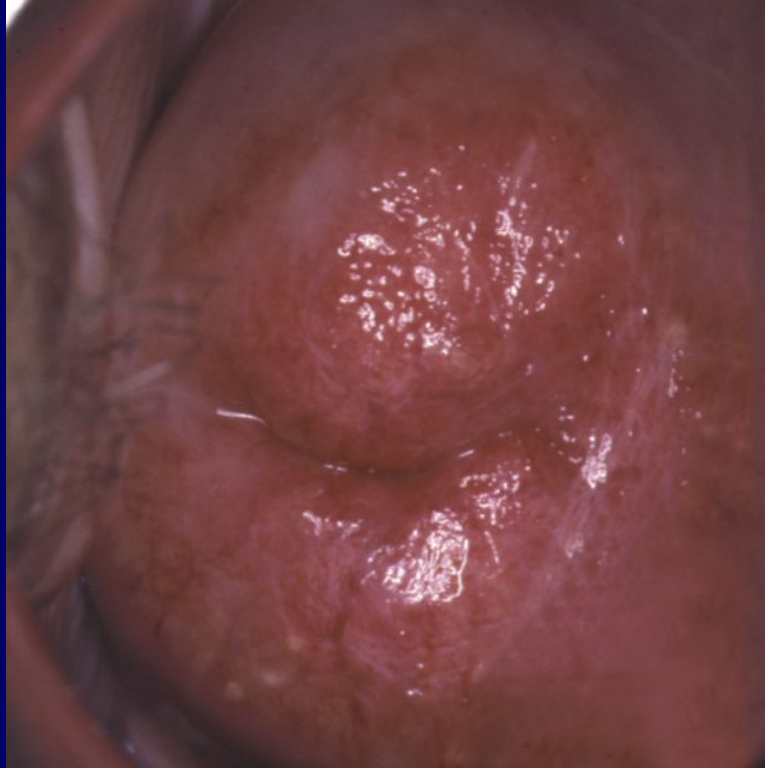
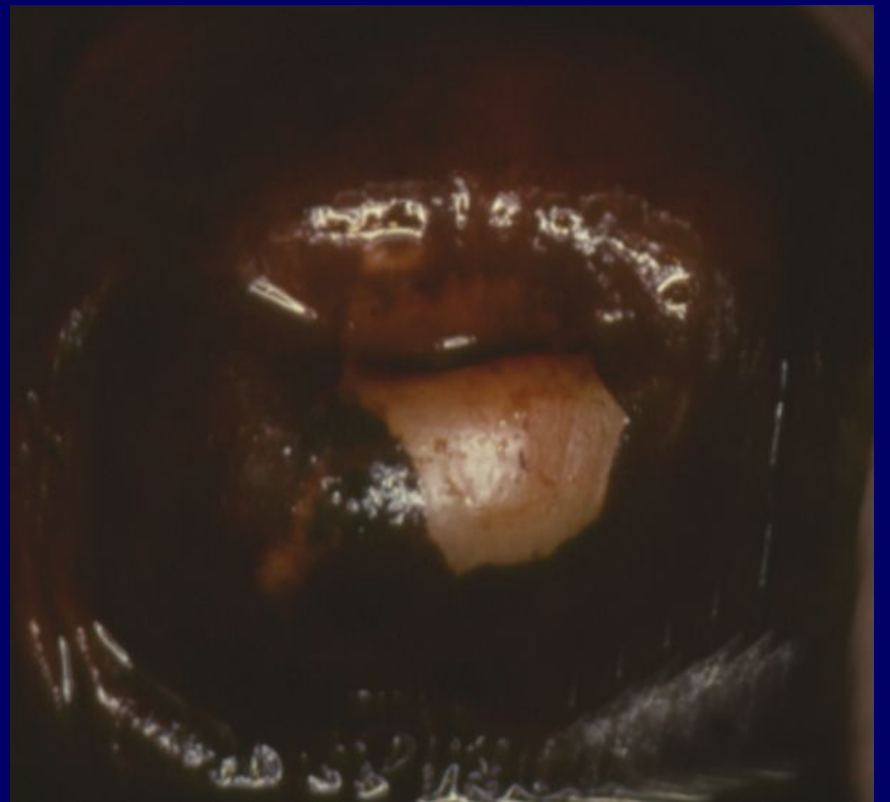


# Normal and abnormal colposcopic findings

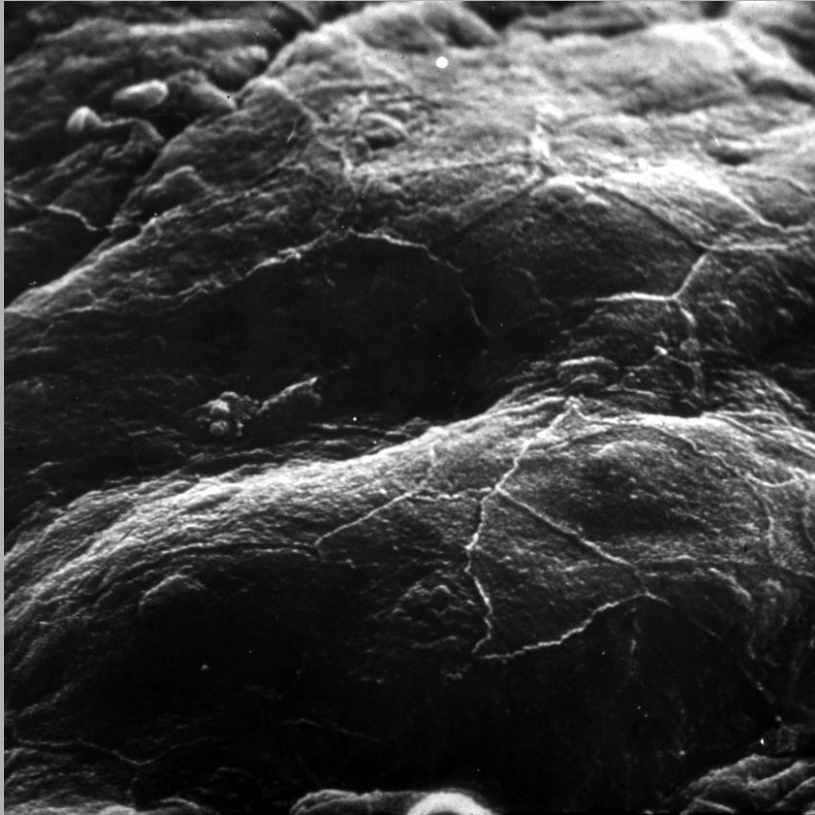
# Colposcopy

Acetic acid test (3-5% acetic acid)  
Schiller test (Lugol's solution)



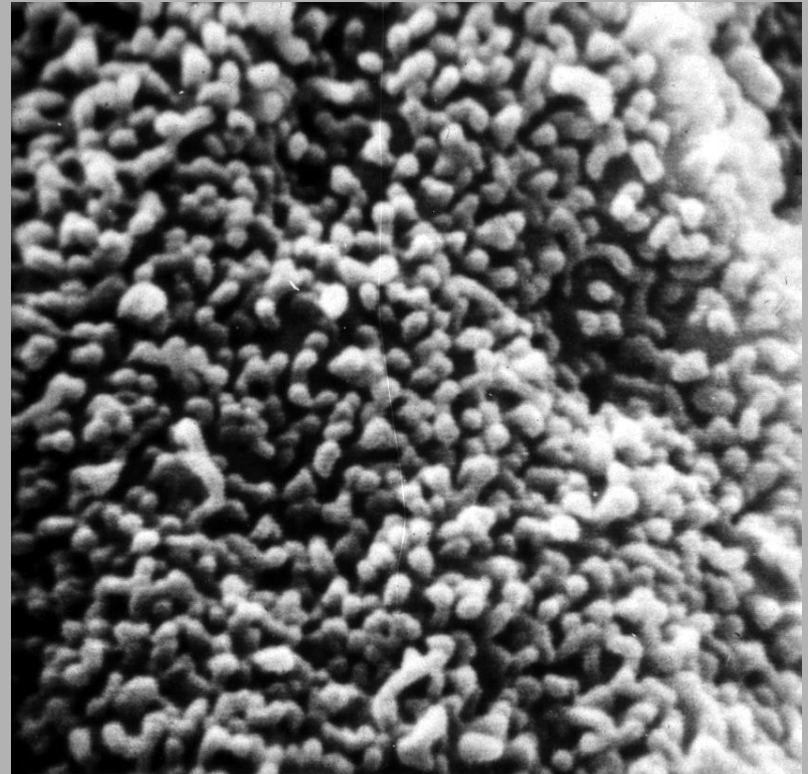


- Squamous epithelium
- Columnar epithelium
- Squamo-columnar junction
  
- Metaplasia
- Transformation Zone

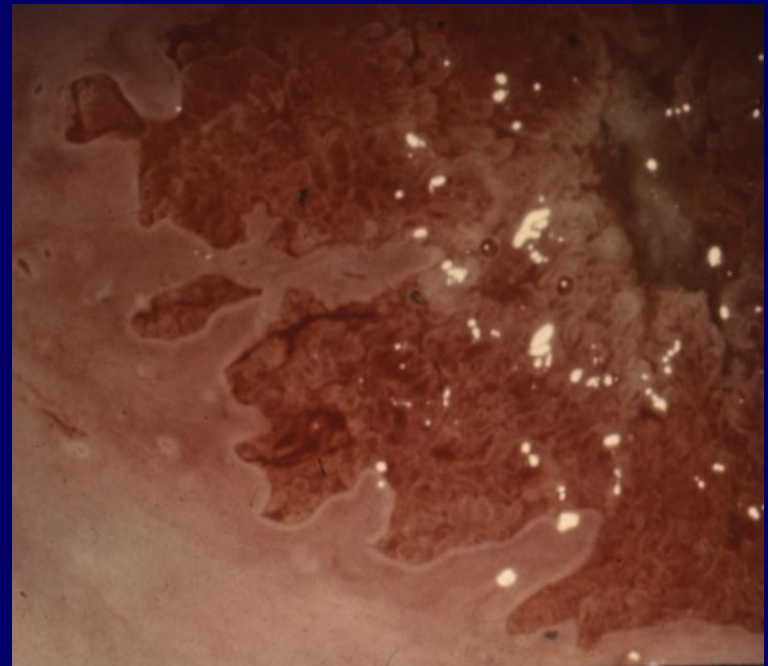
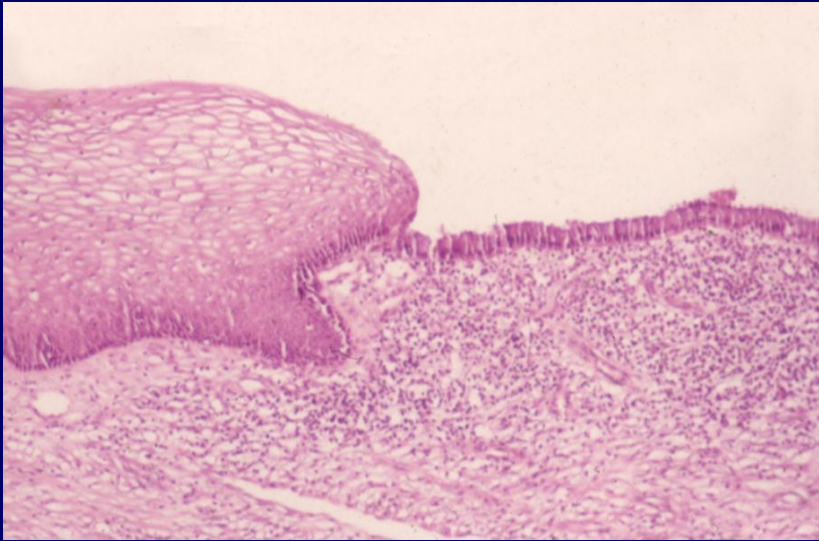


*Squamous epithelium*

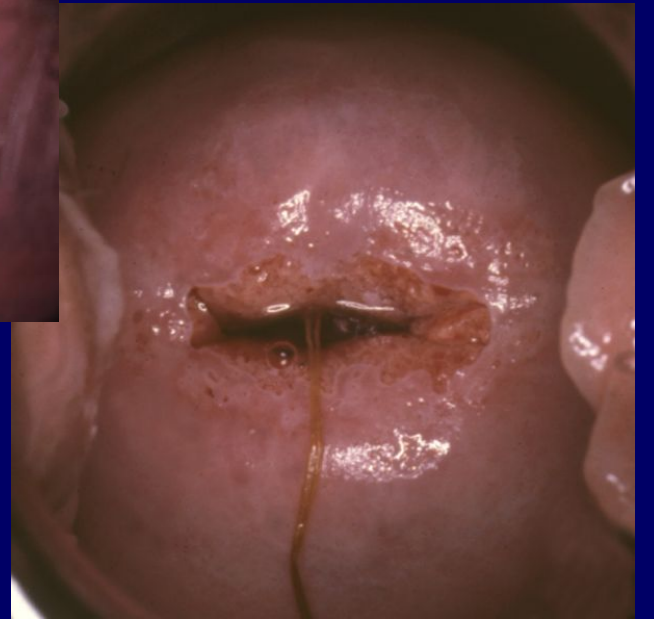
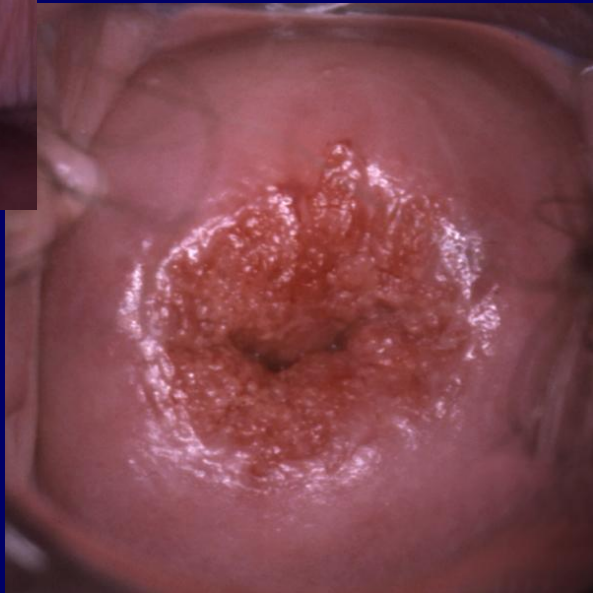
*Collumnar epithelium*



