Croatia and the EU:
Together
Against Cancer

IMPROVEMENT OF QUALITY OF THE NATIONAL CANCER SCREENING PROGRAMMES IMPLEMENTATION (CRO SCREENING)

MINISTRY OF HEALTH OF THE REPUBLIC OF LITHUANIA

NCI

LITHUANIAN UNIVERSITY OF HEALTH SCIENCES

CPVA

NIJZ
Nacionalni institut za javno zdravje

Ministry of Health

HZJZ

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The role of the cytologist in breast cancer screening

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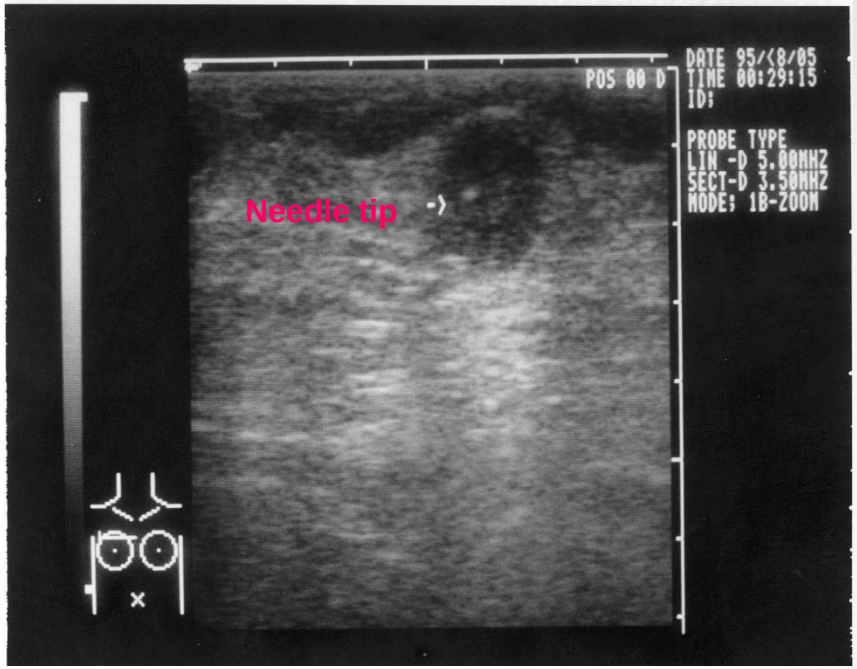
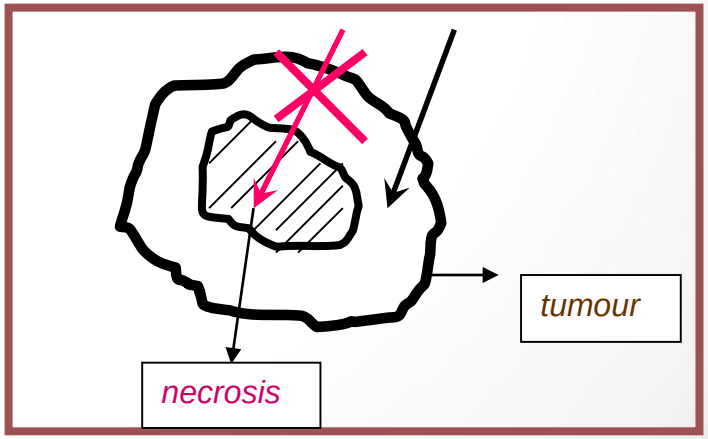
Fine needle aspiration (FNA, FNAB, FNAC)

Fine needle aspiration — FNA is performed with a 22 to 25G needle attached to a 10 or 20 mL syringe. While keeping negative pressure on the syringe, the needle is passed back and forth, changing the angle within the mass ("Y" technique).

Palpation-guided FNA — has been used for years to evaluate a palpable breast mass, today we consider it obsolete, and it is used on rare occasions only

Ultrasound-guided FNA — today is considered a state-of-the-art method even for palpable breast lesions - it increases the precision of needle tip placement





- FNA is used for :

1. **diagnosis of palpable and nonpalpable primary** breast lesions
   - Malignant
   - Benign
2. **preoperative evaluation of lymph nodes** – positive findings prevents the sentinel lymph node biopsy

