



Good Afternoon!

Cervical cancer screening-colposcopy and clinical practice case

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Indications for colposcopy

- Abnormal cytology: Pap smear \geq II or **TBS** \geq ASC/AGC; or ASC with positive high risk HPV-DNA
- Suspicious clinical medical history or signs, e.g. contact bleeding, abnormal discharge, abnormal cervix, e.g. chronic cervicitis, polypus, white spots, red zone, or suspicious cancer et.al.
- Positive results for visual inspection acetic acid test with naked-eye or magnifying device (including colposcopy)
- No staining for Iodine test with naked-eye
- Positive high-risk HPV-DNA
- Suspicious lesions of vulva and vagina
- Condyloma(Wart) of the lower reproductive tract
- Follow-up after treatment for CIN and cervical cancer
- Follow-up and observe the dynamic changes of cervix, vagina and vulva.
- Others such as understanding the vaginal wall before CIN or early diagnosed cervical cancer, management of pregnancy with CIN et.al.

Auxiliary equipment of colposcopy



FIGURE 4.3: Colposcopy instrument tray

- | | | |
|-----------------------------------|------------------------------------------------------------------|-------------------------------------------------------|
| 1: Kidney tray | 2: Bottles with normal saline, 5% acetic acid and Lugol's iodine | 3: Monsef's solution |
| 4: Bottle containing formaline | 5: Local anaesthetic syringe | 6: Jar containing alcohol for cervical smear fixation |
| 7: Cotton-tipped fine swab sticks | 8: Cervical cytology brushes | 9: Larger cotton-tipped swab sticks |
| 10: Vaginal speculum | 11: Sponge-holding forceps | 12: Vaginal side-wall retractor |
| 13: Endocervical speculum | 14: Endocervical curette | 15: Dissecting forceps |
| 16: Punch biopsy forceps | | |

Cervical expanding forceps

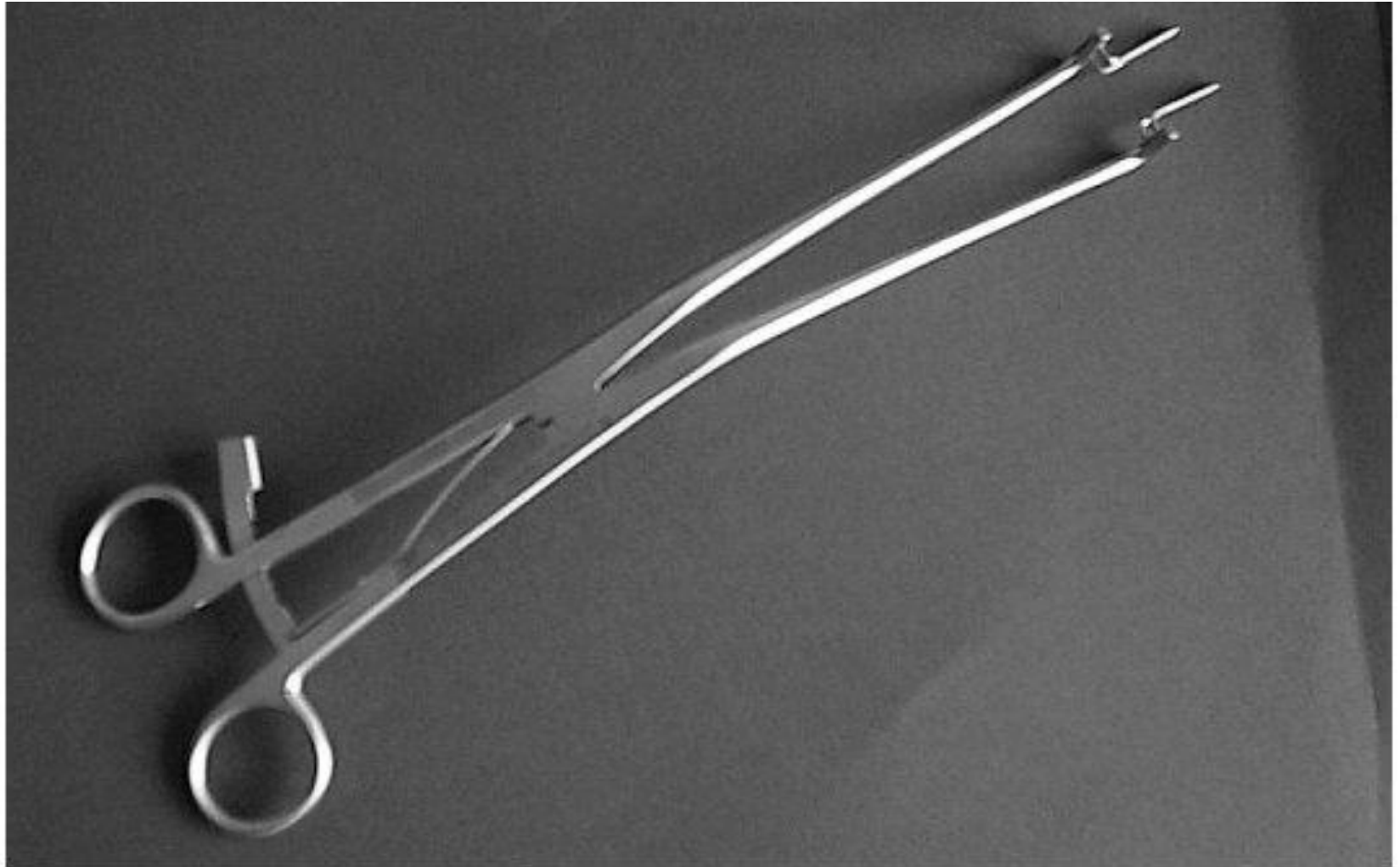


FIGURE 4.6: Endocervical speculum

5% acetic acid

- **Component: Acetic acid, 5ml**
- **Distilled water: 95ml**
- **Mixed 5% solution, stored in the sealed glass bottle**