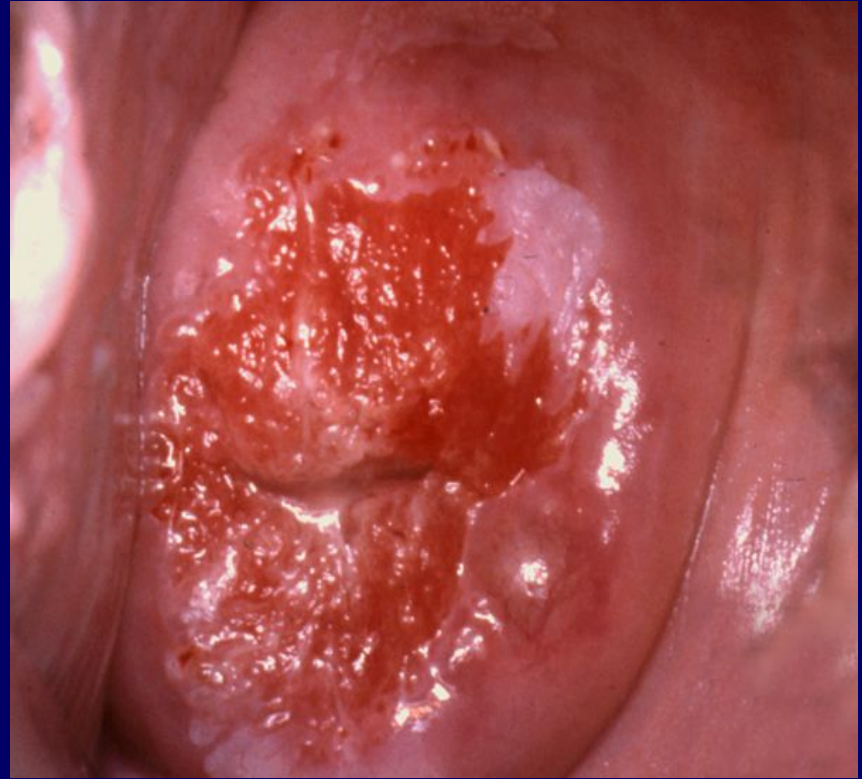
# Squamo-columnar junction- SCJ

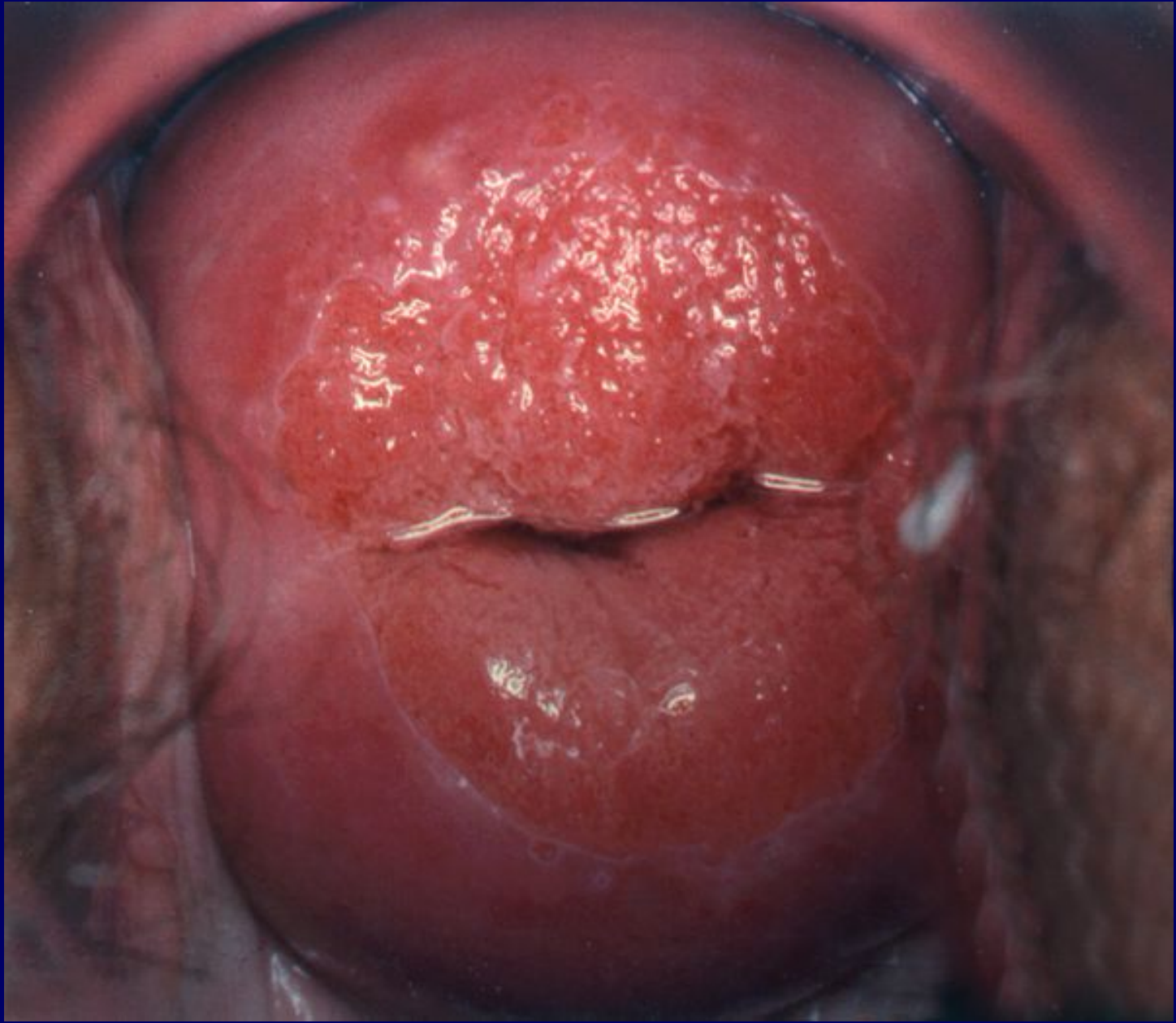










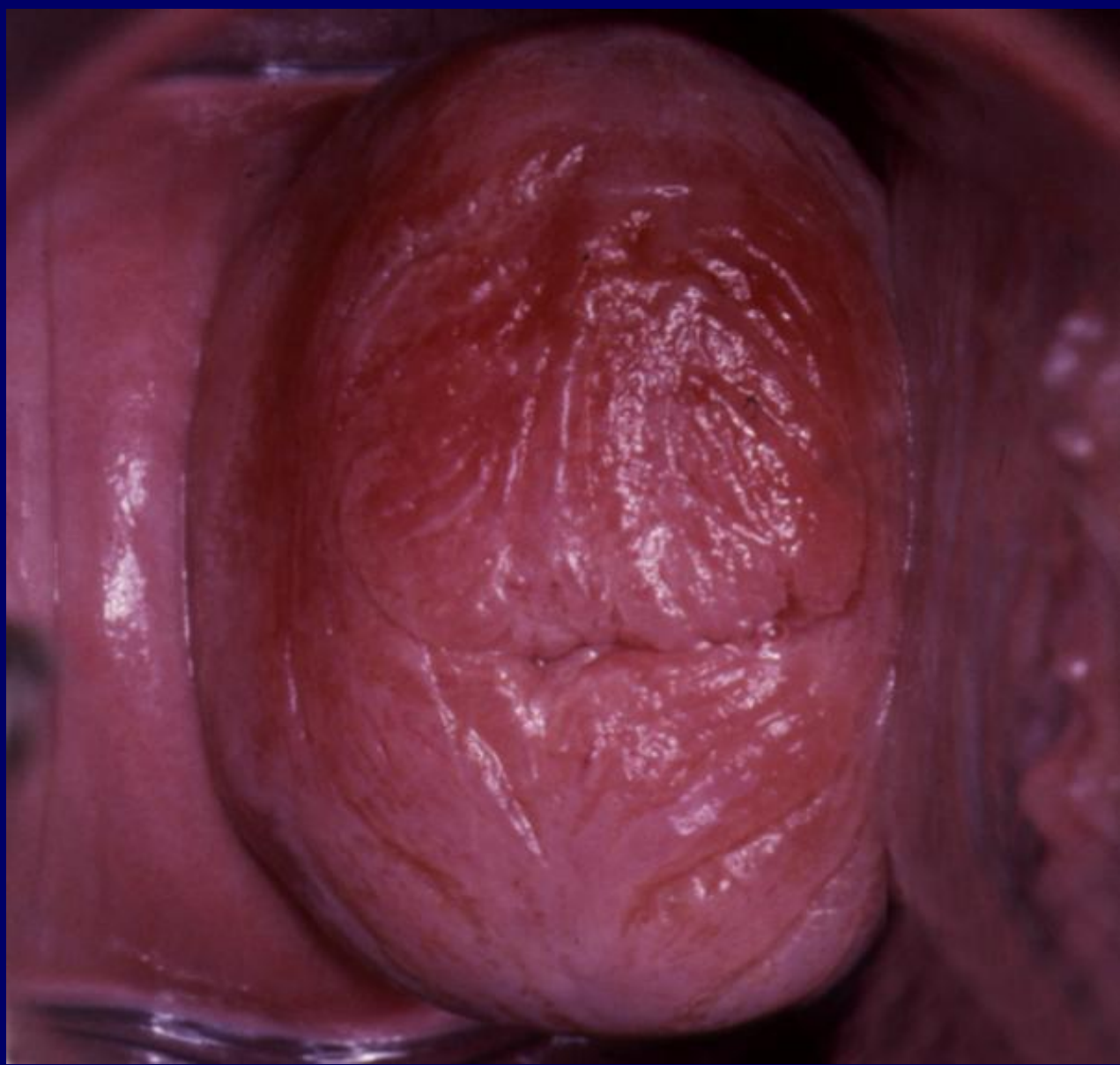


## Metaplasia

a physiological and benign process whereby the columnar epithelium is gradually replaced by squamous epithelium

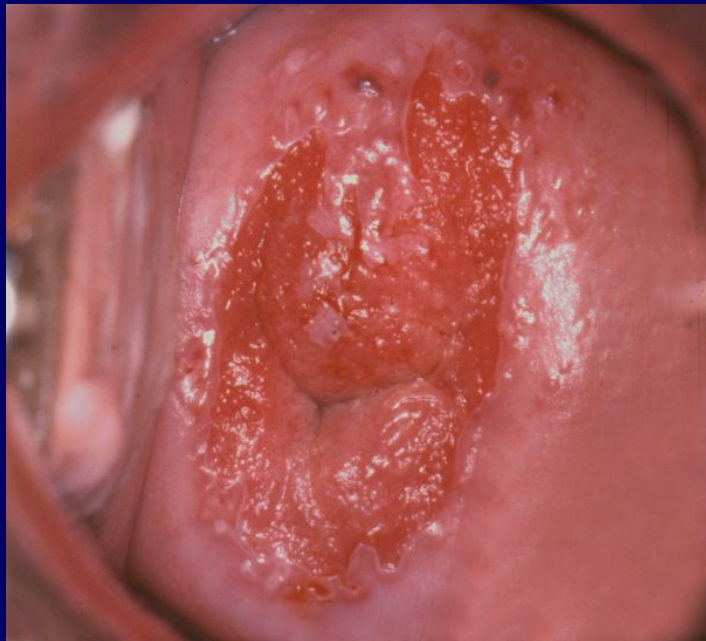
## Transformation zone

the area where metaplasia takes place



The result of normal metaplasia is  
a normal Transformation zone



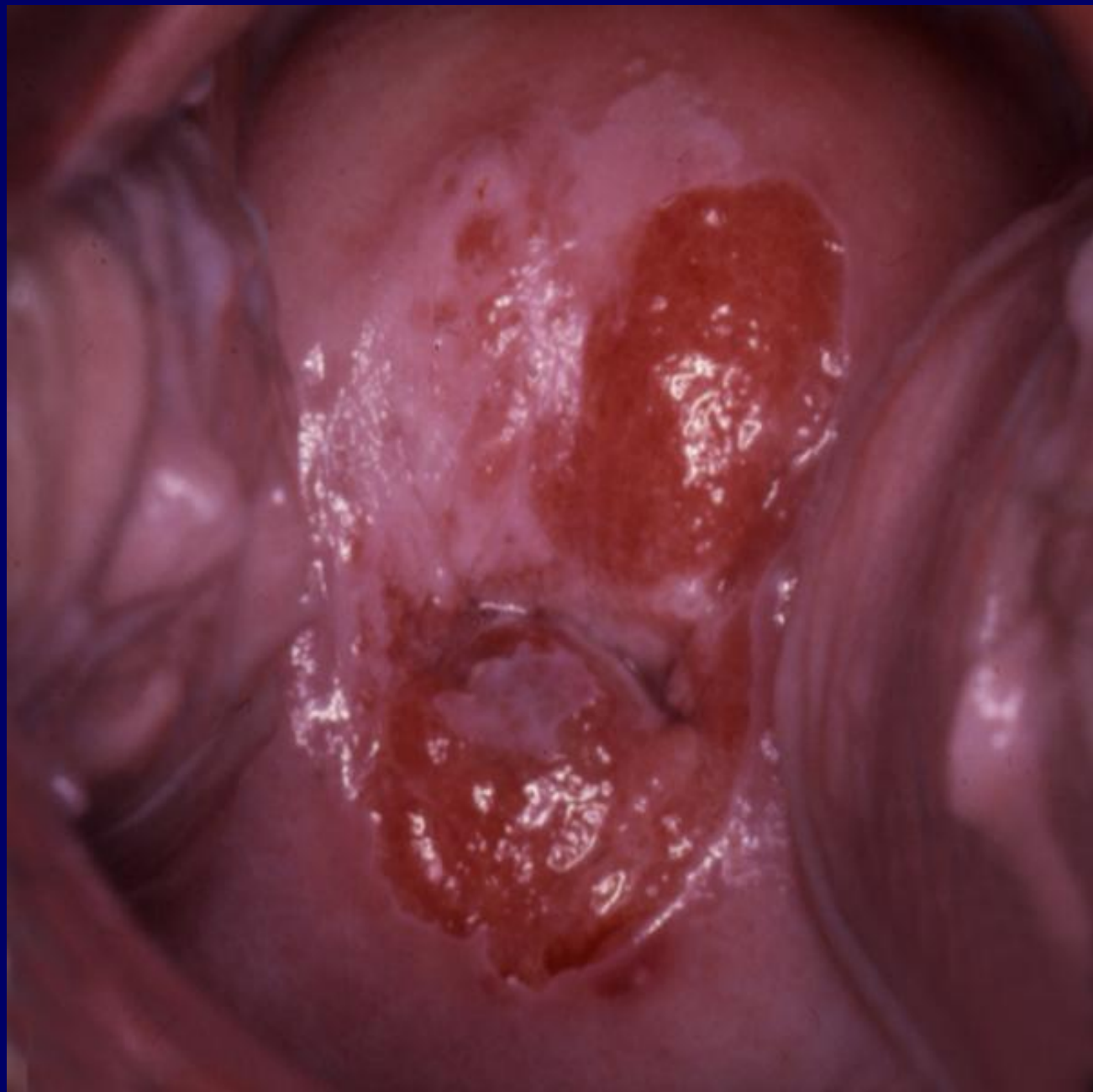


Immature metaplastic cells are  
susceptible  
to the development of  
atypical cellular changes

