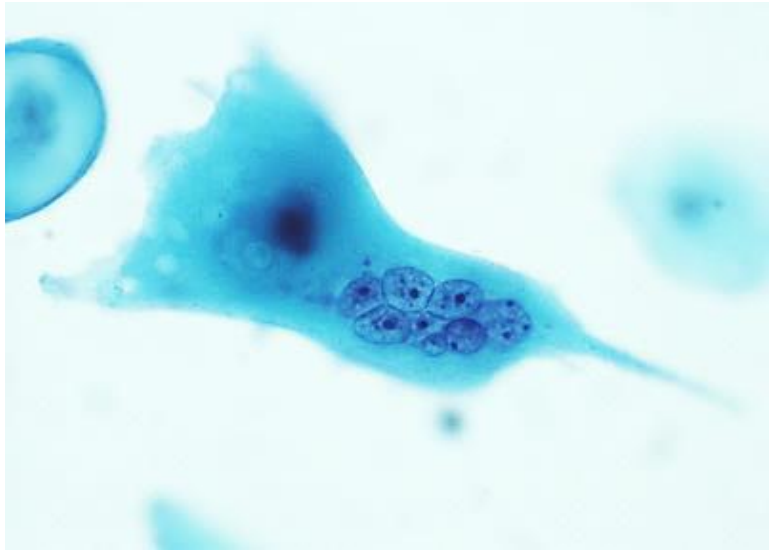


Radiation change



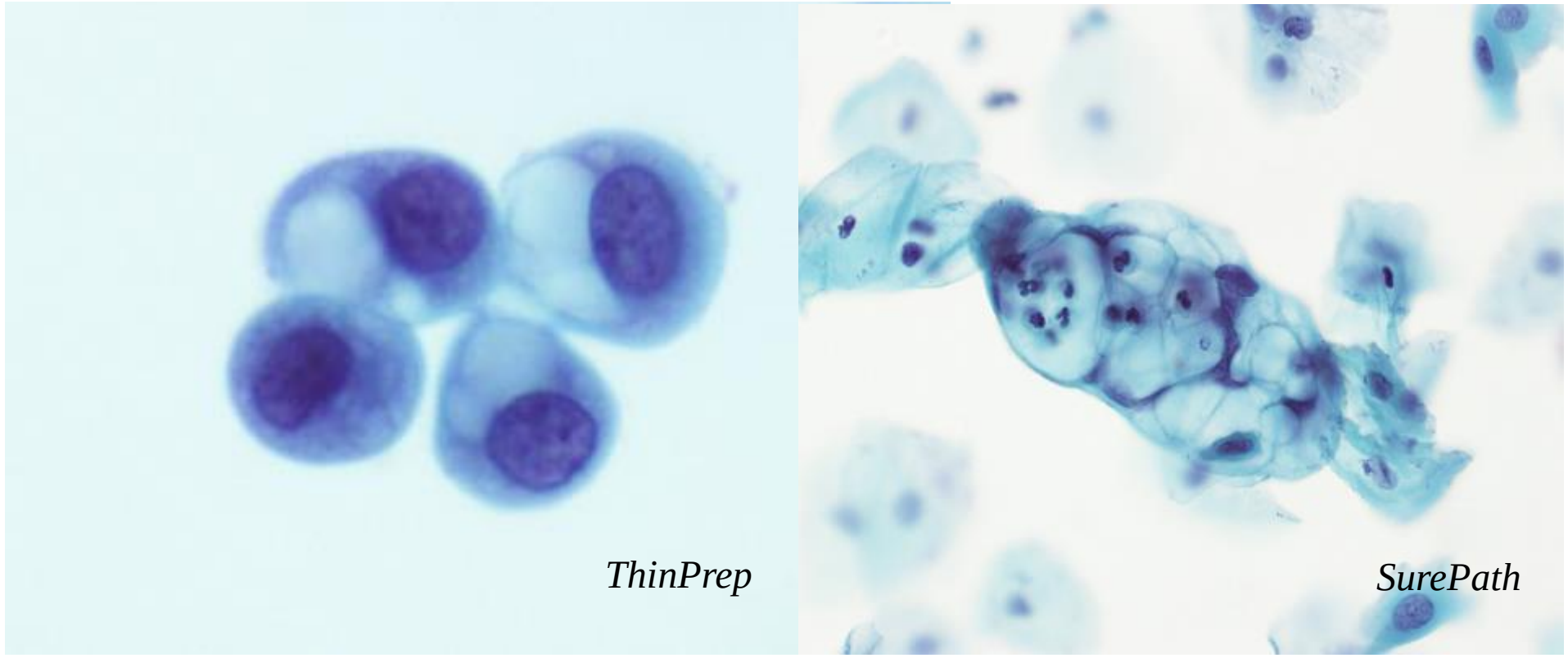