Logol's iodine solution

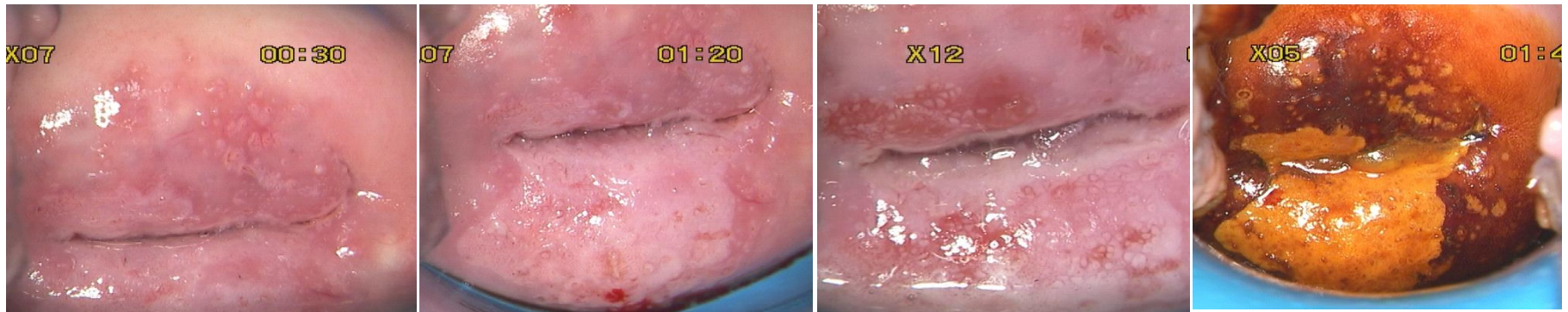
- **Component: iodine 5mg**
- **Potassium iodide 10mg**
- **Distilled water 100ml**
- **After preparation stored in sealed brown glass bottle. After 6-8 months of utilization, reprepare refresh solution to prevent deterioration**

Electronic colposcopy technology

- Observe changes of cervical morphology and structure
- Observe distribution of cervical squamous and columnar epithelium
- Observe subepithelial vessel changes
- Observe epithelium histology
- Assist biopsy localization
- Graphic record of observations mentioned above

5% acetic acid - key to colposcopy

- Principle: Acetic acid causes swelling of cervical epithelial tissue, reversible coagulation or precipitation of nuclear protein and keratin, most obvious at columnar epithelium and any abnormal squamous epithelial areas.



Procedure for colposcopy

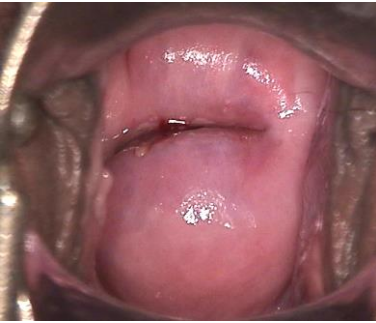
Traditional procedure of colposcopy :



- ▶ Exposing cervix with speculum, observe color, turbidity and morphology of cervix

Gently wipe off surface mucus by sterile dry/wet cotton

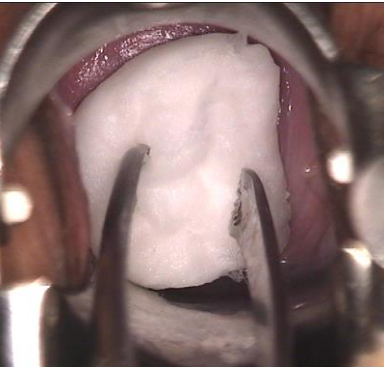
- ▶ ball, observe whether original cervical blood vessels, lesions and surface contours, colors and boundaries are clear; store an original image for comparison with image after applying acetic acid



Place large cotton ball (about 2cm in diameter or capable of covering cervix, as shown in left picture) with acetic acid on cervix; hold for 30-60 seconds before removing cotton ball to start observation

- ▶

Note: Is this method correct?



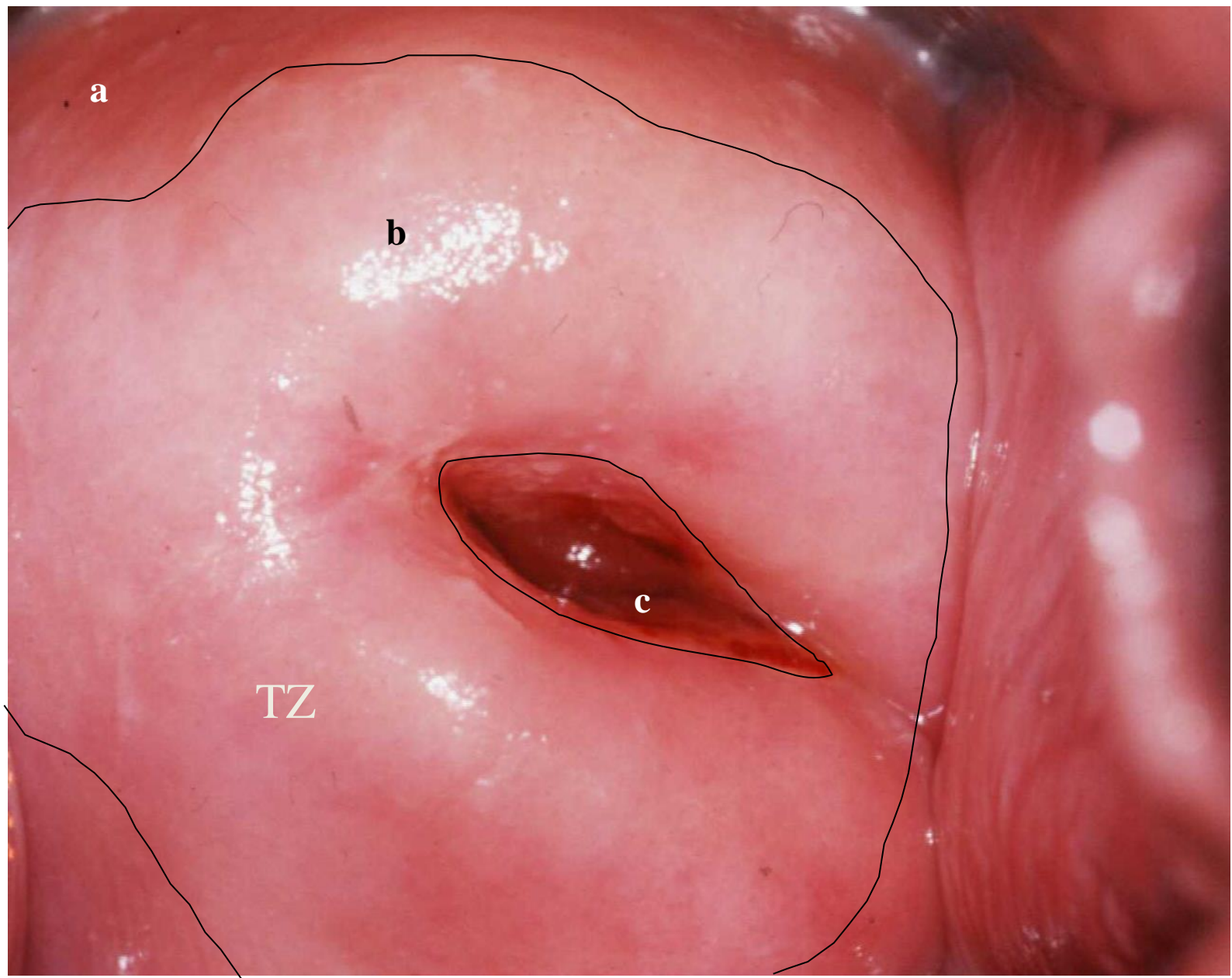
- ▶ Observe epithelial morphology and color changes after acetic acid. Color changes after 1~2 minutes. Short observation time after acetic acid may lead to missed observation of color changes or misdiagnosis. Acetic acid reaction disappears after 3 minutes. Recommend taking pictures after first or second time of applying acetic acid. Too many times of applications of acetic acid or long time interval affect observation. Image after acetic acid should be compared with original image.



