

Colposcopy: Equipment and Supplies

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Disclosures

Conflict of Interest

- No financial relationships or conflict of interest to disclose

Images

- Images are from the personal files of Candy Tedeschi, NP, except as noted.

Objectives

- Identify different colposcope models and their features (green filter, focus knob, eye pieces, focal length)
- Identify the surgical instruments needed (cervical punch biopsy, endocervical curette, endocervical speculum, cervical hook)
- Describe the solutions required for colposcopy (saline, 3-5% dilute acetic acid or vinegar, Monsel's, Lugol's)
- Discuss cleaning instruments, autoclaving and disinfecting

General Equipment

- Colposcope
- Exam room
- Examination table and stool
- Stand or table for instruments
- Exam gloves, latex and non latex
- Speculums, various liquids, biopsy instruments and solutions
- Container for dirty instruments
- Staffing assistant
- Appropriate forms: Informed consent, patient education information
- Optional - cameras, digital imaging systems

Colposcope

- Binocular microscope on a stand with ability to magnify & illuminate tissue of the lower genital tract.
- Allows for close inspection of the epithelium and blood vessels.
- Photography and video attachments available

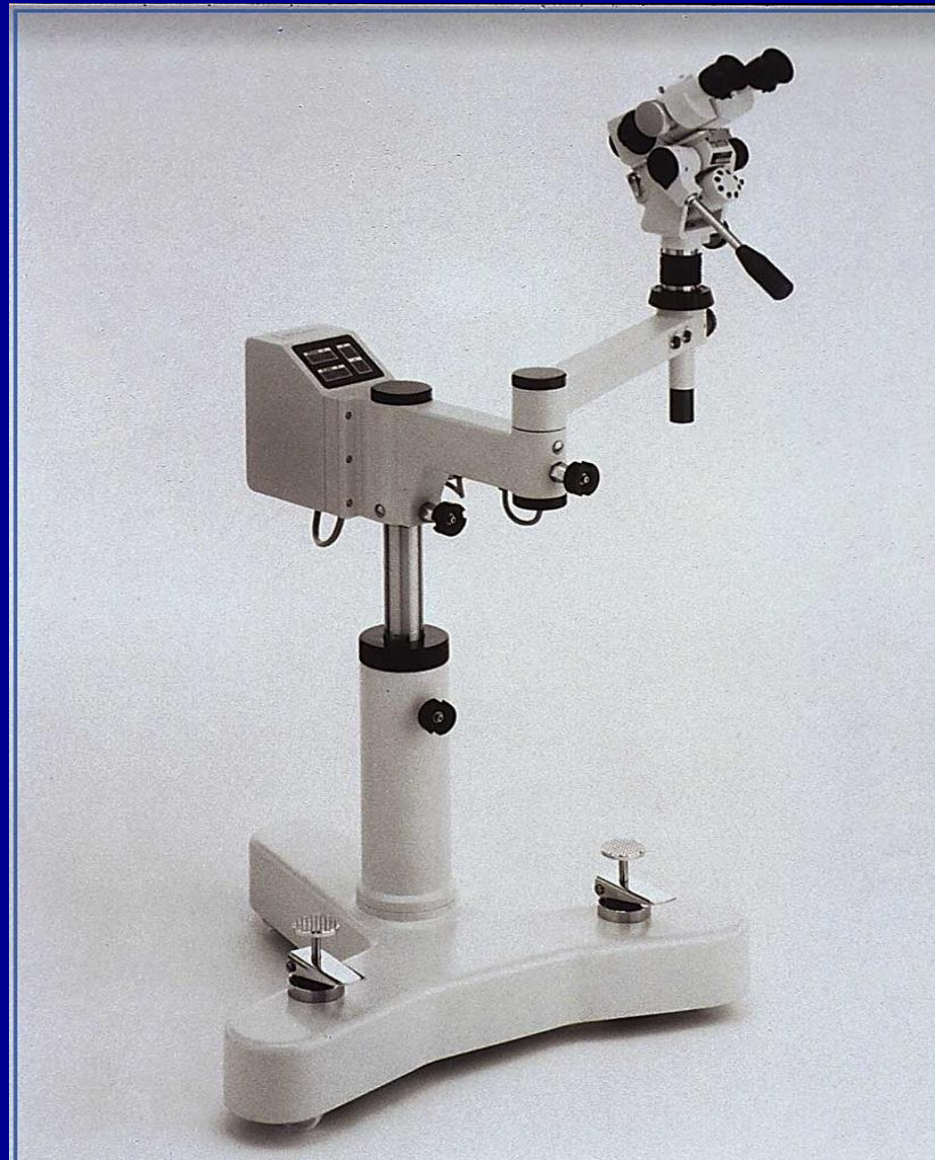
Colposcope- Mounting styles

- Tilt base
- Rolling base
- Wall mounted
- Swing arm

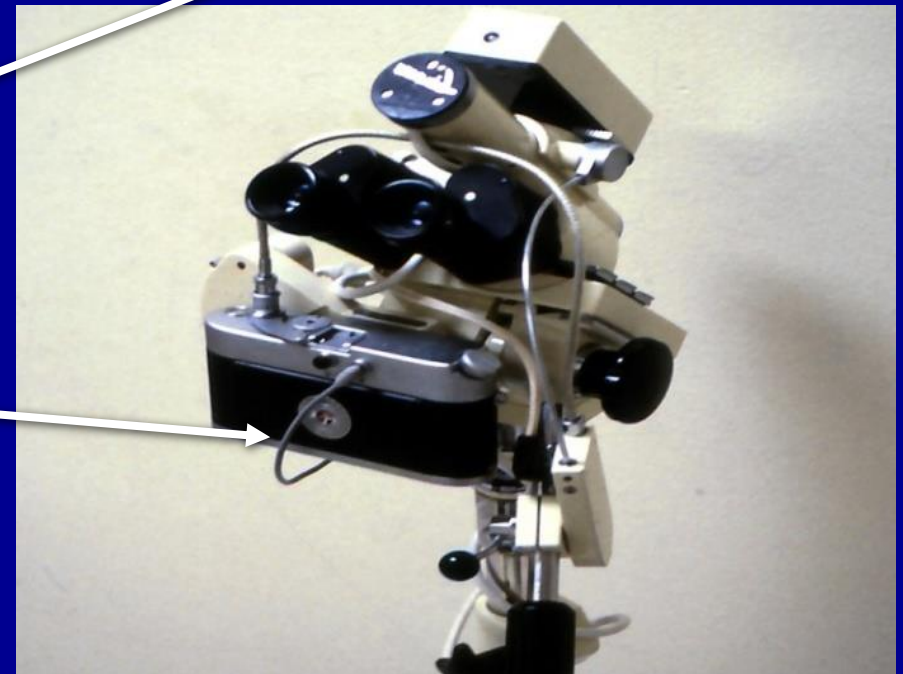
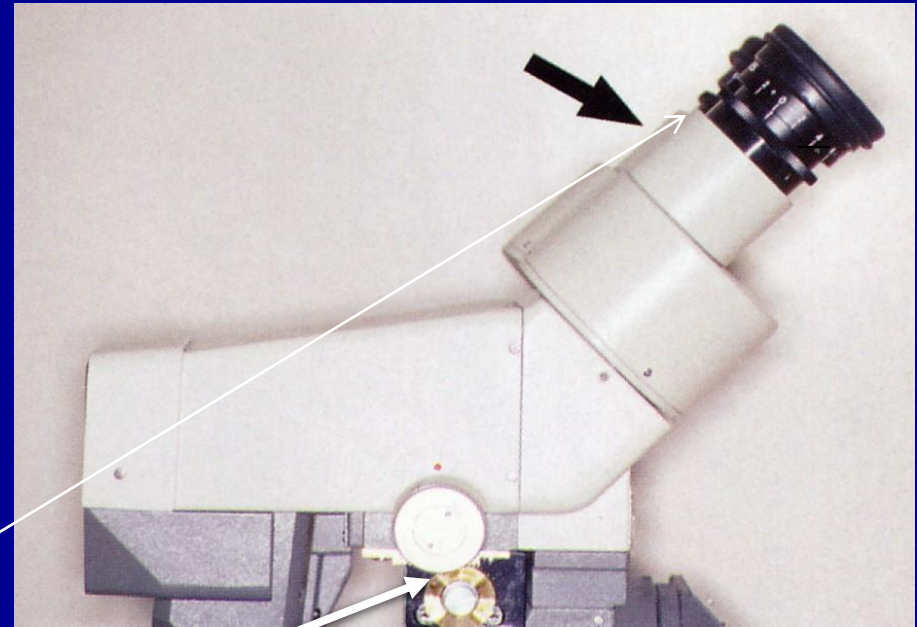
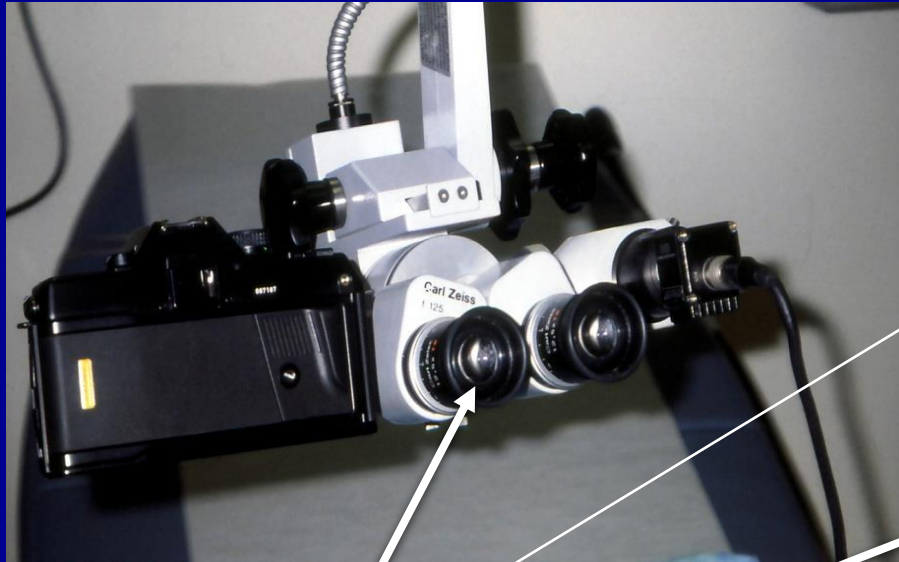


