

## Success of endoscopy with narrow band imaging in diagnosis of cervical metaplasia

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Abstract

### Background

Flexible magnifying endoscopy with narrow band imaging (ME-NBI) has outstanding diagnostic correctness for gastrointestinal metaplasia and is hope for to be highly useful for diagnosis cervical metaplasia in this study aiming to detect the feature findings and access the diagnostic power of ME-NBI for diagnosis of cervical metaplasia

### Method

20 women were undergoing vaginal smear and at the same time Flexible NBI-ME was performed. After that Written consent was obtained from all patients vaginal examination were done. Cusco speculum is used to examine a cervix by endoscopy using white light imaging, and. Narrow band image at long, middle, and short distances

Images and video of ME-NBI were taken to investigate the cervical lesions. The images were analysis built on cytology result.

### Results

The NBI-ME images revealed the following abnormal findings Tongue-like projections of the epithelium, nabothian follicles, gland ostium, met aplastic cells with special features

Transformation zone both type, normal vascularity

Of cervix and change shape of all types of epithelial cells, cell nuclear density & thickness

Of epithelium

If you know how to diagnose squamous metaplasia

50 percent of correct diagnosis of cervical lesion

Will be able to be diagnosed

### Conclusion

This study indicates that ME-NBI may have novel value for metaplasia diagnosis without use of acetoacetic acid or Lugol's iodine

### Keywords

Cervical metaplasia Magnifying endoscopy with narrow band imaging

Introduction

Cervical metaplasia

Metaplasia defined as a transformation from one mature cell type to a second mature.

Cervical metaplasia has always generated major interest because of its neoplastic potential (1)

Metaplasia begins the movement of the original squamocolumnar junction onto the portion, usually as a result of estrogen production or interval vaginal deliveries. The exposure of the delicate columnar cells to an acidic bacteria \_laden vaginal environment initiates the process of inflammation and replacement with stratified squamous cell (2)

At birth there is an abrupt junction between the squamous epithelium of the ectocervix (the original squamous epithelium) and the columnar epithelium of the endocervix. Through exposure to estrogen (at birth, during puberty, and throughout reproductive life), the glycogen in the exfoliated cells of the vagina is converted into lactic acid, accounting for the acidity of the vaginal secretions ( $\text{pH} < 4.5$ ). This acidity, along with other factors, stimulates the replacement of the columnar epithelium with squamous epithelium. This process is known as metaplasia (3). Metaplasia results in the formation of a new SCJ. The area between the original SCJ and the new SCJ is known as the transformation zone. Metaplastic changes usually start from the periphery of the ectocervix and spread towards the external os. Changes can also occur in discrete patches on the columnar epithelium. The new squamous cells originate from the totipotent “reserve” cells that remain dormant beneath the columnar cells. Squamous metaplasia can be divided into three stages (4). The common procedure that has been traditional for uterine cervical cancer is the Pap smear followed by colposcopy (5).

Flexible magnifying endoscopy is at present time used for the gastrointestinal tract and is tolerable for the diagnosis of GI neoplasms. Magnifying endoscopy with narrow band imaging can be used to clearly imagine the microstructures of the mucosal surface and interstitial capillaries (6, 7).

As regards the use of flexible endoscopy in examining cervical lesions, the first was studied by Nishiyama et al. who reported the use of endoscopy for diagnosing cervical neoplasms revealed micro-vascular pattern differences at different stages (9). The second study by K Uchida et al. studied the features and findings of high-grade cervical intraepithelial neoplasia or more on magnifying endoscopy with narrow band imaging. So, it is anticipated to be useful for diagnosing metaplasia. This study aimed to identify characteristic findings of metaplasia visualized using flexible endoscopy and confirmed by the cytology result.

#### Methods

20 women were undergoing vaginal smear and at the same time flexible endoscopy was performed. After written consent was obtained from all patients, vaginal examination was done followed by using a Cusco speculum to examine the cervix by endoscopy using white light imaging and narrow band image at long, middle, and short distances.

Video and pictures were taken and reviewed based on the known characterized findings of metaplasia and confirmed by cytology examination.

#### Results and discussion

Cervical metaplasia is a natural process but as the transformation zone is liable to human papilloma virus infection and dysplasia can occur and may proceed to cancer. For that point, it is important to have an early diagnosis of metaplasia so as not to be mistaken for dysplasia and also we try to find an accurate method of diagnosis of metaplasia. Two studies were done on flexible endoscopy with narrow band image for the study and evaluation of cervical cancer.

Advantages of flexible endoscopy are high magnification ability and increase the degree of image clarity. We succeeded to obtain clear images of any location of the cervix by manual movement of endoscopy and facilitate vision of both surface and vascular structures without the use of acetic acid or Lugol's iodine. The first study of flexible endoscopy was done by Nishiyama et al. for the diagnosis of cervical neoplasms, showing micro-vascular patterns distinguished at different stages (10). Other study by K Uchida who was focused not only on vascular

pattern but also on epithelium thickness in our study focused on vascularity and thickness of epithelium and change in shape of cells and nuclear density in addition to that known pictures of diagnostics futures of metaplasia that found in all cases