BASIC KNOWLEDGE FOR
CERVICAL CANCER SCREENING
USING VIA, VILI AND HPV TEST

Comprehensive Visual Inspection of the Cervix with Acetic Acid (VIA) and Lugol's Iodine (VILI)
http://www.gfmer.ch/vic/

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Learning objectives

Recognizing and locating the abnormal area on cervical exam.

Recognizing the characteristics of VIA and VILI of normal cervix and benign cervical lesions.

Recognizing the characteristics of VIA and VILI of cervical intraepithelial neoplasia (CIN) and cervical cancer.
How does VIA work?

The application of (3-5%) acetic acid causes reversible protein coagulation in tissues with high DNA concentration, which becomes white (acetowhite).

The acetowhite epithelium obscures the pink color of the underlying stroma.

The physiological conditions having high nuclear activity and which may become transiently white are (1) immature metaplasia and (2) columnar epithelium.
What is a VIA-positive lesion?

An acetowhite area may be a benign lesion, a precancerous lesion or a cancer. Only precancerous lesions or cancer are considered pathological and need therapy.

Before considering a “VIA-positive lesion” as precancerous or cancer, you need to do the 3 following steps:

1. Identify the anatomy of the cervix.
2. Localize the abnormal area (in contact vs not in contact with the transformation zone).
3. Exclude a benign lesion.
STEP 1 – DEFINE THE ANATOMY OF THE CERVIX

Because CIN occurs in the transformation zone (TZ), this area should be clearly identified. The TZ corresponds to the area between the original and new squamocolumnar junction (SCJ).

*The presence of glandular orifice may sign the old SCJ.
STEP 2 – LOCALIZE ACETOWHITE AREA

Observe the acetowhite area in contact with the squamocolumnar junction (SCJ).

Old SCJ

TZ

New SCJ

native cervix

acetic acid
STEP 3 – EXCLUDE BENIGN ACETOWHITE AREA

Acetowhite area “line-like” appearing near the endocervix at the lower edge of the SCJ = immature metaplasia.
STEP 3 – EXCLUDE BENIGN ACETOWHITE AREA

Acetowhite area “dot-like” located in the endocervix = columnar epithelium with metaplasia.
STEP 3 – EXCLUDE BENIGN ACETOWHITE AREA

Acetowhite area corresponding to nabothian cyst or cervical polyp.
How does VILI work?

Lugol’s iodine is a glycophilic iodine solution that will stain tissues with **high glycogen** concentration dark **brown**.

The mature cervico-vaginal squamous epithelium will appear dark brown and the normal columnar epithelium will not change its pinkish colour, as it contains no glycogen.

Tissues having **low glycogen** concentration (*precancerous lesions*) will appear **yellow**.

The **physiological** conditions which are glycogen poor and therefore remain **iodonegative** are:

1. **columnar epithelium** (*pinkish*)
2. **postmenopausal/hypo-estrogenic states** (*yellow*)
What is a VILI-positive lesion?

A VILI positive area may indicate a benign lesion, a precancerous lesion or cancer. Only precancerous lesions or cancer are considered pathological and require treatment.

Before considering a “VILI-positive lesion” to be a precancerous lesion or cancer, you need to do the 3 following steps:

1. Identify the anatomy of the cervix.
2. Localize the abnormal area (in contact vs not in contact with the SCJ).
3. Exclude a benign lesion.
Because cervical neoplasia originates in the transformation zone (TZ), this area should be clearly identified. This area corresponds to the area between the original and new squamocolumnar junction.
STEP 2 – LOCALIZE LUGOL NEGATIVE AREA

Observe the cervix after Lugol’s iodine application: (a) is normal, and (b) corresponds to Lugol negative area. This finding has pathological significance.
STEP 3 – EXCLUDE BENIGN LUGOL’S IODINE NEGATIVE AREA

Lugol’s iodine negative cervix corresponding to normal menopausal status.

(Low estrogen is responsible for the Lugol negative area.)
Conclusions

A VIA and/or VILI “positive” area may be benign and should be recognized.

VIA and/or VILI suspicious lesions are located in the immediate vicinity or in direct contact with the TZ.