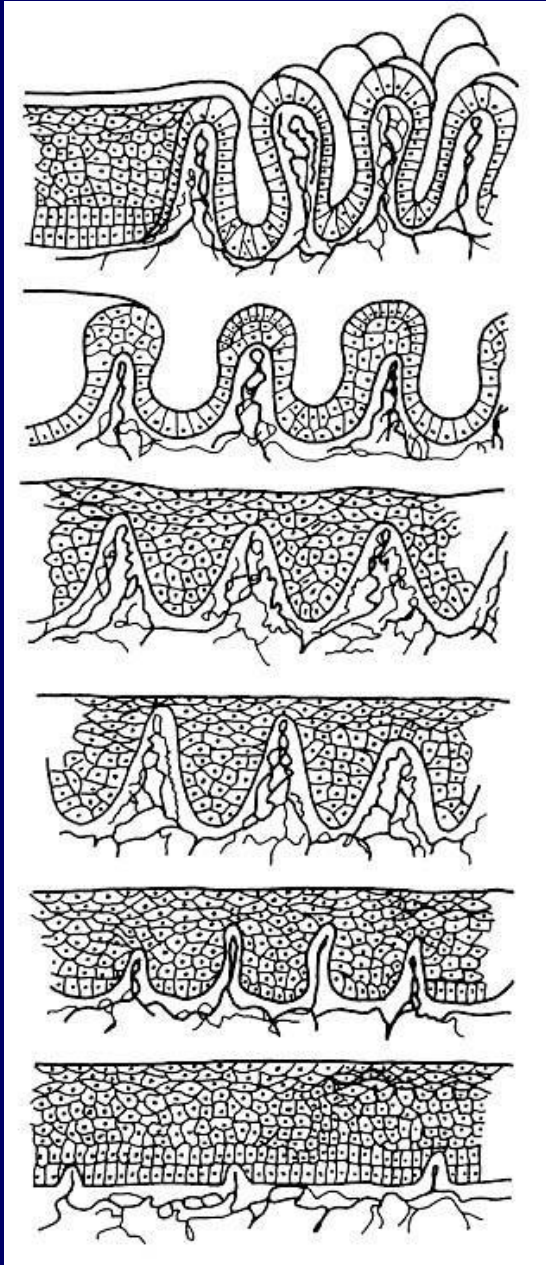


The process of transformation from normal cells to atypical cells occurs under the influence of Human papillomavirus (HPV) and cofactors

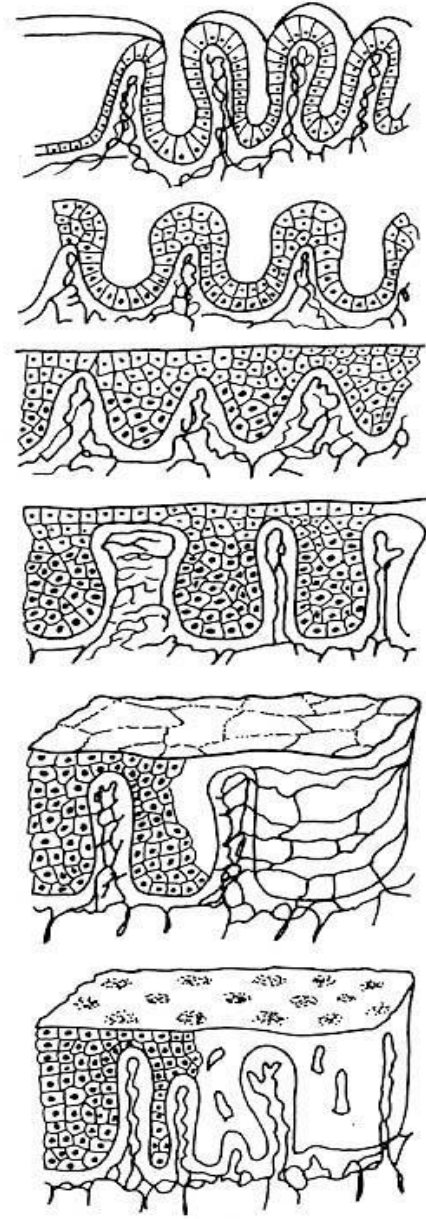
If atypical metaplasia takes place  
an abnormal  
Transformation zone develops



*N  
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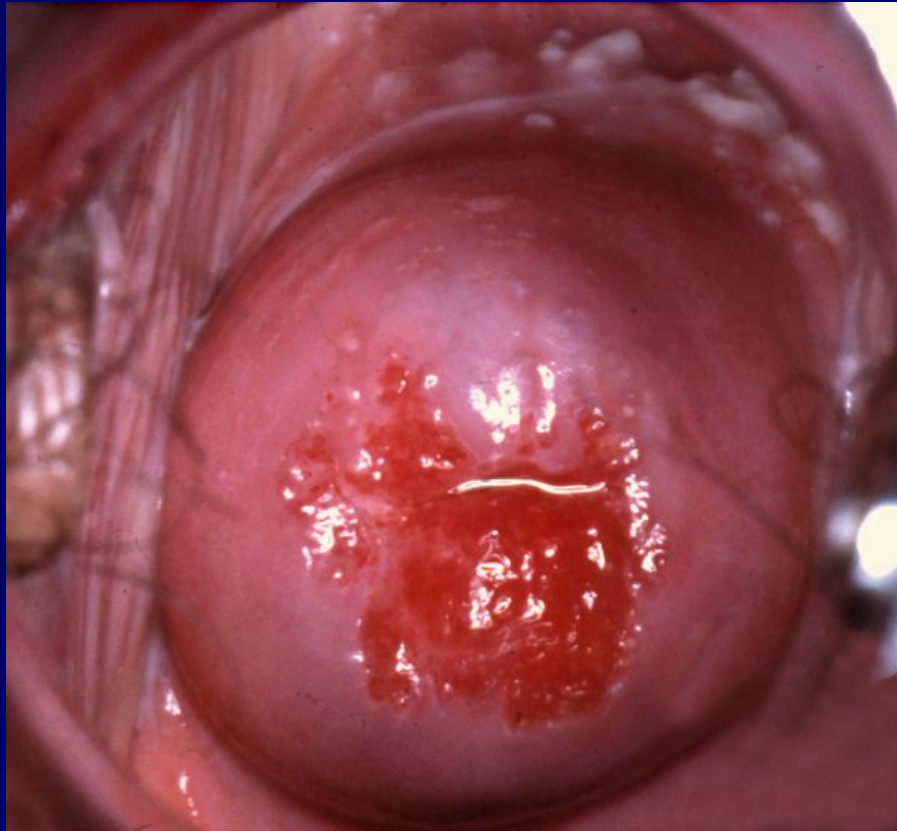


*M  
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In colposcopy, it is essential to assess whether Transformation zone is normal or abnormal



# International Federation for Cervical Pathology and Colposcopy (IFCPC)

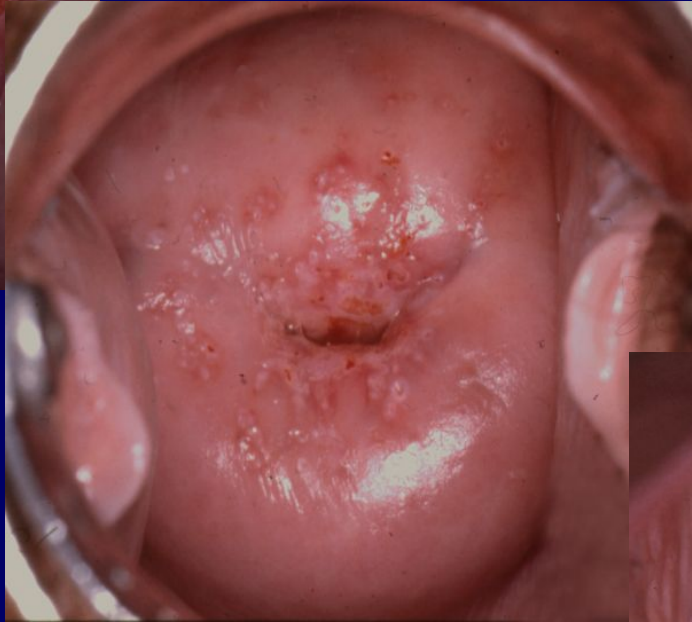
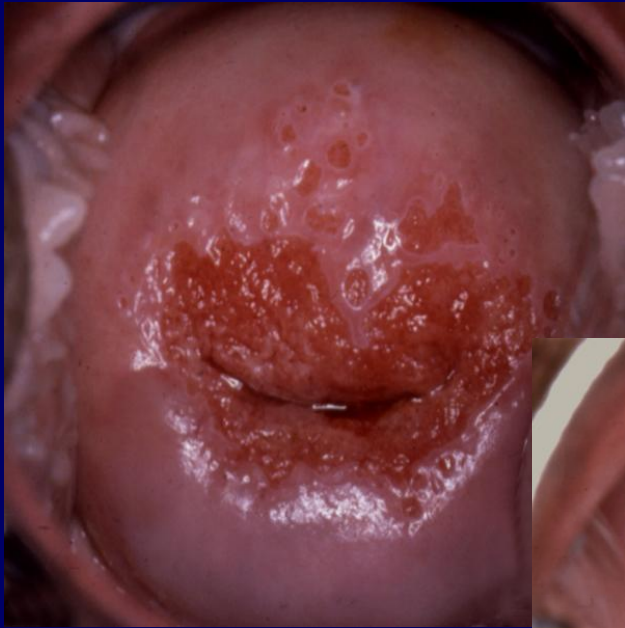
## Colposcopic Classification

- I Normal colposcopic findings
- II Abnormal colposcopic findings
- III Colposcopic findings suggestive of invasive cancer
- IN Unsatisfactory colposcopy
- V Miscellaneous findings



## Components of a normal Transformation zone

- Islands of columnar epithelium
- Cleft openings
- Nabothian cysts



The abnormal Transformation zone is manifested  
as a wide spectrum of  
epithelial and vascular findings

Abnormal transformation zone is  
presented by  
abnormal (atypical) colposcopic findings

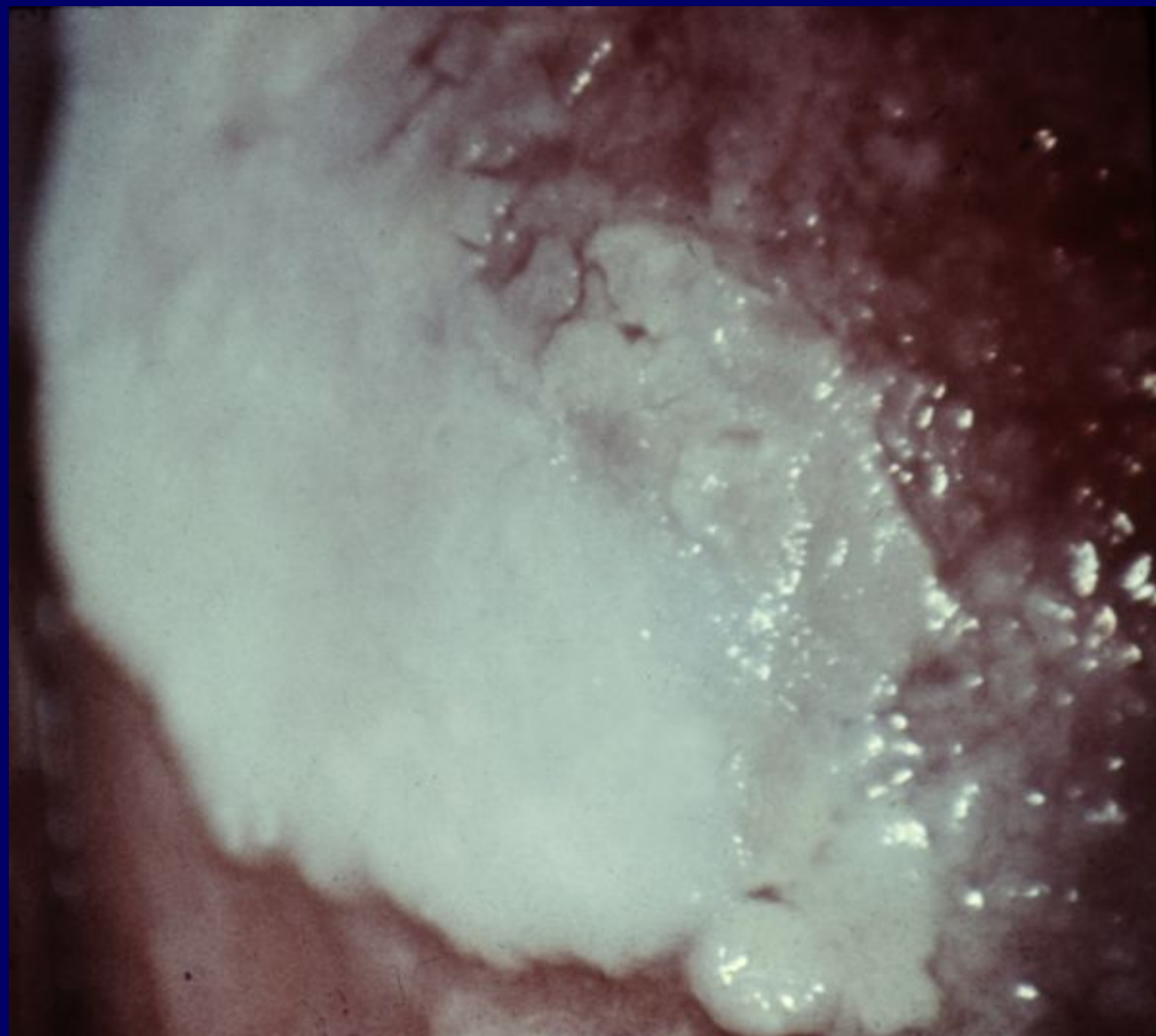
## Abnormal colposcopic findings

- Leukoplakia
- Acetowhite epithelium
- Punctation
- Mosaic
- Iodine negativity
- Atypical vessels

