VIA/VILI review and drill

Dr. Gregory Ganda
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Gynecological oncologist

objectives

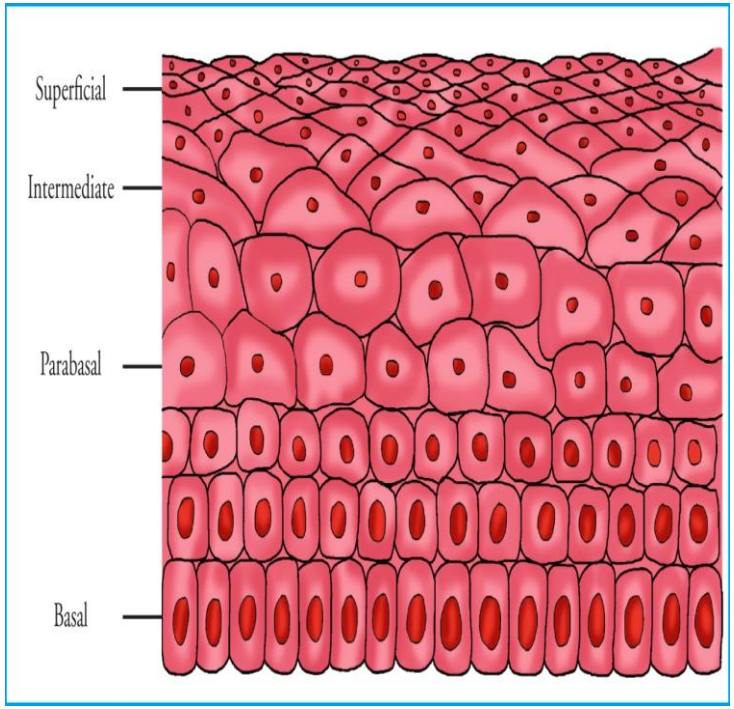
- Recap of past presentations
- Refresh knowledge of VIA/VILI

Developmental anatomy of the cervix

Hon Dr. Gregory Ganda
CECM – Medical services, Public health and sanitation
Gynecological oncologist

Squamous Epithelium

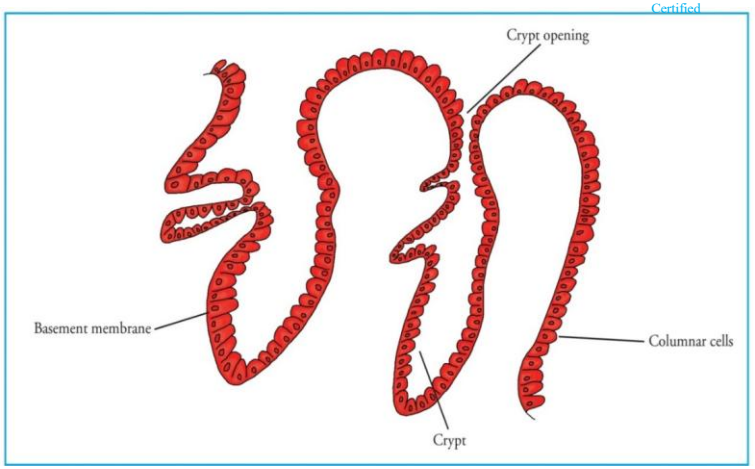
- Ectocervix is covered by **Non-keratinized, stratified squamous epithelium**
- **Multiple (15-20) layers**
- separated from cervical stroma by basement membrane
- Divided into 4 layers:
    i. basal,
    ii. para-basal,
    iii. intermediate &
    iv. superficial
- Intermediate & superficial layers contain abundant glycogen
- Maturation dependent on estrogen hormone



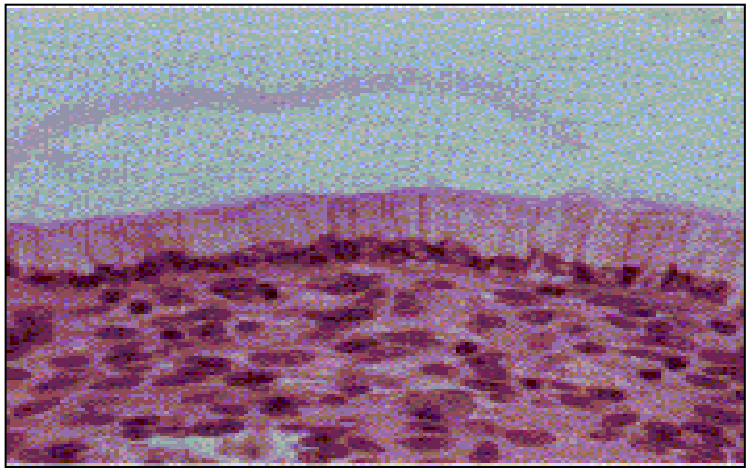
Normal stratified squamous epithelium

Columnar Epithelium

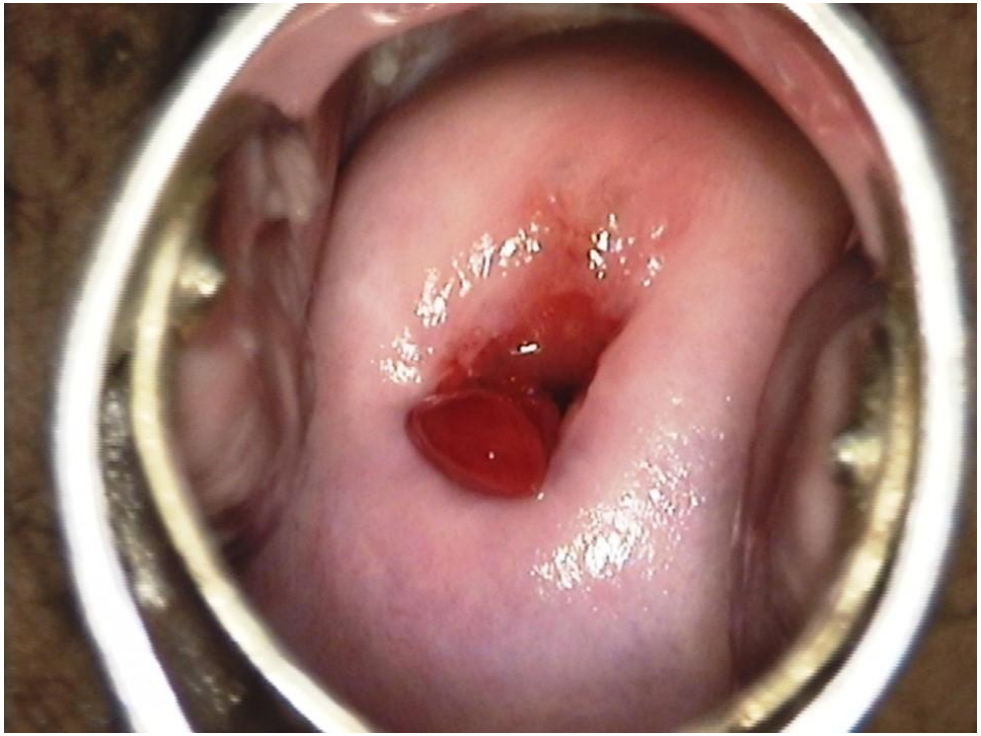
- Single layer mucin-secreting epithelium lining endocervix
- Invaginates into substance of cervical stroma forming endocervical ‘crypts’
- Average depth of crypts is 5-8 mm approximately
- Does not contain glycogen
- A localized overgrowth of the endocervical columnar epithelium is called a cervical polyp

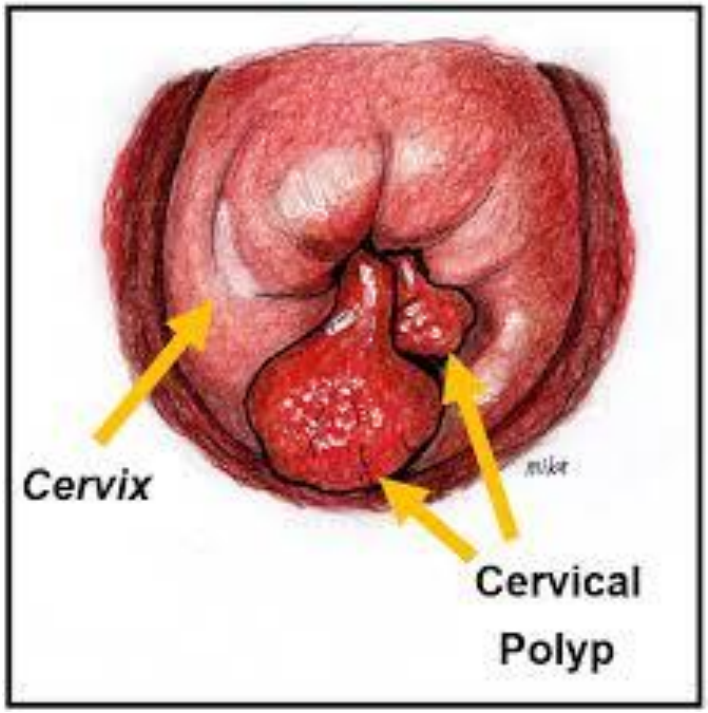


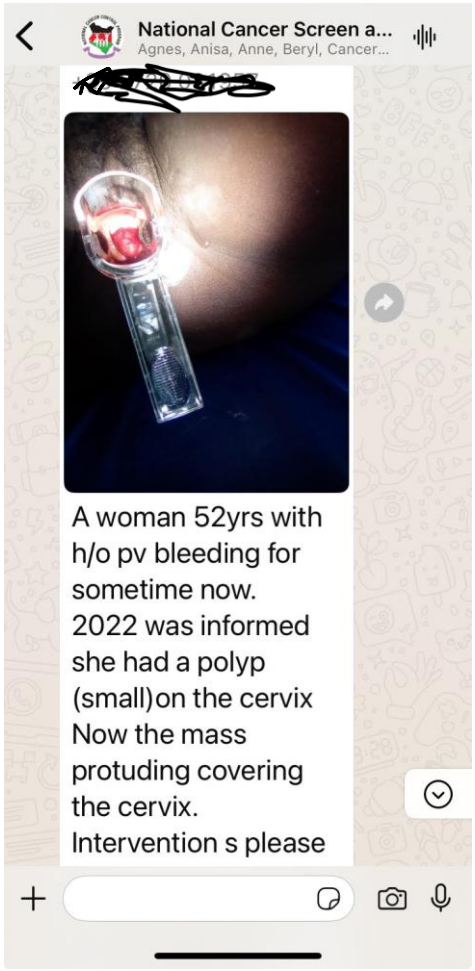
Normal columnar epithelium



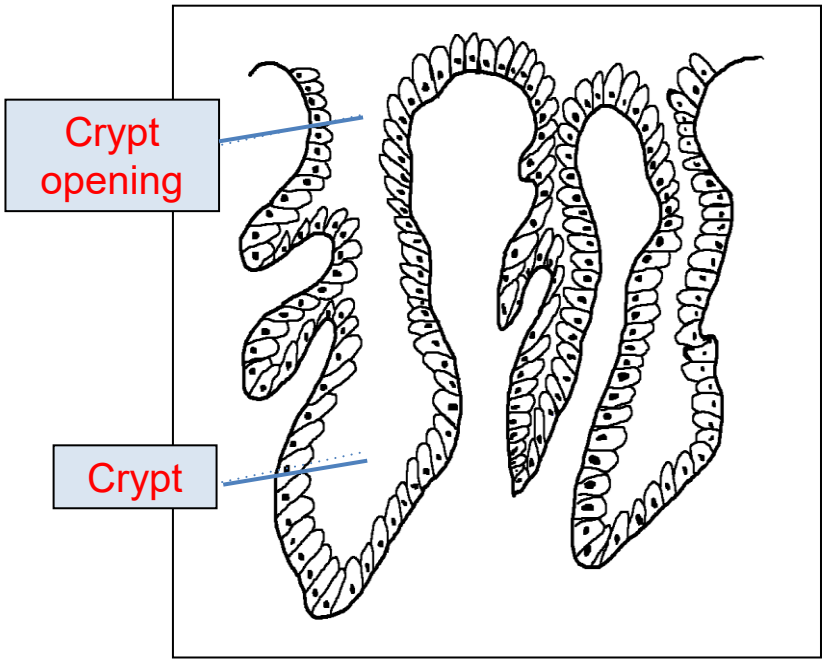
Cervical polyp

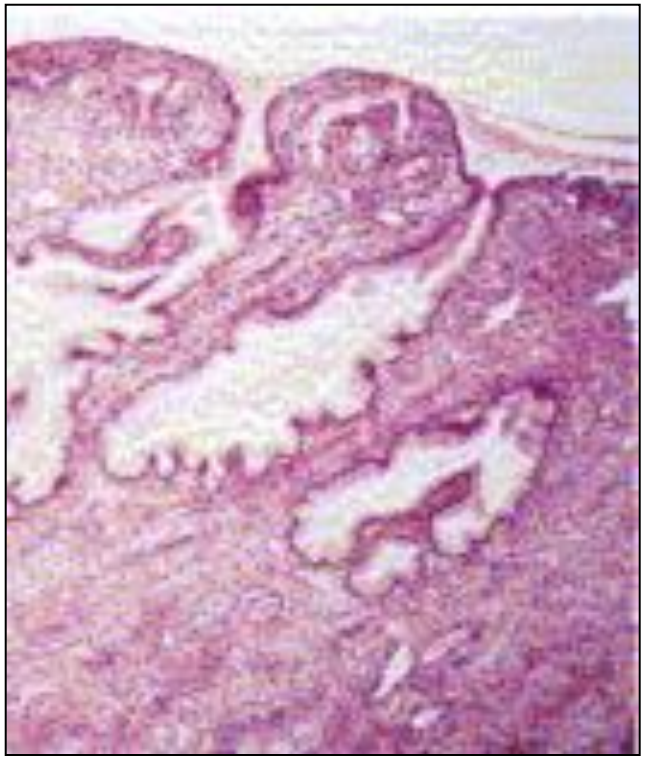





National Cancer Screen a...
Agnes, Anisa, Anne, Beryl, Cancer...
A woman 52yrs with h/o pv bleeding for sometime now. 2022 was informed she had a polyp (small)on the cervix Now the mass protuding covering the cervix. Intervention s please

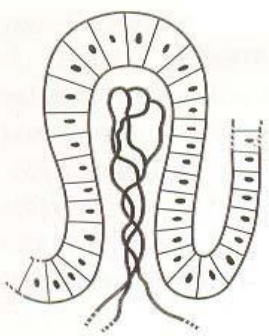
Glandular Crypts of Columnar Epithelium

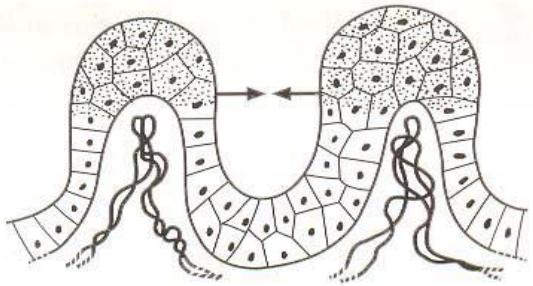


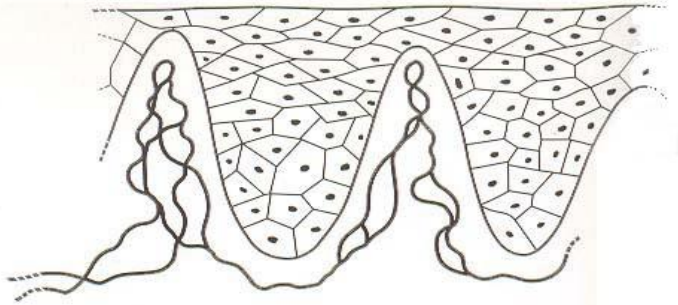


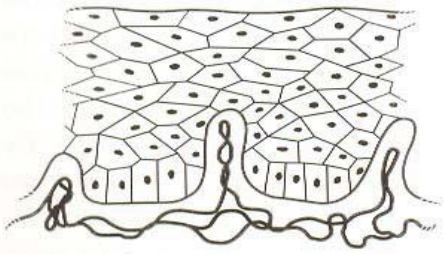
Source: Courtesy of L. Sankaranarayan.

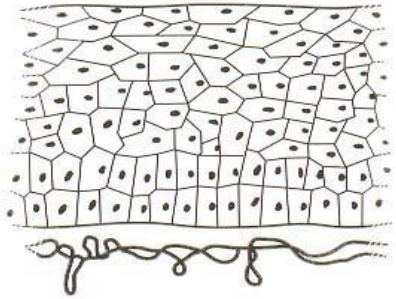
Histology: Formation of METAPLASIA

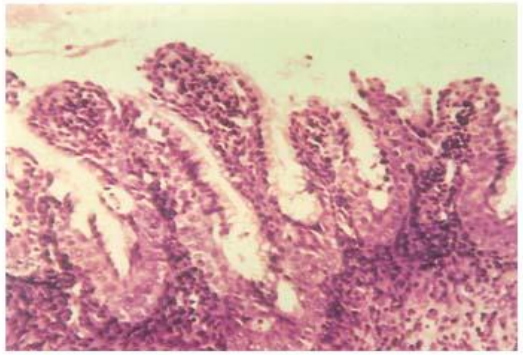


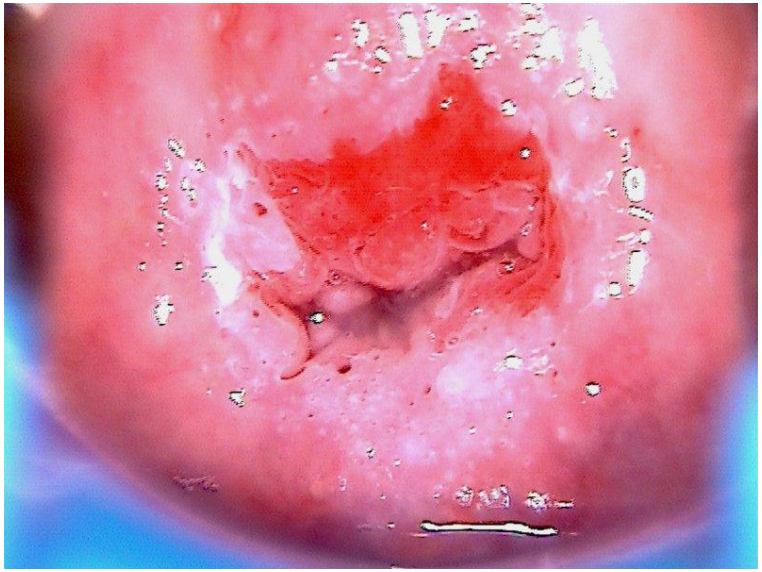


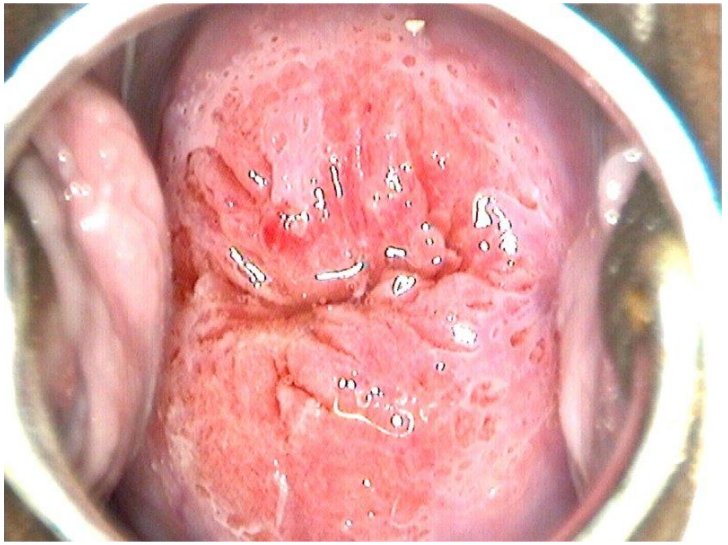












Squamous metaplasia usually **begins at the original squamocolumnar junction** at the distal limit of the ectopy, but **it may also occur in the columnar epithelium close to this junction** or as islands scattered in the exposed columnar epithelium.