Image provided by Cooper Surgical Inc.

Colposcope



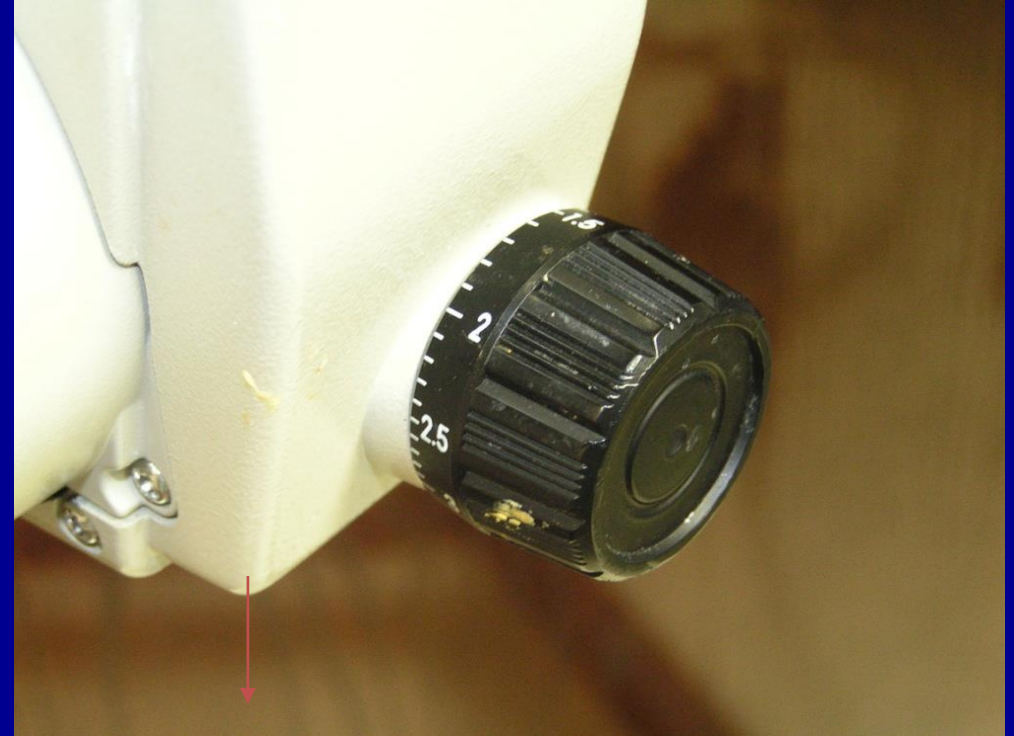
Optical Features



- Eye pieces
- Magnification
- Camera attachment
- Green filter

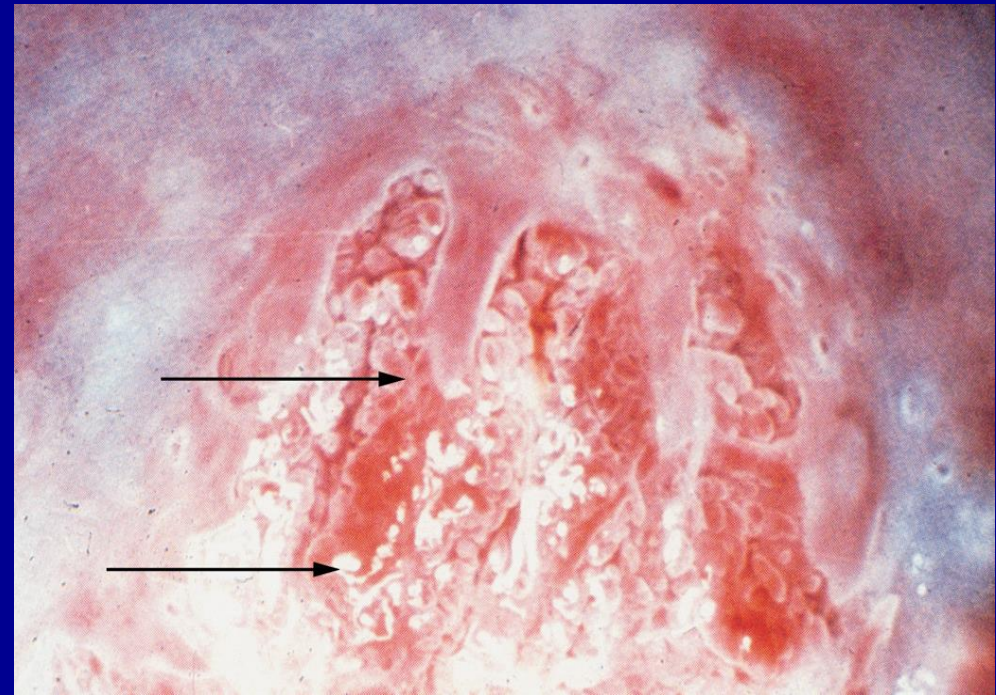
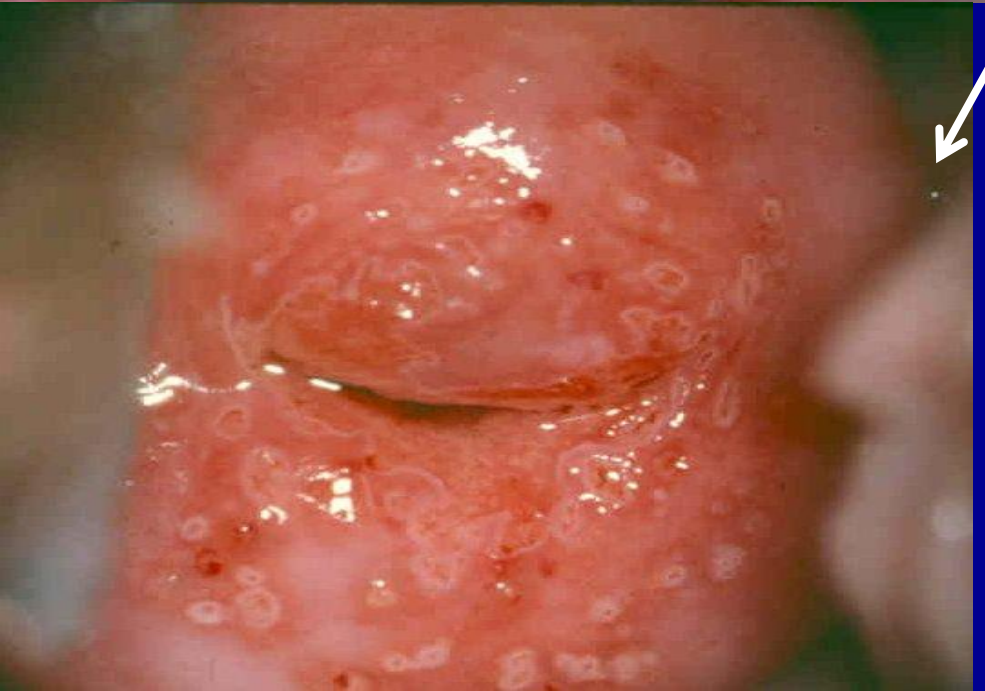
Magnification

