Cervical Cancer Prevention

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GreenShoots
FOUNDATION

“Support needing populations through medical assistance and the transfer of knowledge to local medical practitioners.”

Our vision for the
Medical Assistance & Medical Education (MAME) Programs

GreenShoots FOUNDATION

Presentation Overview

- Cervical cancer background
- Disease progression
- Screening methods
  - Pap test
  - Visual inspection with acetic acid (VIA)
  - HPV vaccination
- Treatment of cervical dysplasia

Cervical Cancer

- Anatomy
- Why is it prone to cancer?

Cervical Cancer

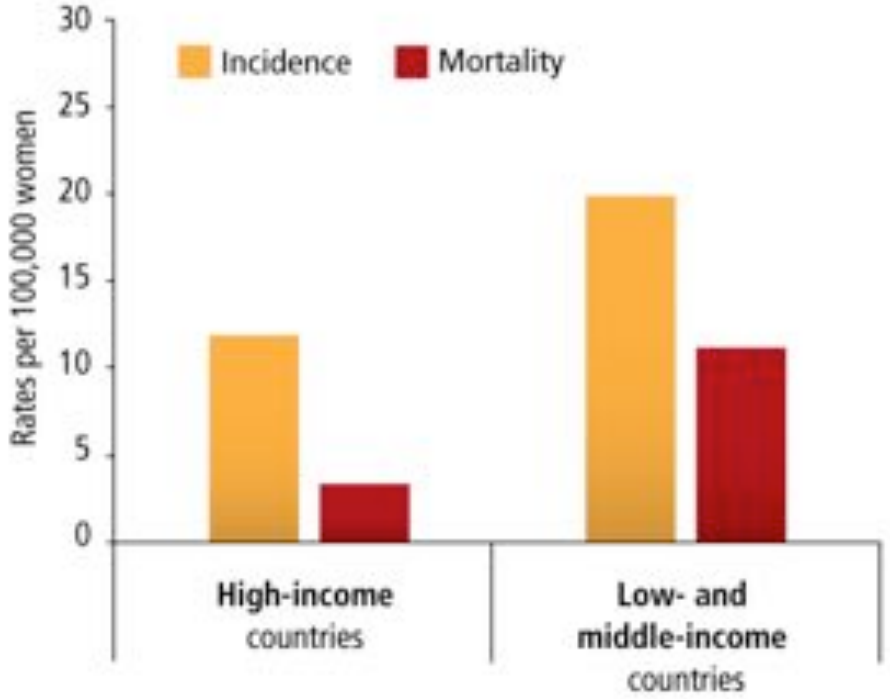
- Worldwide, cervical cancer is the fourth most common cause of both cancer and death from cancer in women.[1]
- Approximately 80% of cervical cancers occur in developing countries.[2]
- Highest incidence among women in late 40s early 50s
  - Death has huge impact on families

[1] *World Cancer Report 2014*. World Health Organization. 2014. pp. Chapter 5.12. ISBN 9283204298.
[2] Kent A (Winter 2010). "HPV Vaccination and Testing.".*Reviews in obstetrics and gynecology* **3** (1): 33–4.PMC 2876324. PMID 20508781.

Cervical Cancer

- Invasive cervical cancers are usually preceded by a long phase of preinvasive disease
- Opportunity to arrest the progression

Cervical Cancer



Source: World Health Organization, Women and health report 2009

Cervical Cancer in Myanmar

- 2nd most frequent cancer among women
- Most frequent cancer among women between 15 and 44 years of age.[1]