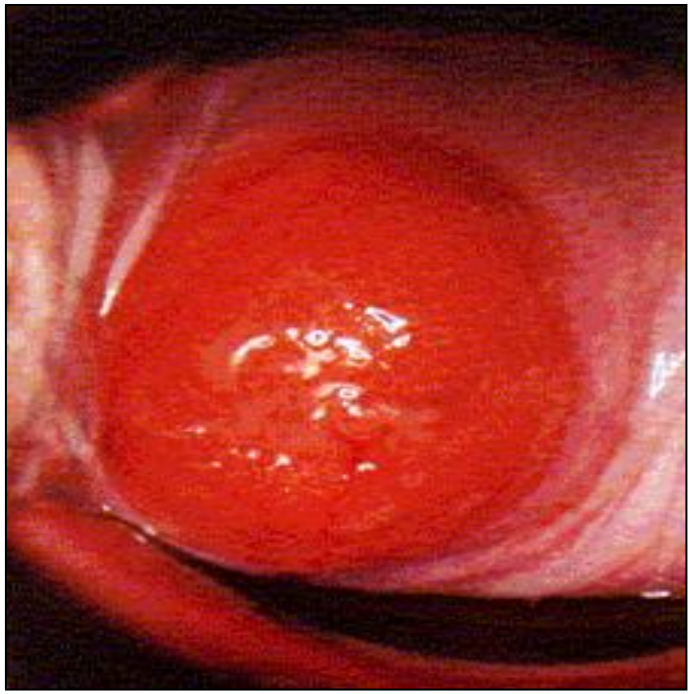
Squamous metaplasia

- The immature squamous metaplastic epithelium d**o not produce glycogen** and, hence, do not stain brown or black with Lugol's iodine solution.
- The immature metaplasia eventually becomes mature
- The mature metaplastic

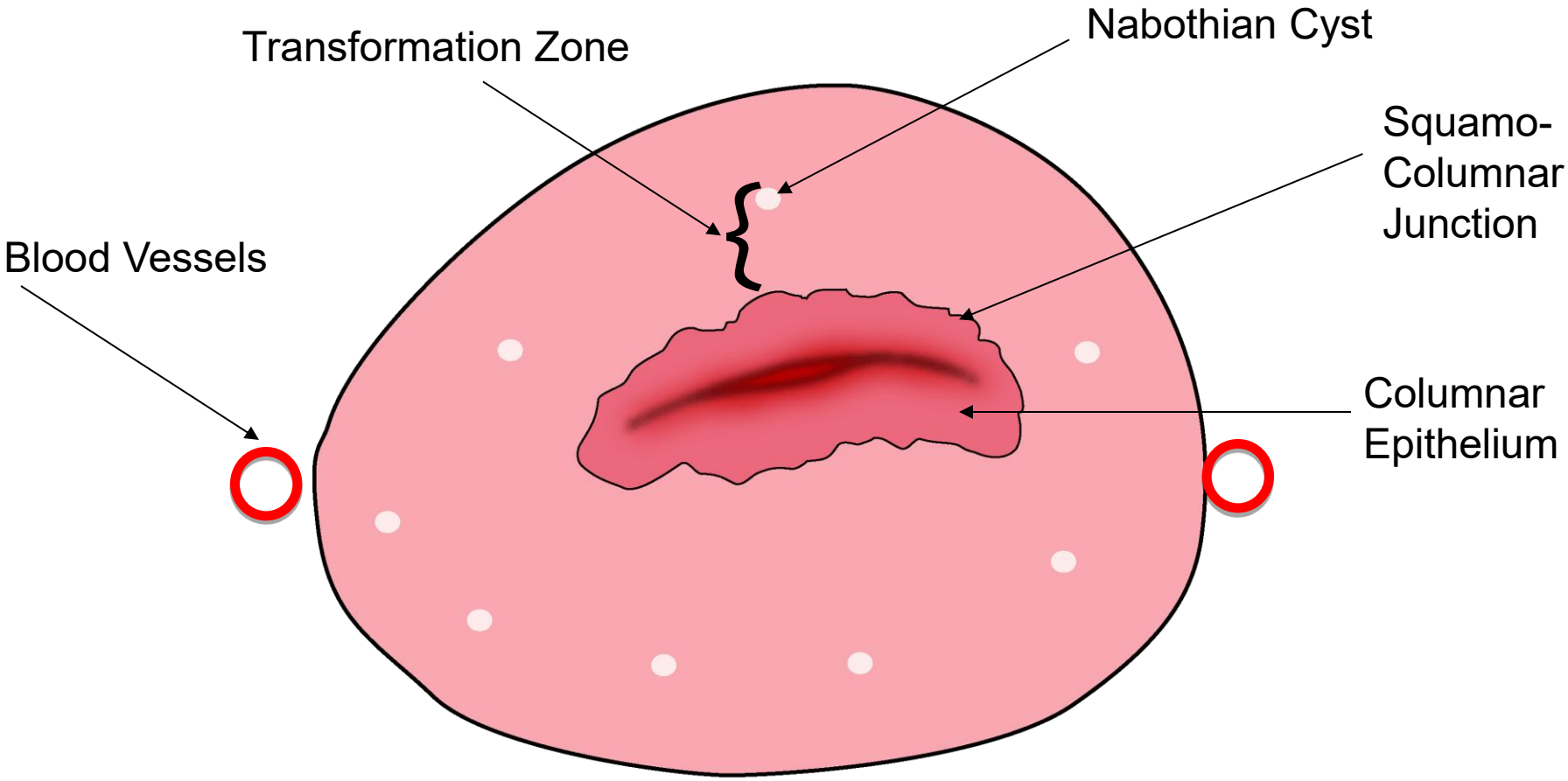
FIGURE 3.5:
VILI negative: Squamous epithelium remains brown. There are patchy areas of no or partial uptake of iodine in the transformation zone corresponding to areas of immature squamous metaplasia and inflammation.

Ectopy

- An **eversion onto the ectocervix** of the **SCJ** along with **large portions of columnar epithelium** is referred to as an ectropion
- Progressively through the process of metaplasia the ectropion is replaced by metaplastic squamous epithelium



Cervical Anatomy



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Microscopy

- Squamous epithelium – Stratified
- Stratified , non-keratinizing, glycogen-containing squamous epithelium. Multiple layers 15 – 20.
- Columnar epithelium – lines the endocervical canal – single layer of tall cells with dark staining nuclei.
- Endocervical crypts / glands
- The columnar cells secrete mucus.

Microscopy

Squamocolumnar Junction

- Appears as a sharp line. Location depends on factors like age, hormonal status, birth trauma, pregnancy etc.
- Childhood – at the external Os
- Puberty and reproductive period – located in the exocervix. Ectropion – strikingly reddish ectocervix.
- Metaplasia – change/replacement of one type of epithelium by another.
- Perimenopausal/menopause – moves back towards the external os and eventually into the endocervix.
- Postmenopausal – located in the endocervical canal.

Transformation zone

- Transformation zone – Area of the cervix where the columnar epithelium has been replaced and / or is being replaced by the metaplastic squamous epithelium.
- Inner boarder – squamocolumnar juction and outer boarder distal most nabothian cysts or crypt opening.

DRILL 1
Identify the Squamocolumnar Junction

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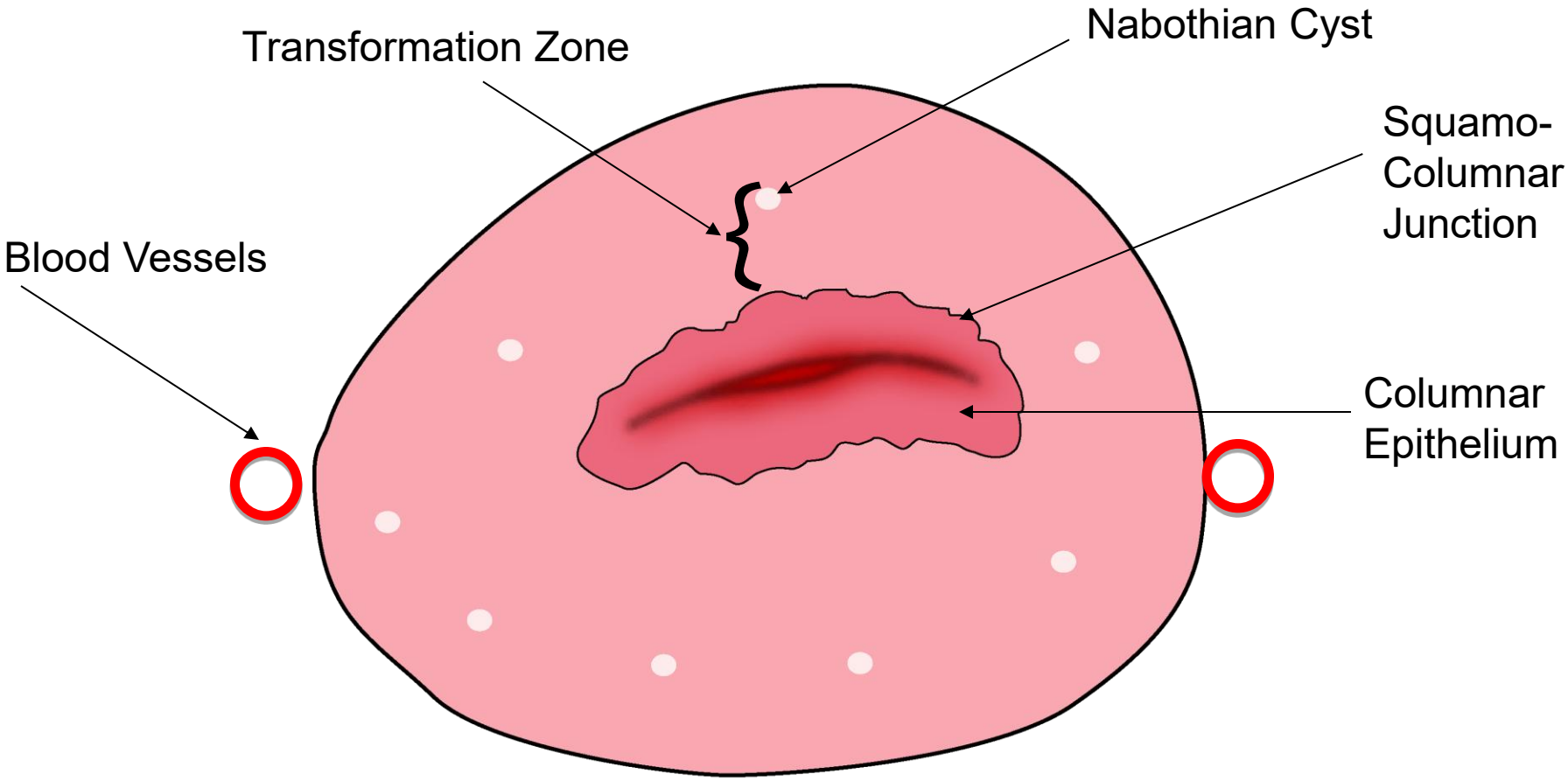
Cervical Anatomy Review



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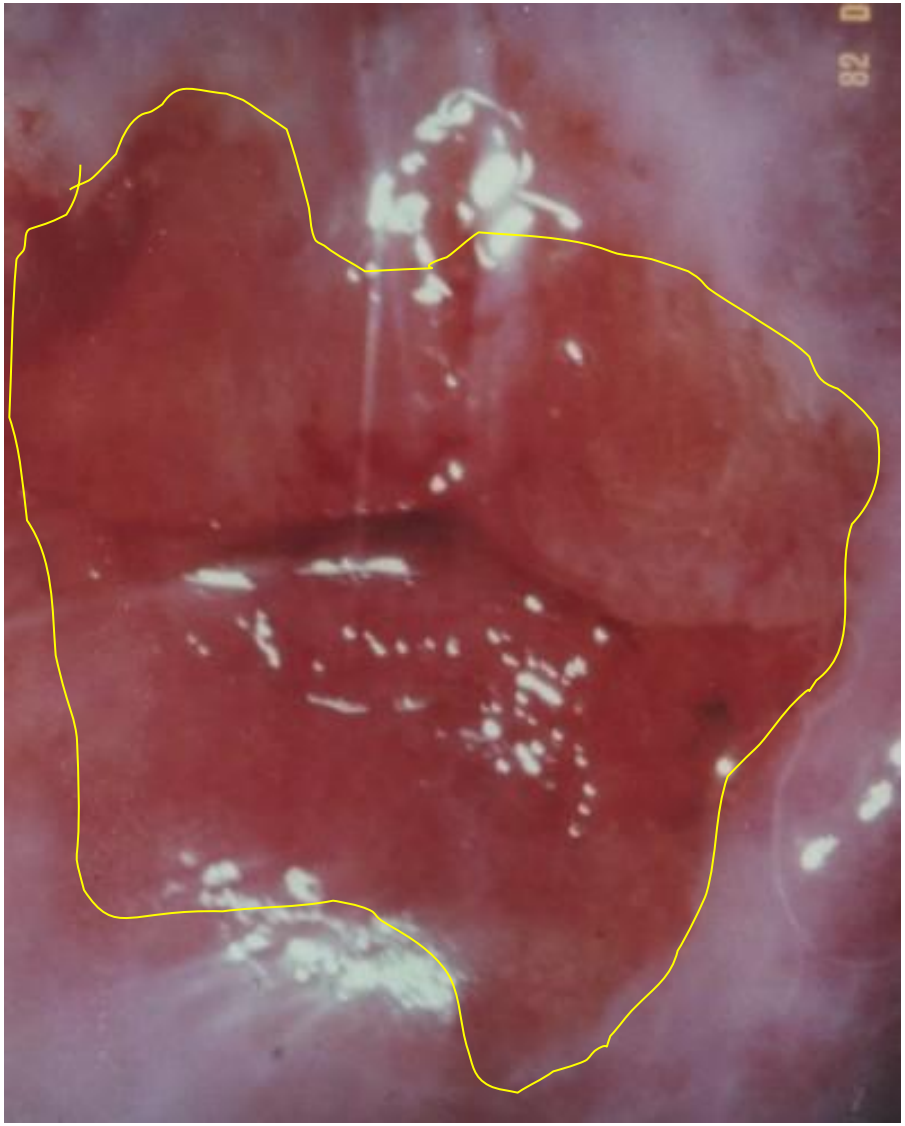