FNA – ADVANTAGES

✓ The least invasive of various tissue-diagnostic methods
✓ Well-tolerated by patients
✓ Does not require local anaesthetic
✓ Virtually non-existent contraindications and complications
✓ Easily and quickly performed (by well-trained specialists!)
✓ Results obtainable quickly, even with on-site examination (ROSE) of specimen quality
✓ Lower costs of patient preparation, instruments and specimen preparation
✓ FNA specimens are suitable for cell-block technique and various cytogenetic and molecular analyses
✓ FNA does not cause tissue scarring
✓ FNA can be repeated a number of times without consequences

SPECIFIC FOR CROATIA

✓ Cytology services widespread and readily available
✓ Substantial number of trained cytologists
✓ More accesible than CNB

FNA DISADVANTAGES

✓ Depends greatly on performing doctor's training and skills

✓ Results depend on the quality of specimens (the substantial number of inadequate samples and false negative results in inexperienced hands)

✓Technical problems can influence the interpretation thus contributing to the rate of false positive and false negative diagnoses

✓ The tissue architecture can not be analysed

✓ Can not differentiate between carcinoma *in situ* and invasive carcinoma

✓ Problems in differentiating some benign lesions (atypical ductal hyperplasia, sclerosing adenosis) and well-differentiated carcinoma

✓FNA smears are not suitable for ER and PR analysis, as well as for Her2-neu and Ki67 evaluation*

(*cell-block technique overcomes this disadvantage)

WHAT DOES THE ACCURACY OF CYTOLOGICAL FINDINGS DEPEND ON?

1. PRE-ANALYTICAL PHASE

✓ Establishing accurate **indication** for FNA

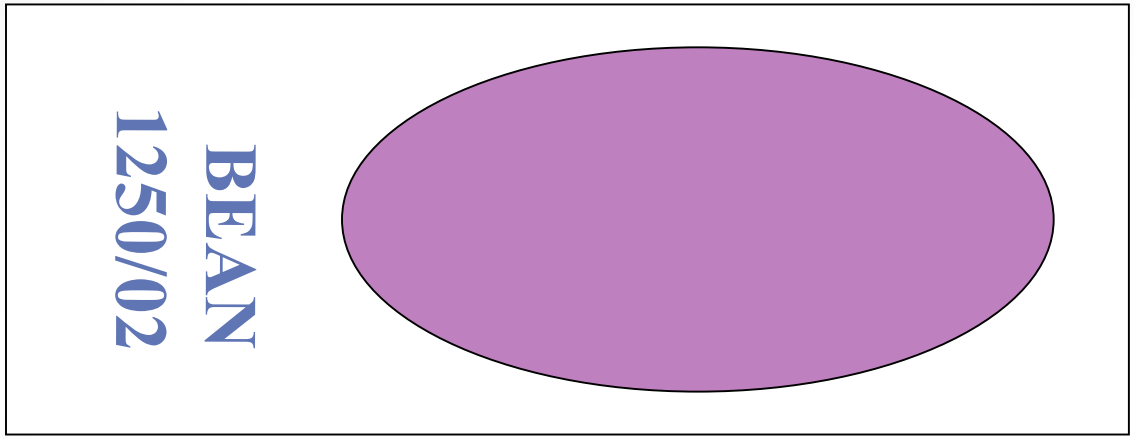
✓ Clear **visualisation** of the target lesion and **precise sampling** technique

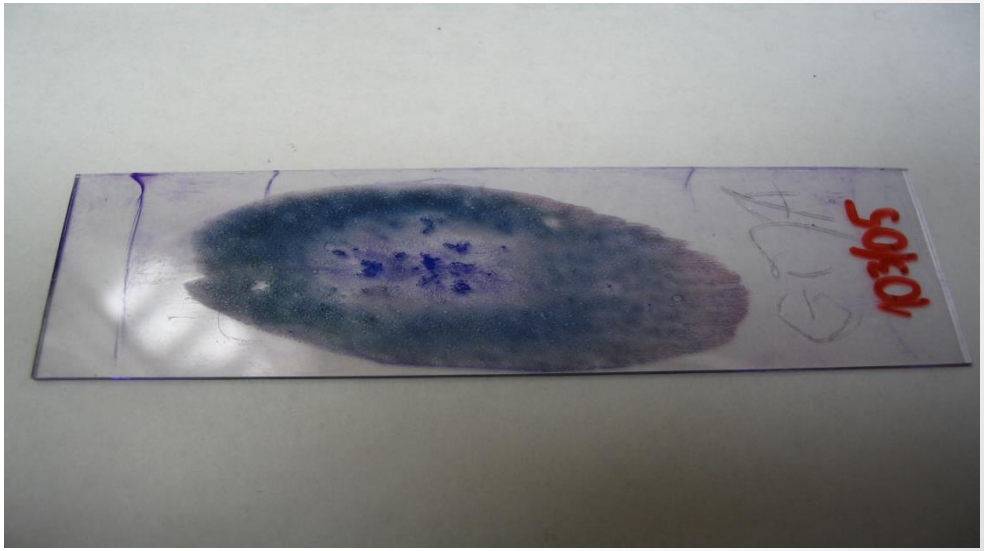
✓ Immaculate **smear preparation**/fixation/storage of specimen for further analyses