- *Fixed magnification*
 - Single - usually mid range
- *Variable magnification*
 - Low (3X-8X)
 - Mid (10X-18X)
 - High (20X-30X)
 - Range of 2X-15X (ideal for viewing lower genital tract)
- *Zoom magnification*
 - Low to high
 - Continuous focusing



Magnification

Low power
Medium power
High power



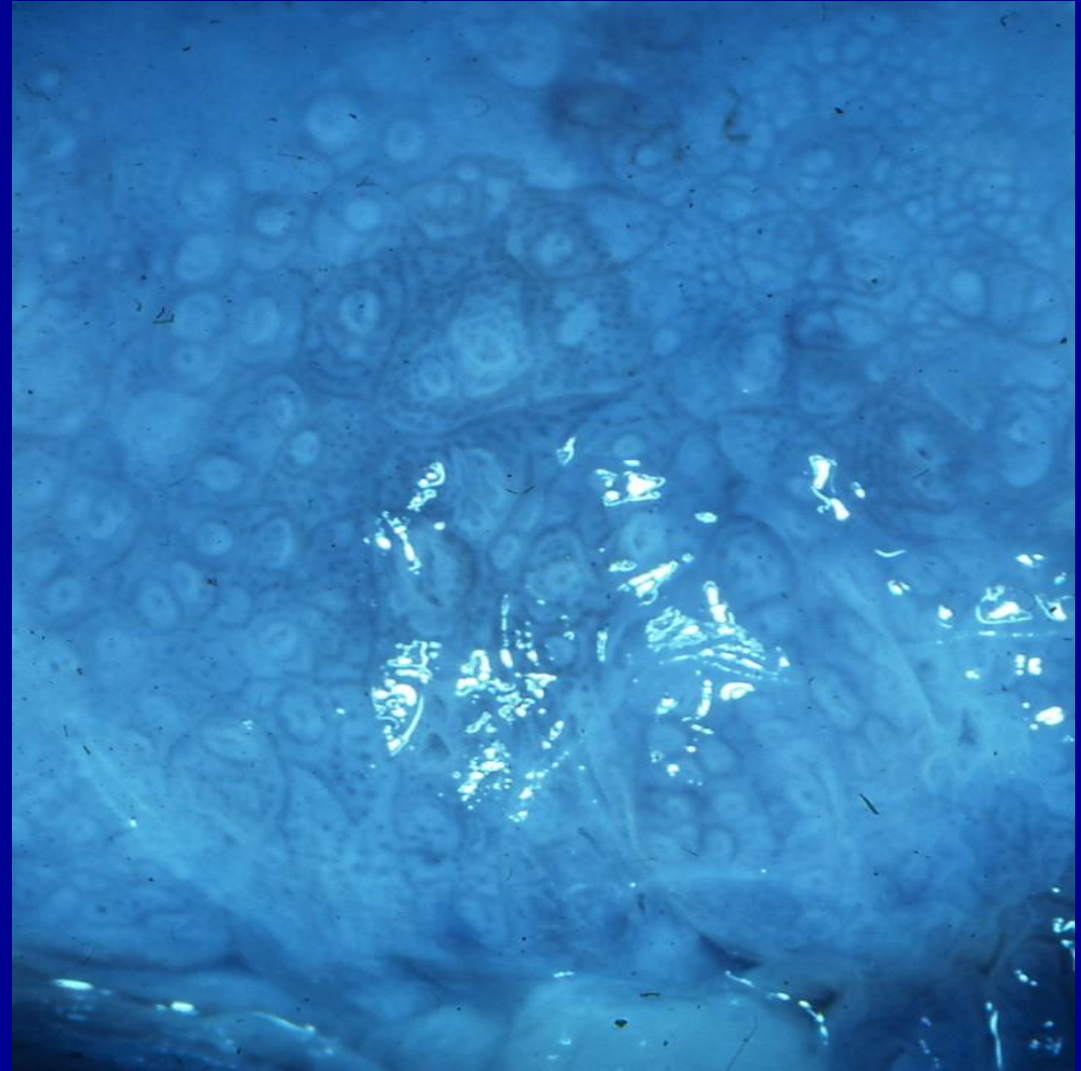
Colposcope optics

- *Focal length.*
 - Distance between the lens and the cervix.
 - usually 250-300mm working distance (10-12")
 - Allows room to insert instruments.
 - too close, hard to manipulate
 - too far, hard to reach



Green (red-free) Filters

- Enhances vascular patterns.
 - Absorbs red light.
 - Makes vessels appear black.
 - Green + Red = Black
 - Light may need to be increased with filter use.



Optics - Eye pieces

- Adjustable for interpupillary distance.
- Set at “0” for normal vision.
- Rubber cups - reduce ambient light.
- Optional equipment - monocular teaching tube
- Beam splitter for monitor hook up.



Optics - Lighting

- Higher magnification = smaller field of view = decreased illumination.
 - As magnification increases - need more light.
- Light sources – LED, bulbs, fiber optics.
- Always have spare bulbs available.
- Light source may produce heat - caution.