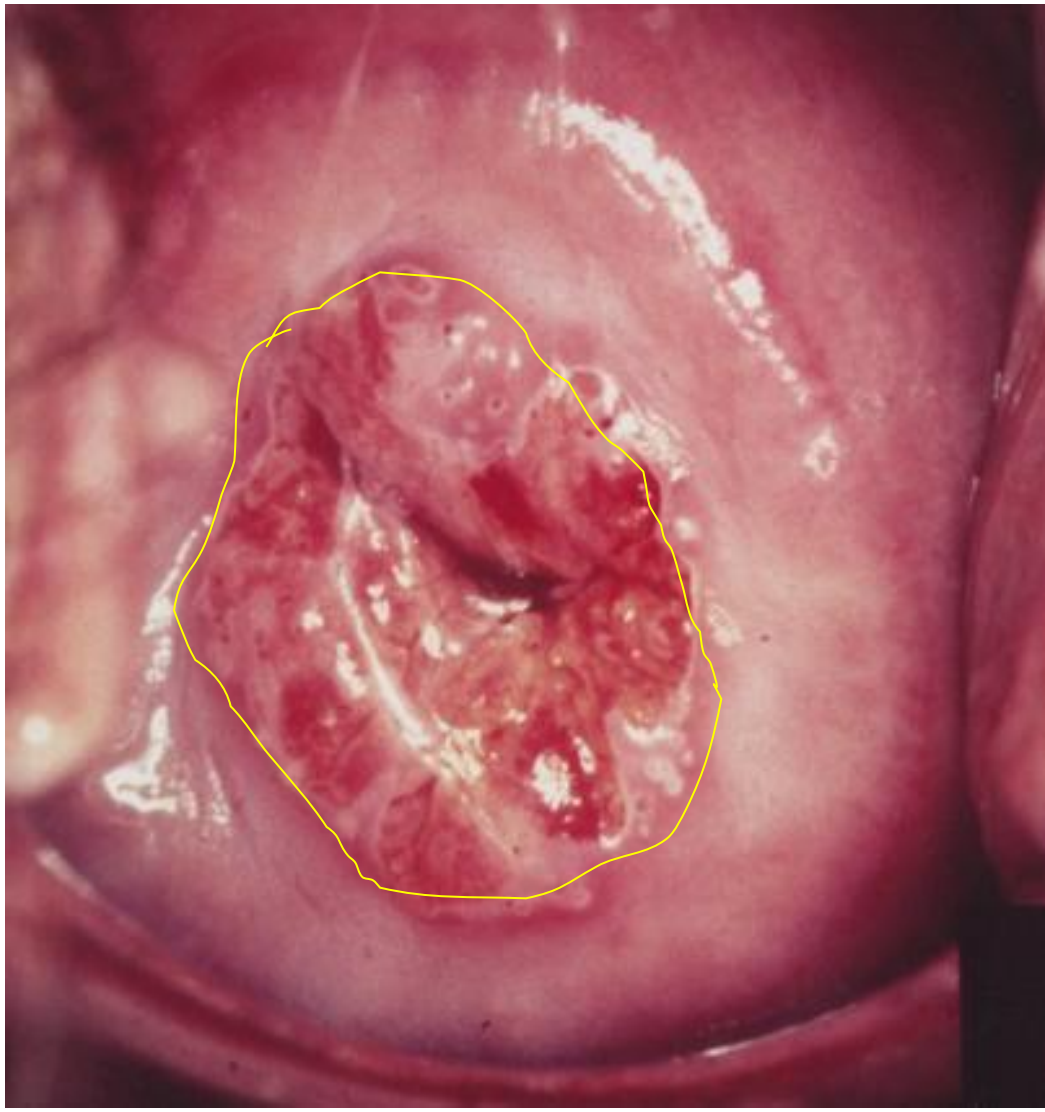

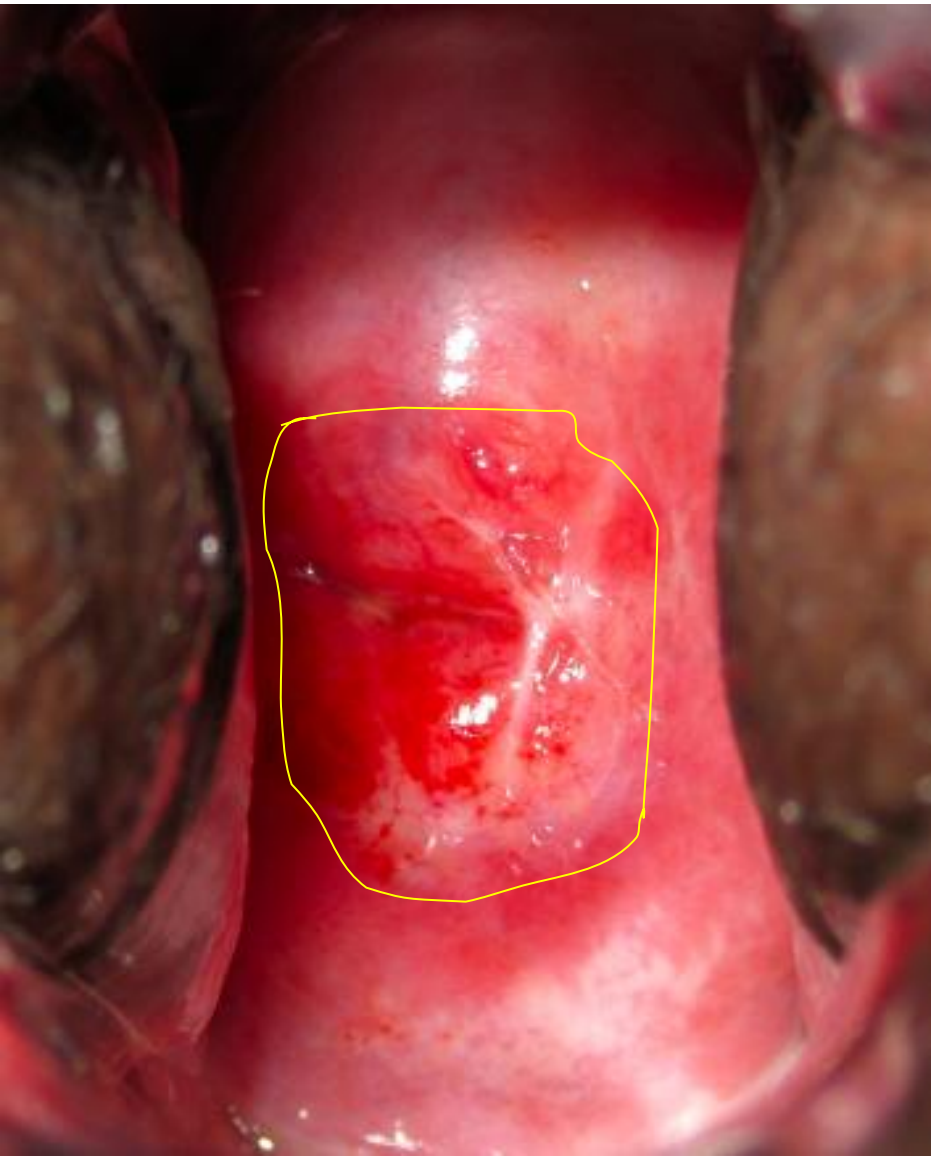

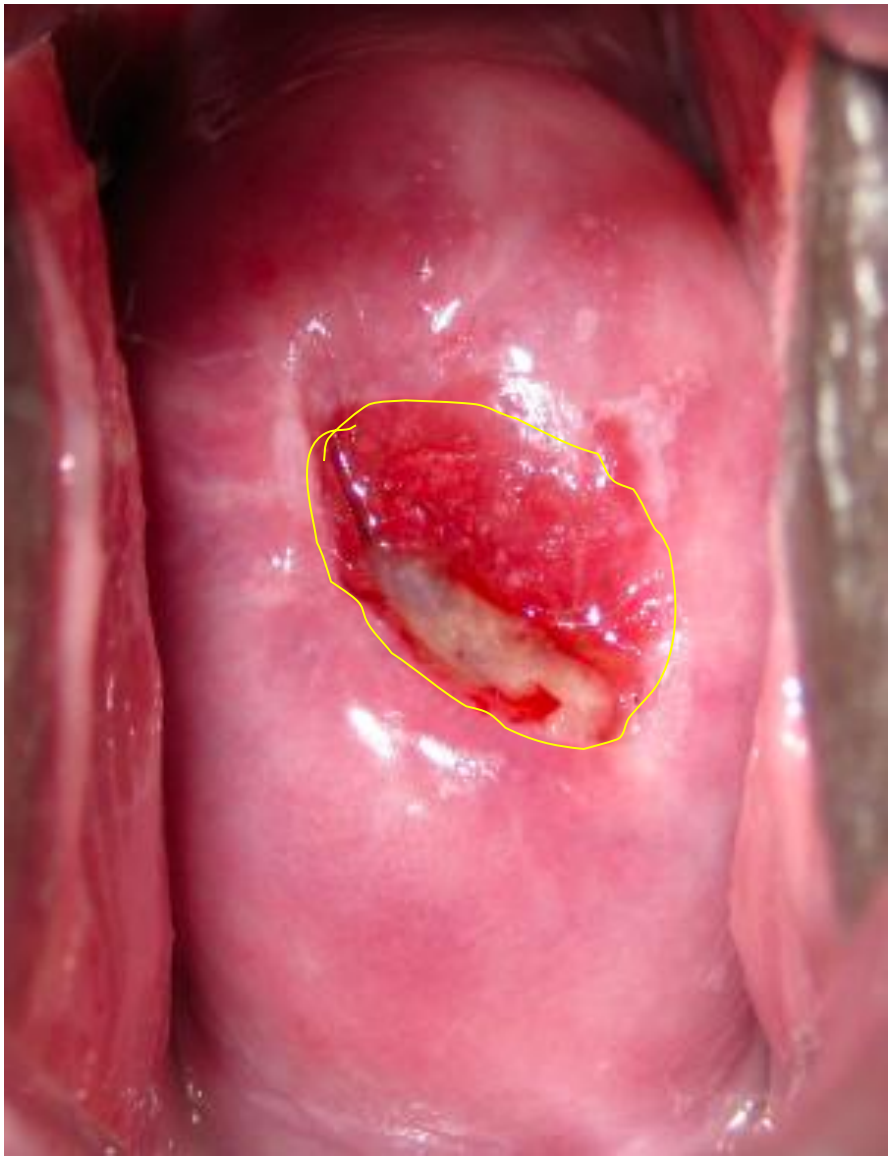

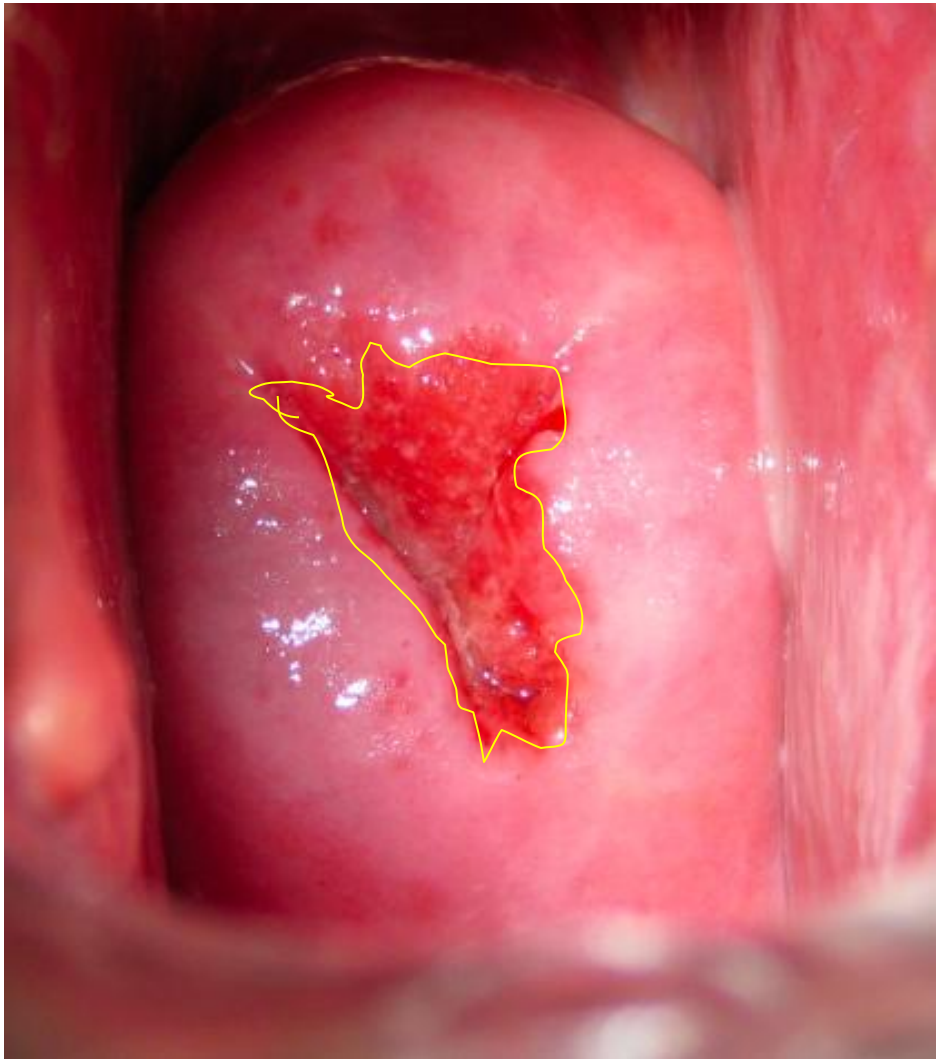

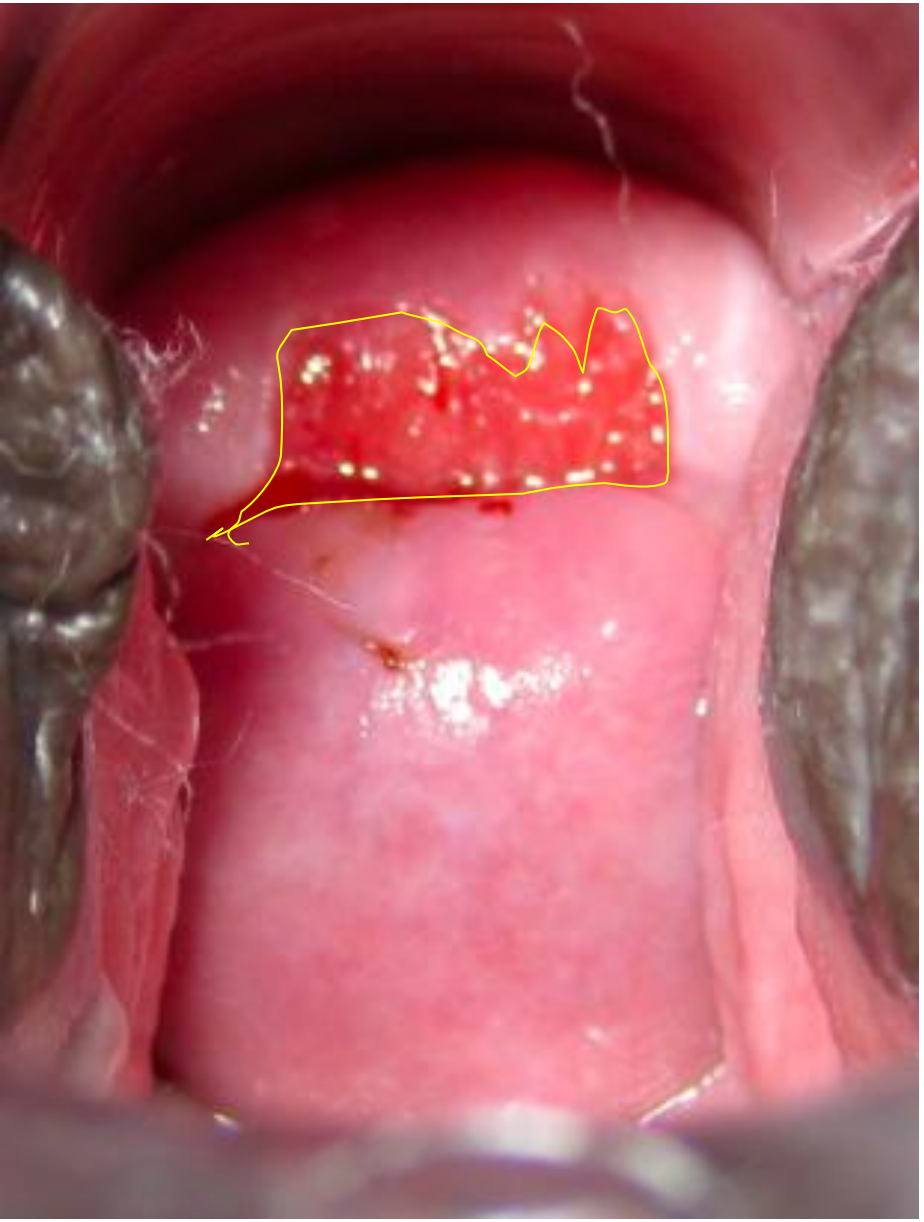

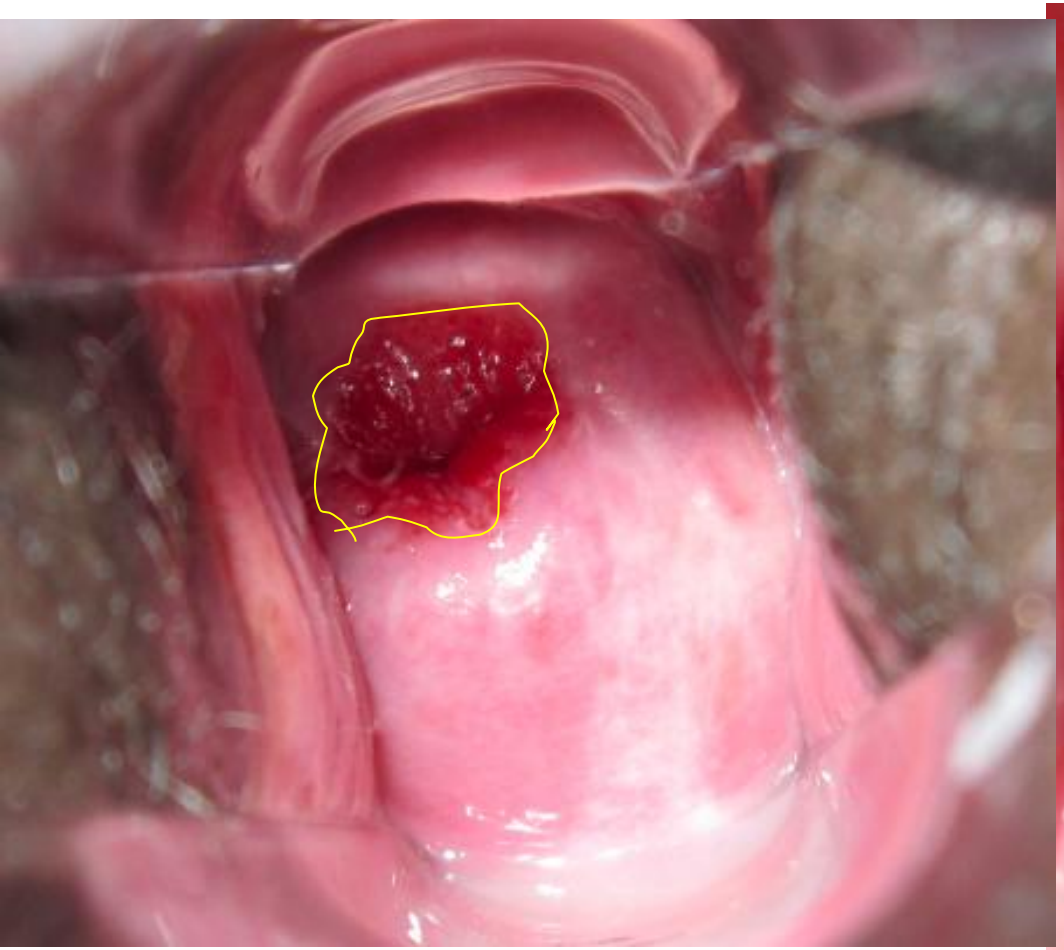

Can you see the SCJ?

Natural History Of HPV Infection & Cervical Dysplasia

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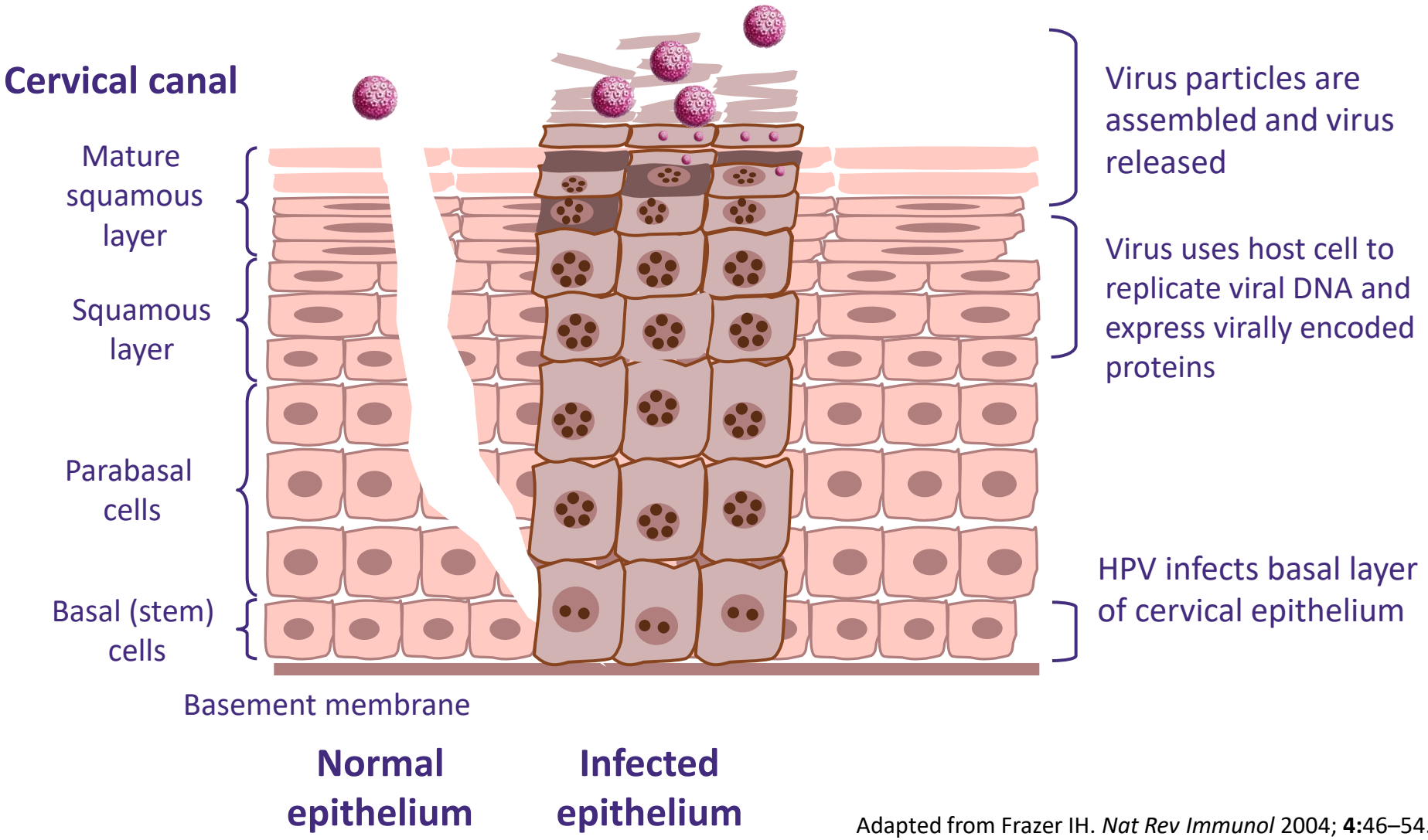
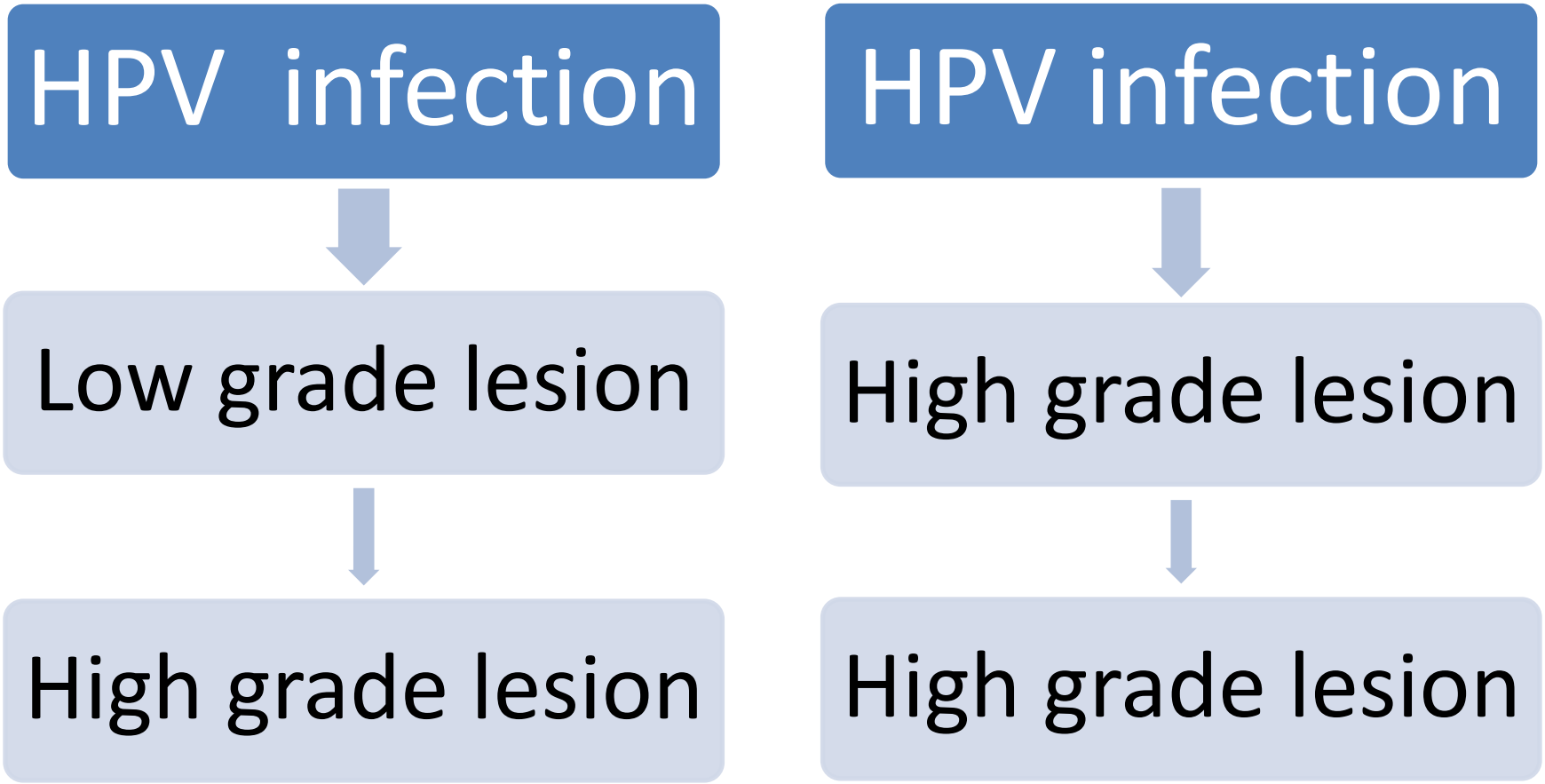
HPV lifecycle in the cervix



Adapted from Frazer IH. *Nat Rev Immunol* 2004; **4**:46–54.