✓ Precise **description** of the sampled lesion, matching with data on every glass slide (patient's initials, number of slides per lesion, precise localisation of the sampled lesion within the breast)

✓ High-quality **staining** procedure

Properly prepared and labeled slide:





WHAT DOES THE ACCURACY OF CYTOLOGICAL FINDINGS DEPEND ON?

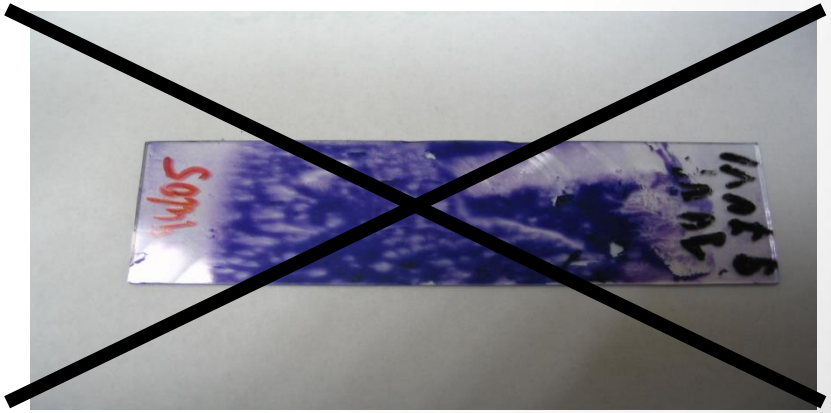
2. ANALYTICAL PHASE

- ✓ **Analysis and interpretation** of smears
- ✓ The existence of widely accepted **cytological criteria** for a given lesion
- ✓ Establising the **diagnosis**
- ✓ Accurate **classification**
- ✓ Minutely writing of the **cytological report**