Applying acetic acid on cervix (Mobile drench touch method)



- ◆ Smear cervix with large cotton ball soaked in acetic acid, avoid fixed position. Observe process and location of forming acetic white epithelium
- ◆ After fully applied acetic acid on cervix surface for 30-60 seconds, remove cotton ball and observe changes of cervical epithelium



Fish-mouth cervix: the squamocolumnar junction is fully visible; the original squamous epithelium (a) is pinkish in colour; the metaplastic squamous epithelium (b) is pinkish white; the columnar epithelium (c) is reddish.

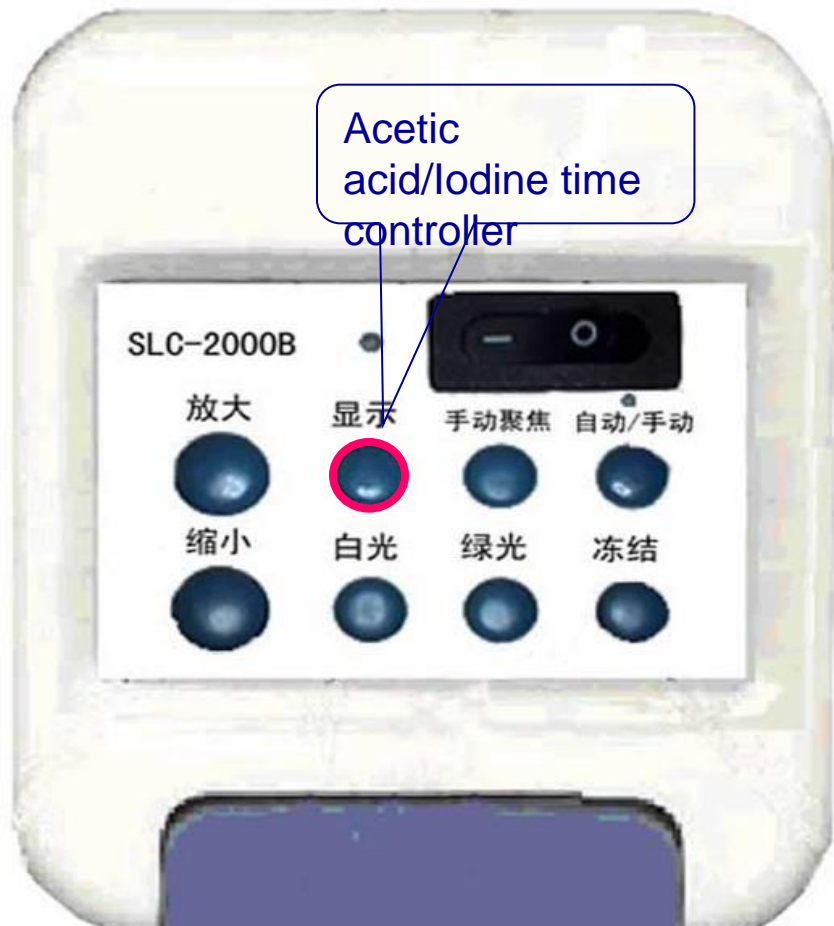
Important features of CIN lesions observed under colposcopy -- white epithelium



1. More than 83.5% white epithelium correlates with CIN or HPV infection (data from Guangdong Provincial People's Hospital);
2. Different changes of white epithelium after applying acetic acid correlates with different CIN types;
3. Punctate blood vessels, inlaid blood vessels, and gland openings against the white epithelium correlate with high-risk CIN;
4. Iodine unstaining area and unstaining color (mustard yellow) correlate with white epithelium.

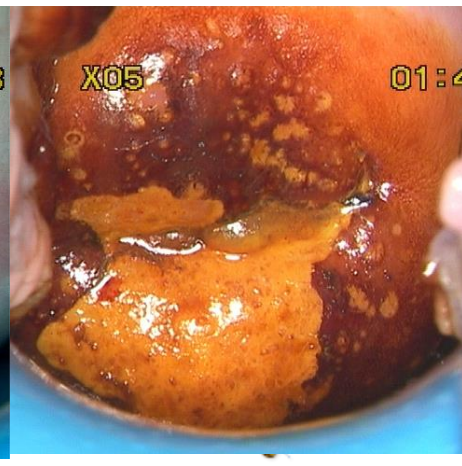
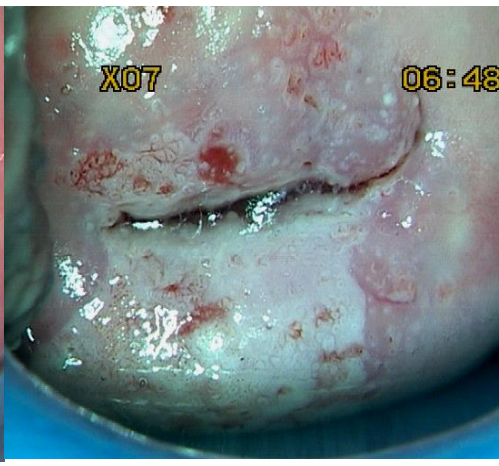
Pay more attention to characteristics on changes of blood vessels and gland openings on white epithelium