How can HPV infection lead to cervical cancer?

- There are several steps in the pathway from HPV infection to cervical cancer
  - Initial infection – viral entry into target basal epithelial cells (reserve cells)
  - HPV integrates into the host genome
  - HPV oncogenes (E6 & E7) are expressed
  - Cytogenetic instability results
  - Genetic changes allow uncontrolled cell growth (immortalization)
  - Malignant transformation to cervical carcinoma occurs


HPV infection
Low grade lesion
High grade lesion
HPV infection
High grade lesion
High grade lesion

Pathway	Frequency	Mechanism	Example HPV Types	Notes
Stepwise (LSIL → HSIL → Cancer)	Common (~80–90%)	Persistent productive infection	HPV 31, 33, 45, others	Regression possible at early stages
Direct (HPV infection → HSIL)	Less common (~10–20%)	Early integration and oncogene activation	HPV 16, 18	Explains some rapid progressions in young women

Some Definitions

- Dyplasia- Abnormal cells / pre-cancer
- Histology:
  - Cervical Inter- Epithelial Neoplasia (CIN1, CIN2/3)
- Cytology (pap smear)
  - LSIL - low grade dysplasia
  - HSIL - high grade dysplasia
  - ASCUS - atypical cells of unclear significance

Acetowhite Reaction

Acetowhite reaction refers to the whitening of an area of the cervical epithelium, when the tissue reacts with 3%–5% acetic acid (normal table vinegar).

This reaction is caused by the coagulation of cellular proteins, which appear opaque.

Acetowhite Reaction

Human papillomavirus (HPV)-infected cells are more active and contain more proteins, which causes them to appear more opaque than surrounding normal tissues.

VIA—Reporting

Results of VIA are reported as:

- Negative
- Positive (acetowhite lesions present)
- Suspicious for cancer

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Describing Acetowhite Lesions

Look around the entire SCJ for any raised and thickened white plaques or acetowhite lesions.

Note the following if acetowhite areas are identified:

- Extension
- Intensity of whiteness
- Borders and demarcations
- Size
- Location

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Describing Acetowhite Lesions

Extension of the lesion:

- Does it extend into the endocervical canal?
- Does it extend out toward the vaginal fornix?

Describing Acetowhite Lesions

Intensity of color:

- Is the lesion shiny white, cloudy white, pale white, or dull white?
- Are the lesions uniform in color?
- Does the color intensity vary across the lesion?
- Are there areas of erosion within the lesion?

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Describing Acetowhite Lesions

Borders and demarcations:

- Are the borders clear and sharp or indistinct and diffuse?
- Are the borders raised or flat?
- Are the borders regular or irregular?

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Describing Acetowhite Lesions

Size:

- Extent or dimensions of the lesion
- Number of lesions

Describing Acetowhite Lesions

Location of the lesion:

- Is it far away from the SCJ?
- Is it abutting or touching the SCJ?
- Does it occupy the entire or part of the TZ?

What to Do if Unsure of VIA Results

If you are in doubt about the description or the outcome of the test, you can gently repeat the test a few times without inducing bleeding. Tell the woman what you are doing.

If you are still unsure, it is better to book the woman for a seniour review.

VIA—Reporting

Negative:

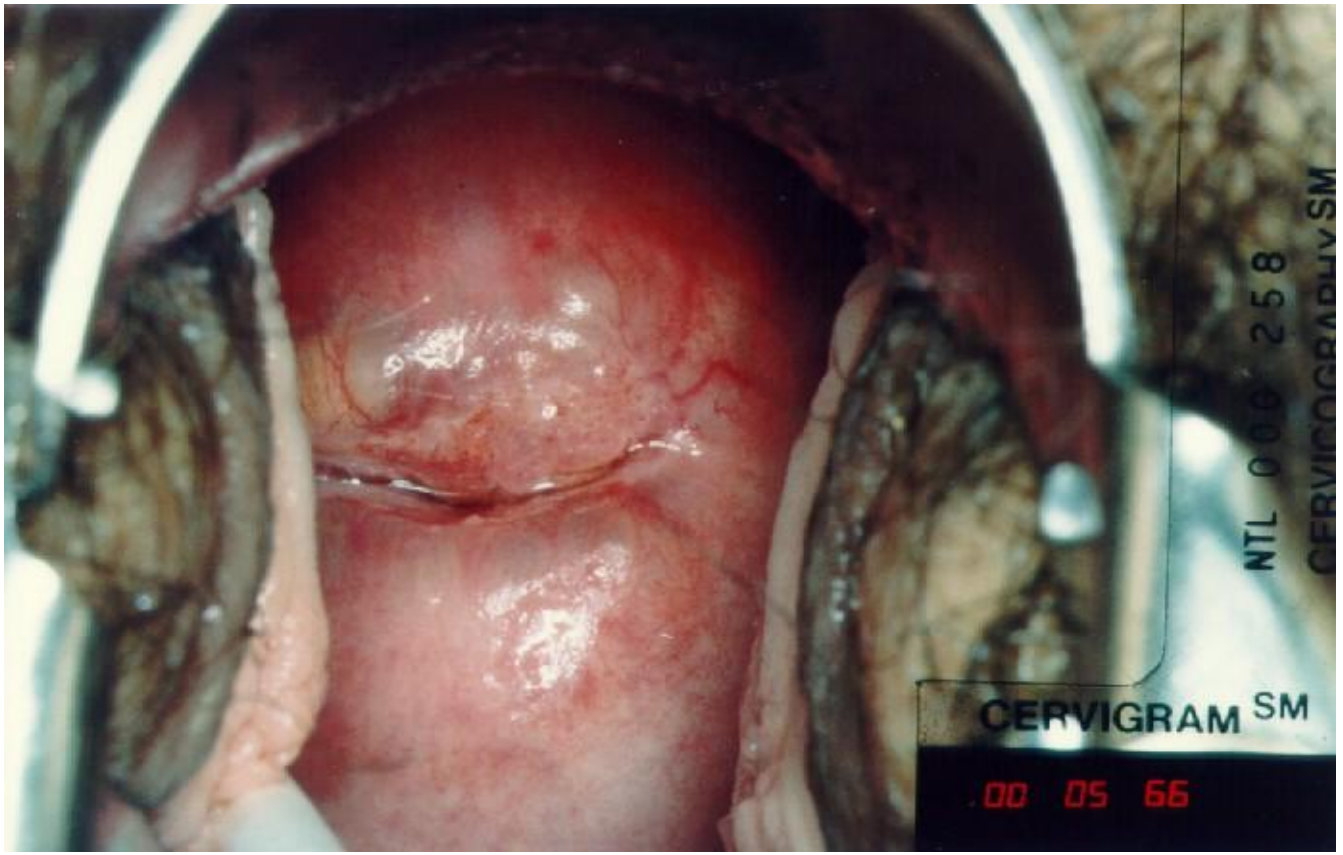
- NO acetowhite lesions.
- Bluish-white lesions, faint patchy lesions, or doubtful lesions without definite margins.
- A polyp protruding from the os taking up acetowhitening.
- Nabothian follicles taking up acetowhitening.

VIA—Reporting

Negative:

- Faint line-like acetowhitening at the junction of columnar and squamous epithelium.
- Acetowhite lesions far away from the TZ.
- Streak-like acetowhitening.
- Dot-like areas in the endocervix, which are due to grape-like formations of columnar epithelium staining with acetic acid.

VIA Negative: Nabothian Follicle



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VIA Negative: Immature Metaplasia

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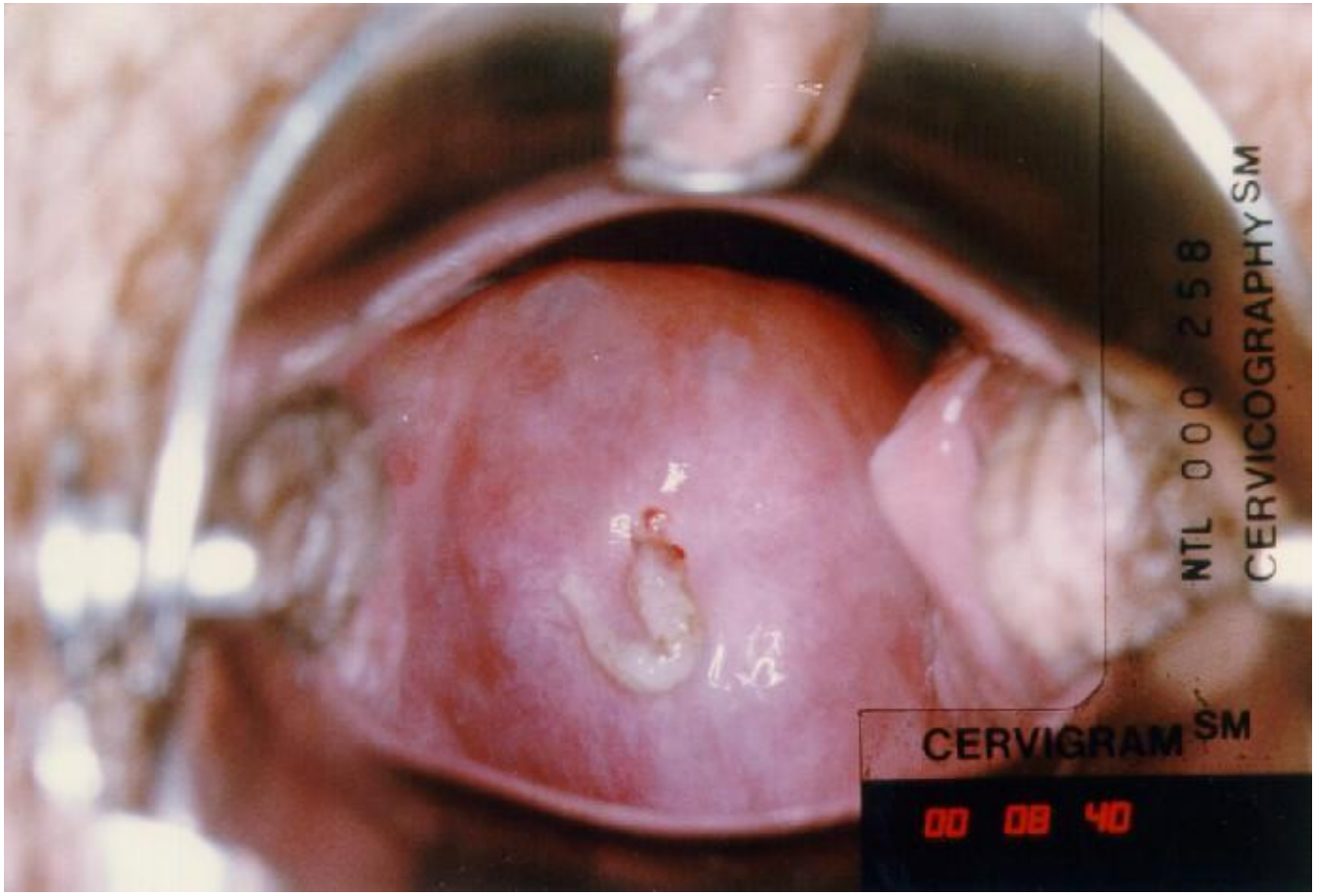
VIA Negative: Mucus Plug



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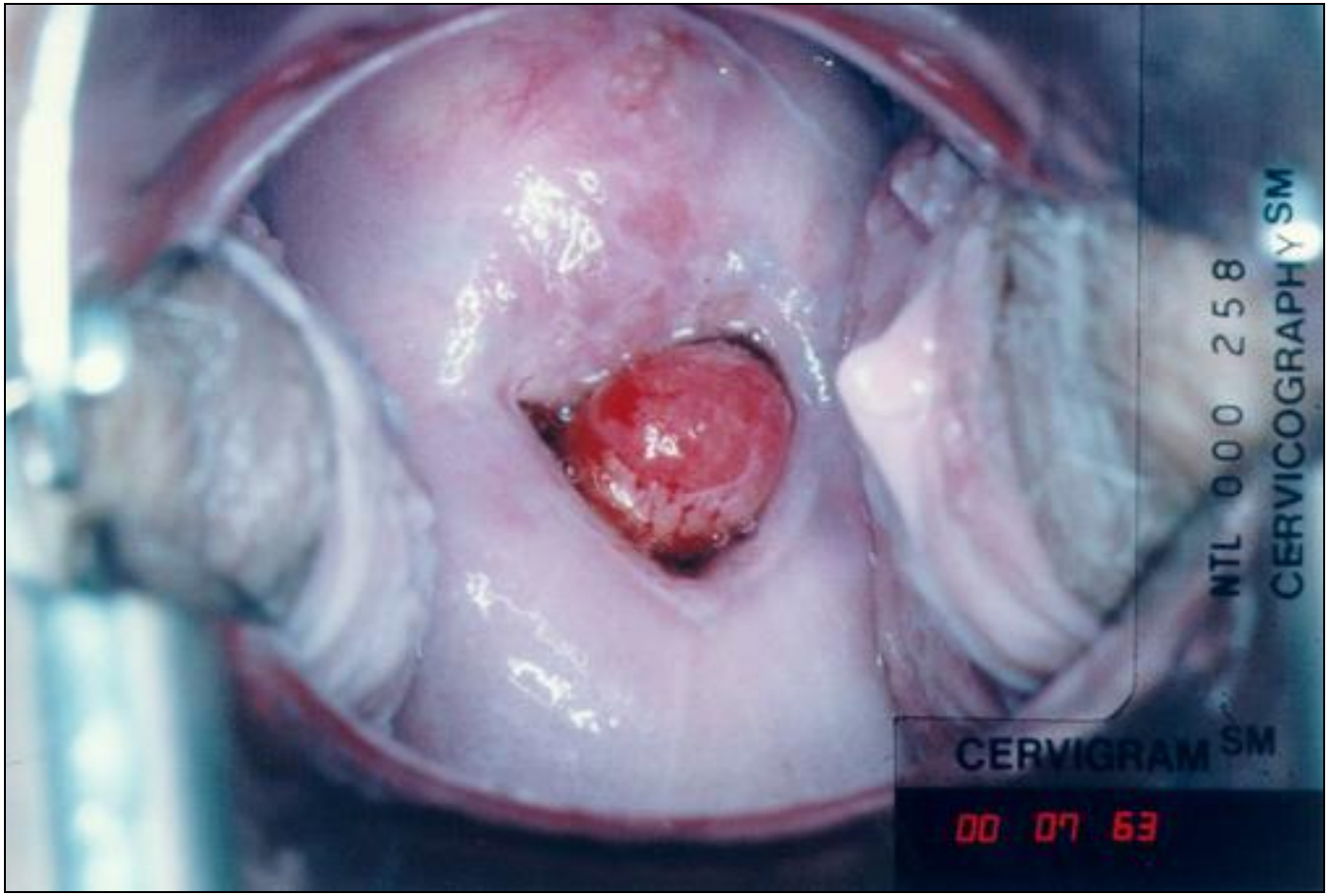
VIA Negative: Polyp



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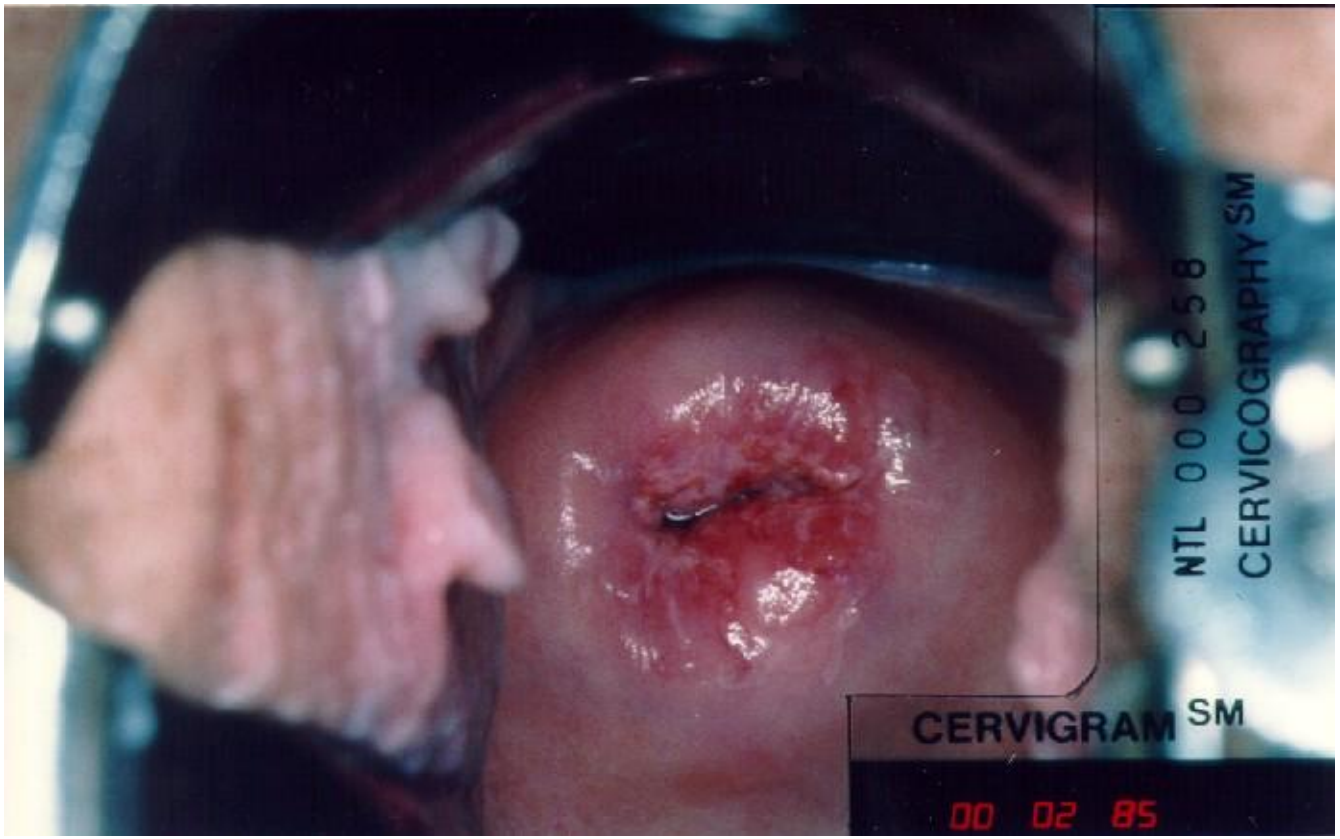
VIA Negative:
Streaks of Acetowhite