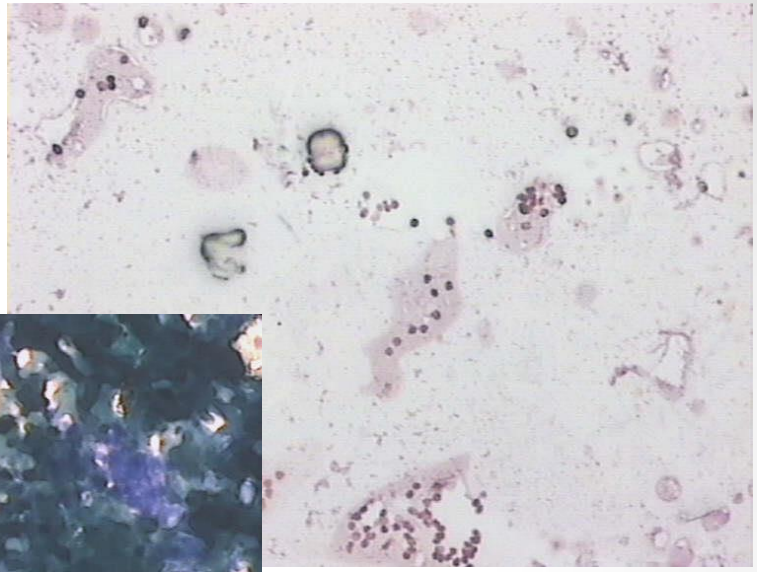
FALSE NEGATIVE FNA FINDINGS

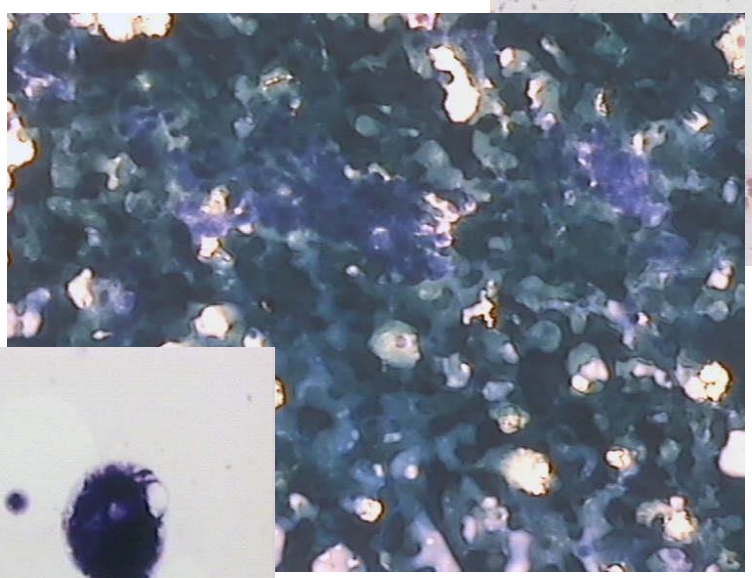
✓ Principally due to technical issues (sampling errors and slide preparation errors)

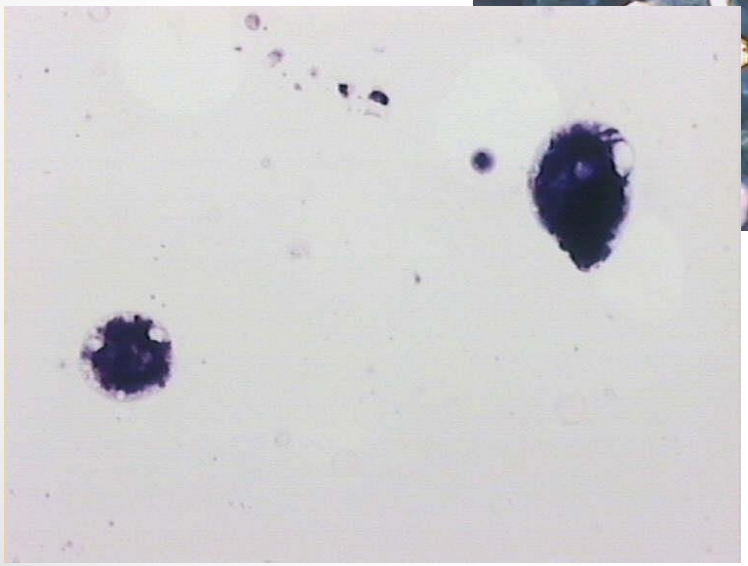
✓ Certain types of malignant tumours have inconspicuous cellular features, thus present well-known diagnostic challenge on FNA smears (papillary, tubular, lobular, mucinous carcinomas



Examples of inadequate FNA specimens







FALSE POSITIVE FNA FINDINGS

- ✓ Should be avoided by keeping strictly to cytologic criteria of malignancy
- ✓ FP is due to the interpretation error !!!!
- ✓ Problems: proliferative lesions with atypia

FNA REPORTING

Every cytological report on breast FNA should contain:

✓ Patient's general data including relevant earlier diagnoses, especially malignant

✓ Precise localisation and short description of the radiologic features of sampled lesion

✓ Short cytomorphological description including opinion on specimen quality

✓ Diagnosis (if possible), or differential diagnosis

✓ Reccommendation for further actions

✓ Category

CATEGORIES OF FNA REPORTS

AIM:
Categorization of cytological reports should help to **unify** the reports, make **decision process easier**, to enable **comparing** findings among various laboratories and to simplify **statistical analysis**

As in radiological and histological reports, there are five main categories

C1 – nonsatisfactory
C2 – benign
C3 – atypia
C4 – suspicious for malignancy
C5 – malignant

CATEGORY C1:

Unsatisfactory

Depends on the experience both of the person who performs FNA and the cytologists

Main reasons

Scant cellularity (not clearly defined term)

Technical errors due to the sampling, smear preparation and identification of the samples

CATEGORY C2

Benign

Adequate samples, representative of the targeted lesion – correlation with radiology
Includes:

- definitive benign diagnoses (confirms benign lesions)
  - fibroadenoma, fibrocystic changes, cysts,
  - fat necrosis, mastitis, abscesses,
  - lactating adenoma, lipoma,
  - lymph nodes, etc.