Electronic colposcopy lens panel function

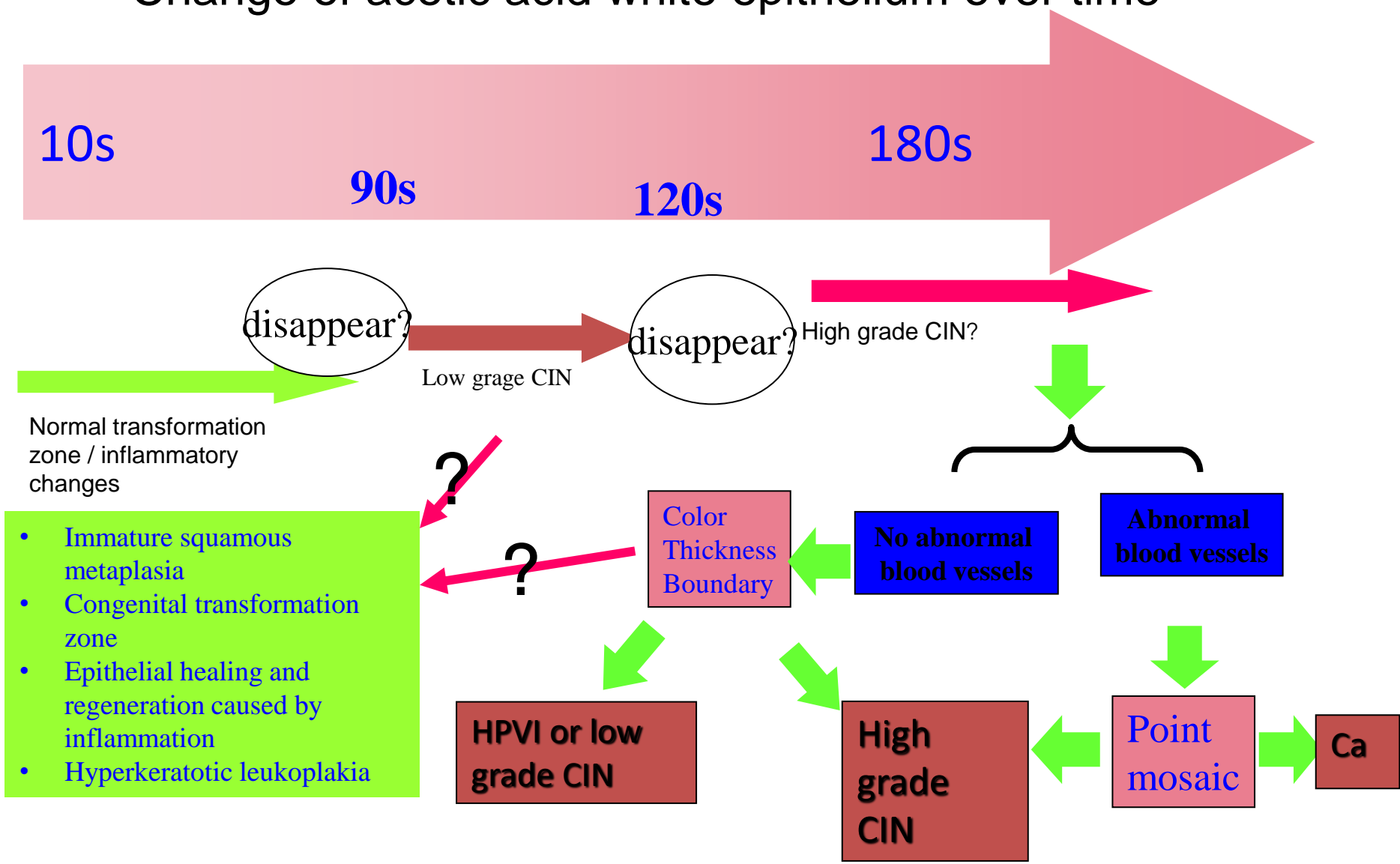
1. 480,000 pixels
2. 1-25 times optical magnification
3. Electronic green filter
4. Acetic acid/iodine staining time display
5. Automatic/manual fine-tuning focusing



Based on 5% acetic acid

Time control method and control process

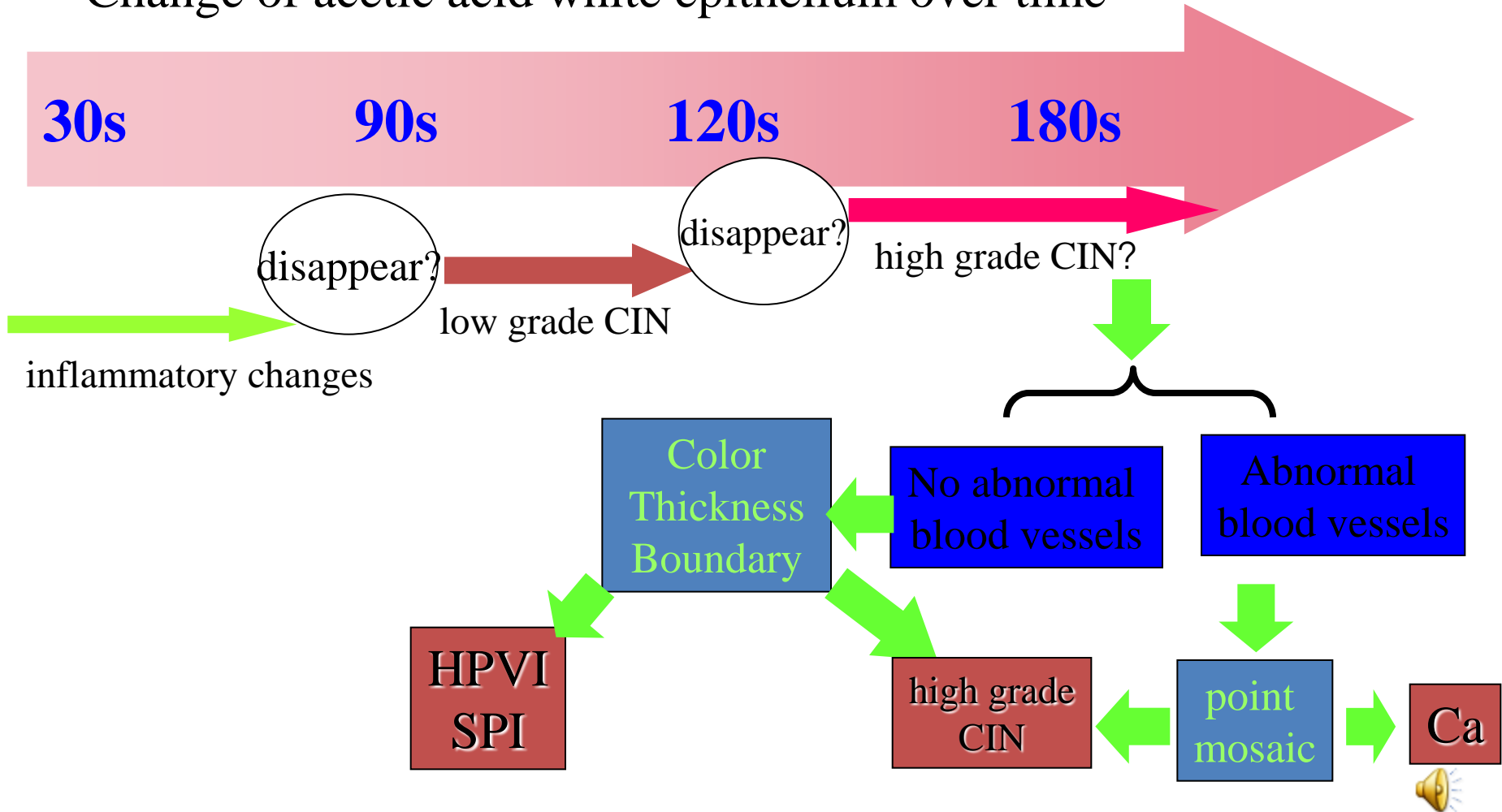
Change of acetic acid white epithelium over time