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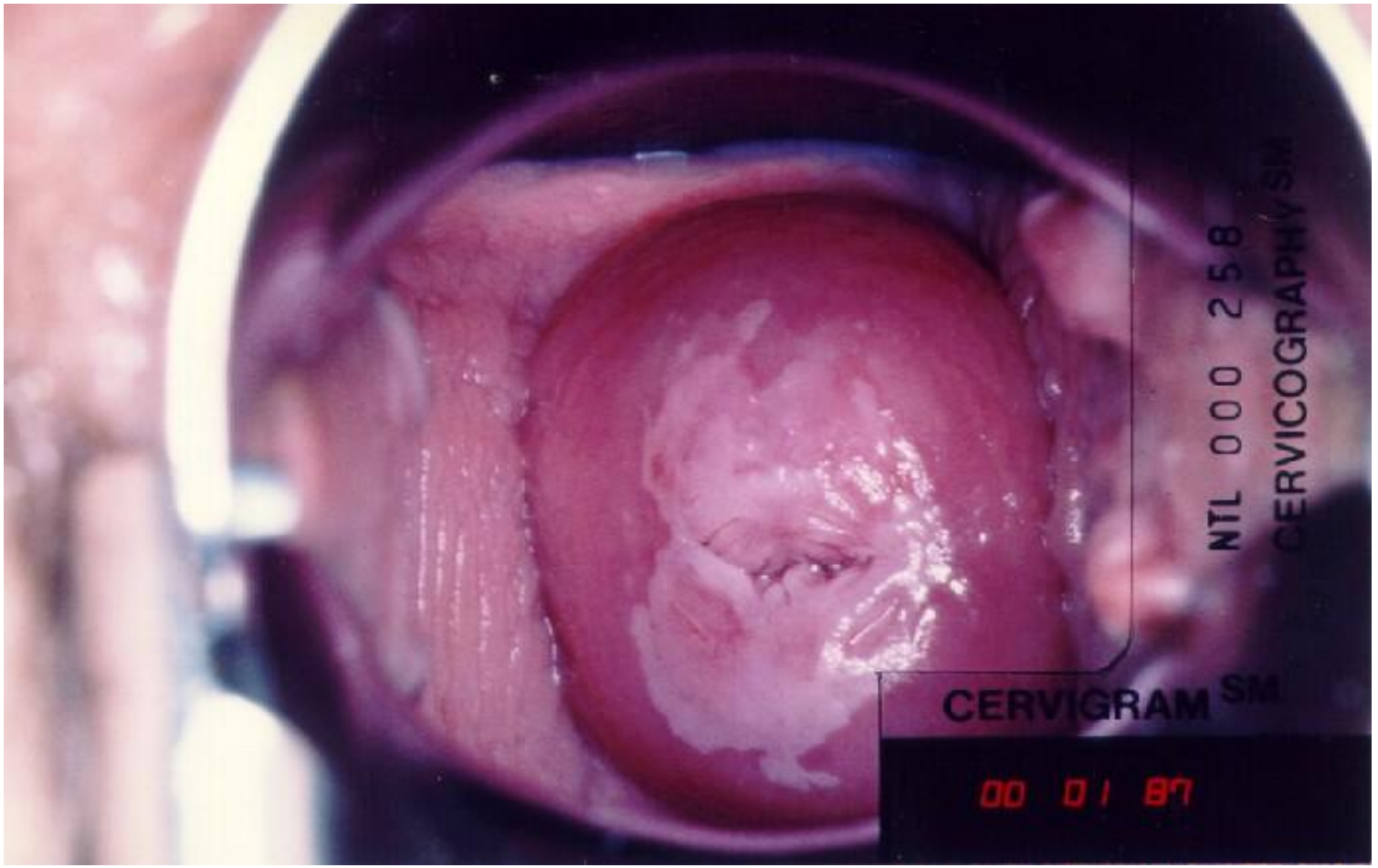
VIA Negative: Normal Cervix

VIA—Reporting

Positive:

- Sharp, distinct, well-defined, dense (opaque/dull or oyster-white) acetowhite areas—with or without raised margins.
- Lesions close to SCJ in the TZ.
- Dense acetowhite lesions in the columnar epithelium or near the os.
- Condyloma and leukoplakia close to the SCJ that turn intensely white with acetic acid.

VIA Positive



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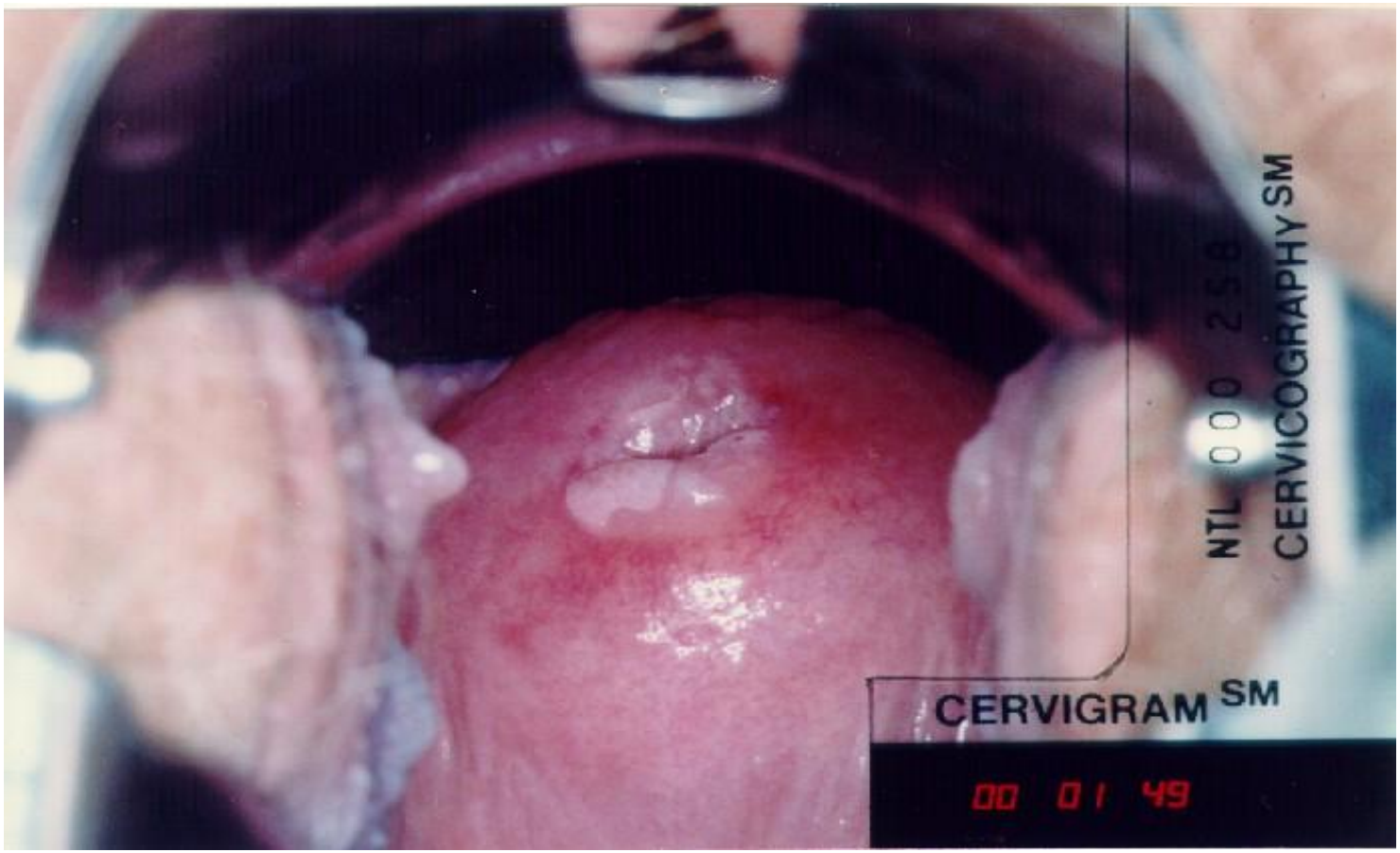
VIA Positive



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VIA Positive

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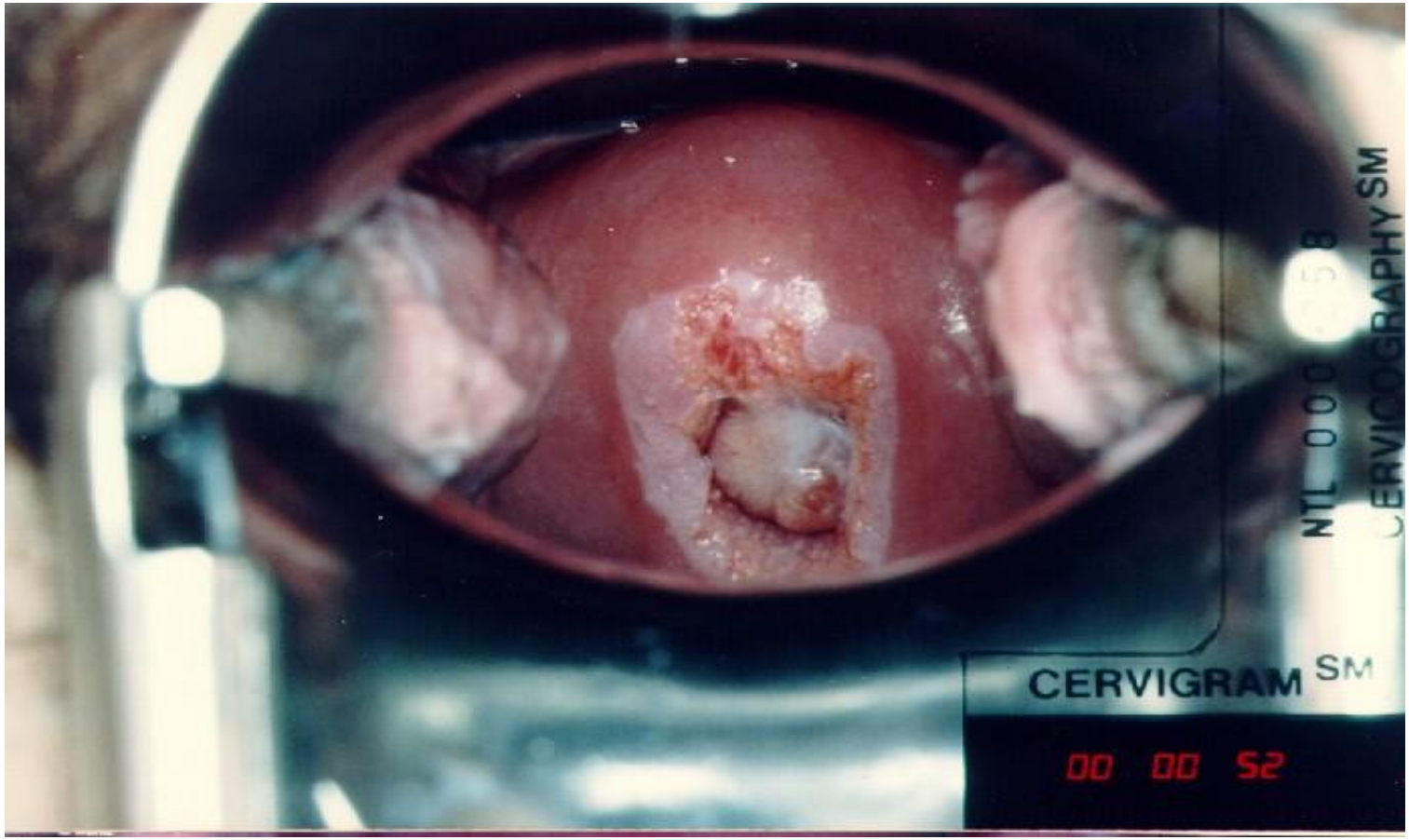
VIA Positive



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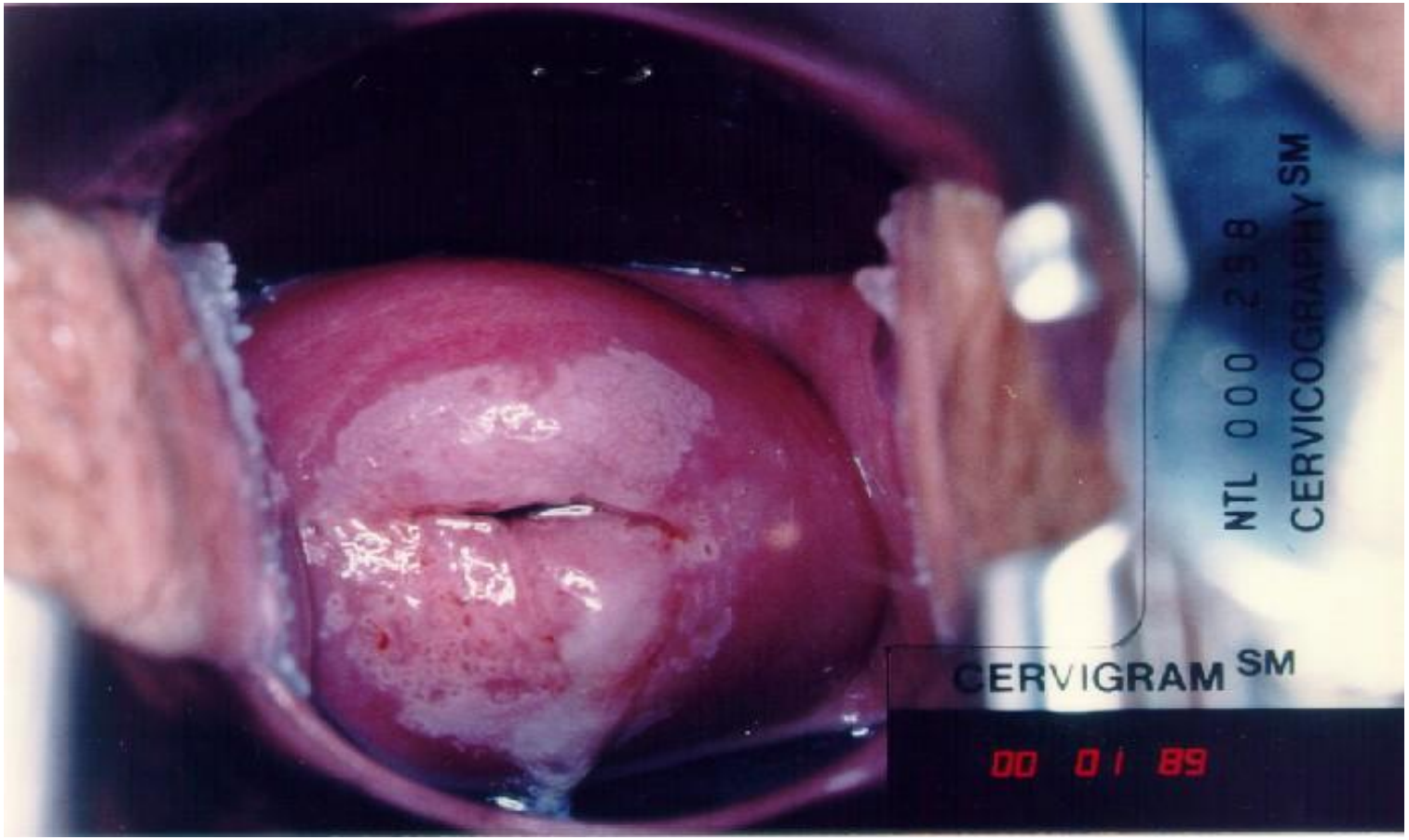
VIA Positive



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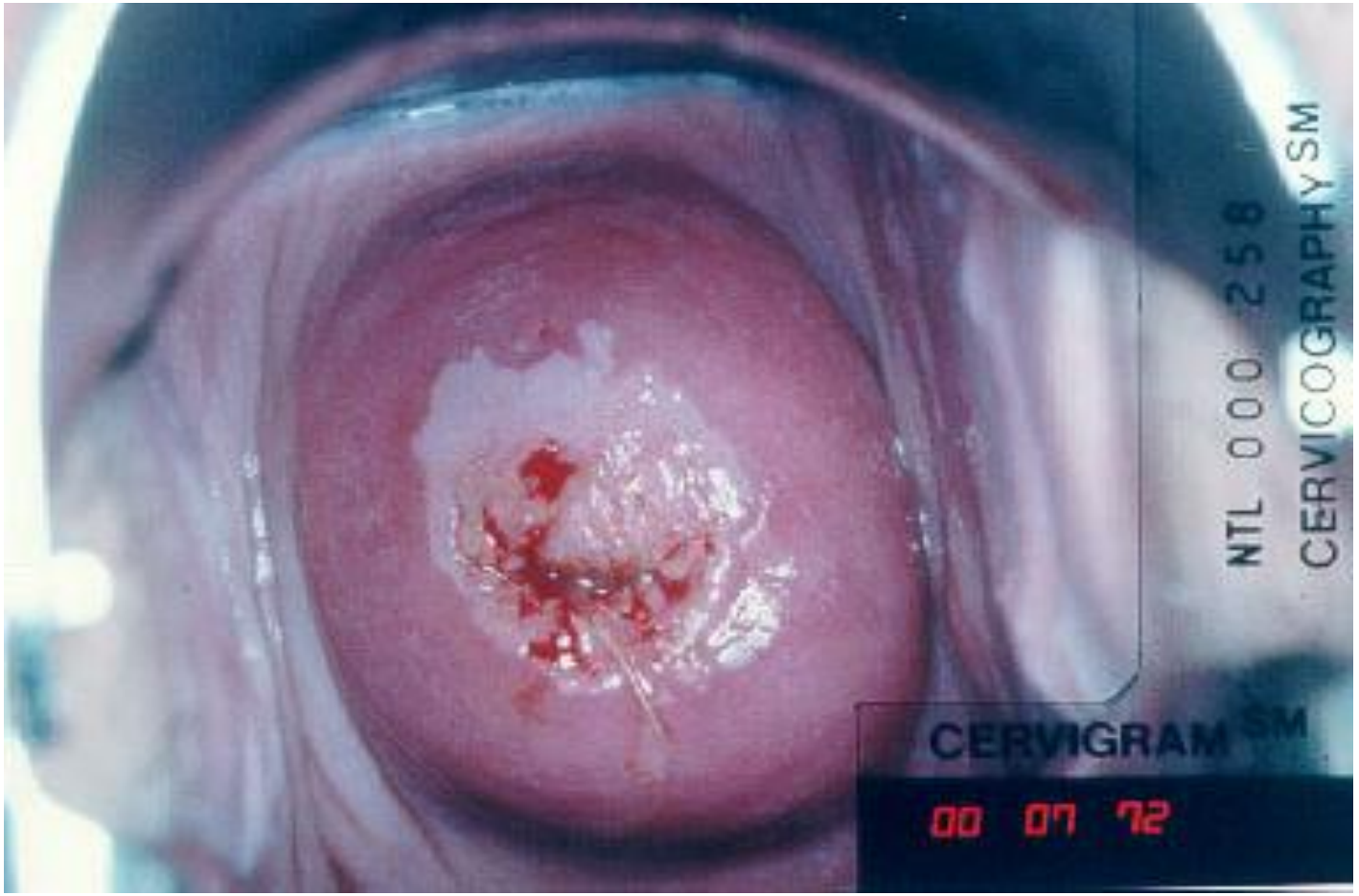
VIA Positive



VIA—Reporting

Suspicious for invasive cancer:

- Clinically visible ulcerative-proliferative growth.
- Oozing and/or bleeding on touch.