Leukoplakia

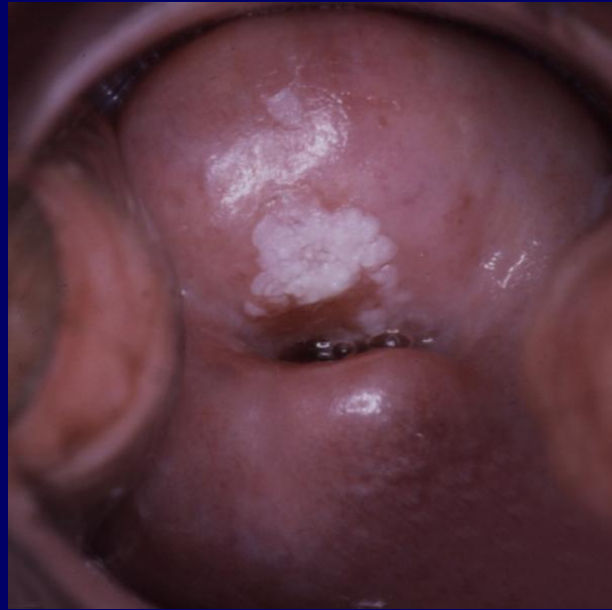
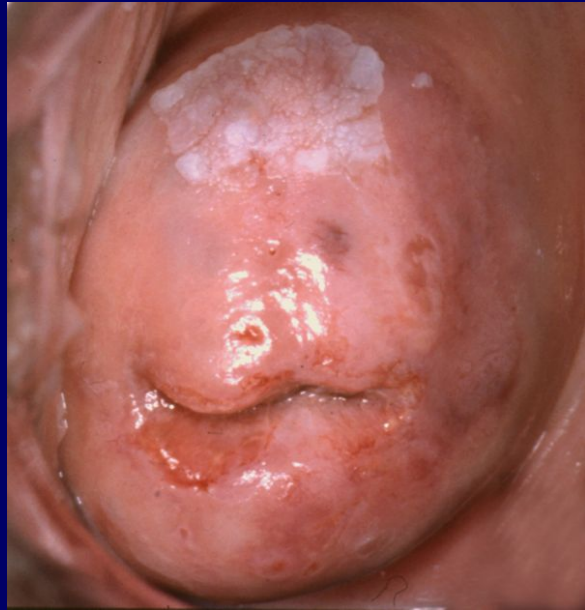
or white plaque

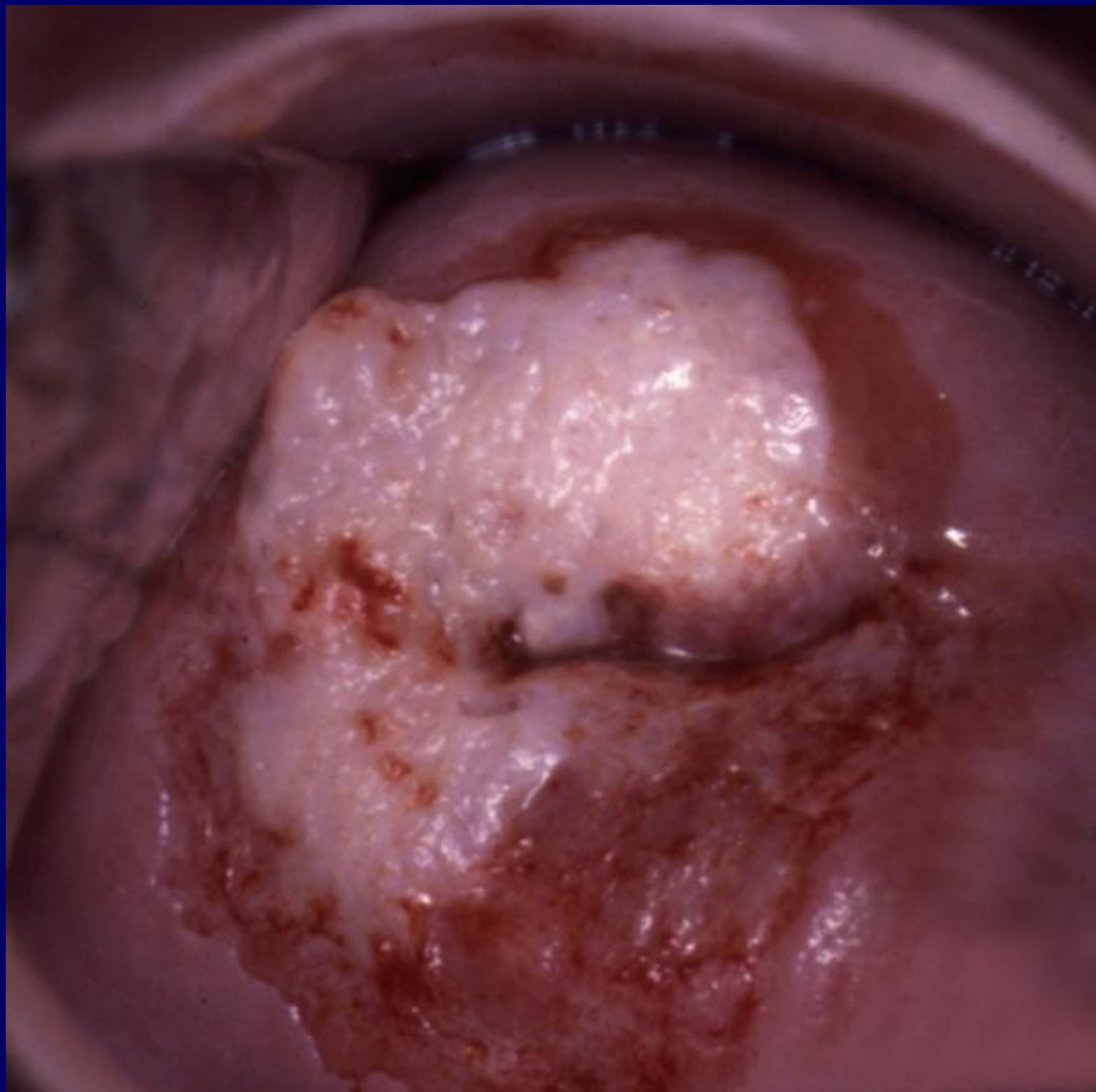
is visible grossly as a white often raised area that is not necessarily confined to TZ











# Leukoplakia

- HPV infection
- Keratinizing CIN
- Keratinizing cancer
- Chronic trauma
- Radiotherapy
- Immature metaplasia

## Acetowhite epithelium

Appears grossly normal  
but turns white after application  
of 3% to 5% acetic acid







# Acetowhite epithelium

- HPV infection
- Immature squamous metaplasia
- Regenerative or reparative changes
- Congenital Transformation zone
- Inflammation
- CIN
- Adenocarcinoma
- Invasive squamous carcinoma



Any cells with an enlarged nucleus  
such as metaplastic cells or  
cells traumatized by infection or friction,  
may exhibit  
varying degrees of acetowhiteness

## Punctuation

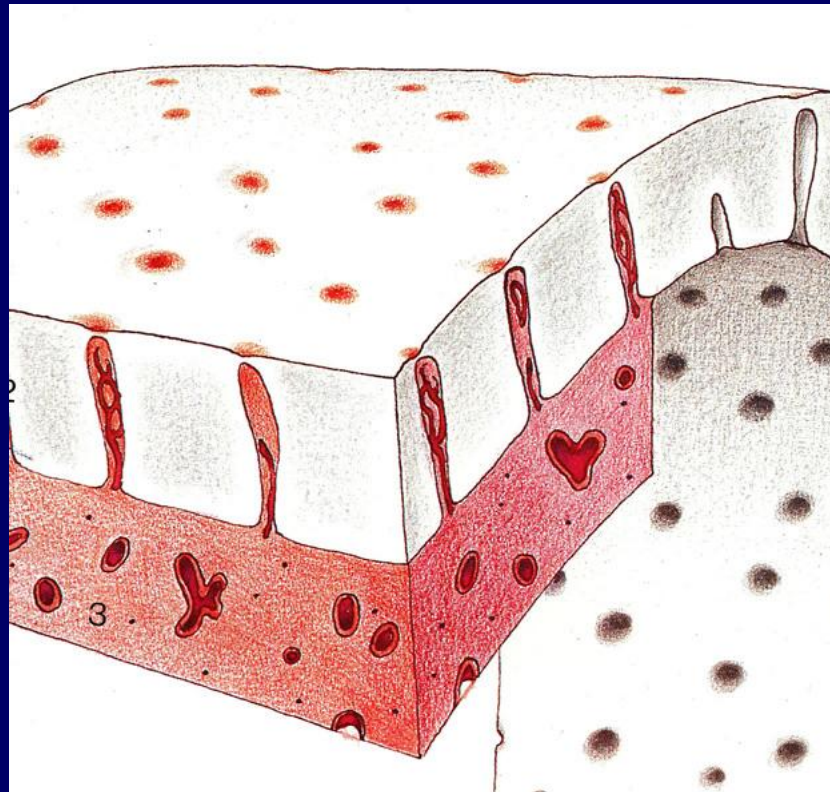
a focal colposcopic pattern in which capillaries appear in stippled pattern.