CATEGORY C3

Atypical

• not clearly defined cytological criteria of atypia

• category that depends on experience of cytologists

• aspirates have overall benign look but display some variation of nuclear size and shape, discohesion, and some other worrisome features

• proliferative breast lesion can display some degree of atypia
    • Ductal epithelial hyperplasia, fibroadenomas, papillomas
    • Sclerosing adenosis
    • Hyperplastic changes during pregnancy and lactation

CATEGORY C4

Suspicious (for malignancy)

The smear looks almost malignant but the cytologist can not give the definitive diagnosis of malignancy mostly due to the:

- hypocellularity
- damaged cells (due to the pressure while making the smears)
- in otherwise benign smears several malignant looking cells are present

Changes are more prominent than in the category C3

CATEGORY C5

Malignant

- Adequate specimen with clearly malignant cytological features present (more than one criteria for malignancy)
- The diagnosis is easily made

*

Categories C3 and C4 need to be further evaluated before making the treatment or surveillance decision

- Usually the team decision

https://www.nccn.org/professionals/physician_gls/pdf/breast-screening.pdf

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National Comprehensive Cancer Network®

NCCN Guidelines Version 1.2016
Breast Cancer Screening and Diagnosis

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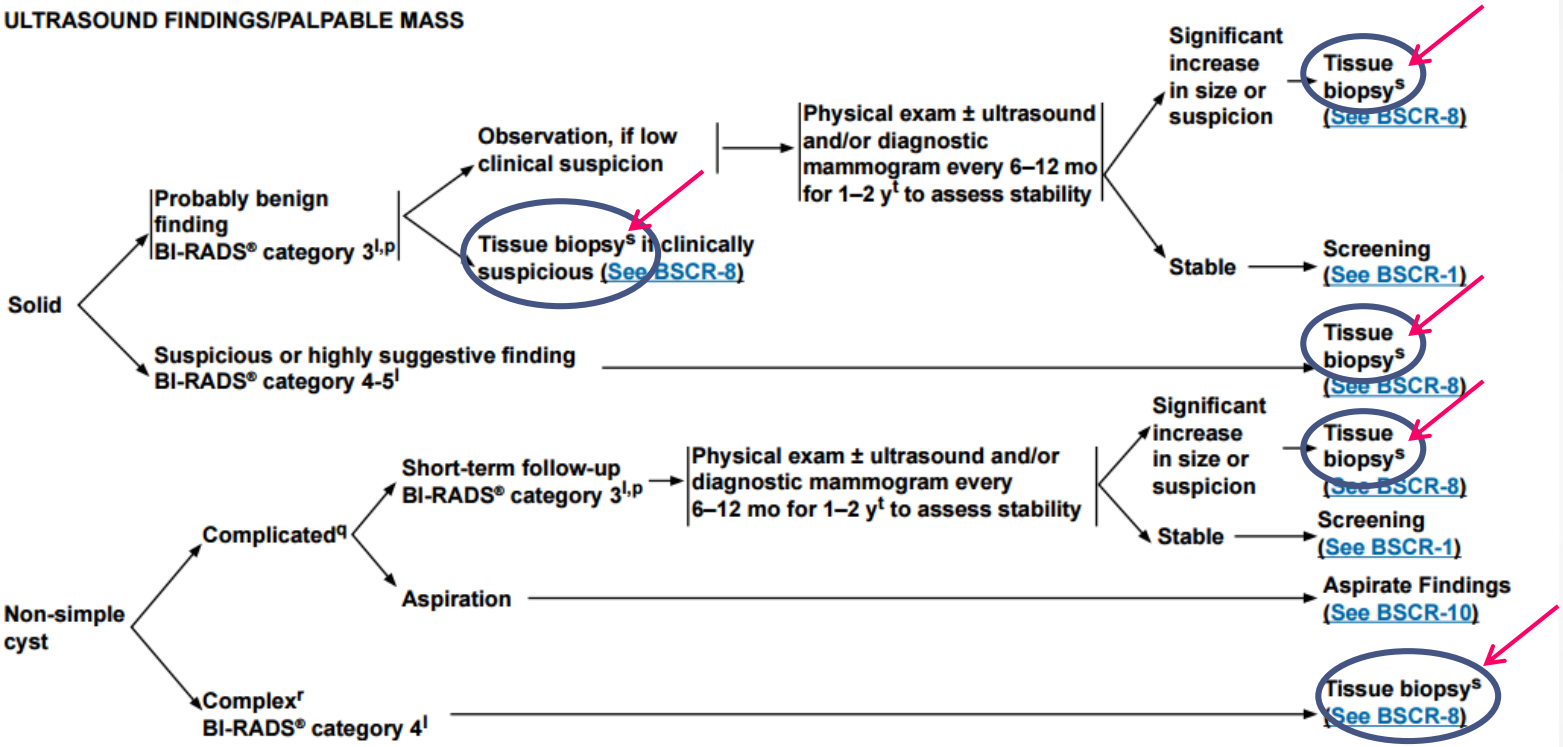