VIA Positive & Suspicious for Cancer

- There is a clinically visible growth on the cervix that turns densely white after application of acetic acid
- Ulcerations
- Clinically visible ulcerative-proliferative growth.
- Oozing and/or bleeding on touch.
- Falls apart with touch

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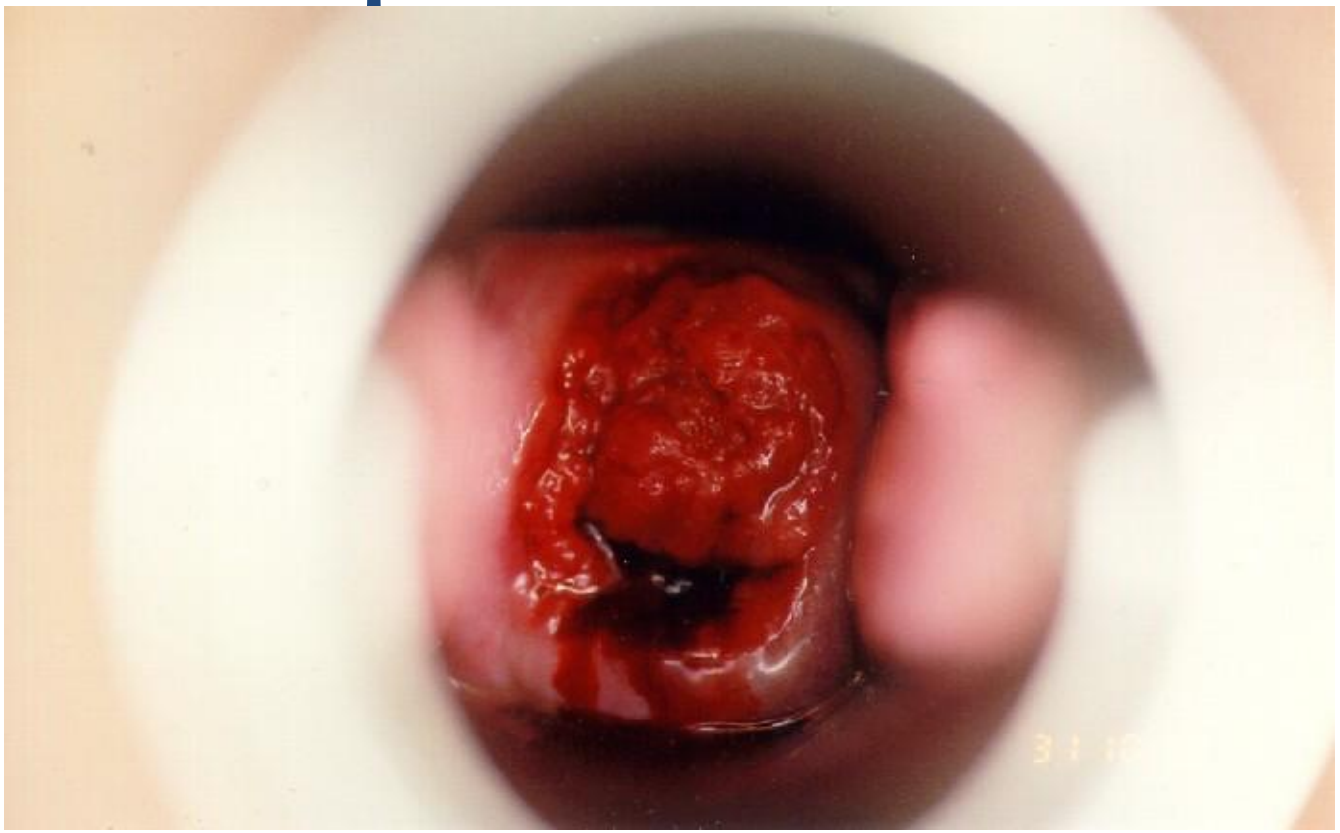
Suspicious for Cancer



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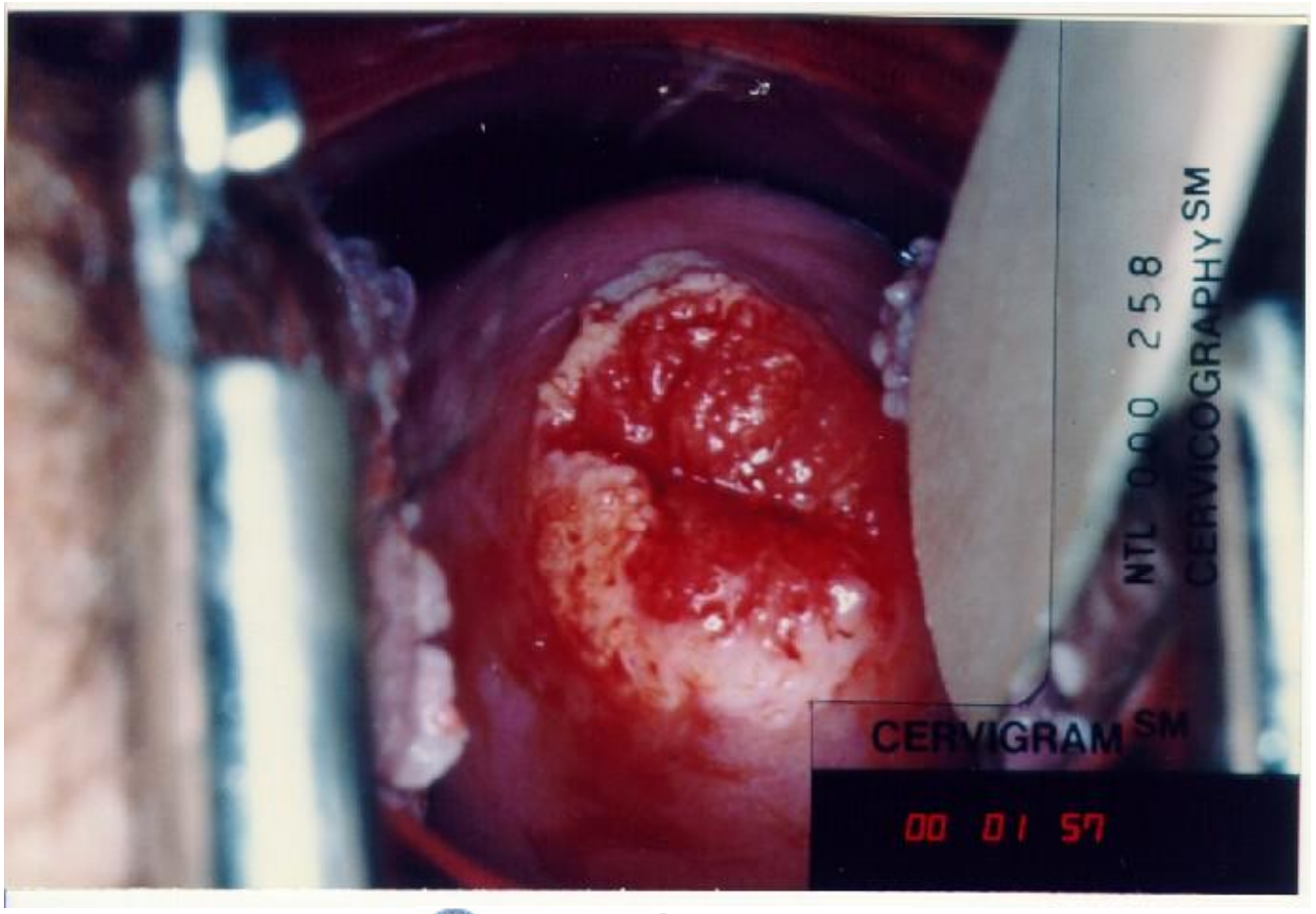
Suspicious for Cancer



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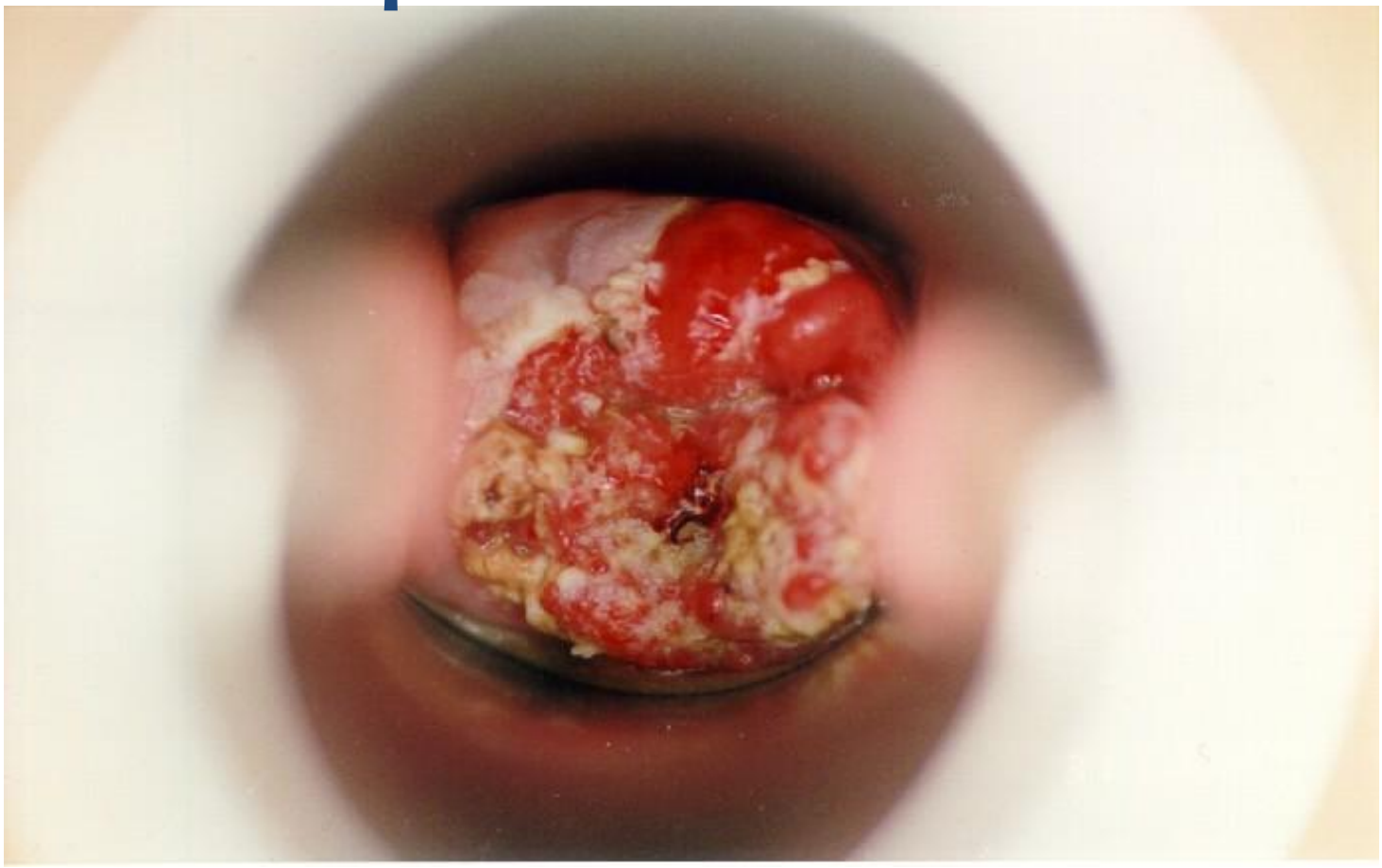
Suspicious for Cancer



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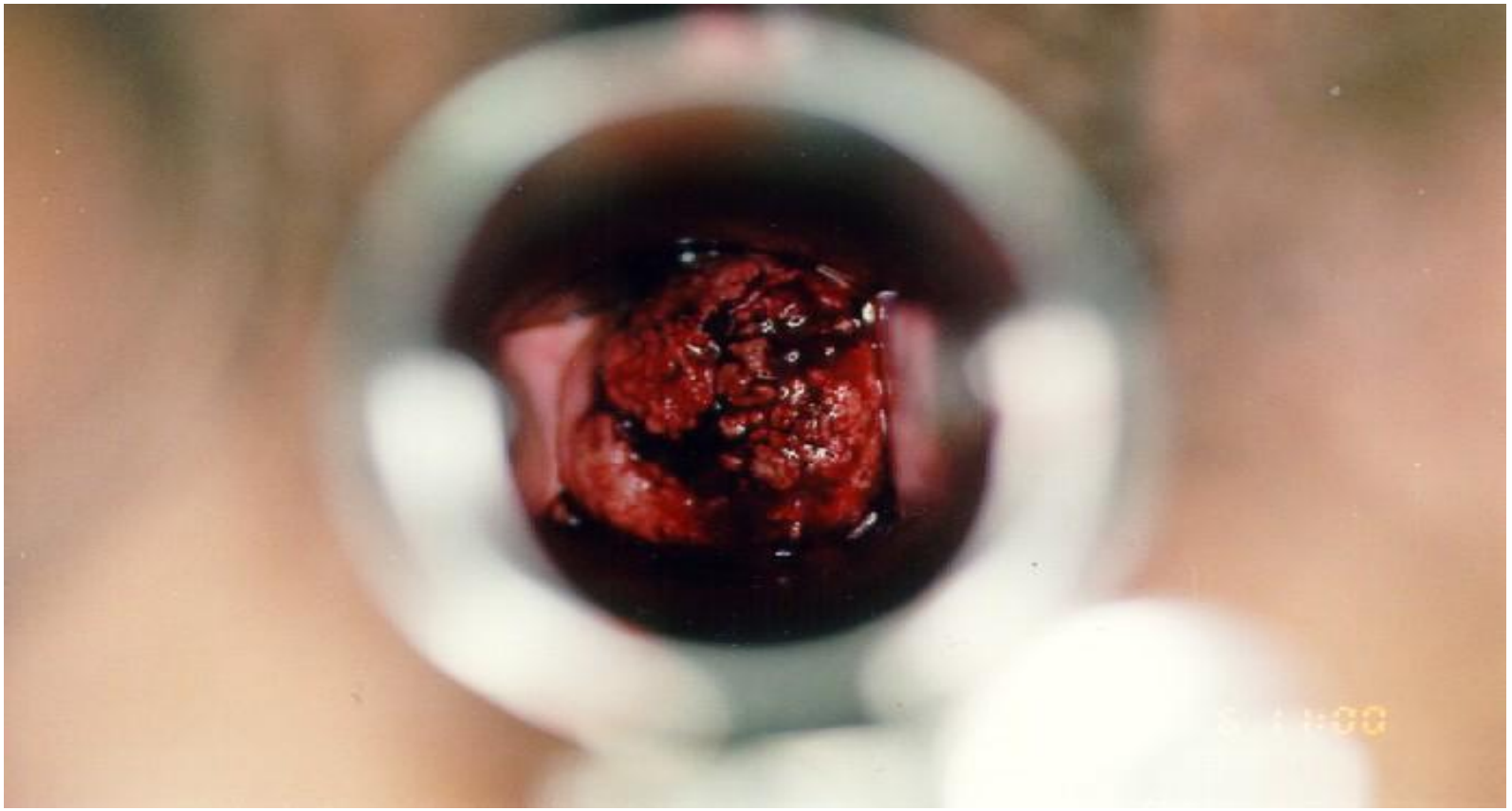
Suspicious for Cancer



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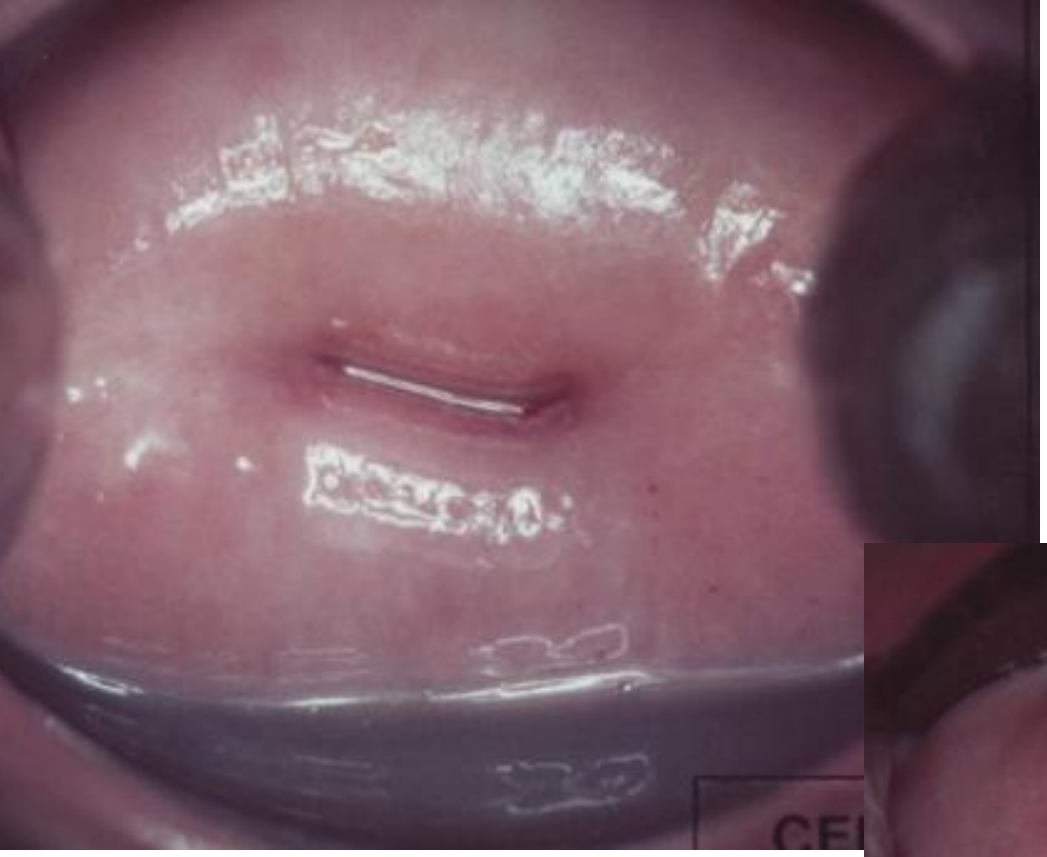
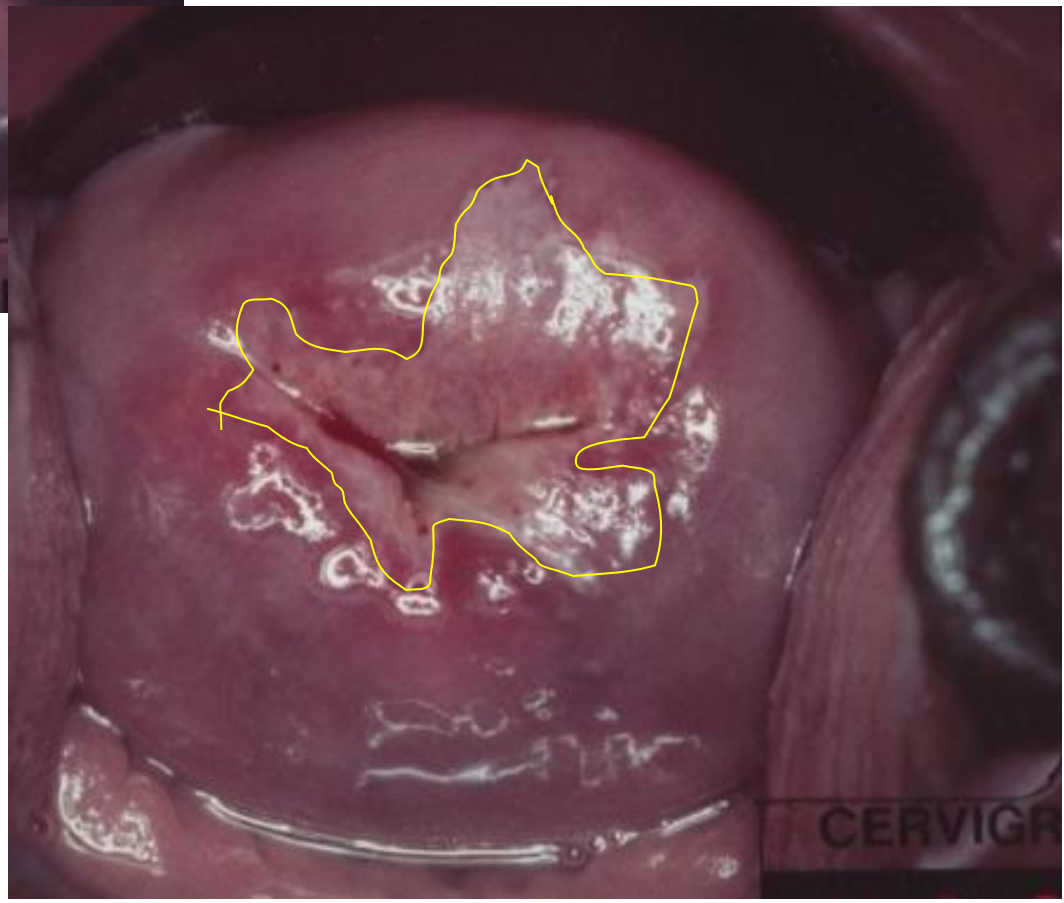
VIA Positive Includes:

- Sharp, distinct, well-defined, dense (opaque/dull or oyster-white) acetowhite areas—with or without raised margins.
- Lesions close to SCJ in the TZ.
- Dense acetowhite lesions in the columnar epithelium or near the os.
- Condyloma and leukoplakia close to the SCJ that turn intensely white with acetic acid.