[1] ICO Information Centre on HPV and Cancer

Cervical Cancer in Myanmar

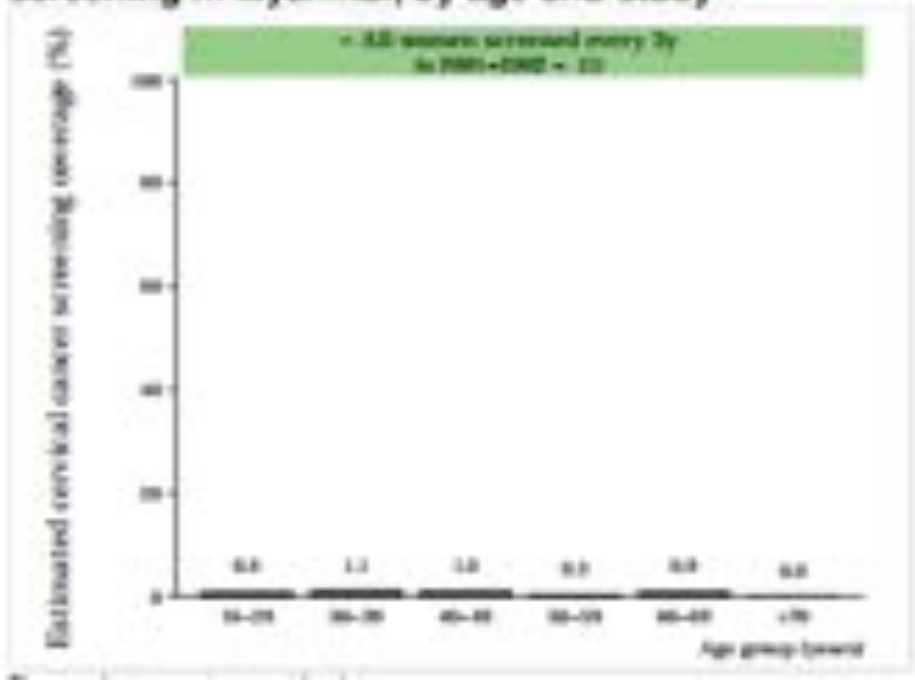
Table 2. Burden of cervical cancer

	Incidence	Mortality
Annual number of new cases/deaths	5286	2998
Crude rate	21.4	12.1
Age-standarized rate	20.6	12.3
Cumulative risk 0-74 years (%)	2.1	1.4
Ranking of cervical cancer (all years)	2nd	2nd
Ranking of cervical cancer (15-44 years)	1st	2nd

ICO Information Centre on HPV and Cancer

Cervical Cancer in Myanmar

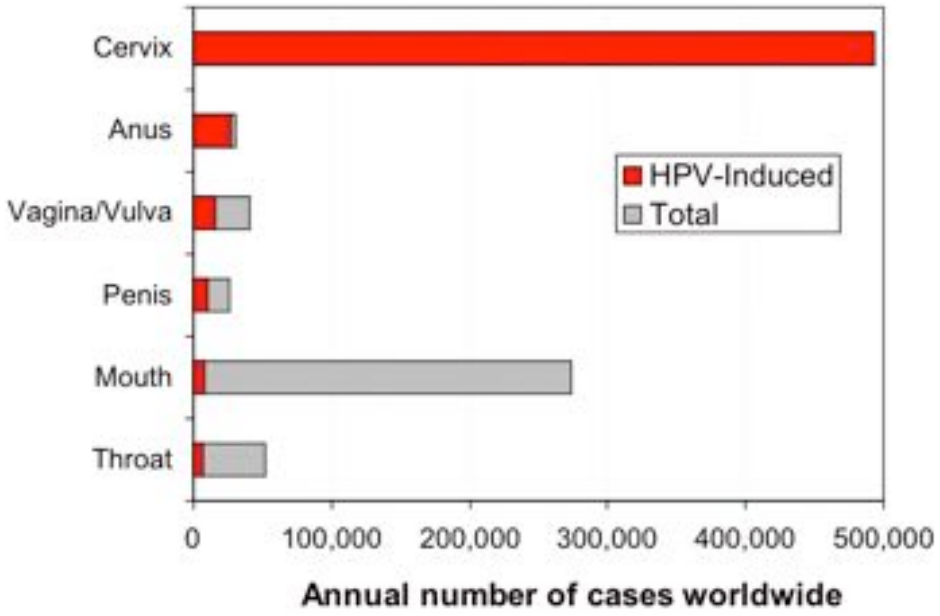
Figure 2. Estimated coverage of cervical cancer screening in Myanmar, by age and study



ICO Information Centre on HPV and Cancer

Cervical Cancer and HPV

- The primary cause of cervical pre-cancer and cancer is persistent or chronic infection with one or more of the "high-risk" (or oncogenic) types of human papillomavirus (HPV).
- Most common infection acquired during sexual relations, usually early on in sexual maturity.



Parkin, D. M. (2006)

Cervical Cancer and HPV

- Most HPV infections resolve spontaneously.
- However, a minority of HPV infections persist; in women this may lead to cervical dysplasia, which, if not treated, may progress to cancer.
- Women living with HIV are more likely to develop persistent HPV infections at an earlier age and to develop cancer sooner.[1]

[1] World Health Organization. Comprehensive cervical cancer control: a guide to essential practice – 2nd ed. 2014.