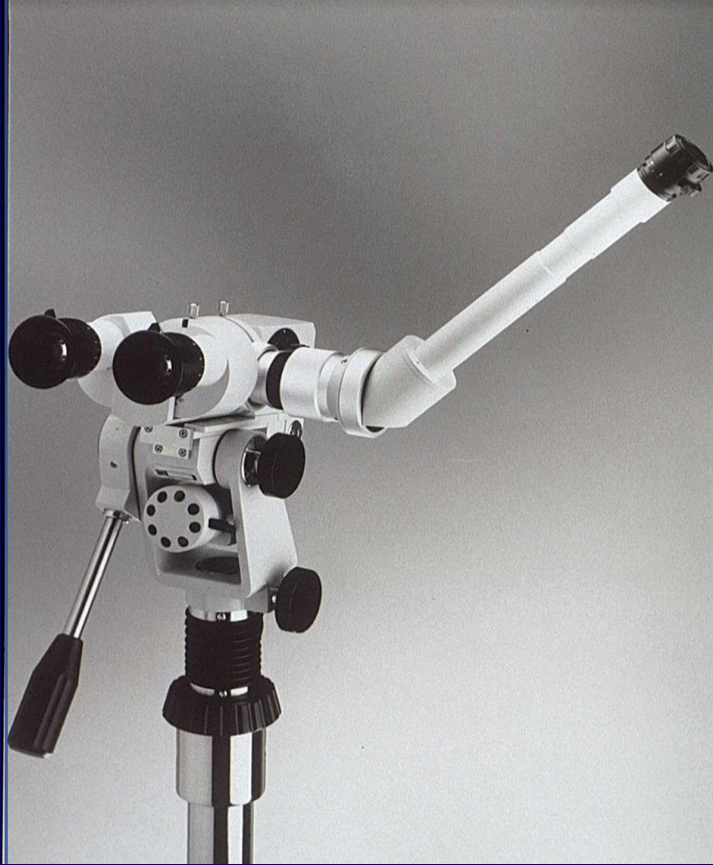
Optional equipment

- Cameras.
 - Still.
 - Video.
- Teaching arm.
- Archival tracking system - computer.

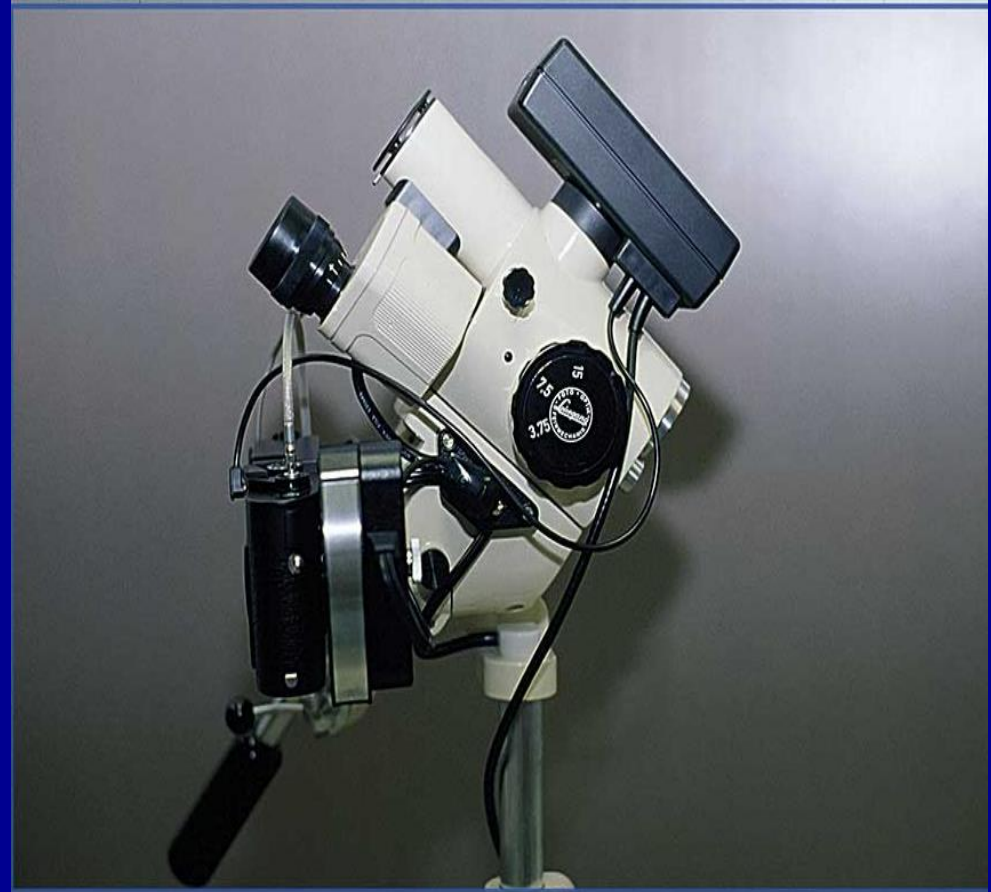


Teaching tools

Monocular teaching tube



Video



Videocolposcopes

- No binocular lenses
- Video camera with 300 mm focal distance
- Green filter, zoom magnification, fine focus
- Indirect visualization on video monitor
- Image capturing capabilities



Image provided by Beth CSN, FNP

Videocolposcopes

➤ Pros

- Similar to other video based procedures
- View images by others in room

➤ Cons

- Requires hand/eye coordination
- Two dimensional images
- May not be best choice for novice colposcopists

Examination Table

- Adjustable table.
 - Height.
 - Heel cushion.
 - Electric if possible.
- Stool.
 - Adjustable for clinician.



Tray setup



Vaginal specula

- Various sizes.
 - Graves.
 - Peterson.
 - Custom sizes from companies.
- Use the largest one that patient can tolerate.
- *Pregnant women may require speculum and a vaginal retractor for visualization of the cervix.*
- Metal or plastic - both work.