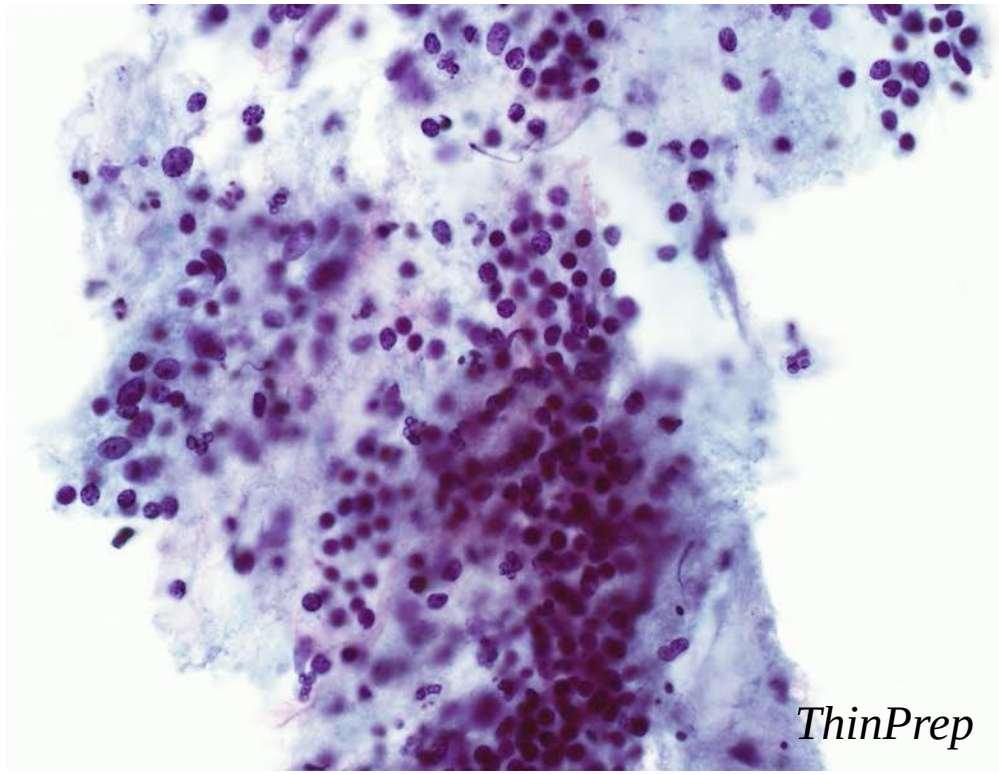


SurePath

IUCD cells



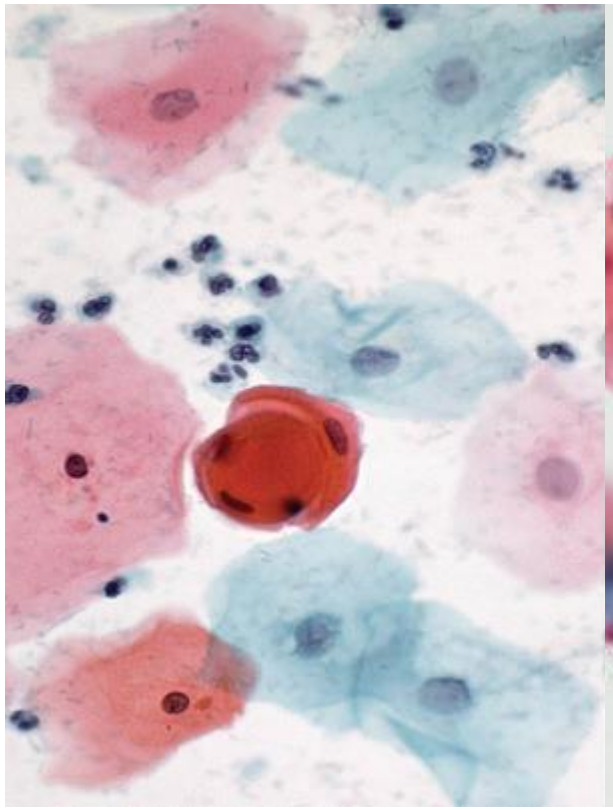
Lymphocytic cervicitis