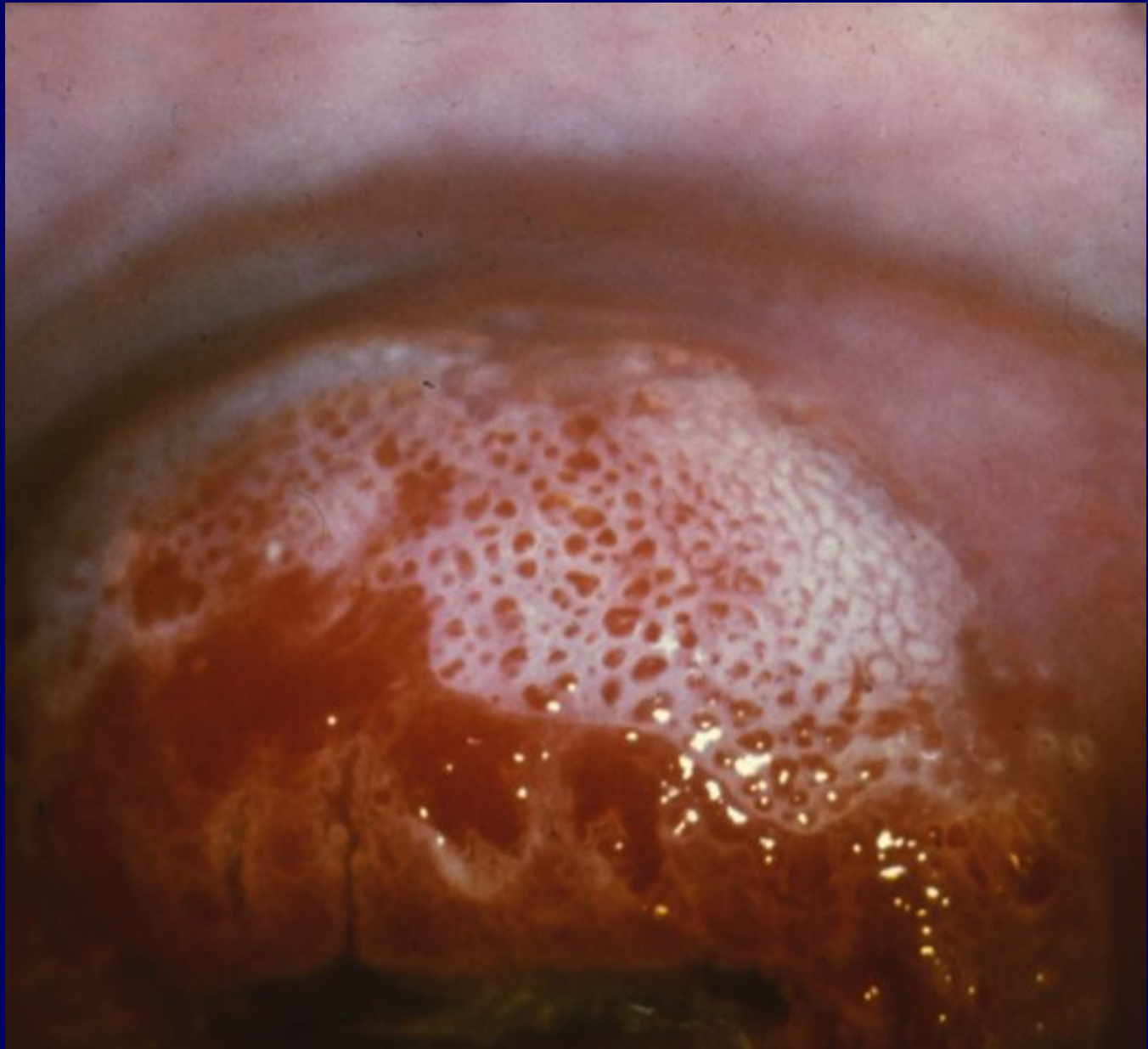
## Mozaik

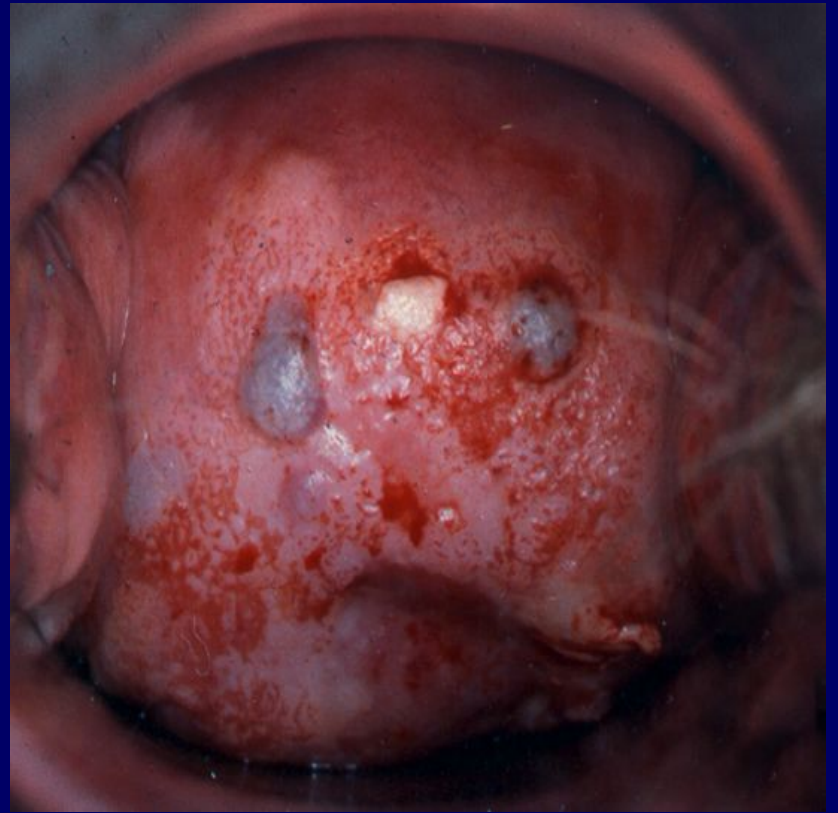
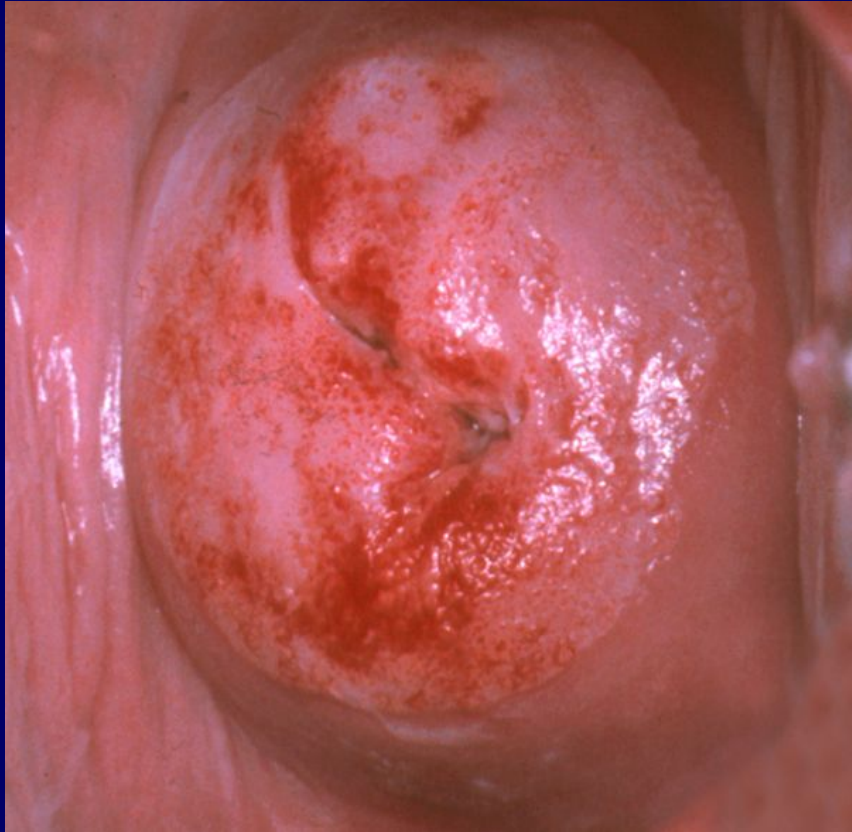
a focal colposcopic appearance in which the new vessel formation appears as a rectangular pattern like mosaic

# Punctation

colposcopic finding reflecting  
the capillaries in the stromal papillae  
that are seen end-on and  
penetrate the epithelium



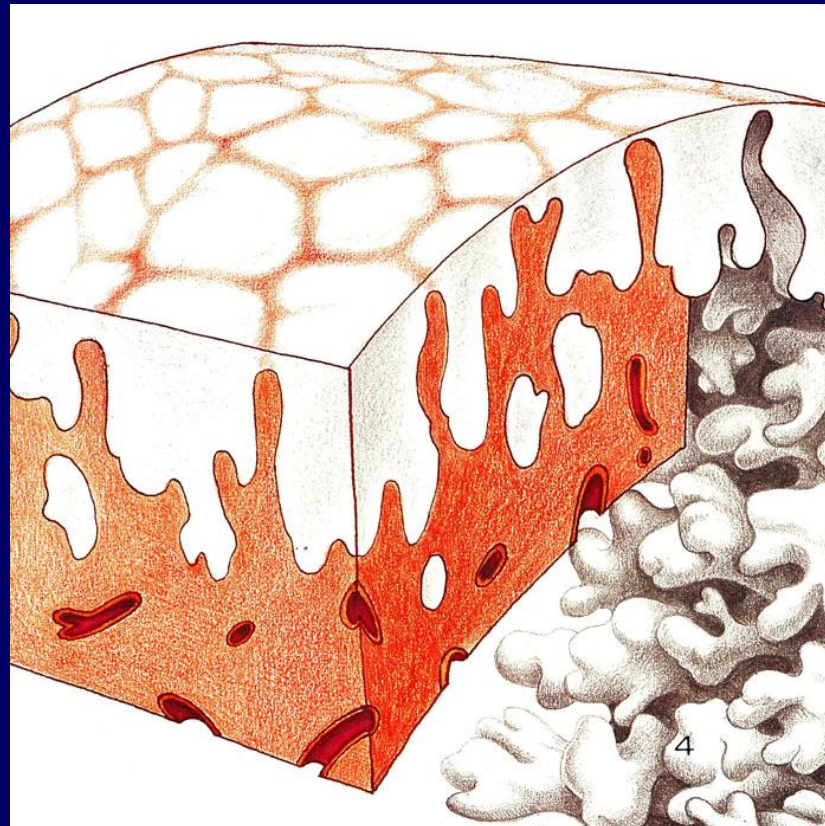


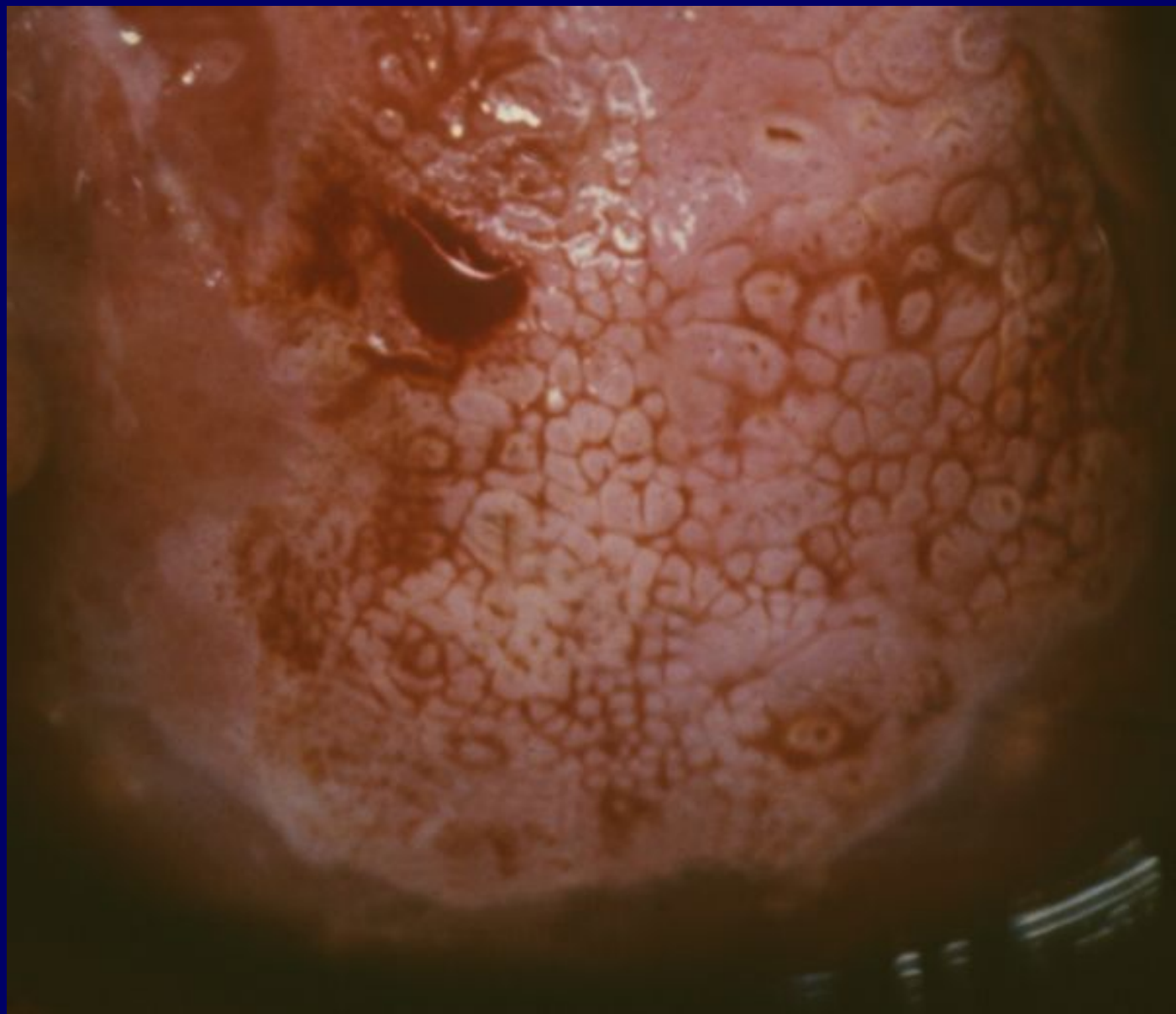




# Mosaic

colposcopic finding reflecting  
the islands of squamous epithelium,  
encircled by blood  
vessels in a basket-like arrangement









## Punctation and Mosaic

- Inflammation
- Rapidly growing metaplastic epithelium
- CIN
- Invasive squamous cancer
- Recurrence of cervical cancer

If the punctation or mosaic  
is not located  
in a field of acetowhite epithelium,  
it is unlikely to be associated with CIN