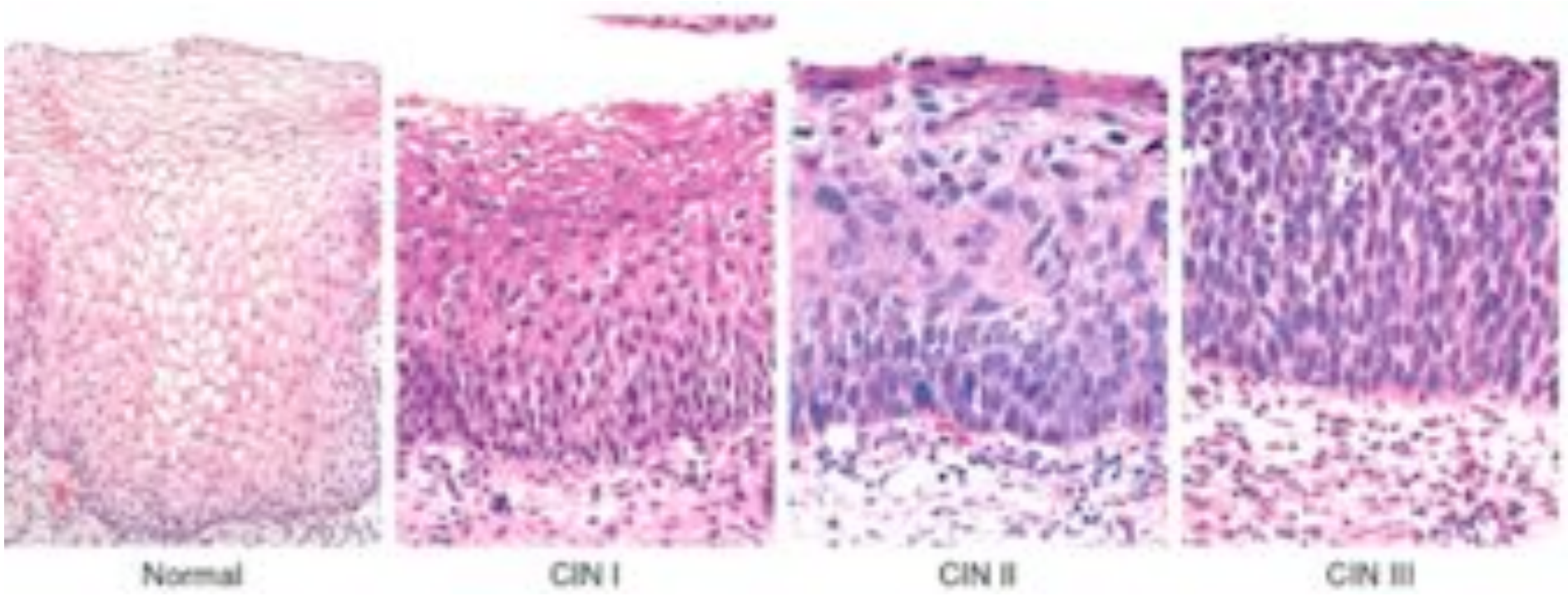
Cervical Cancer Progression

- Cellular atypia
- Various grades of dysplasia or cervical intraepithelial neoplasia (CIN)
- Invasive carcinoma.

Cervical Dysplasia

- ASCUS: Atypical squamous cells of undetermined significance; AGUS: Atypical glandular cells of undetermined significance
- CIN 1/LSIL
- CIN 2/HSIL: confined to the basal 2/3 of the epithelium
- CIN 3/HSIL: spans more than 2/3 of the epithelium (sometimes also be referred to as cervical carcinoma in situ)

Cervical Dysplasia



CIN 1

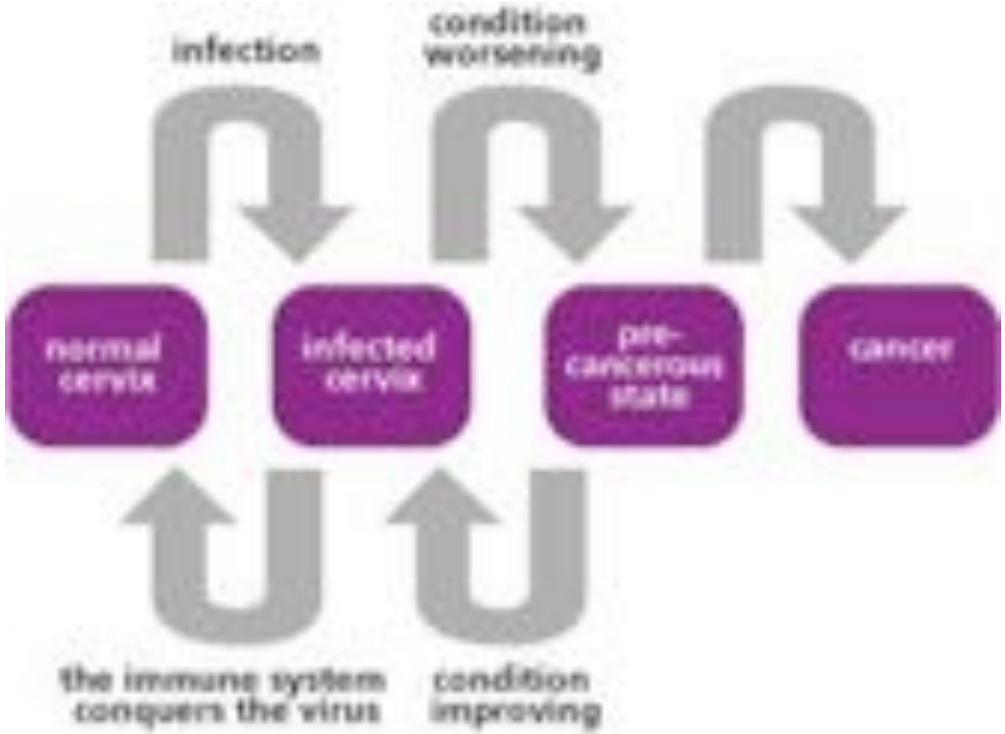
- Much cervical intraepithelial neoplasia regresses without treatment
- Progression to cervical carcinoma in situ occurs in approximately 11% of CIN1
- Progression to invasive cancer occurs in approximately 1% of CIN1