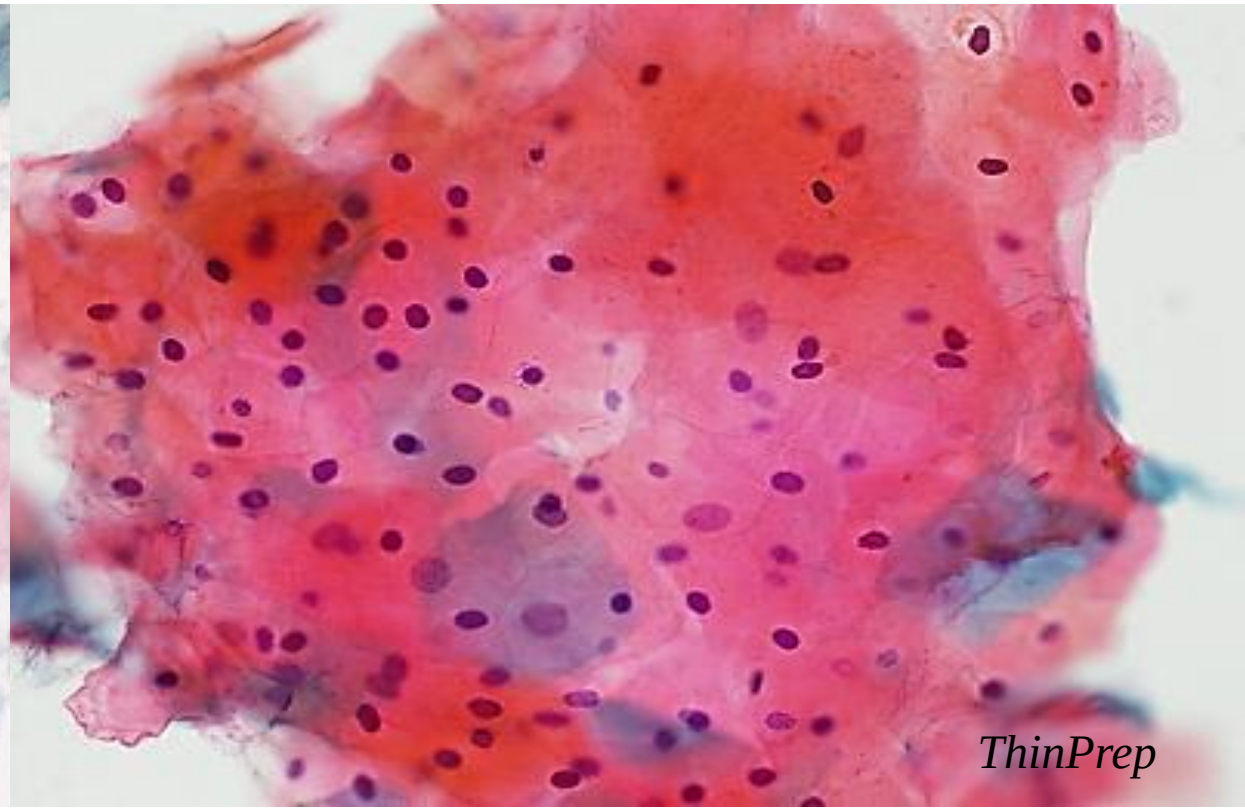


Loose cluster of lymphocytes

Tingible body macrophages

Parakeratosis

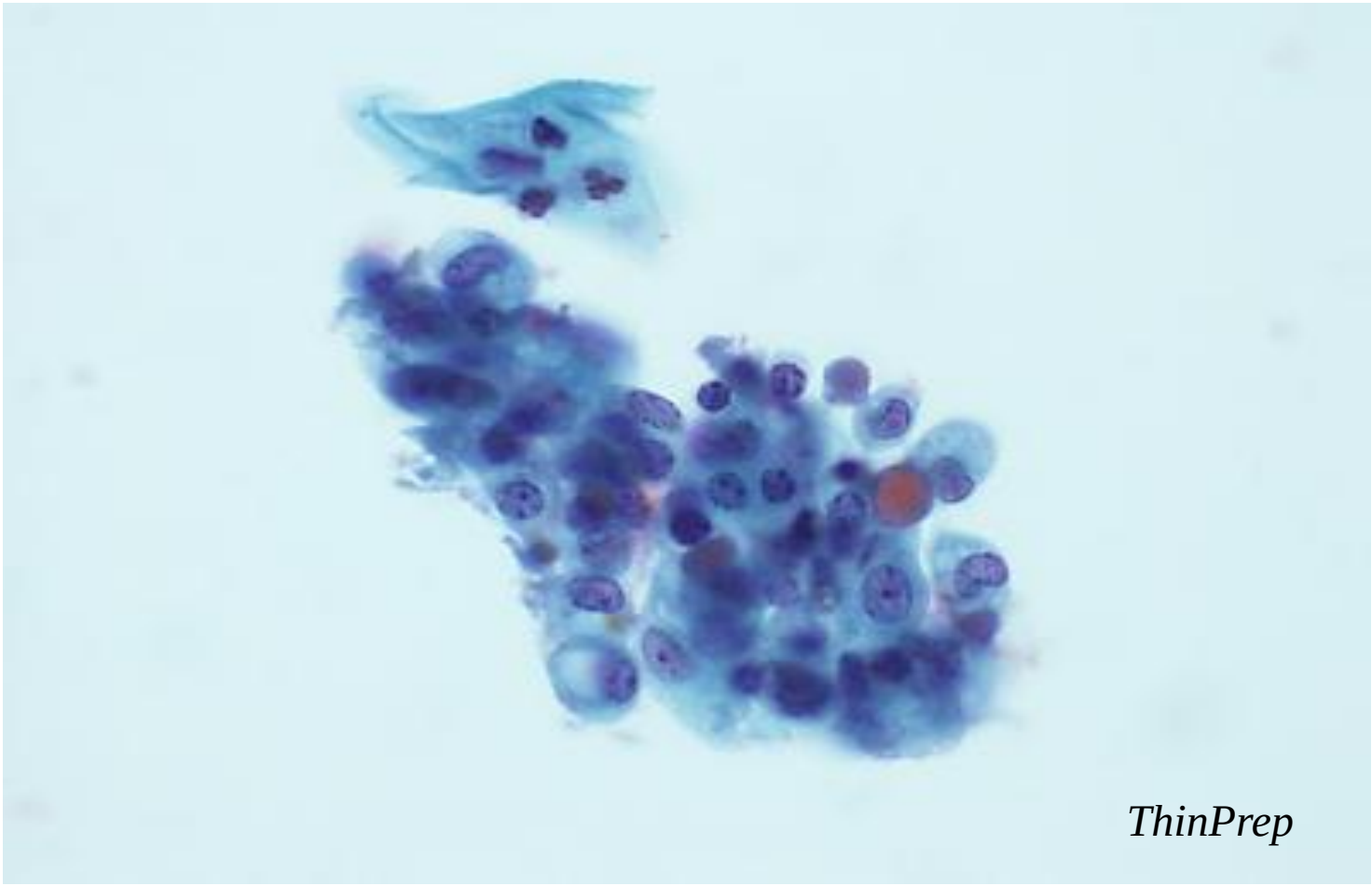