DRILL 2:
VIA Positive or VIA Negative?
and
WHY?

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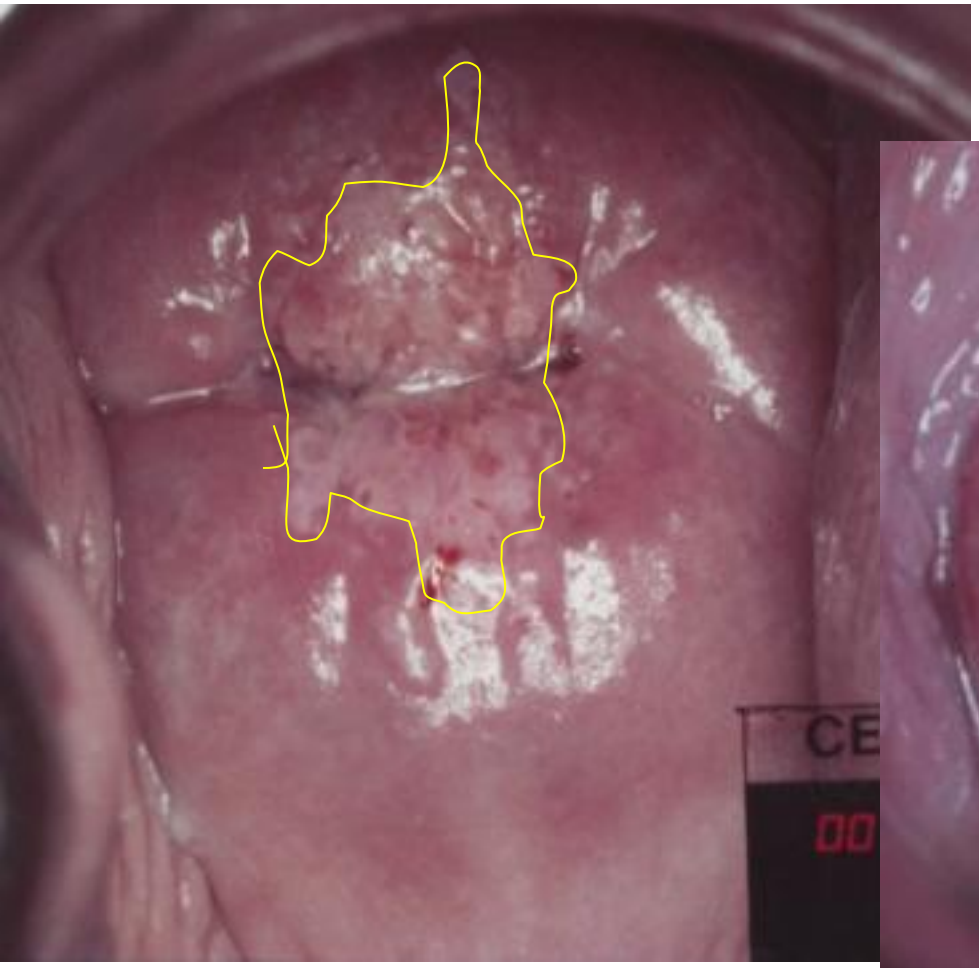

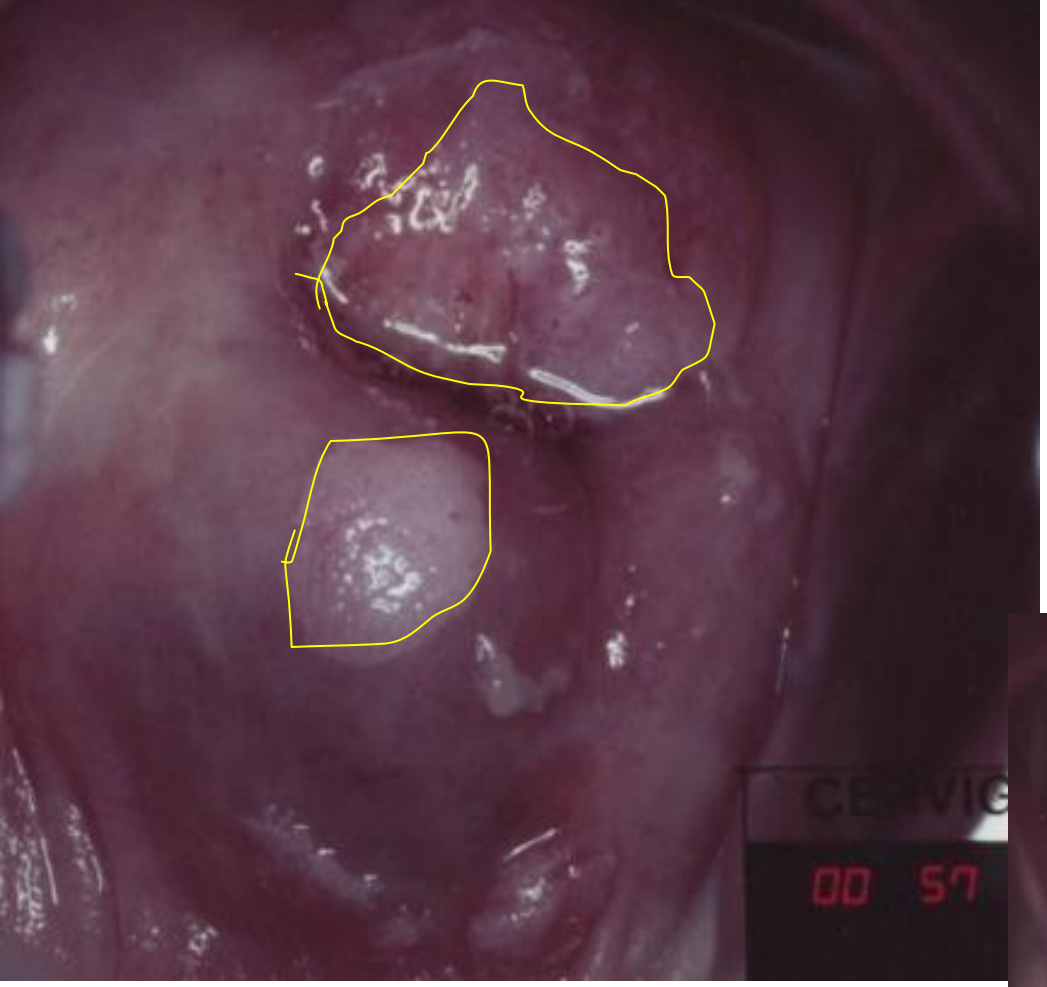
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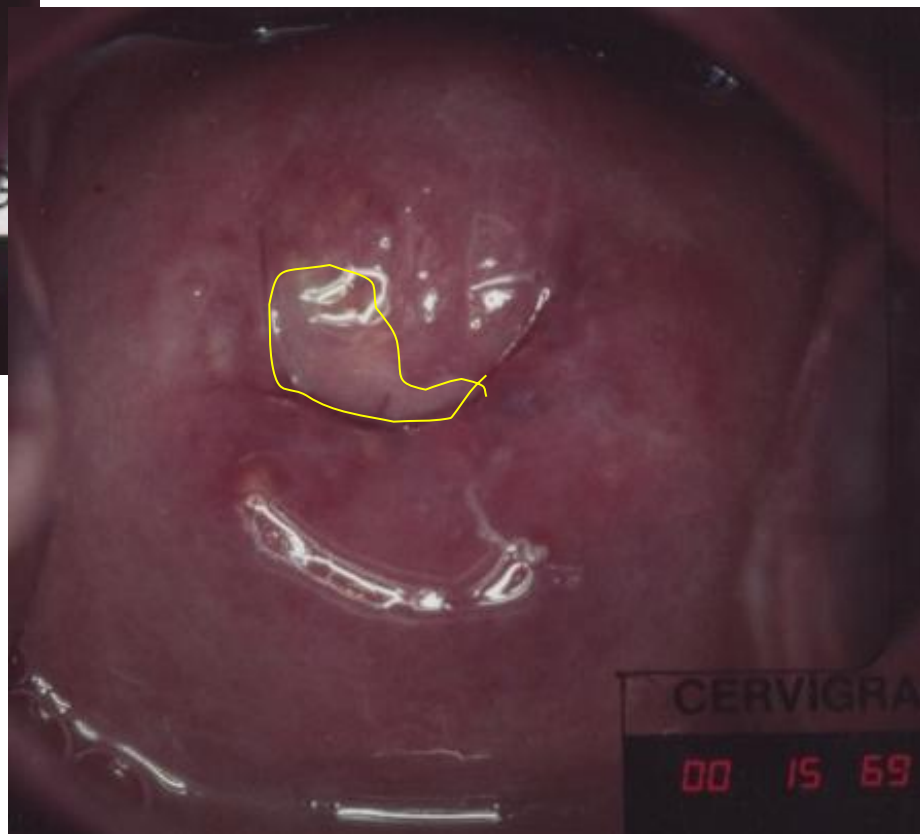
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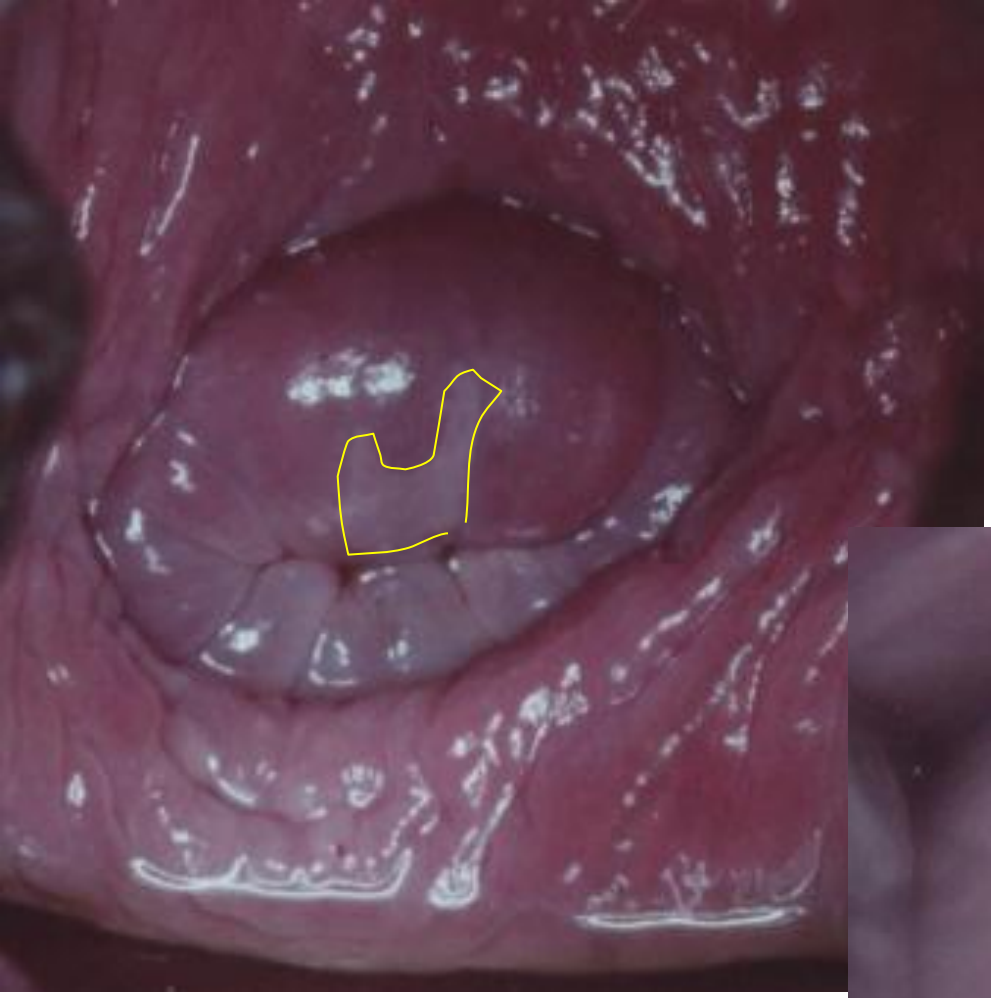


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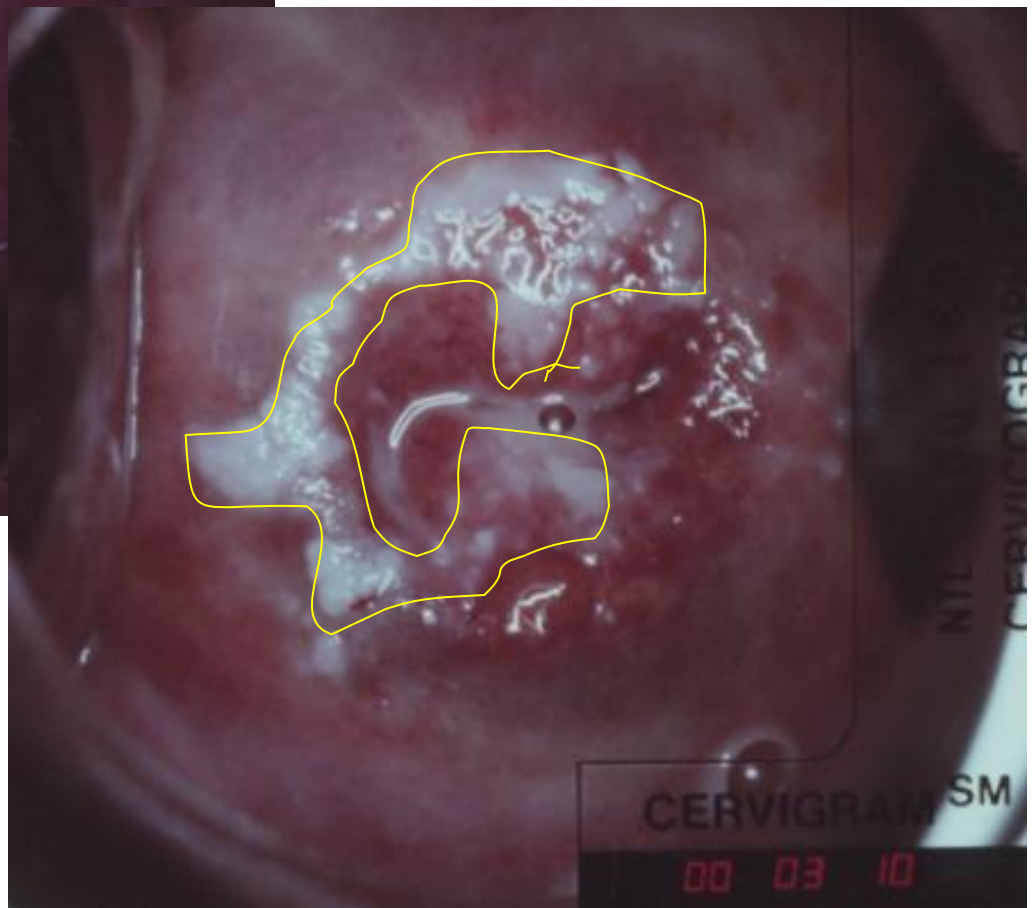
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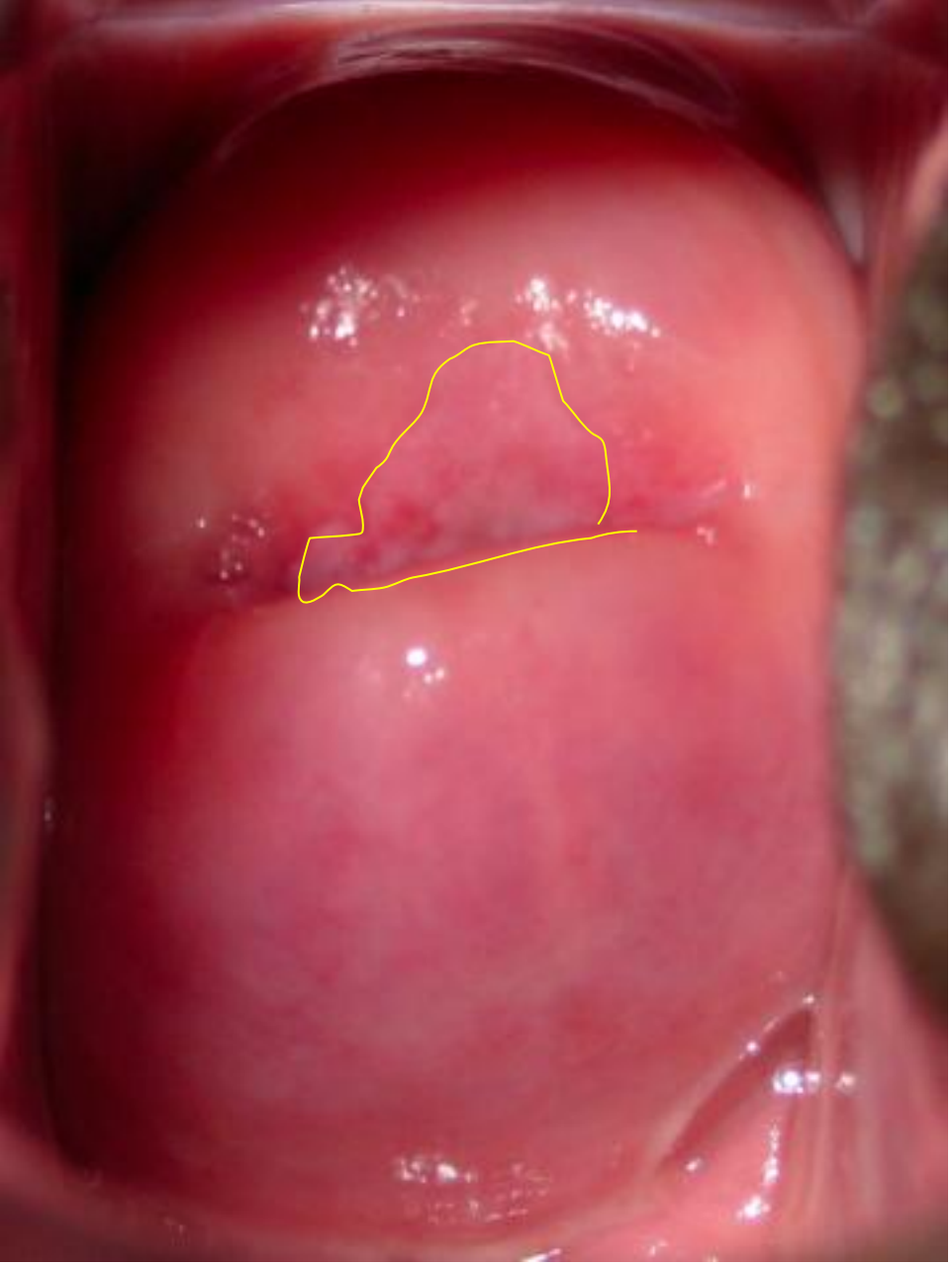