Speculum types

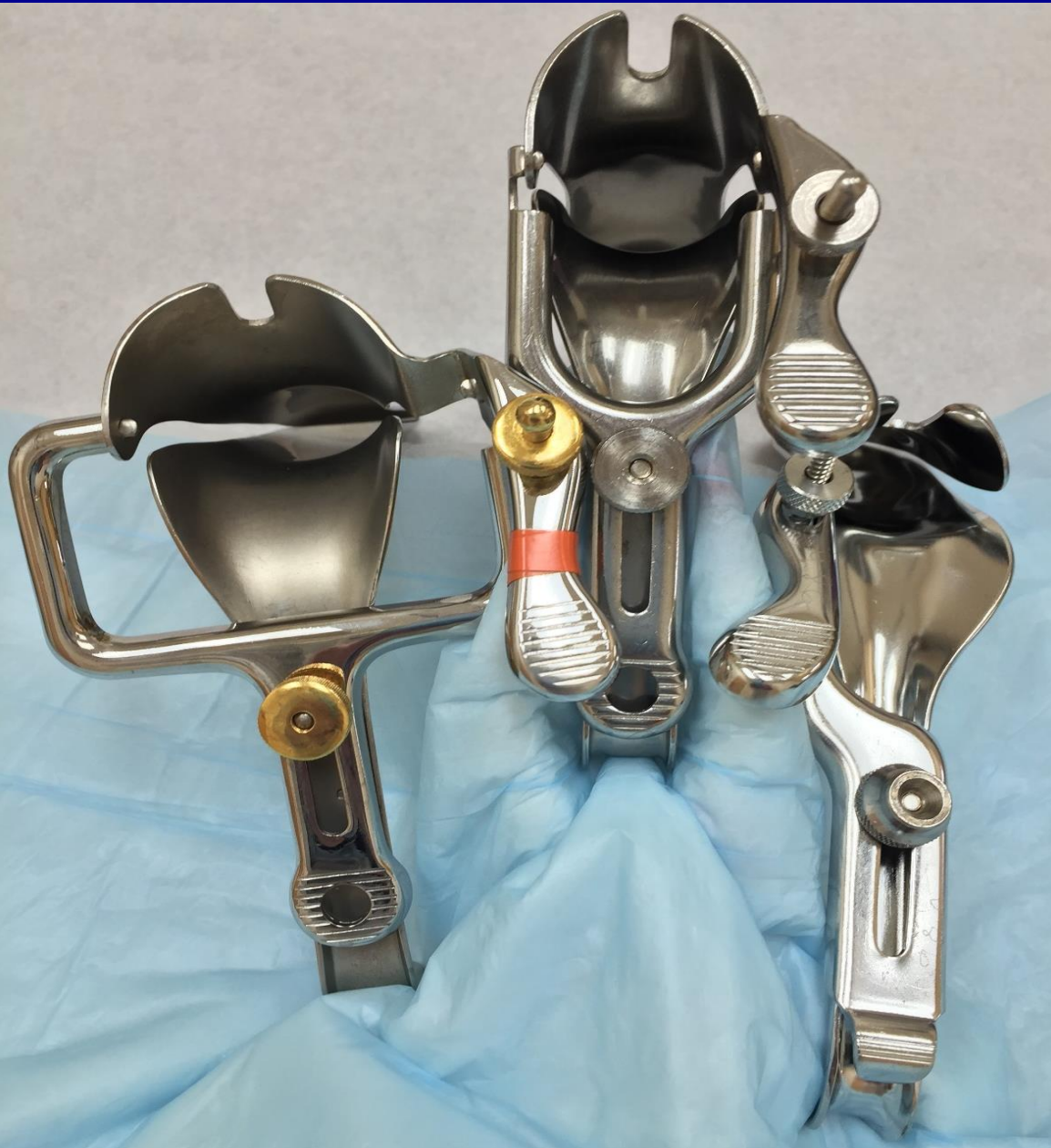


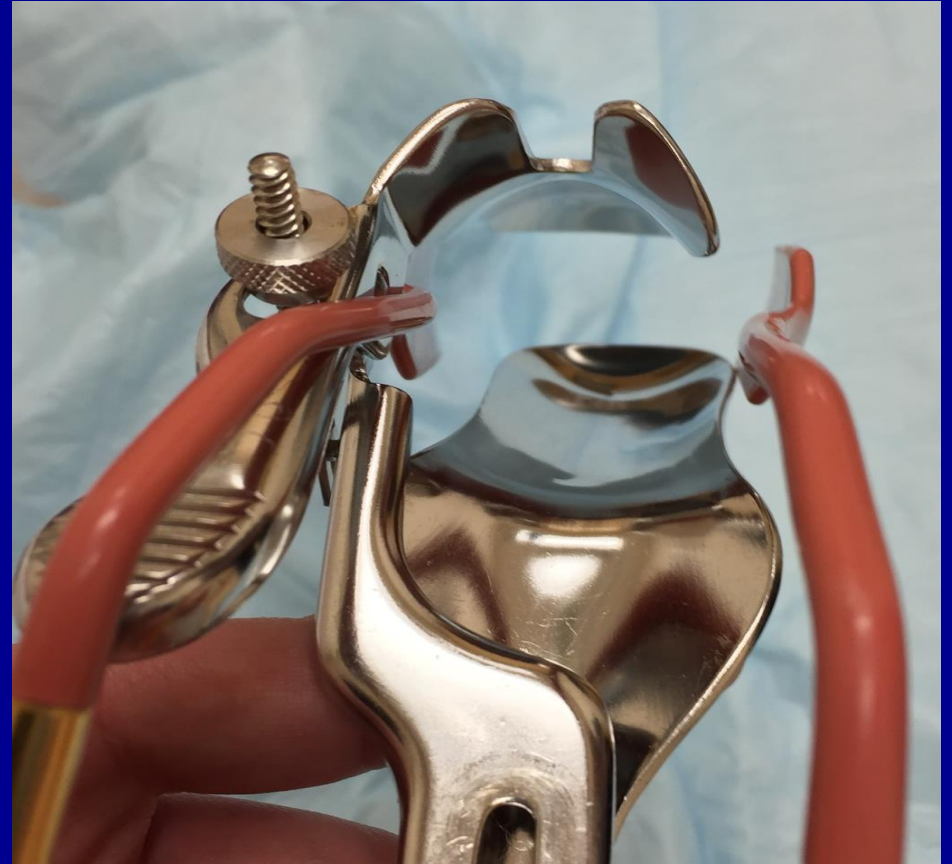
Image provided by Richard W. Lieberman M.D

Visualization assistance

- Appropriate size speculum.
- Redundant vagina.
 - Condom or exam glove finger over speculum.
 - Vaginal sidewall retractor. Be very careful not to pinch

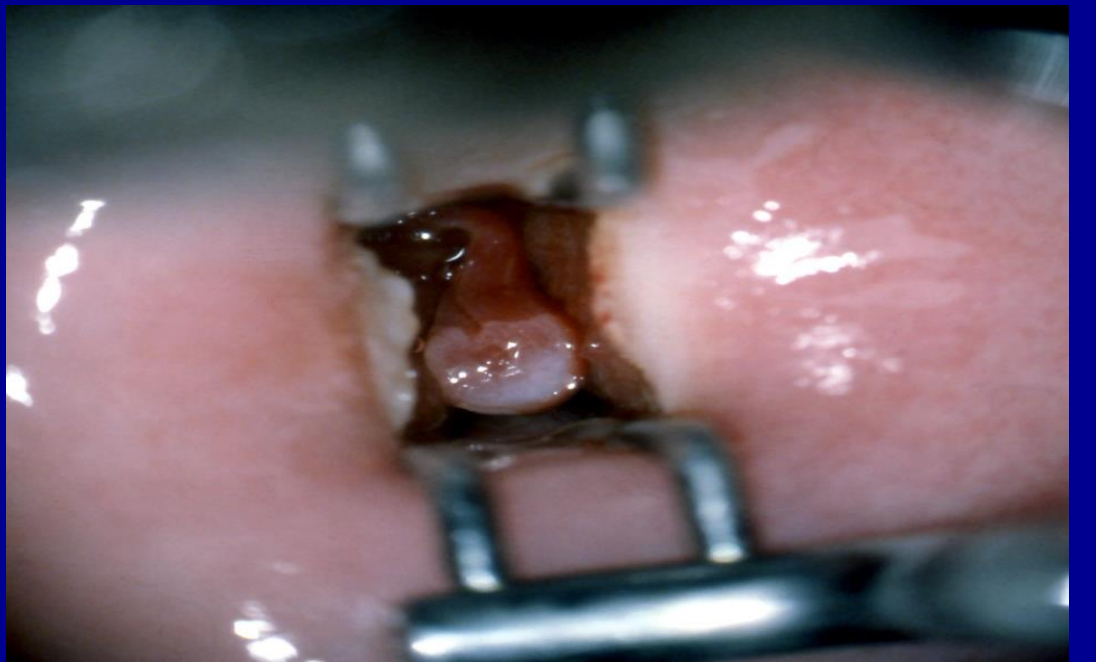


Lateral Wall Retractors



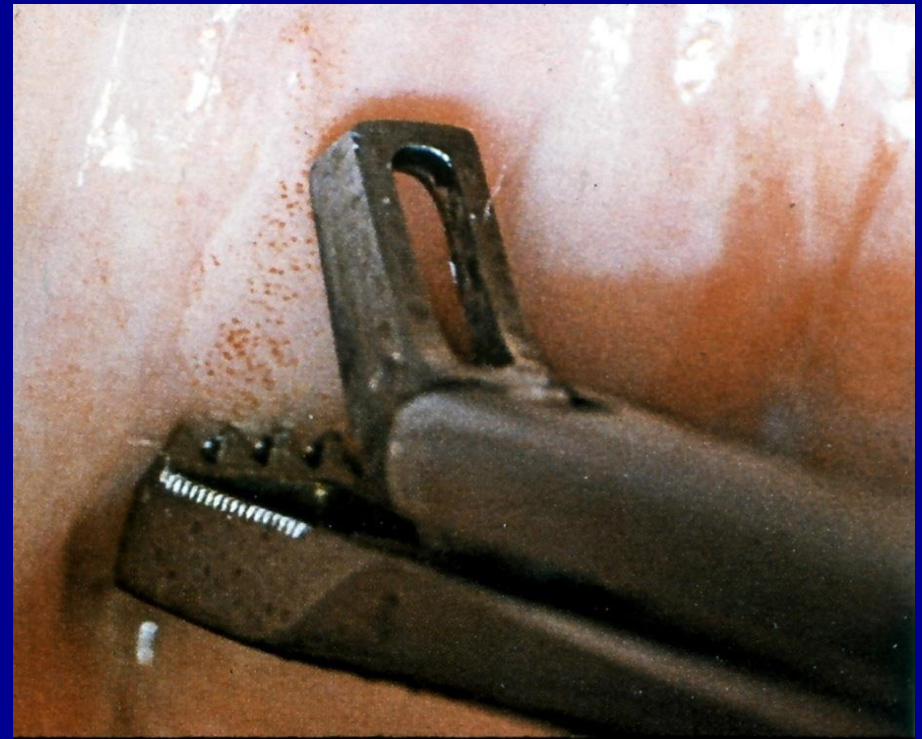
Endocervical Speculum

- Also called Kogan's speculum; multiple sizes
- Used to visualize the endocervical canal.
- Insert and gently open; can cause cramping.
- Can also use ring forceps, Kelly clamp.