Squamous pearl

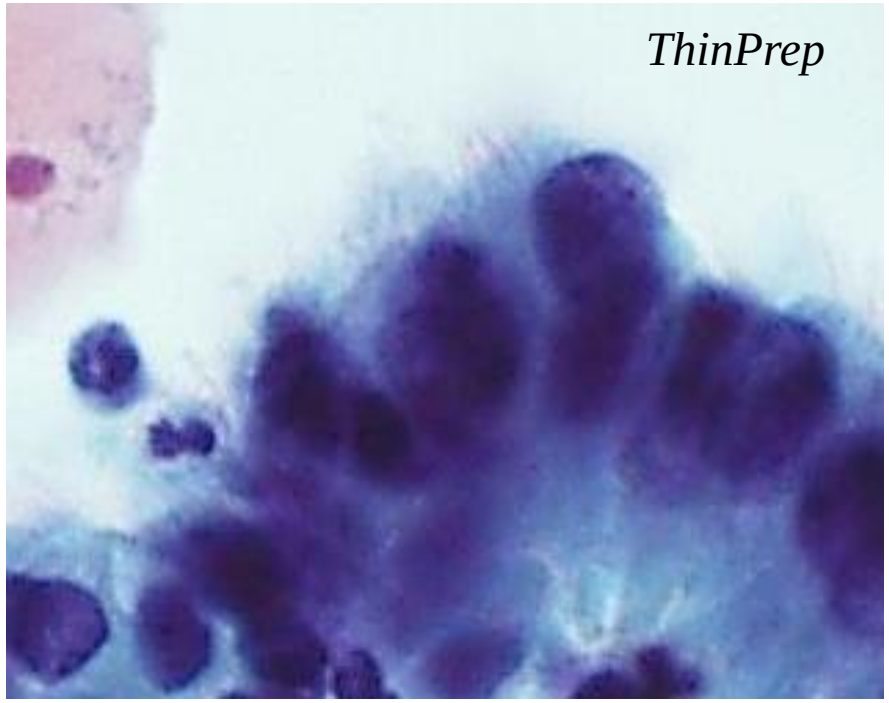
Parakeratotic group showing smaller darker nuclei