Based on **5% acetic acid**

—— **Time control** method and **control process**

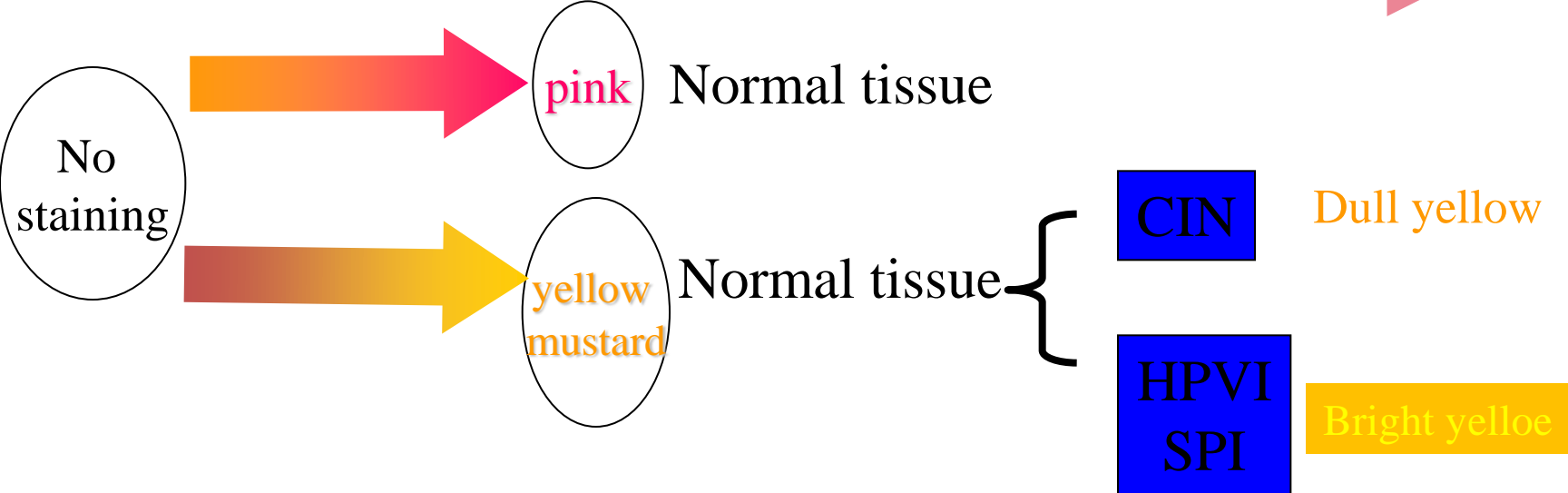
Change of acetic acid white epithelium over time