CIN 2

- Progression to cervical carcinoma in situ occurs in approximately 22% of CIN2.
- Progression to invasive cancer occurs in approximately 5% in CIN2

CIN 3

- Progression to invasive cancer occurs in at least 12% of CIN3.


infection
condition worsening
normal cervix
infected cervix
pre-cancerous state
cancer
the immune system conquers the virus
condition improving

Arresting Cancer Development

- Pap smear
- Visual inspection with acetic acid (VIA)

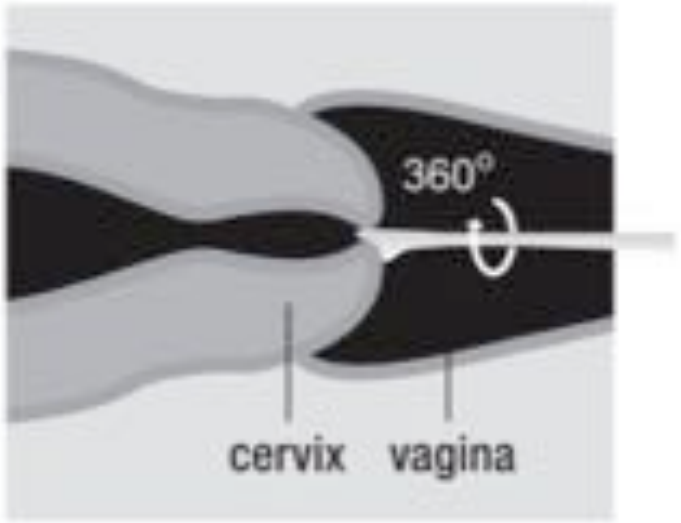
- HPV vaccination

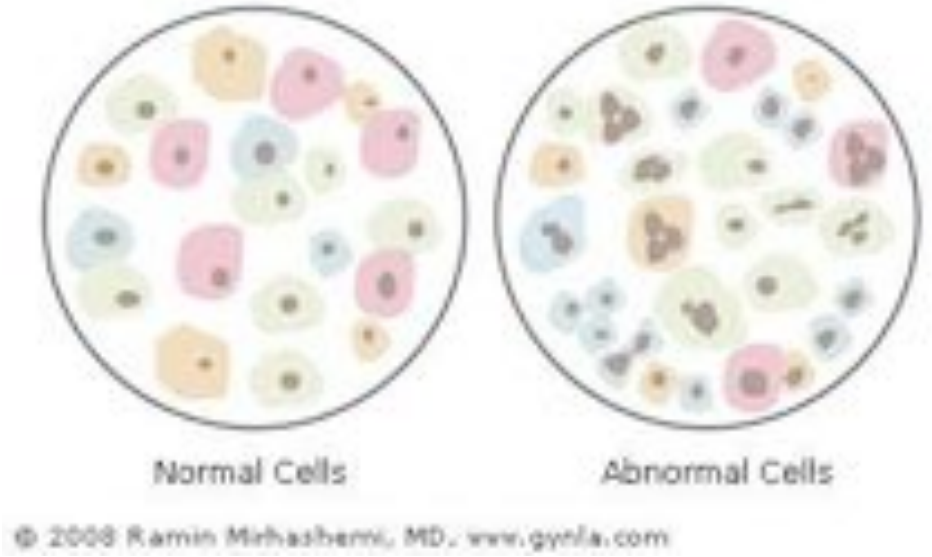
Pap Smear

- Papanicolaou ("Pap") smear
- Brought about a major reduction in morbidity and mortality from cervical cancer in high-income countries.[1]
- Requires a laboratory and skilled human resources: not available or sufficient in many settings.