## Iodine negativity

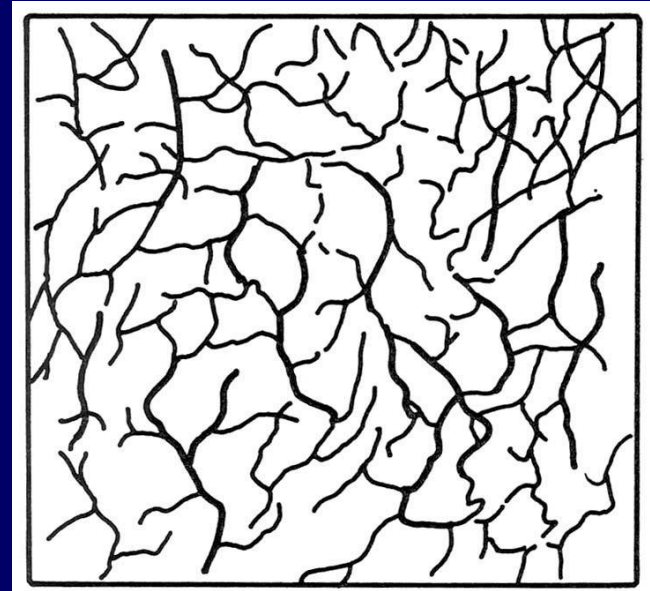
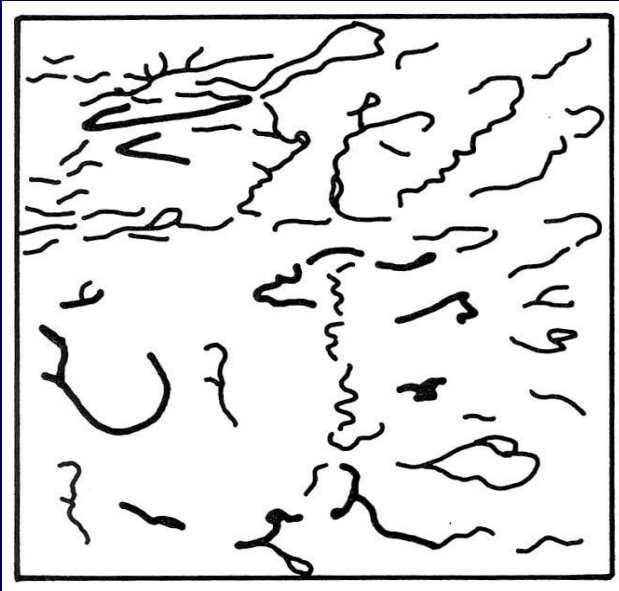
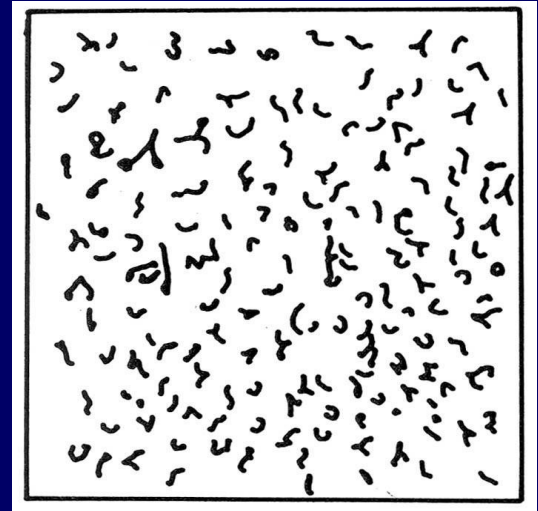
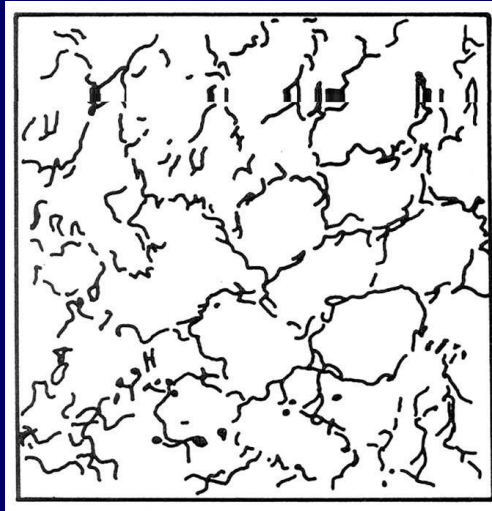
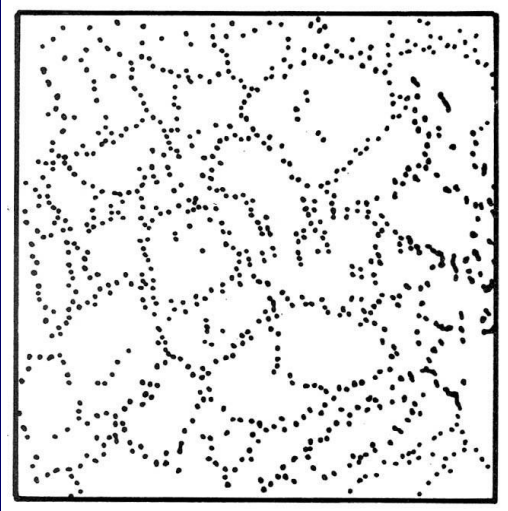
- Immature metaplasia
- Cervical intraepithelial neoplasia
- Low estrogen status (atrophy)

## Atypical vessels

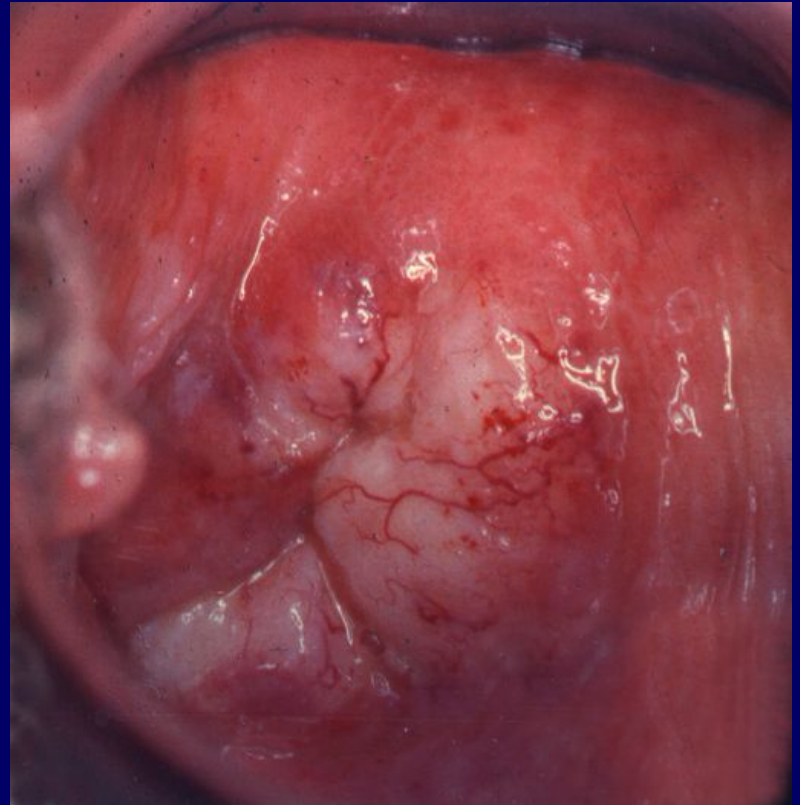
- Irregular vessels with an abrupt and interrupted course
- Appearing as commas, corkscrew capillaries or spaghetti-like forms

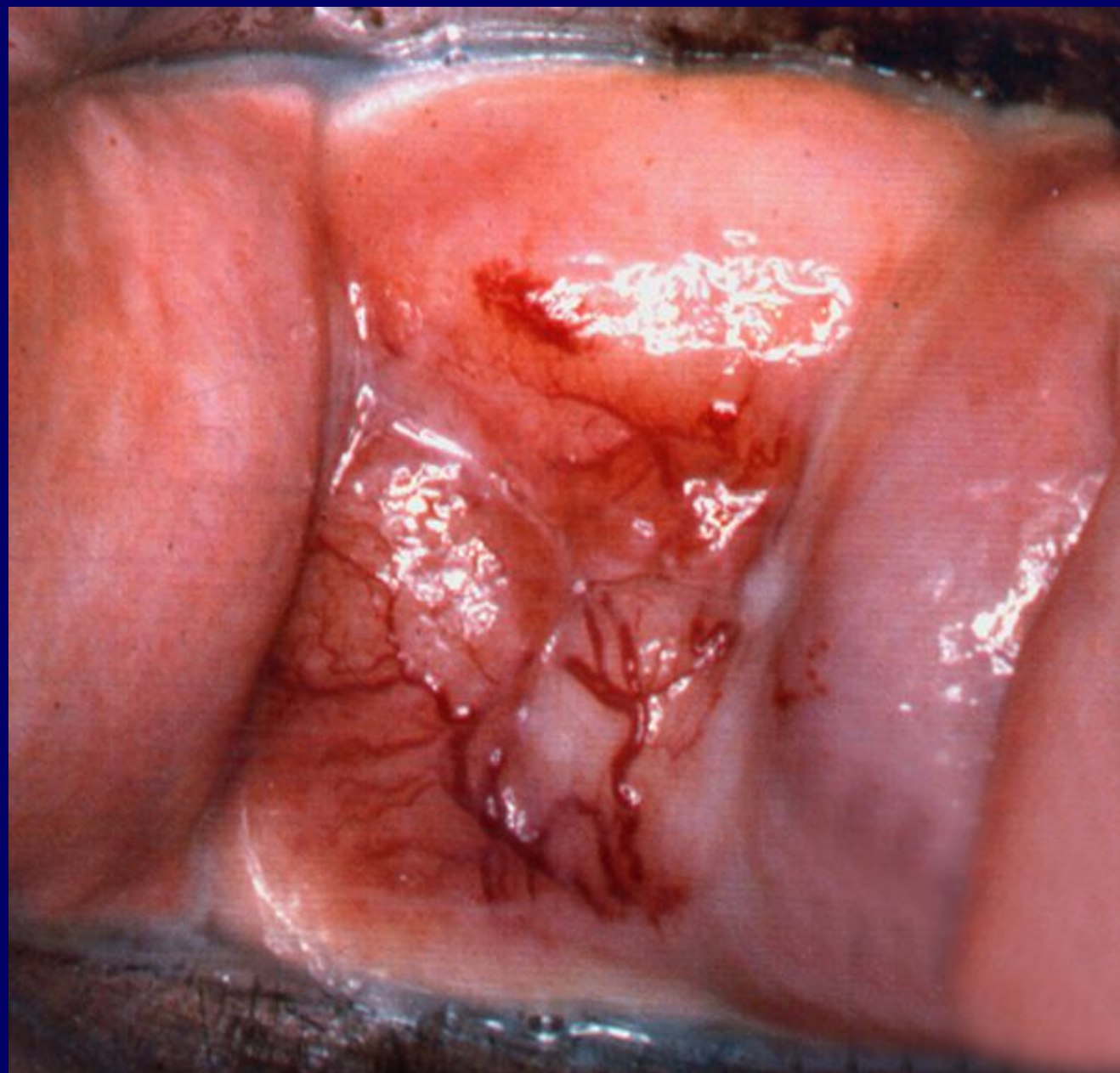
Atypical vessels  
are the hallmark of invasion,  
but can be associated with other conditions such as

- Inflammation
- Postirradiation effect
- Rapidly growing metaplastic epithelium
  - Normal epithelium
  - Systemic diseases









Development of abnormal colposcopic features may be the result of:

- Immature physiologic metaplasia
  - Papilloma virus infection
    - Developing CIN

## Colposcopic index (score)

a grading system used to evaluate the severity of the colposcopic findings

A number of scoring systems  
have been introduced:

- Coppleson & Pixley
- Burghardt
- Rubin & Barbo
- Reid

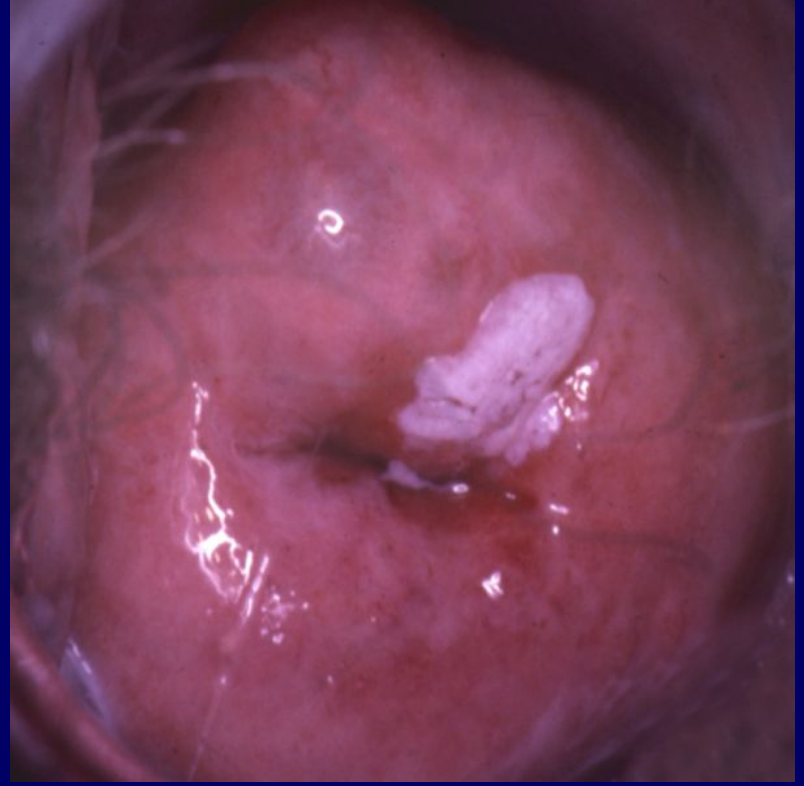
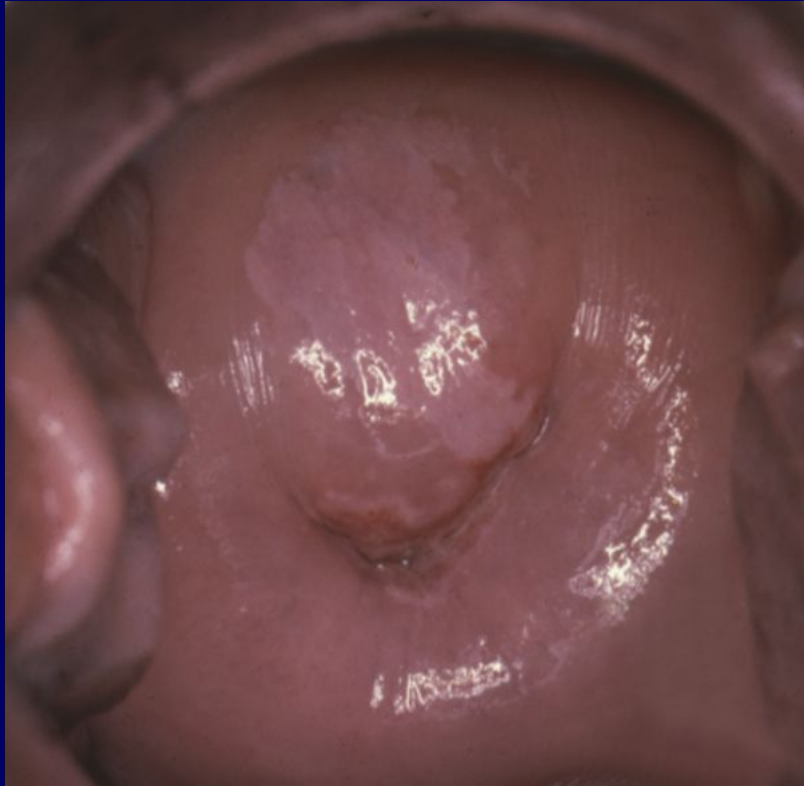
## Grading of colposcopic findings

- Vascular pattern
- Intercapillary distance
- Color tone and opacity
- Surface pattern
- Borders with normal tissue

## Colour

- Severe abnormalities become whiter than minor lesions
- They tend to become white more quickly
- Retain their whiteness longer than the mild lesions