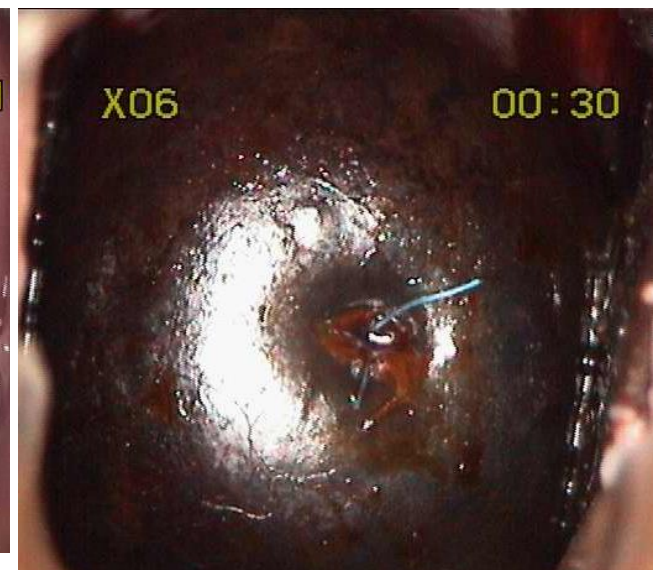
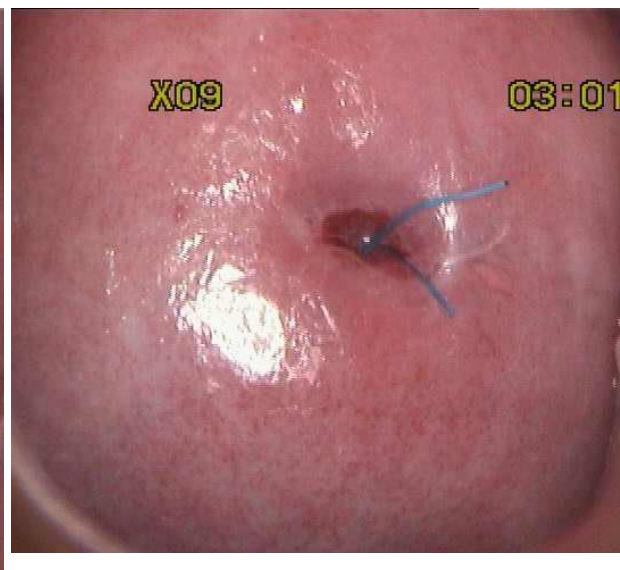
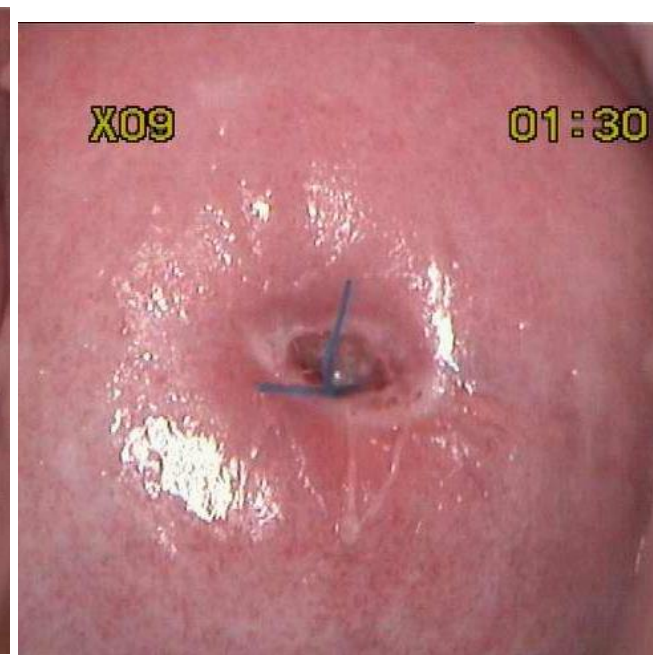
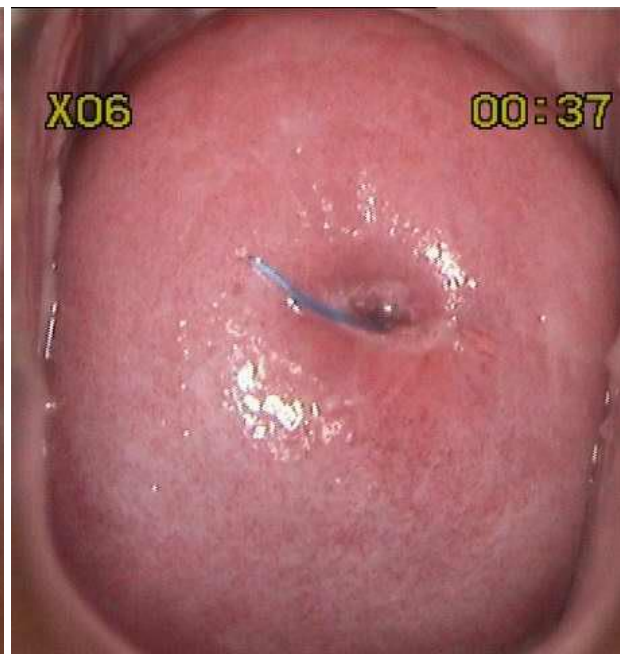
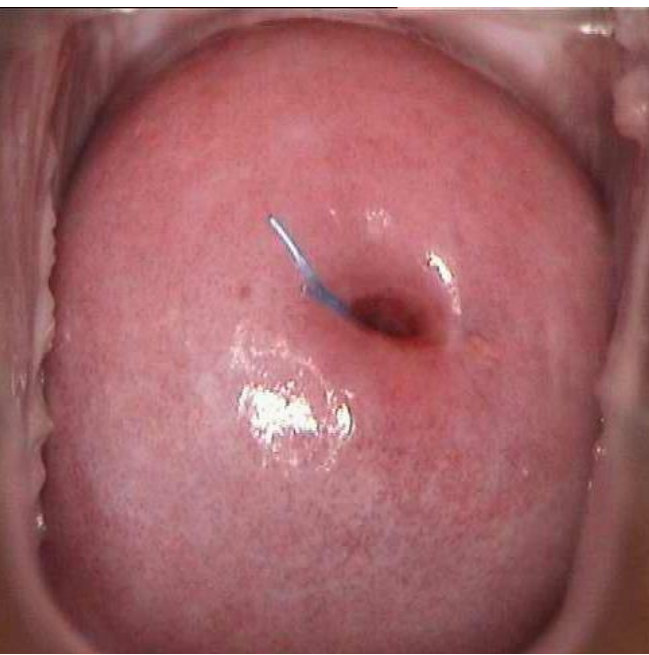