[1]World Health Organization. Comprehensive cervical cancer control: a guide to essential practice – 2nd ed. 2014.

Pap Smear





World Health Organization. Comprehensive cervical cancer control: a guide to essential practice – 2nd ed. 2014.

Pap Smear

In the west:

1. Abnormal Pap smear
2. Colposcopy
3. Biopsy
4. Treatment

Colposcope

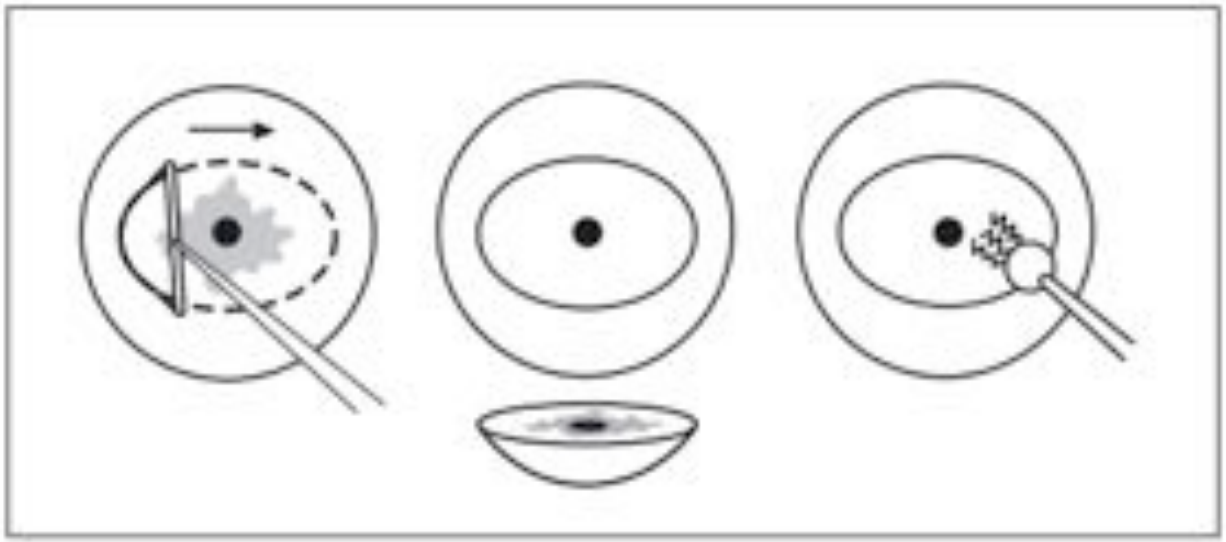

Individually movable binocular eye pieces
Green filter to view blood vessels in detail
Optics carrier
Objective lens
Knob for tilt adjustment of optics carrier
Height adjustment handle
Handle for fine focus and tilting* arrangement
Colposcopic stand
Fibre optic cable to deliver the light to the optics carrier
Transformer
Light source
Light switch
Dimmer for adjusting the brightness of the light
5-leg rolling pedestal
Swivel casters
*for tilting the optics carrier

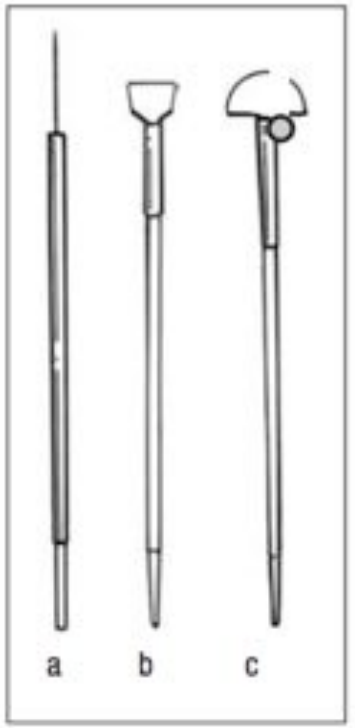
Biopsy

Treatment of CIN

- Cold knife conization
- Loop electrosurgical excision procedure (LEEP)
- Cryotherapy