Biopsy Forceps

- Many types.
 - Cutting edge.
 - Anchor tool.
- Essential to have sharp instruments.
- Designed to take a SMALL (3-5mm) piece of tissue.
- Each has a different shaped “cup” of varying sizes.



Biopsy Forceps



Endocervical Curette

- Cutting edge sharp, other side dull; thumb depression on cutting edge
- With and without basket.
- Some have narrower tips for small os.
- Alternate - cytobrush can be used instead of curette or as aid in collecting more of the curetted tissue.

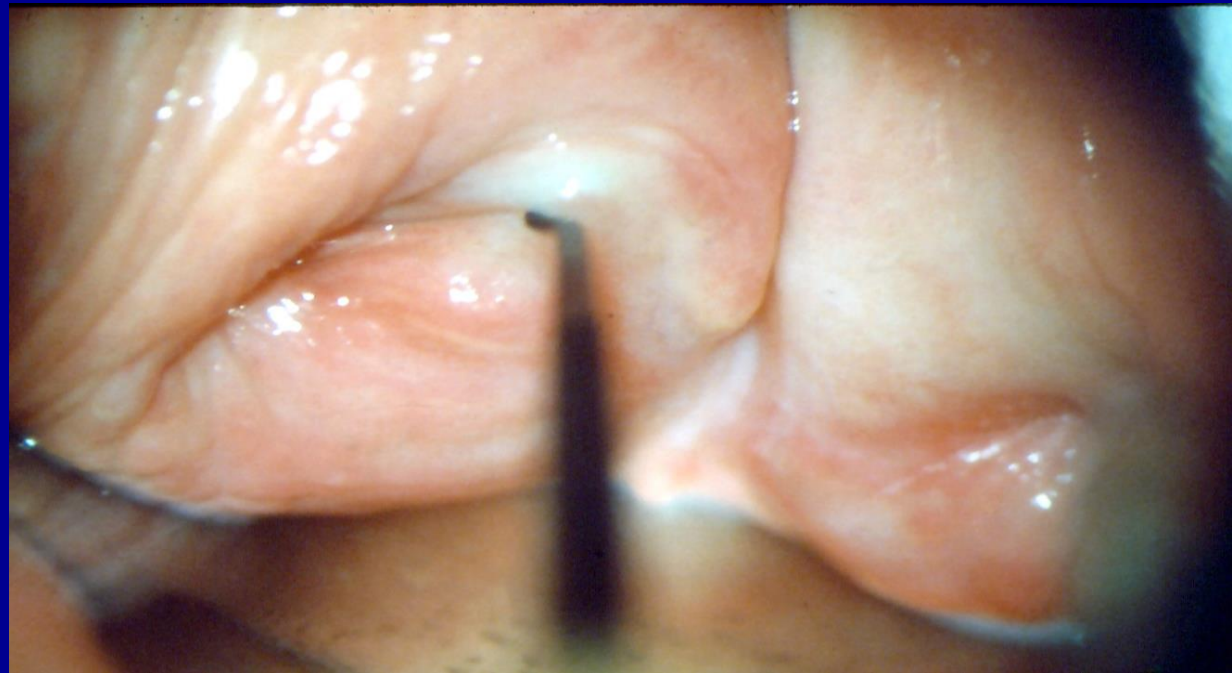
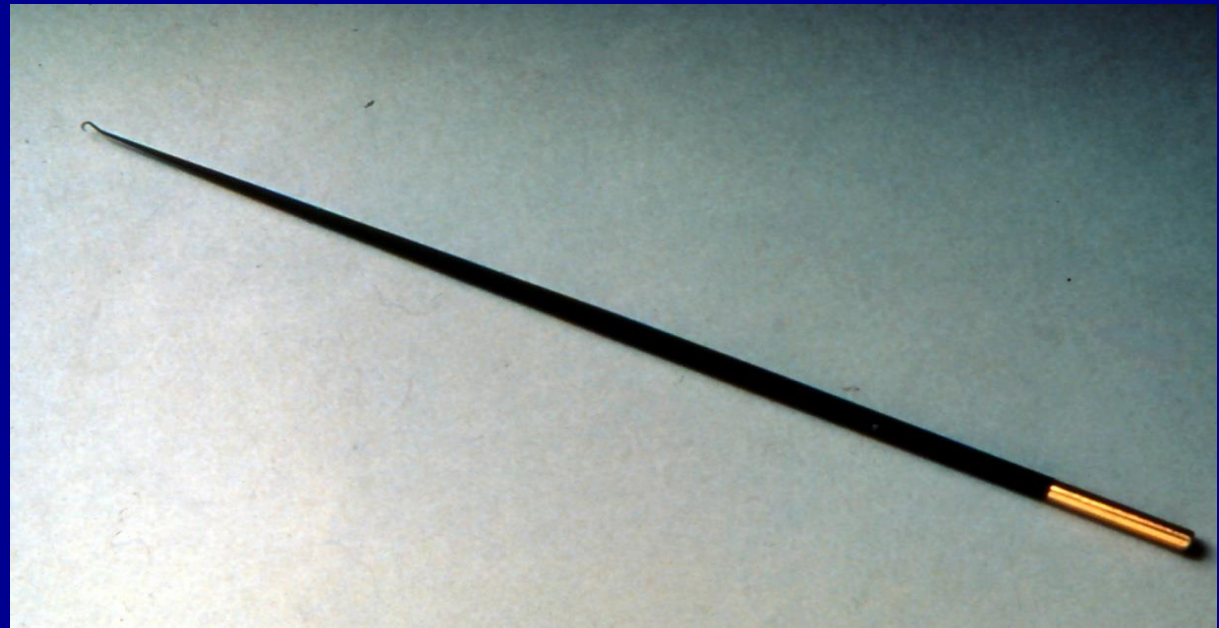


Ring forceps

- Ring forceps.
 - Applying cotton balls soaked with saline or dilute acetic acid.
 - Helpful for removing mucus.

Hook

- Small curved hook.
- Helpful to visualize rugae in vagina or to evert “dog ears” after hysterectomy.
- Secure cervical or vaginal lesion for visualization or biopsy.



Autoclaving and cleaning instruments

- Scrub instruments before autoclaving.
- Soak in antiviral solution before autoclaving.
- Autoclaving dulls instruments over time.