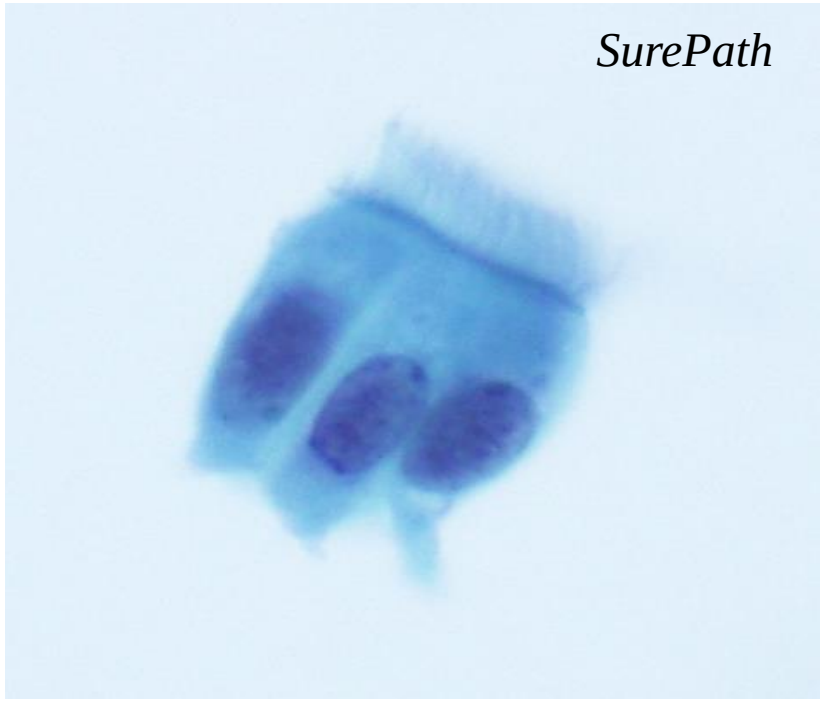
Cervical endometriosis



Endometrial cells, histiocytes and blood

Tubal metaplasia



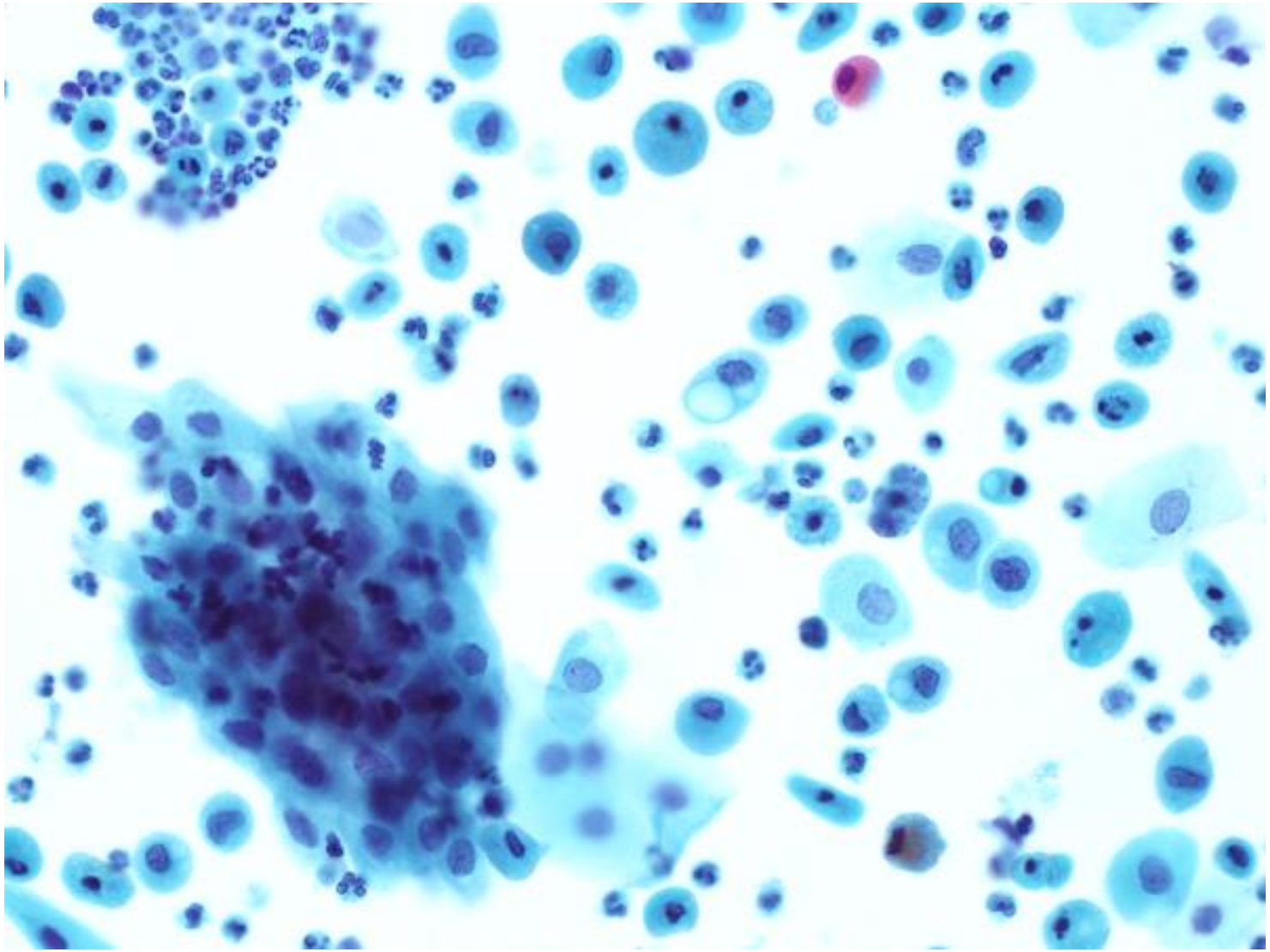


Columnar endocervical cells with cilia and terminal bars

Transitional metaplasia

Characteristic longitudinal nuclear grooves

ATROPHY



SurePath

See as many cases and images as you can