[l] See Assessment Category Definitions (BSCR-C).
[p] Tissue sampling may be appropriate if clinically suspicious, aids in management, or is strongly desired by patient.
[q] Round or oval, circumscribed mass containing low-level echoes without vascular flow, fulfilling most but not all criteria for simple cyst.
[r] A complex cyst has both cystic and solid components.
[s] FNA and core (needle or vacuum-assisted) biopsy are both valuable. FNA requires cytologic expertise. Surgical excision is appropriate if unable to perform core needle biopsy or if strongly desired by patient.
[t] There may be variability on the follow-up interval based on the level of suspicion.

Note: All recommendations are category 2A unless otherwise indicated.
Clinical Trials: NCCN believes that the best management of any patient with cancer is in a clinical trial. Participation in clinical trials is especially encouraged.

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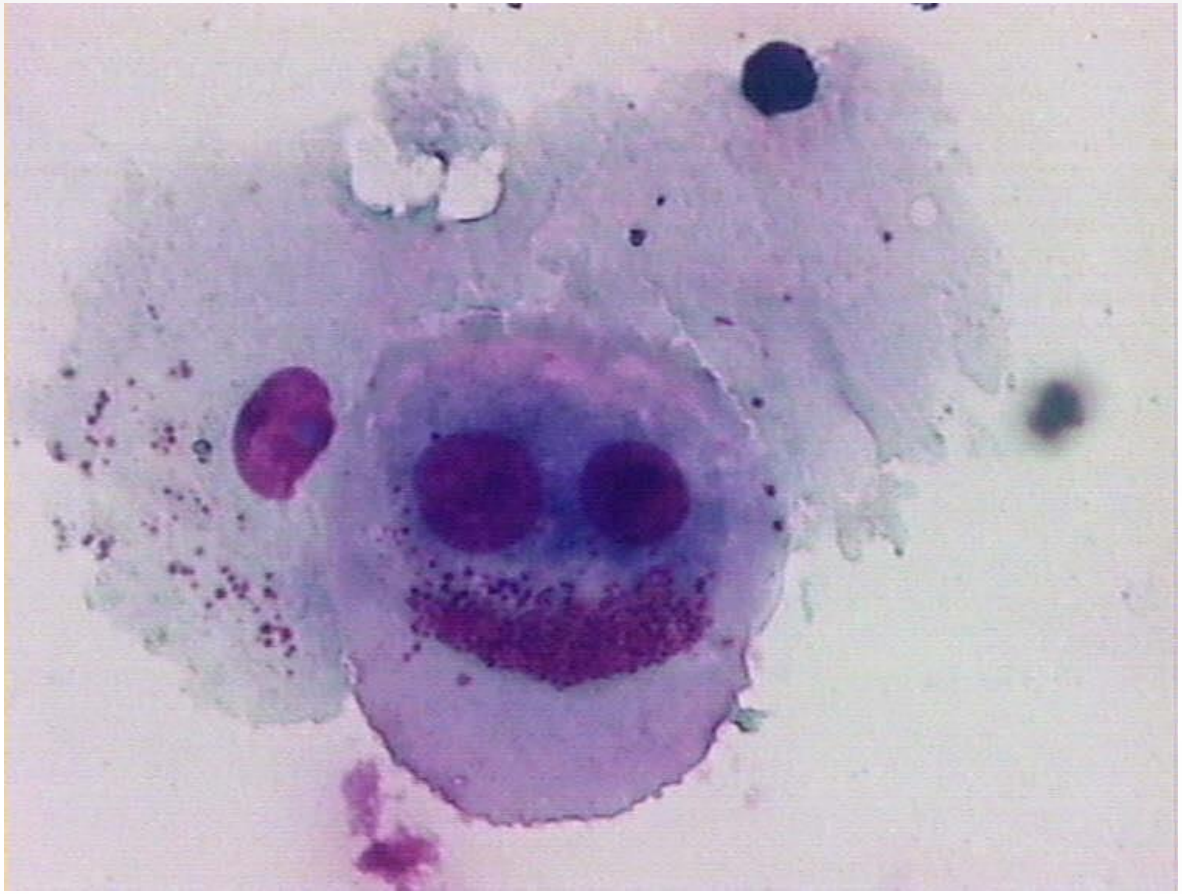

THANK YOU!