Instrument Sterilization

Autoclaving found to be preferable to glass bead sterilization and gluteraldehyde soak

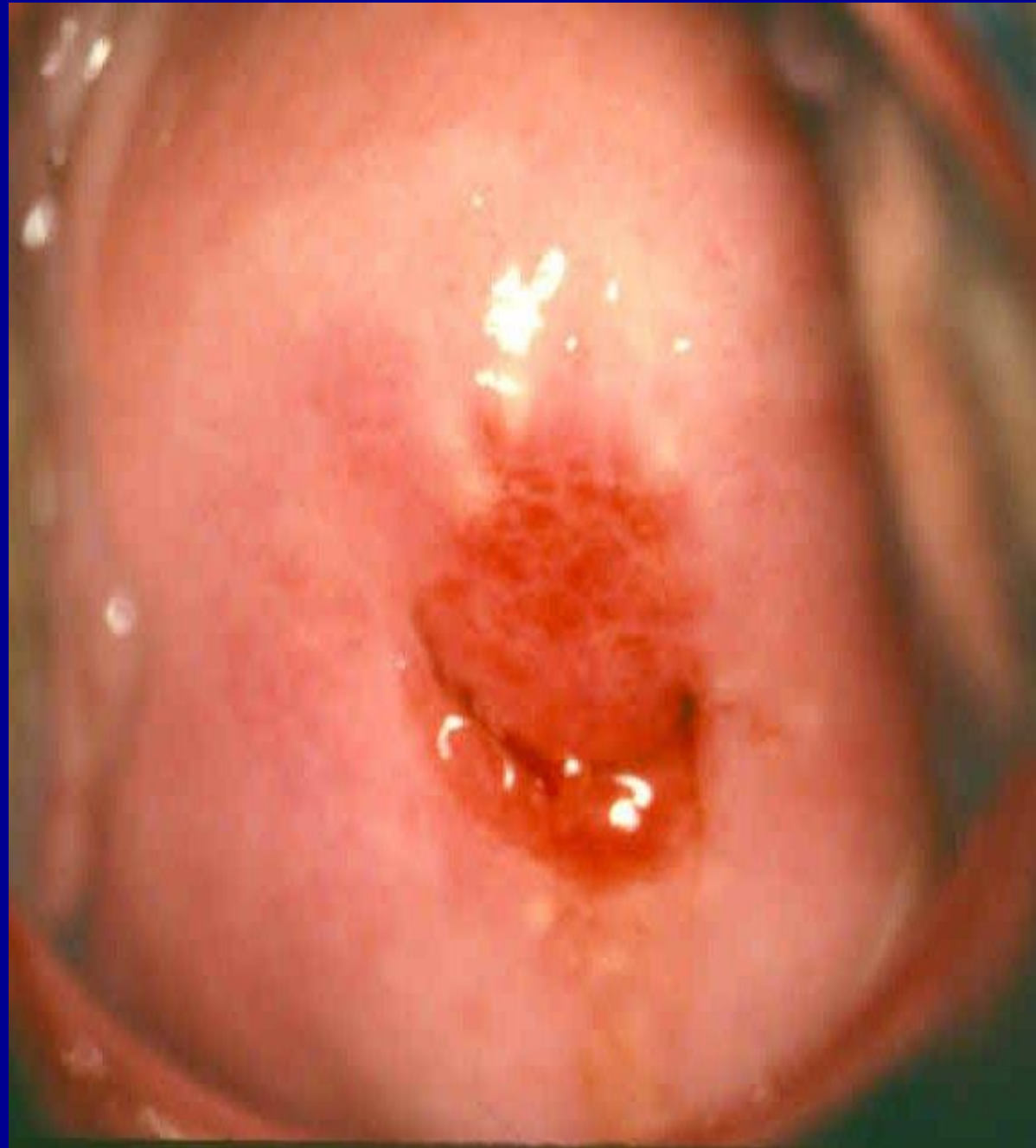
Estes JM, Kirby TO, Huh WK. Autoclave sterilization of instruments used on women with cervical neoplasia is an effective method of eradicating residual human papillomavirus DNA: A polymerase chain reaction-based evaluation. J Lower Genital Tract Dis 2007; 11:12-17

Chemical Agents, Solutions and Supplies

- Saline.
- Dilute acetic acid 3-5%.
- Lugol's solution, 1/2 strength iodine.
- Monsel's solution made into a paste.
- Silver nitrate sticks.
- Solution for instrument care.
- Cotton swabs and large swabs.

Saline

- Used for moistening and cleansing.
- Does not change tissue.
- Helpful for evaluating blood vessels and leukoplakia.

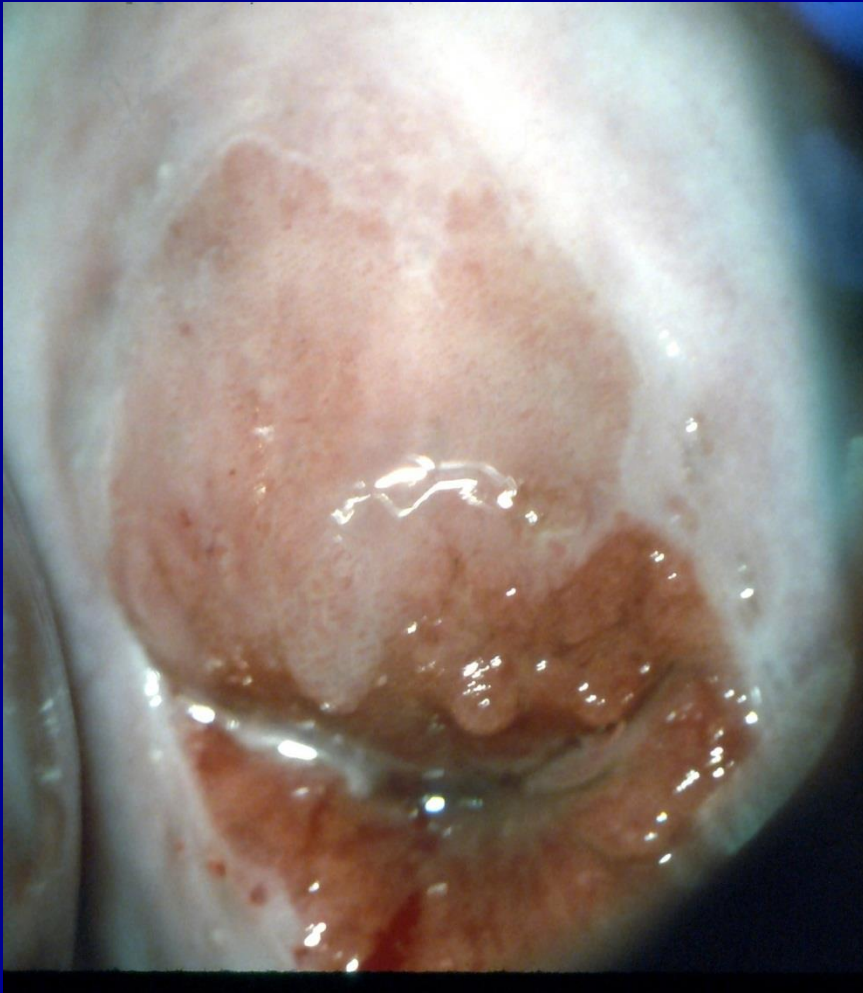


Dilute Acetic Acid

- 3-5% dilute acetic acid or white vinegar.
- Application tools.
 - Cotton balls with ring forceps.
 - Large and small cotton swabs.
 - Spray bottle.
- Use liberally but gently.
 - Do not “scrub”.
- Reapply as needed.