Based on **Lugol's** dyeing

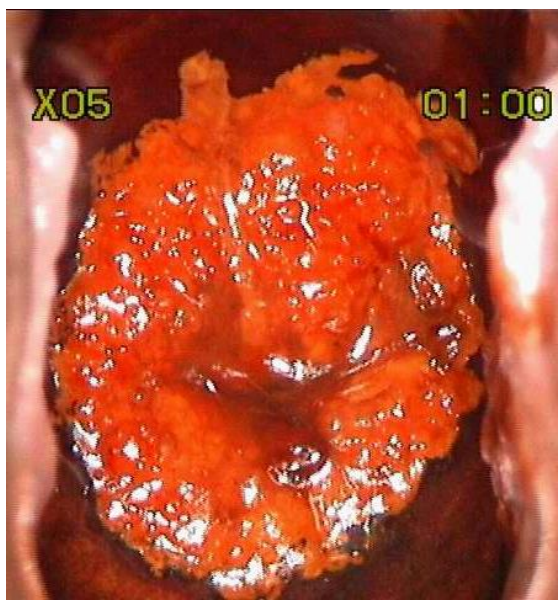
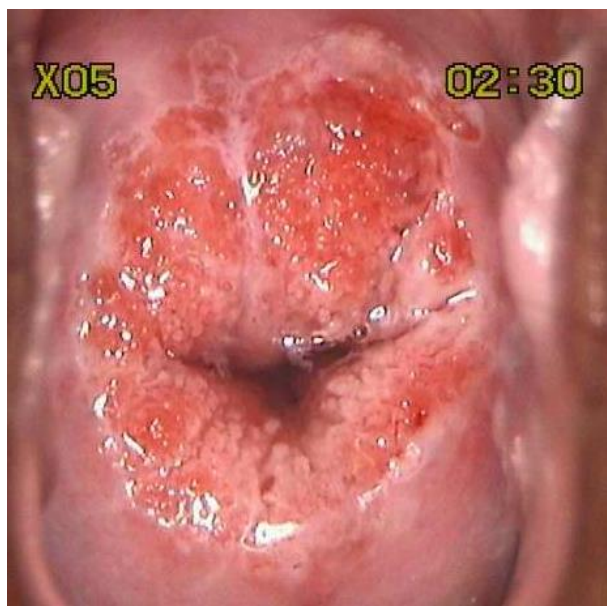
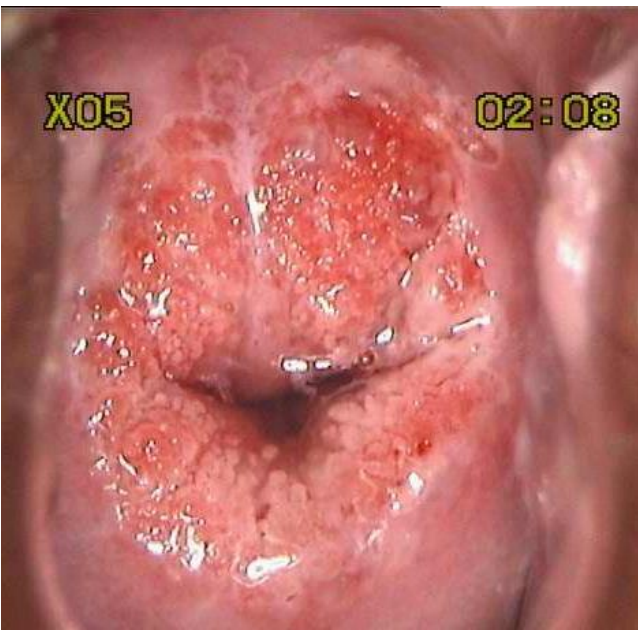
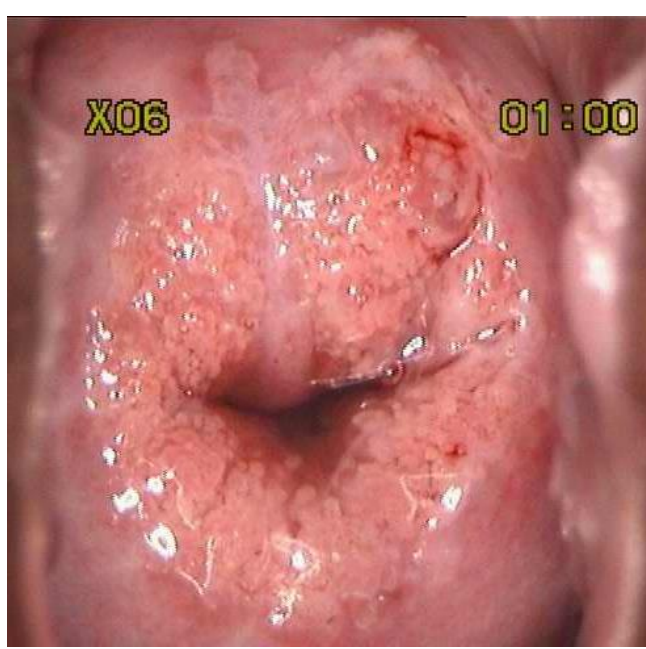
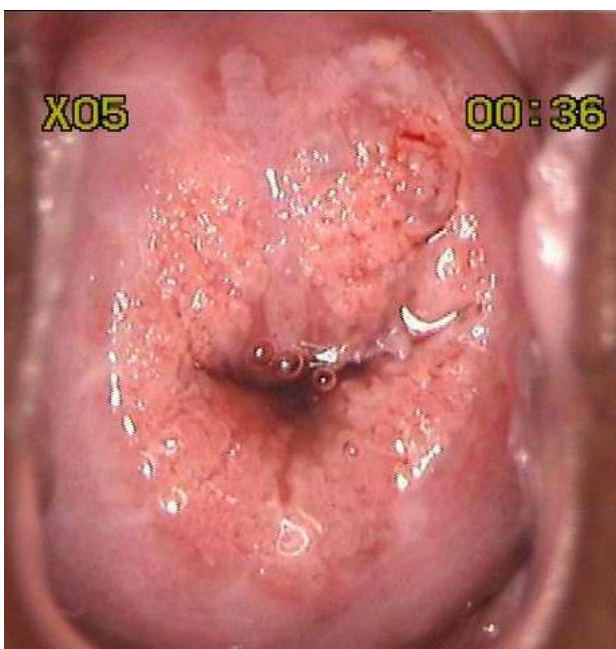
—— **Time control** method and **control process**