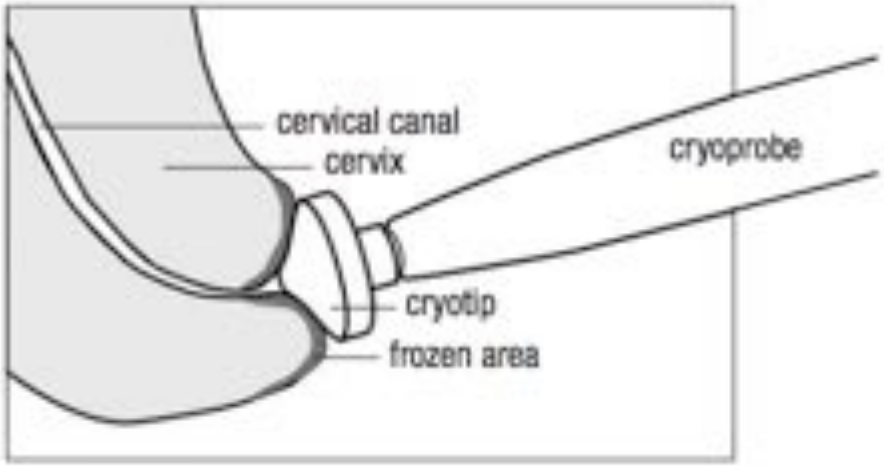
LEEP

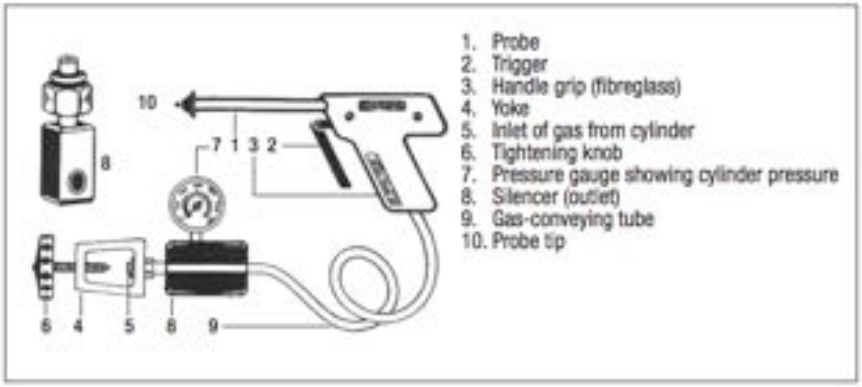




World Health Organization. Comprehensive cervical cancer control: a guide to essential practice – 2nd ed. 2014.

Cryotherapy





World Health Organization. Comprehensive cervical cancer control: a guide to essential practice – 2nd ed. 2014.

VIA

- A 3–5% acetic acid solution is applied to the cervix with a large cotton swab.
- Requires use of a speculum, magnification lens, light source, and a trained health-care provider.

VIA

- Excellent for low-resource settings
- Immediate result allows the patient to be offered treatment at the same visit.
- Element of subjectivity; high variability in the accuracy of results between providers
- Not appropriate for many postmenopausal women.

VIA: Low-grade CIN

- thin, smooth acetowhite lesions
- well-demarcated, but irregular, feathery, digitating, or angular margins.

FIGURE 7.10: Geographic satellite lesions after application of 5% acetic acid (a) far away from the squamocolumnar junction, suggestive of low-grade lesions

VIA: Low-grade CIN

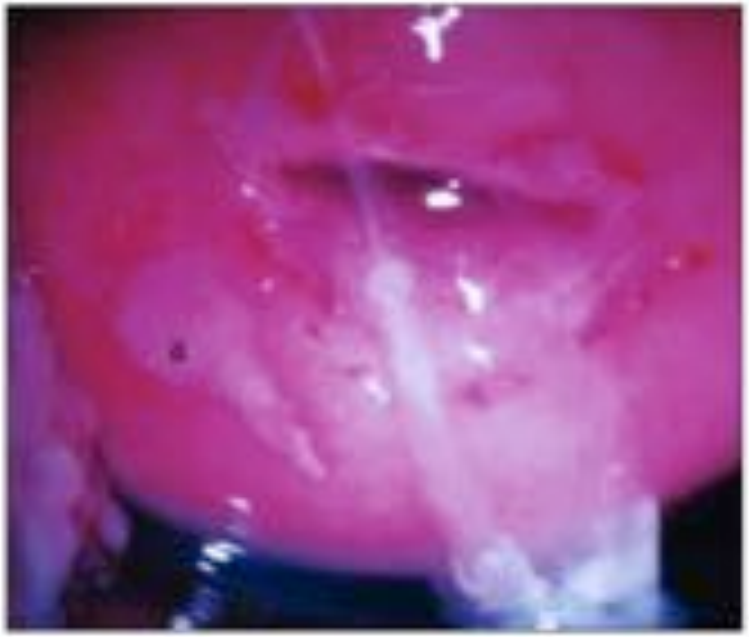


FIGURE 7.9: Geographic satellite lesion after application of 5% acetic acid (a) far away from the squamocolumnar junction, suggestive of low-grade lesion