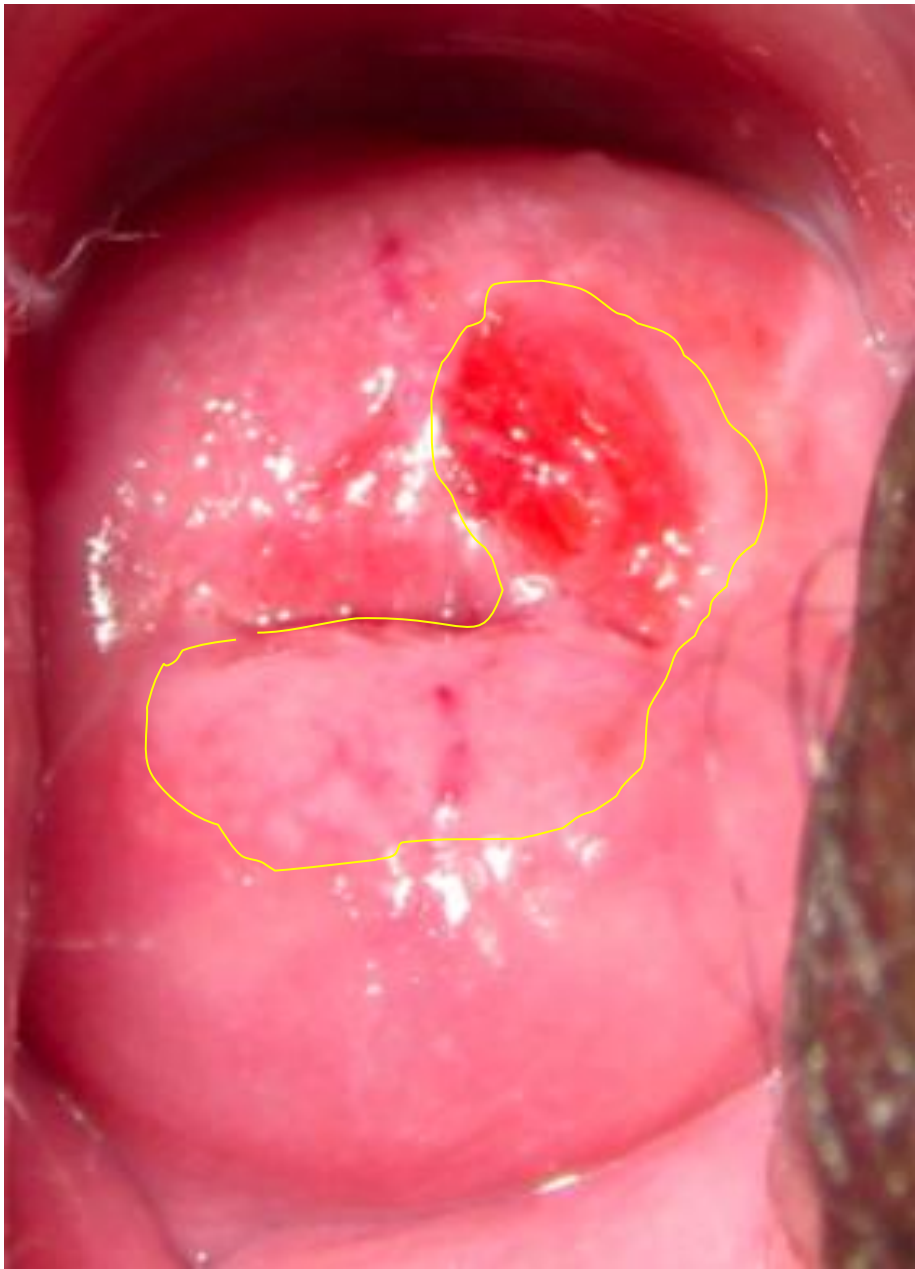

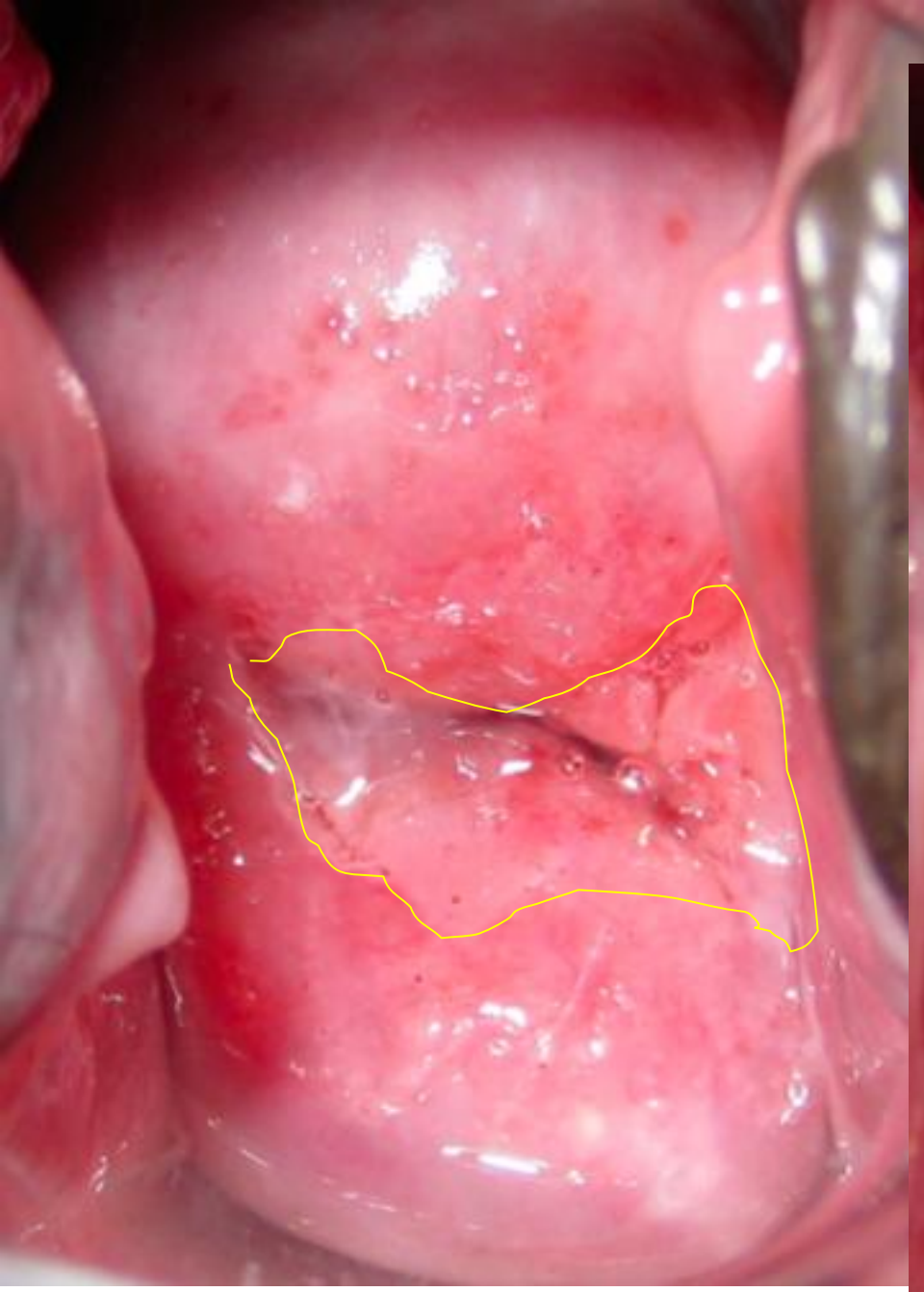

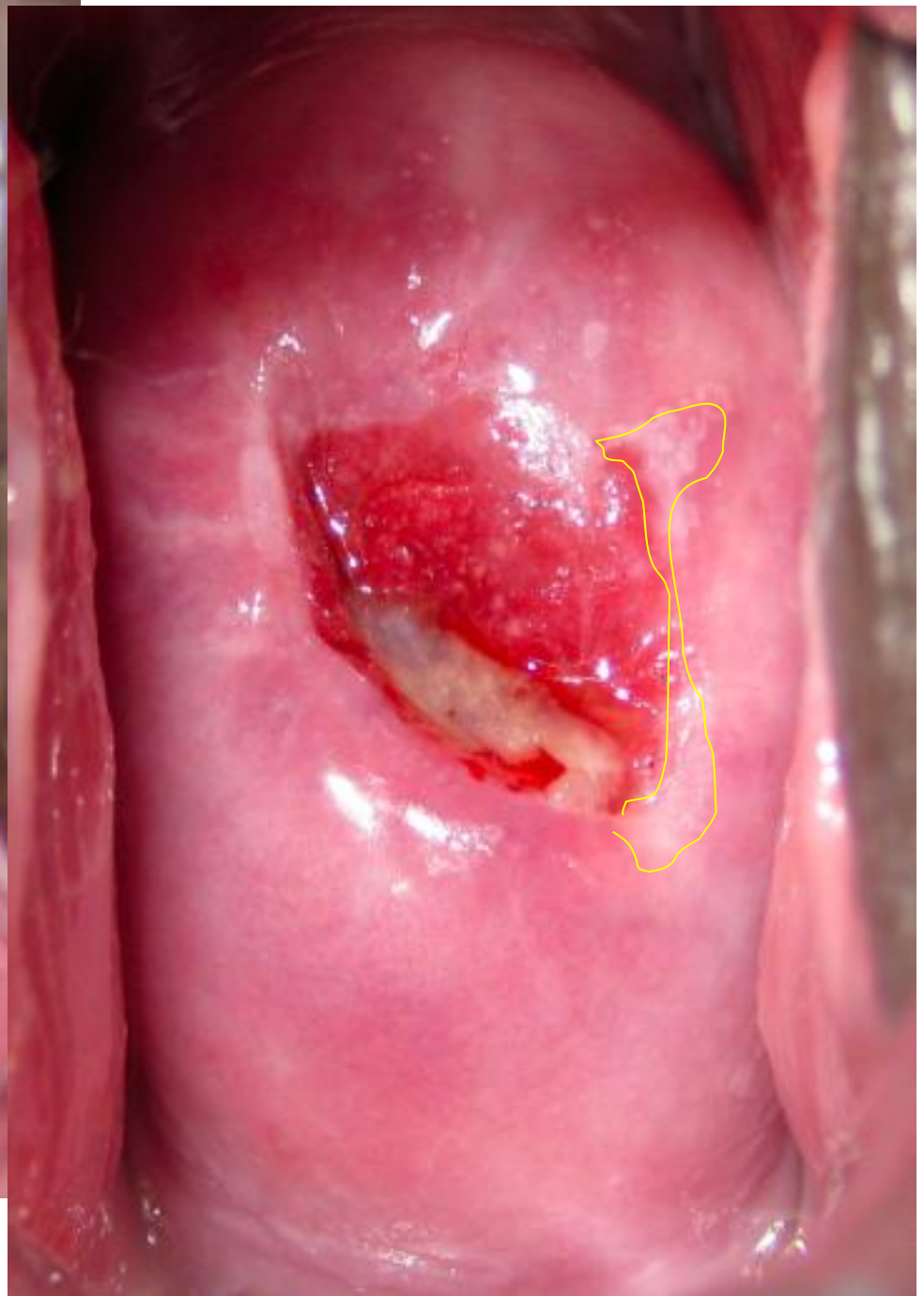

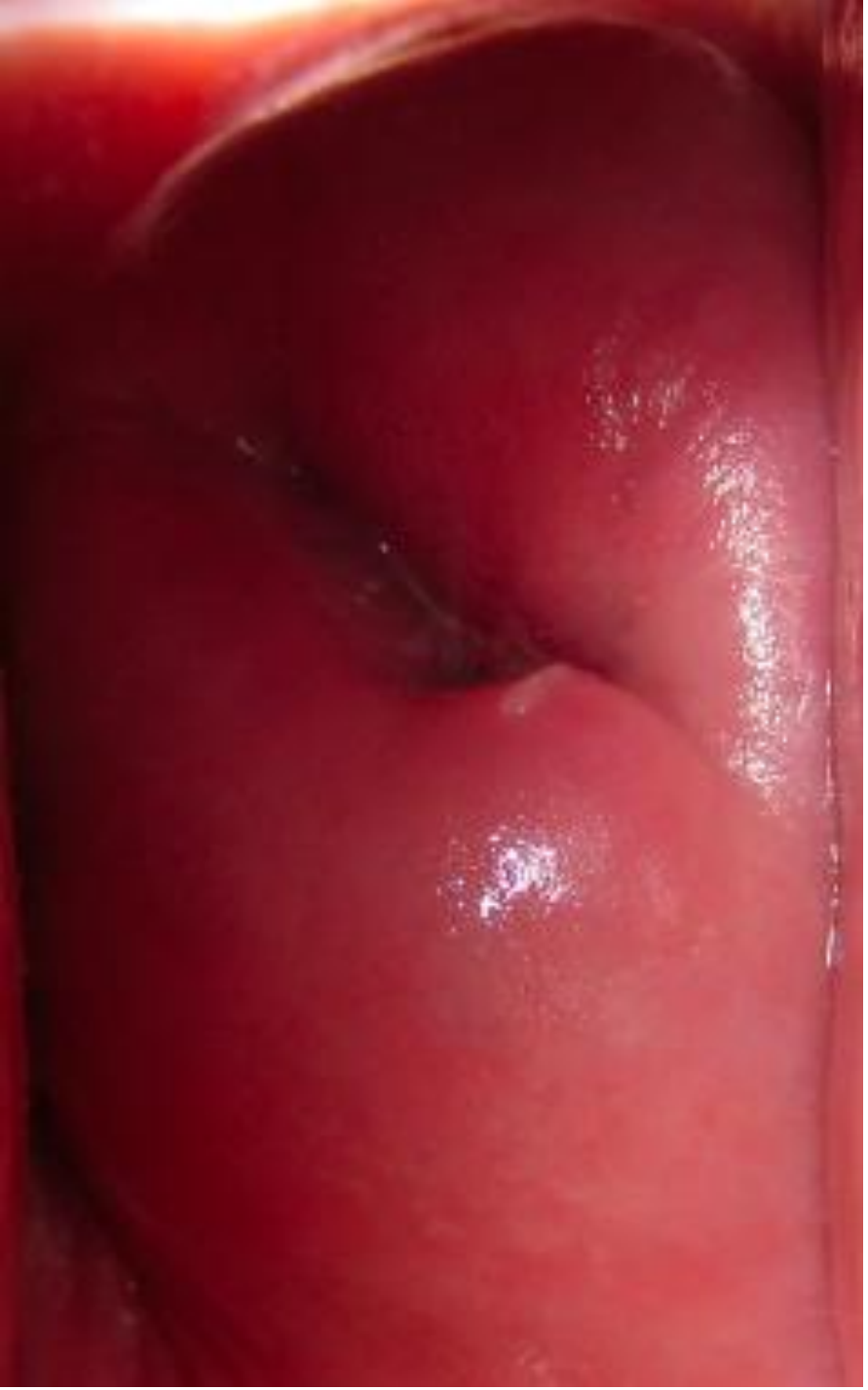

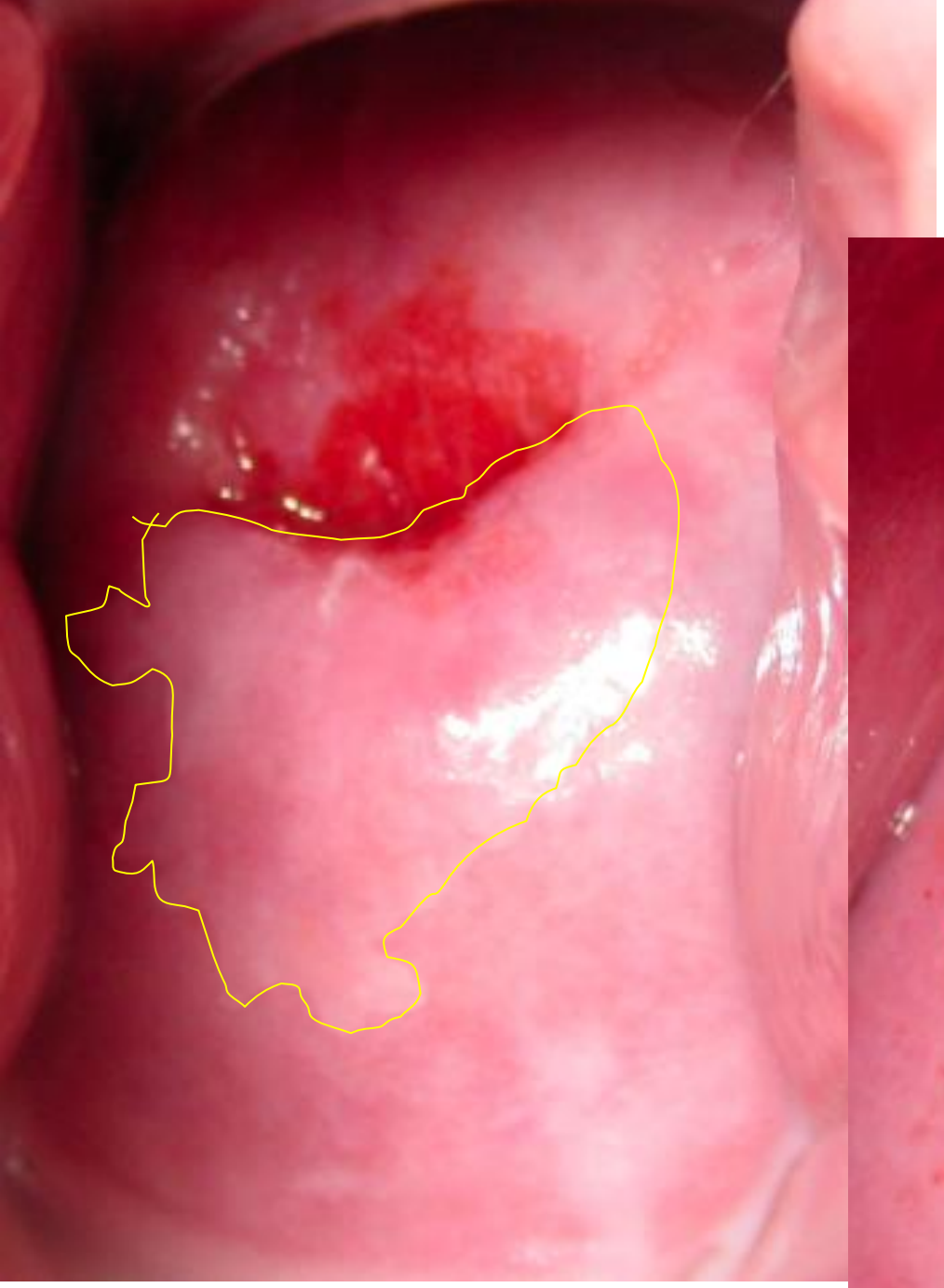

Thank you!!