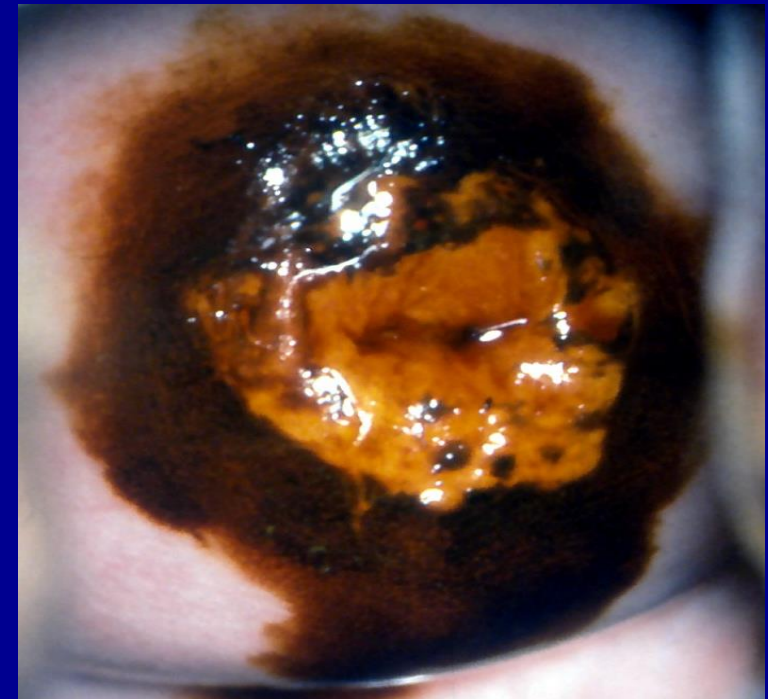
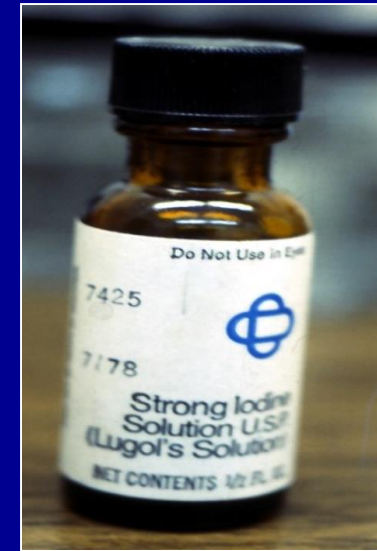


Dilute acetic acid effect



Lugol's Solution

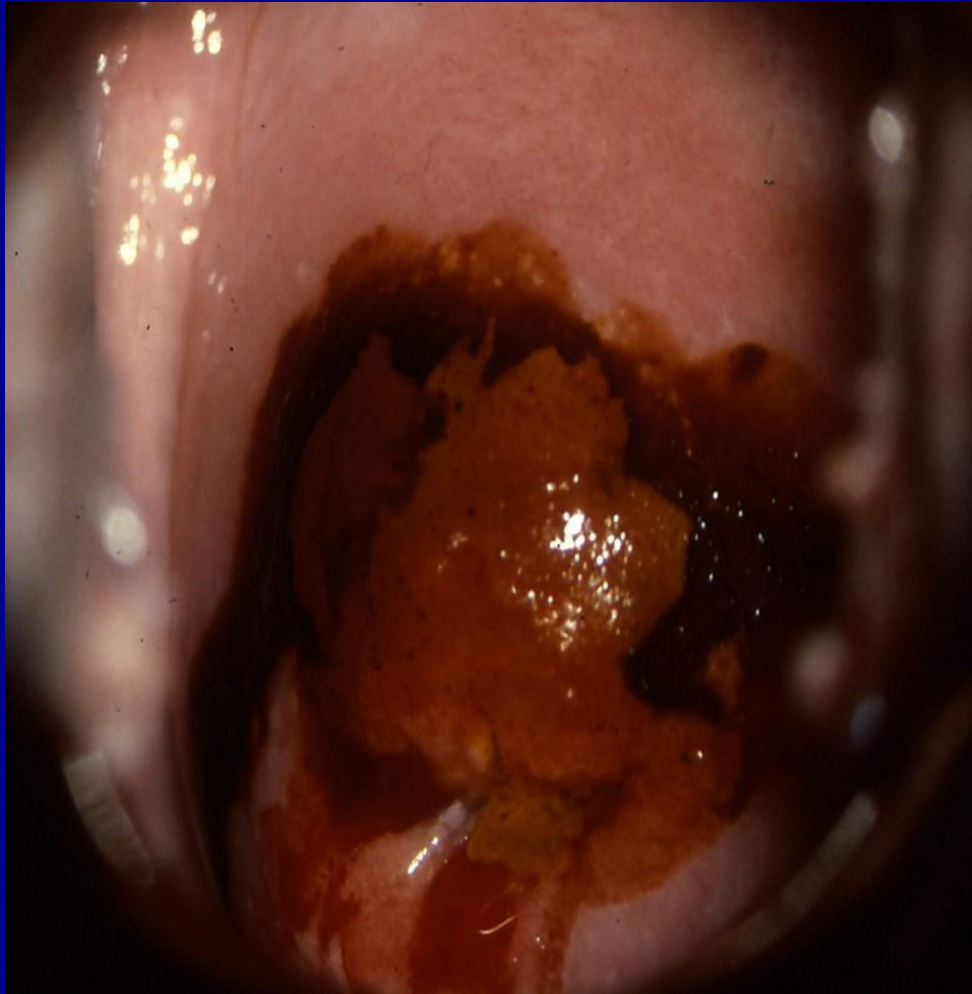
- Iodine and potassium iodide
- Helpful in evaluating the cervix and particularly, the vagina
- Drying—dilute 1/2 strength; use on small swab



Lugol's solution

- Iodine stains glycogenated epithelium.
- Normal squamous epithelium stains mahogany brown.
- Dysplastic tissue stains mustard yellow or not at all.
- Columnar epithelium does not stain.
- Decreased staining with inflammation or atrophy.
- Metaplastic epithelium stains variably.

Lugol's effect



Hemostasis

- Monsel's solution (ferric subsulfate)
 - Must be thickened.
 - Vaginal discharge "like coffee grounds"
- Silver nitrate sticks.
 - Can interfere with histology; apply after all samples taken



Data form ASCCP

ASCCP COLPOSCOPY EVALUATION FORM

Date _____ Pt Age ____ Pt Log ID# _____ Reason for Colpo _____

G ___ P___ AB___ LNMP___ Pregnant Y/N Current Meds _____ Current gyn problems _____

Menopause Y/N Abnl Bleeding Y/N Current Contraceptives _____

History of STDs: _____ History of LGT Cancer _____

HIV Status: Decline Positive Negative Current Genital Warts Y/N DES Exposure Y/N

Last Pap smear Date _____ Results _____

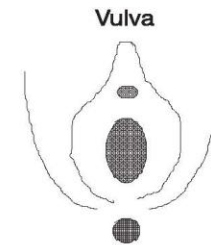
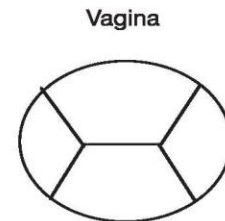
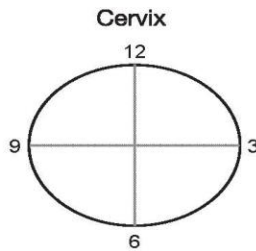
Previous abnl Pap Date _____ Results _____

Previous abnl Pap Date _____ Results _____

Previous colposcopy Date _____ Results (e.g., histology) _____

Previous treatment Date _____ Type _____

Please diagram cervix to include the t-zone and lesion(s). Diagram vagina and vulva as appropriate. Identify biopsy sites with an **x**.



EXAM: Satisfactory colposcopy Y/N Endocervical sample technique: Not done Brush Curettage

COLPOSCOPIC IMPRESSION (select worst):

- Normal
- Low-grade (e.g., CIN1, VaIN 1, Condyloma)
- High-grade (e.g., CIN2,3, VaIN 2,3, high-grade VIN (not VIN 1))
- Cancer

Biopsy location(s) _____ Biopsy Results _____

Plan of Management _____

Comments:

Need knowledgeable assistant to take ownership of specimens and instruments