VIA: High-grade CIN

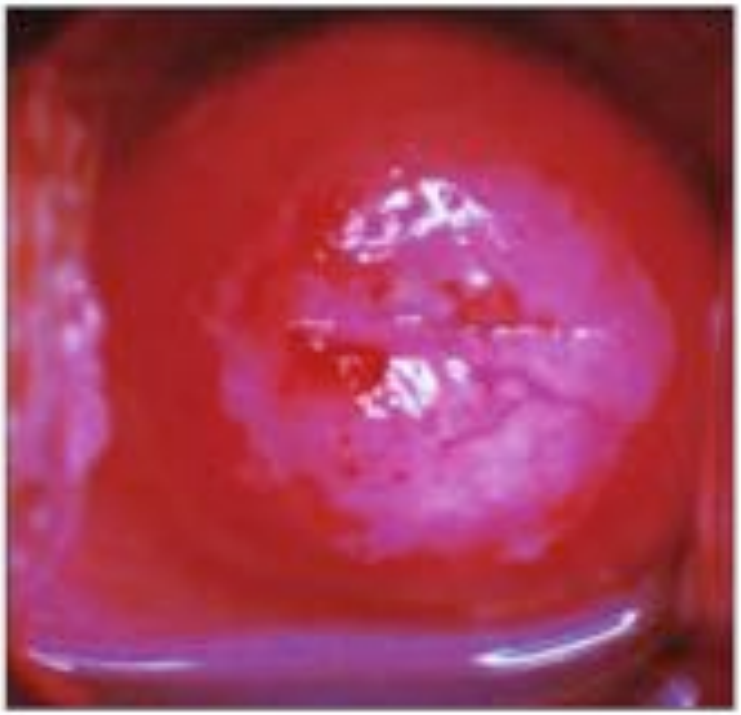


FIGURE 7.22: A circumorificial dense opaque acetowhite area with coarse mosaics (CIN 3 lesion)

VIA: High-grade CIN

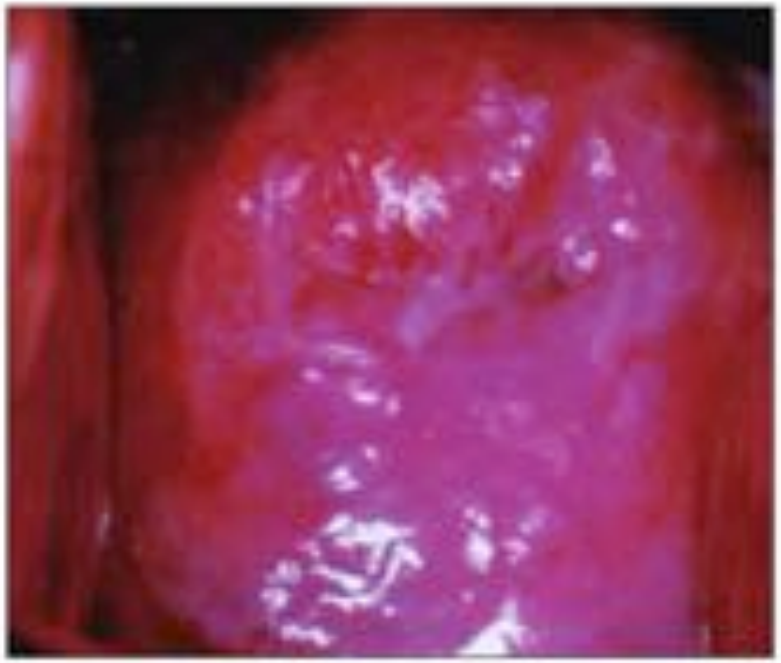
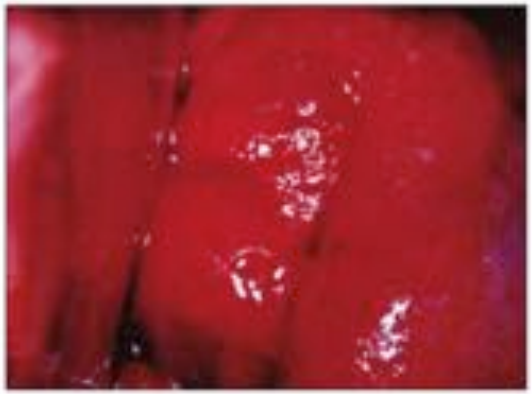


FIGURE 7.25: Note the intensely dense, complex, acetowhite lesion (CIN 3 lesion) with raised and rolled out margins, obliterating the external os