Changes in epithelial staining over time after Lugol 'dyeing



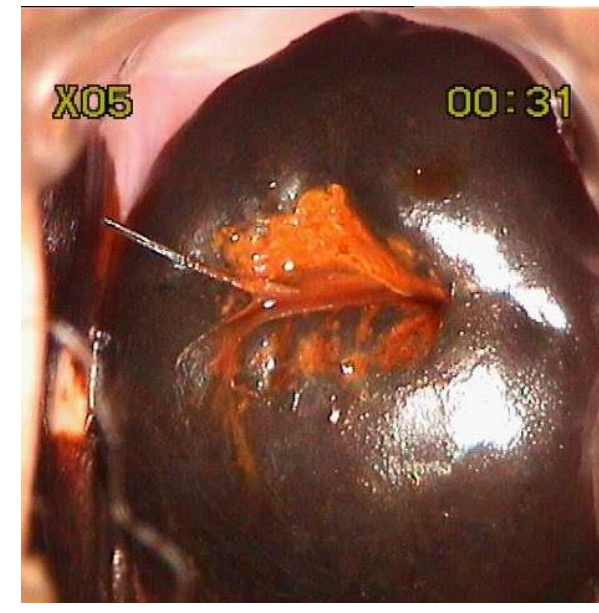
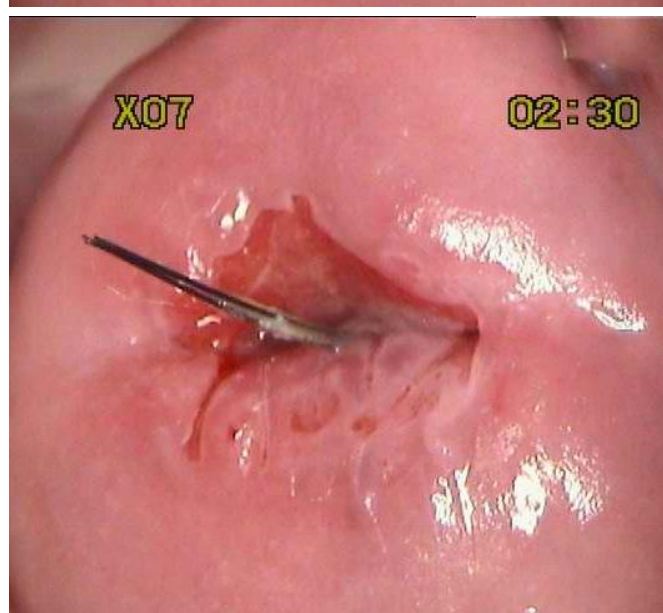
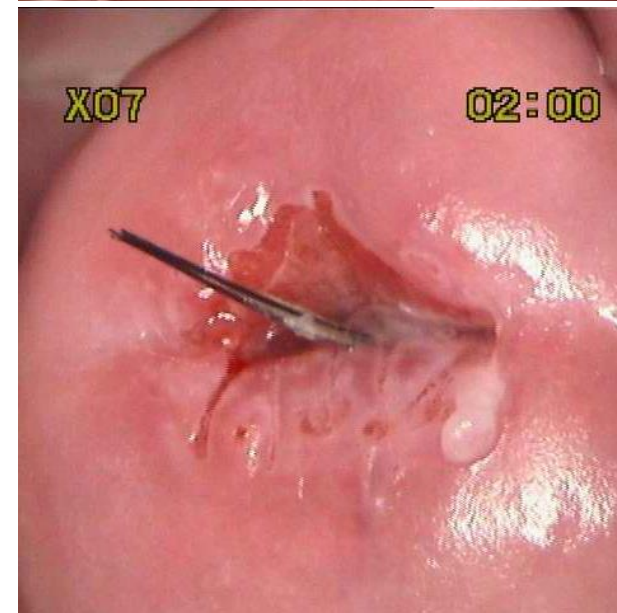
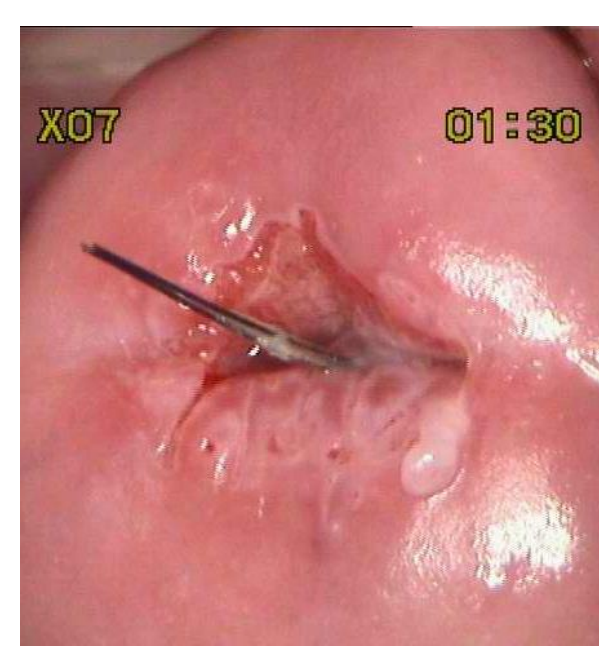
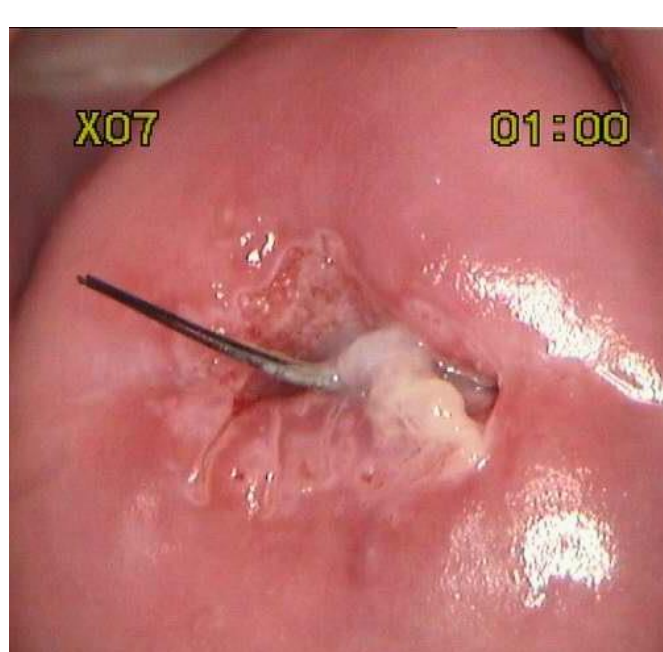


Normal process of acetic acid reaction on cervix



Columnar epithelial shift

Chronic cervicitis



Chronic cervicitis

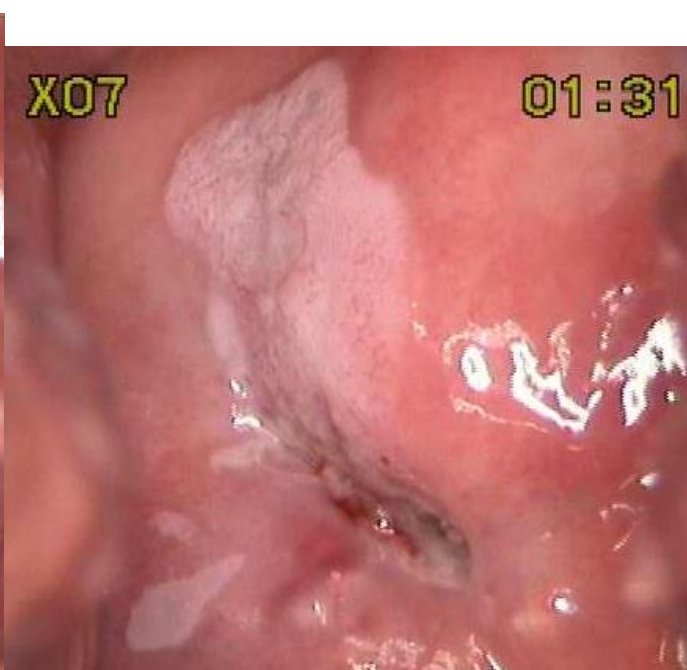


Image changes of high grade CIN after application of acetic acid



Thank you for your attention !!!