VIA: Early Invasive Cancer



Appearance before application of acetic acid

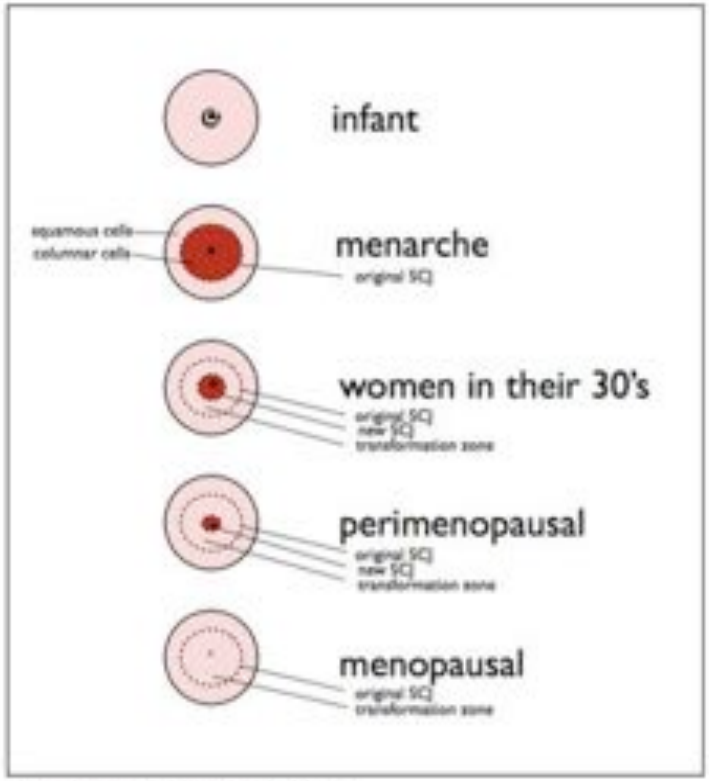
Appearance after application of 5% acetic acid

VIA: Early Invasive Cancer

FIGURE 8.8: Invasive cancer: There is a proliferative growth on the cervix which becomes dense, chalky white after the application of acetic acid. Bleeding partly obliterates the acetowhitening

Age-Related Cervical Changes

- Note that the appearance of the cervix changes as a woman ages.



SCJ: squamocolumnar junction.

Sellors JW, Sankaranarayanan R. Colposcopy and treatment of cervical intraepithelial neoplasia: a beginners' manual. Lyon: International Agency for Research on Cancer; 2003.

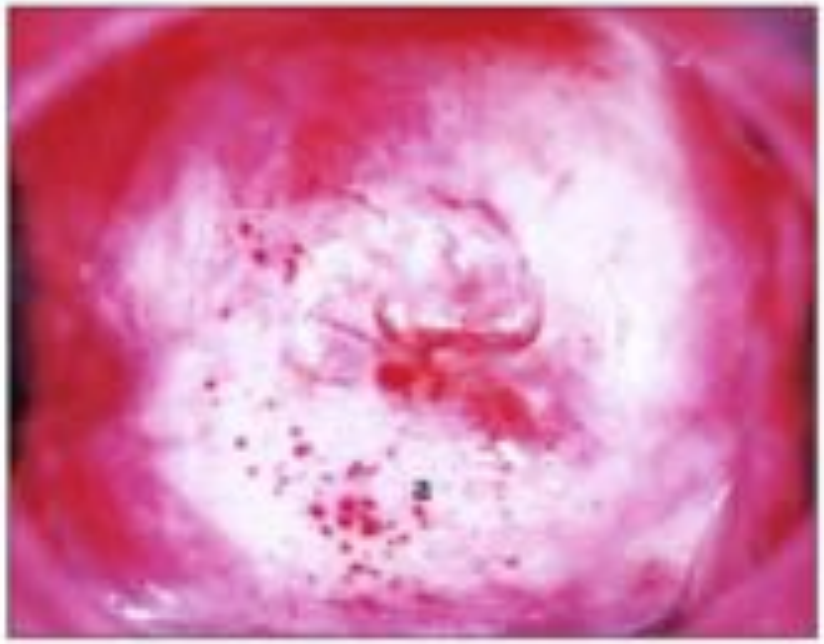


FIGURE 6.6: Postmenopausal cervix: The epithelium is pale, brittle and lacks lustre, showing sub-epithelial petechiae (a). Squamocolumnar junction is not visible

HPV Vaccination

- The HPV vaccines prevent infection with the types of HPV that cause most cervical cancers.
- Two vaccines are currently on the market.
- The WHO recommends vaccination of all girls older than 9.
- Vaccinated women still need to undergo screening.

Summary

1. Cervical cancer is a disease that can be prevented.
2. There are tests to detect early changes in the cervix (known as pre-cancers) that may lead to cancer if not treated. A positive test does not mean cancer!
3. All women aged 21(?)–49 years should be screened for cervical cancer at some point.
4. There are safe and effective treatments for these early changes.

Thank you for your time and attention!

☺

Thank you

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