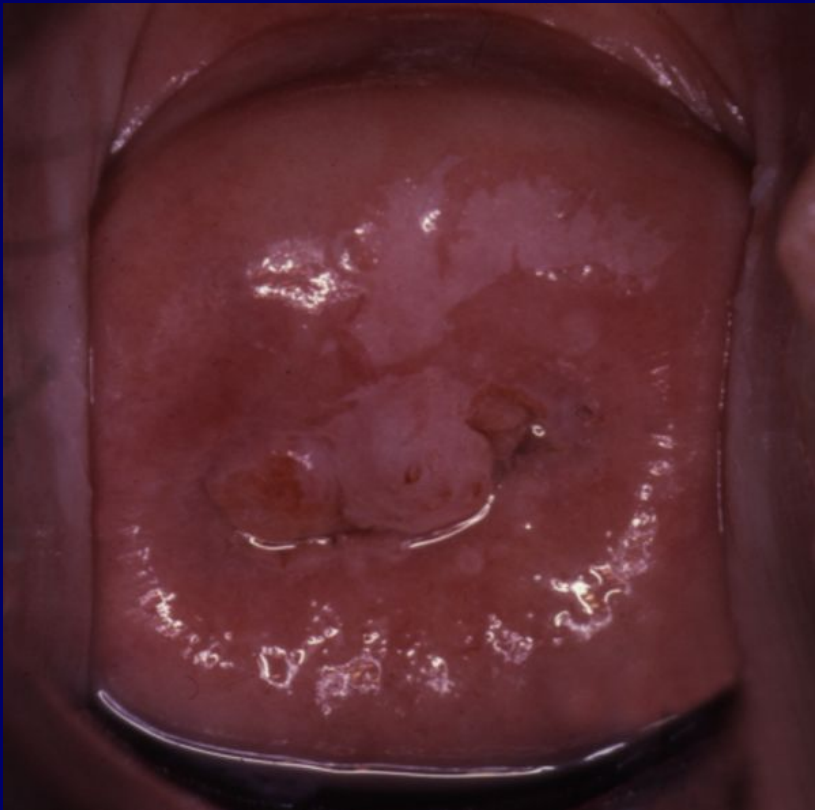




## Borders

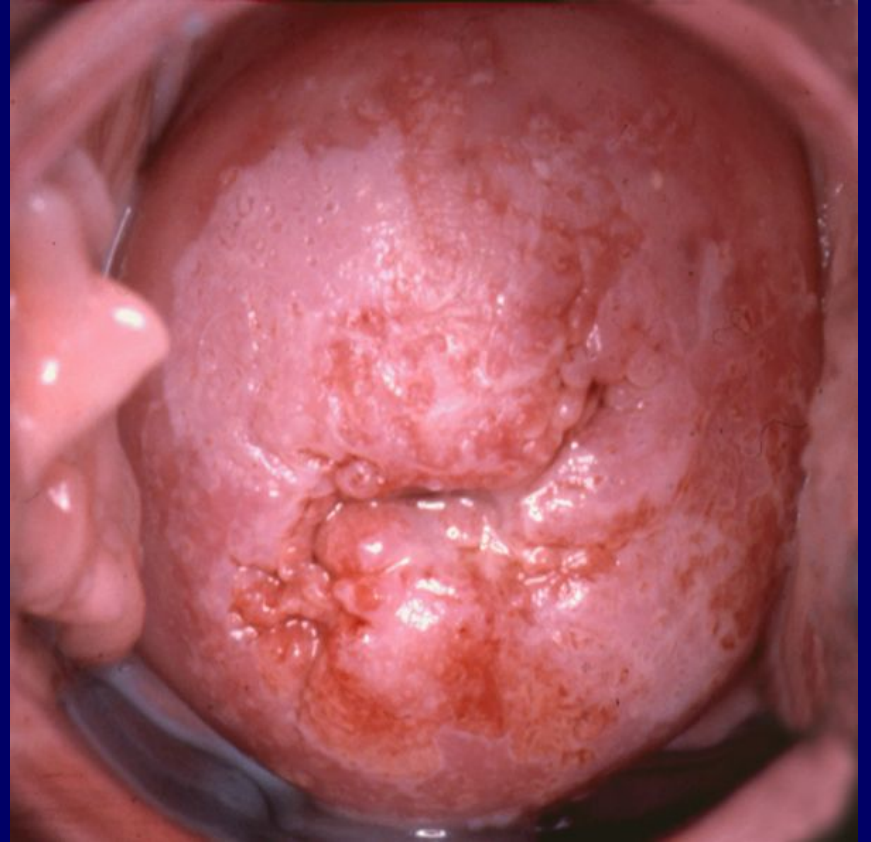
A clear zone of demarcation exists between the native squamous epithelium and high grade CIN lesion.

Mild changes usually have a less distinct outline



## Surface pattern

More uneven and elevated contours are,  
the higher grade the lesion is.

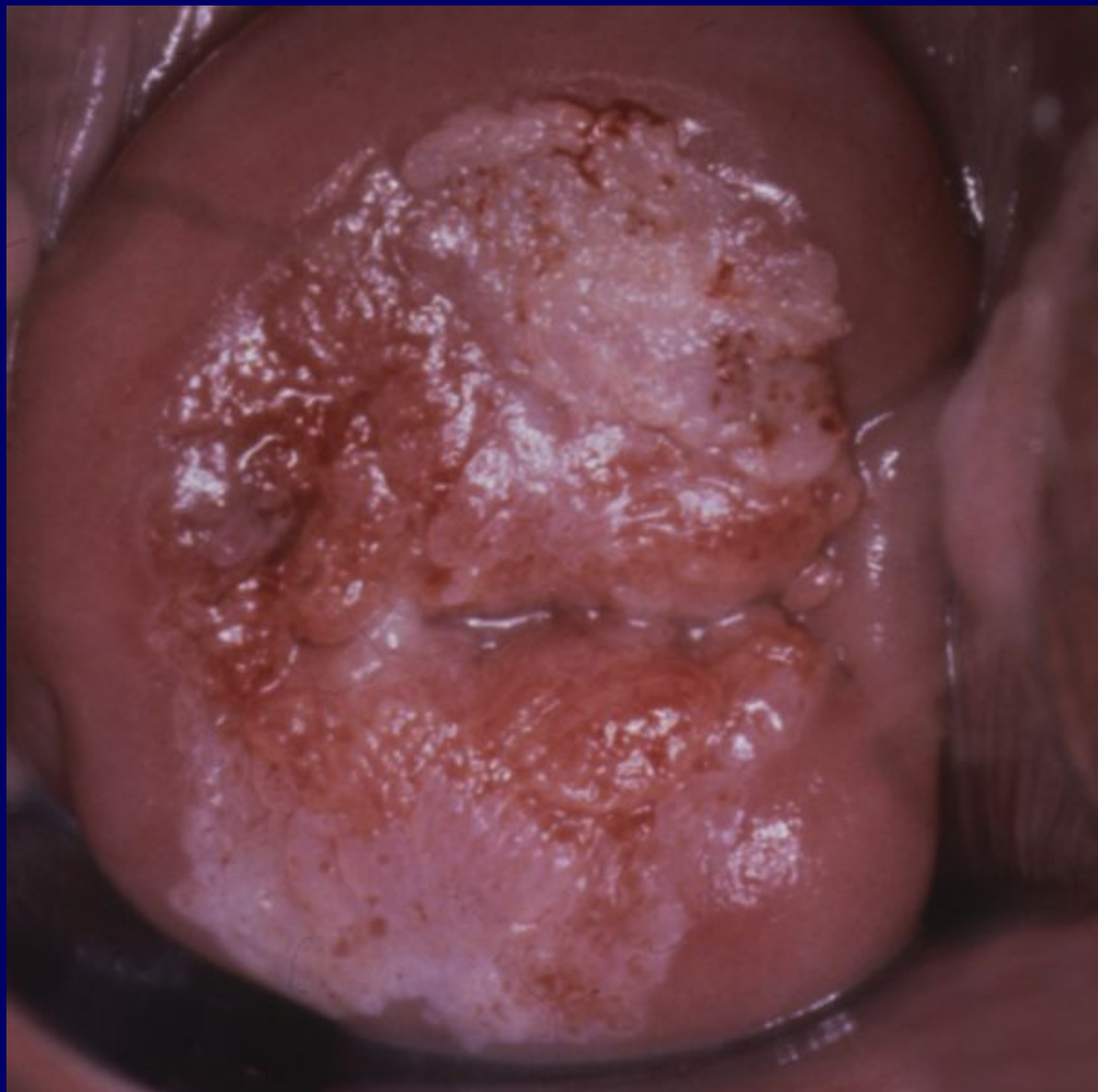


## Intercapillary distance

- Increases as the lesion becomes more severe.
- The larger vessels and further apart they lie,  
the more severe is the lesion

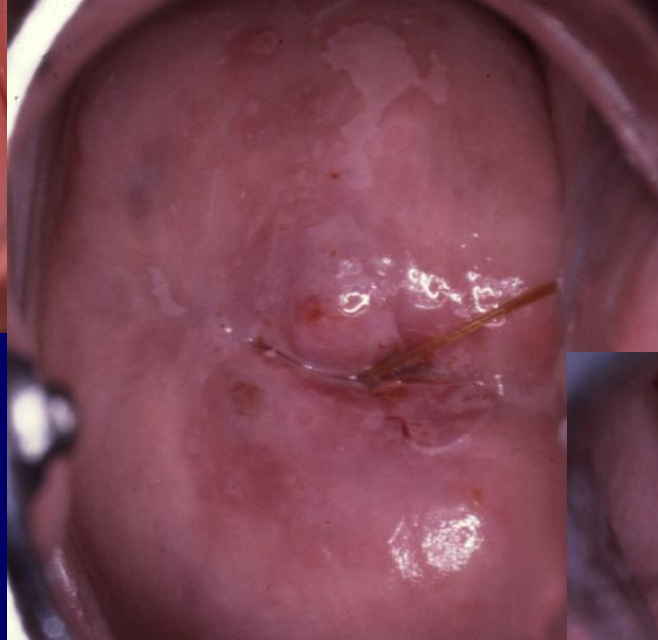
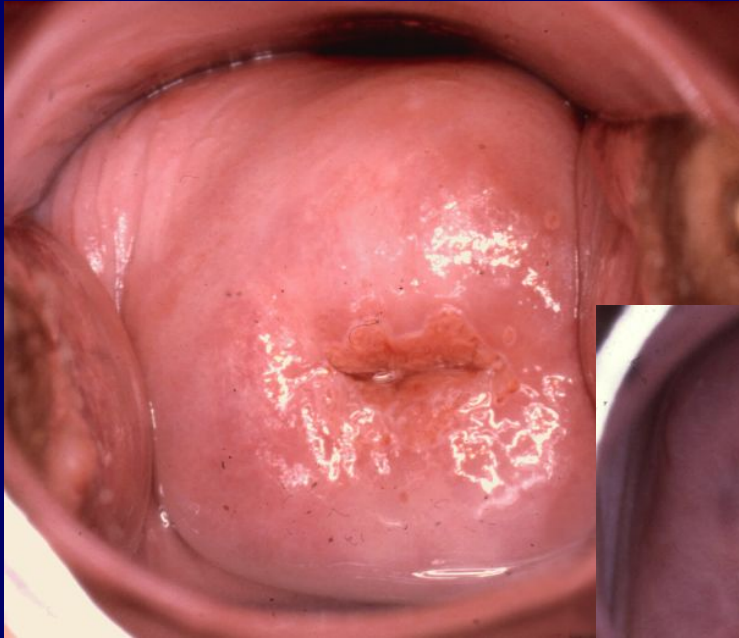






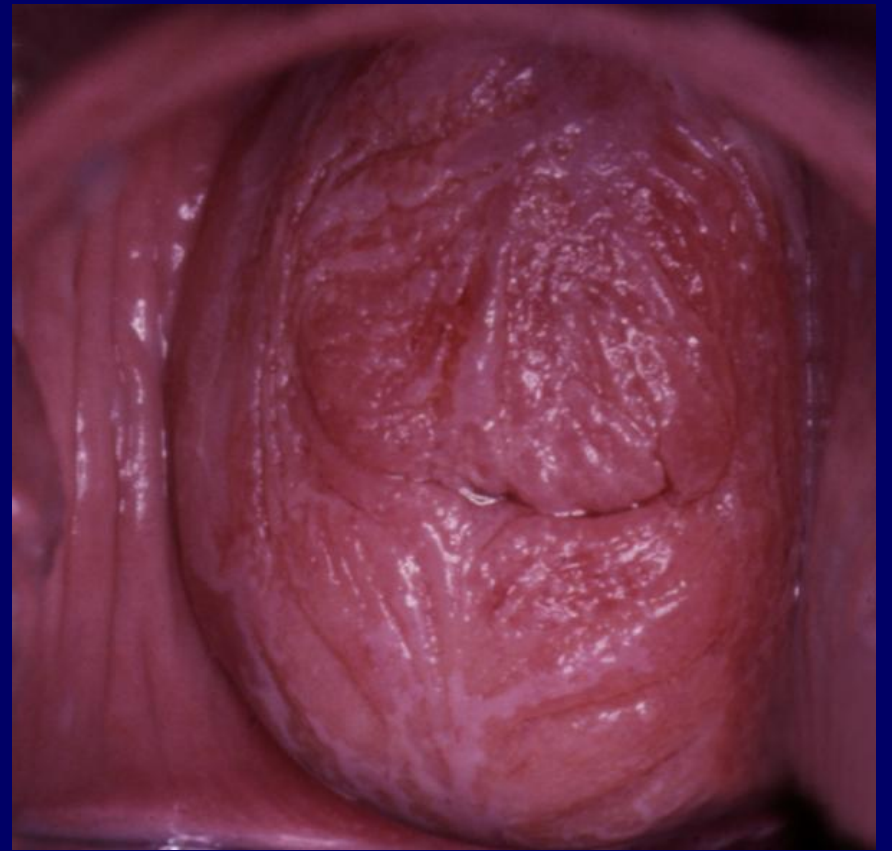
Ideally, colposcopic scoring should allow categorizing the colposcopic pattern as:

- Normal
- Insignificant
- Clinically significant

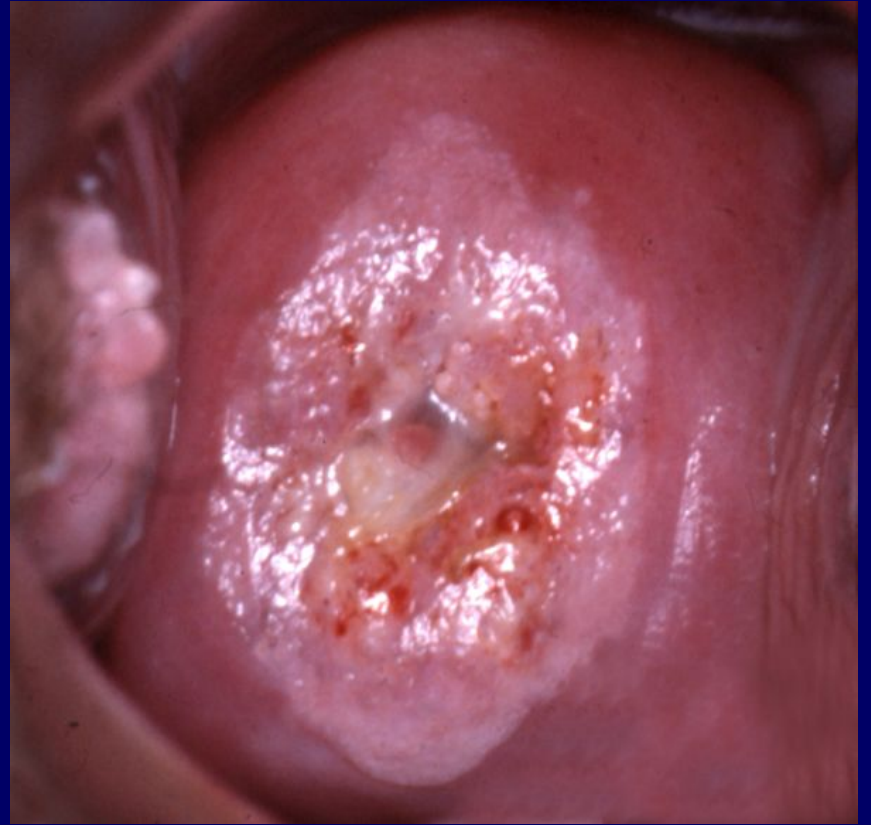
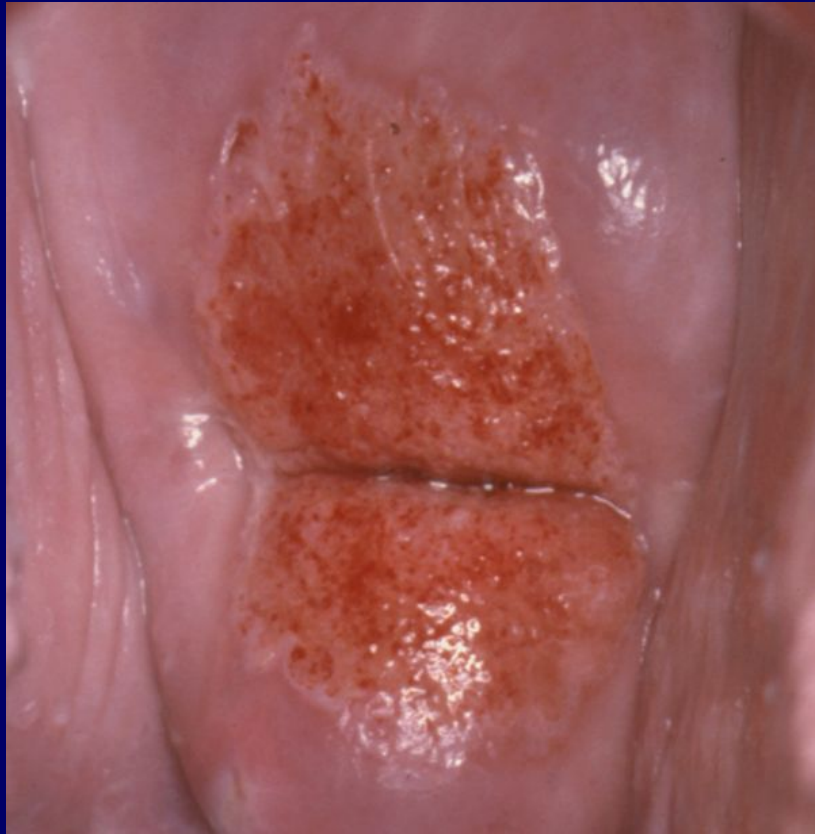


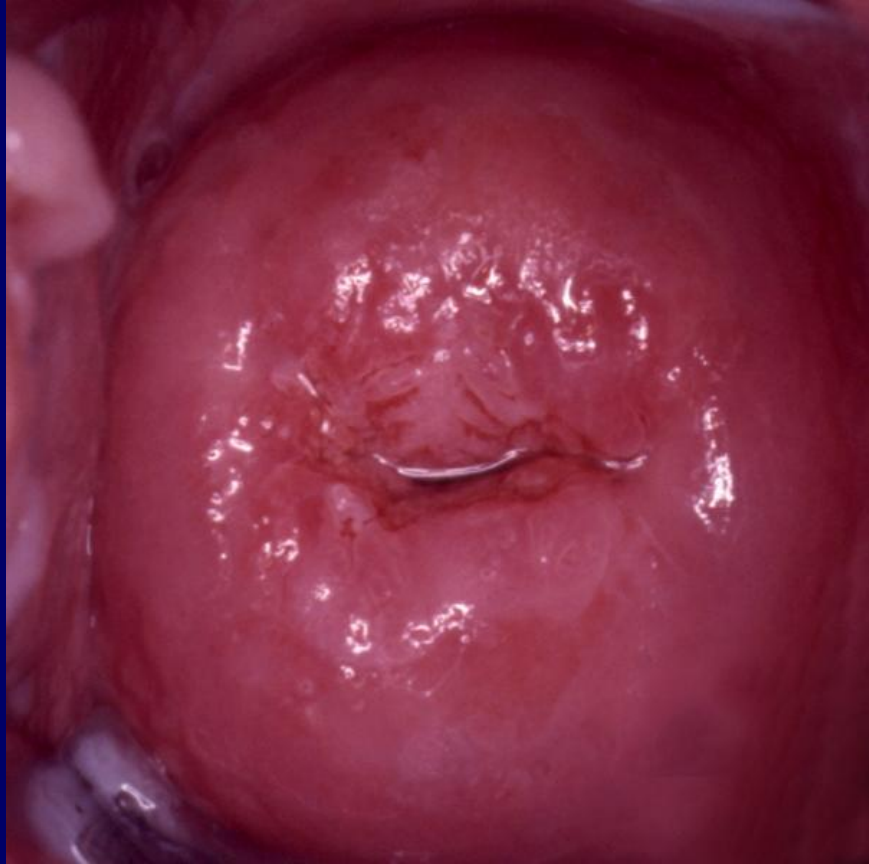
## Colposcopic features suggestive of metaplastic changes

- A smooth surface with fine, uniform-caliber vessels
- Mild acetowhite change
- Negative or partial positivity with Lugol's iodine











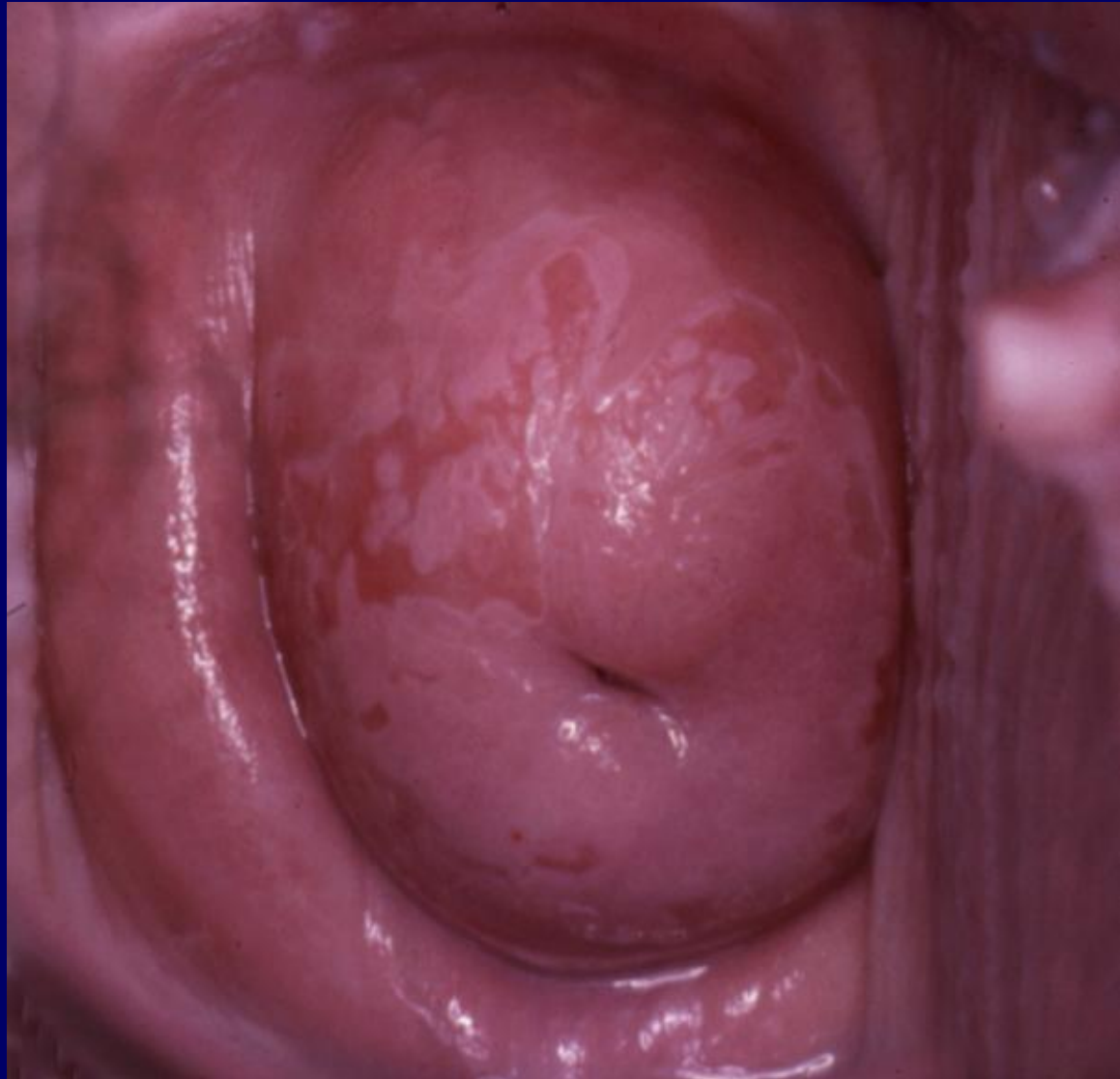
As the metaplastic cells transform into  
mature squamous cells,  
the coloration is indistinguishable from  
the mature ectocervix



Colposcopic features suggestive of  
**low grade disease**

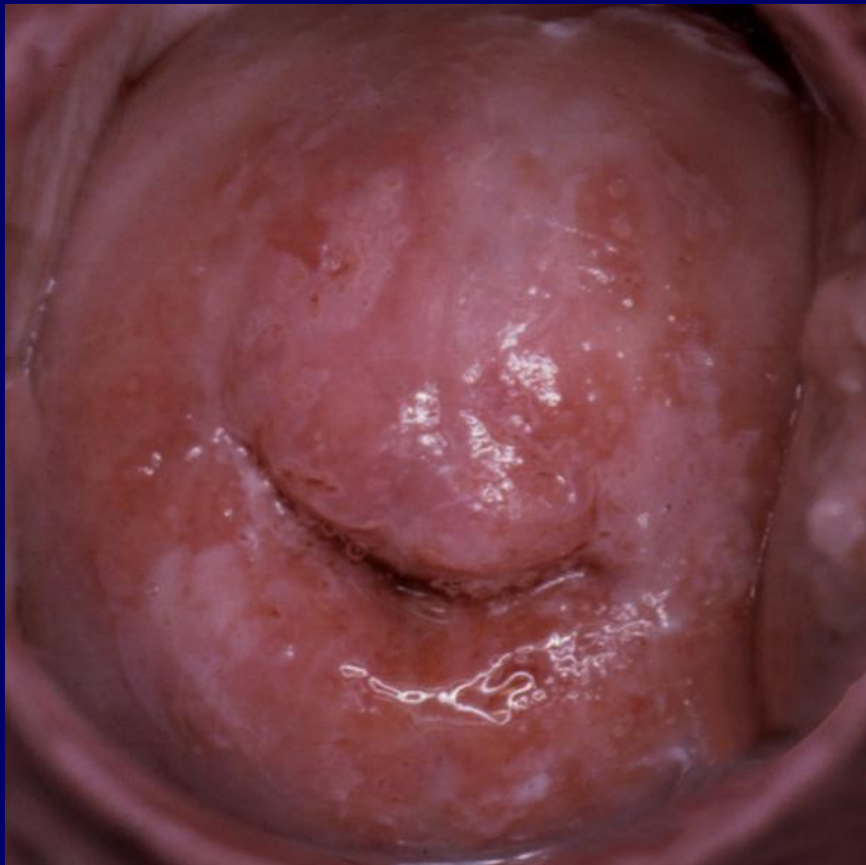
(minor changes)

- A smooth surface with an irregular outer border
- Slight acetowhite change  
    slow to appear and  
    quick to disappear
- Mild, often speckled iodine partial positivity
- Fine punctation and fine regular mosaic





The subtle differences between the features of squamous metaplasia and those of low-grade intraepithelial lesions make both the colposcopic and histologic diagnosis of these conditions difficult





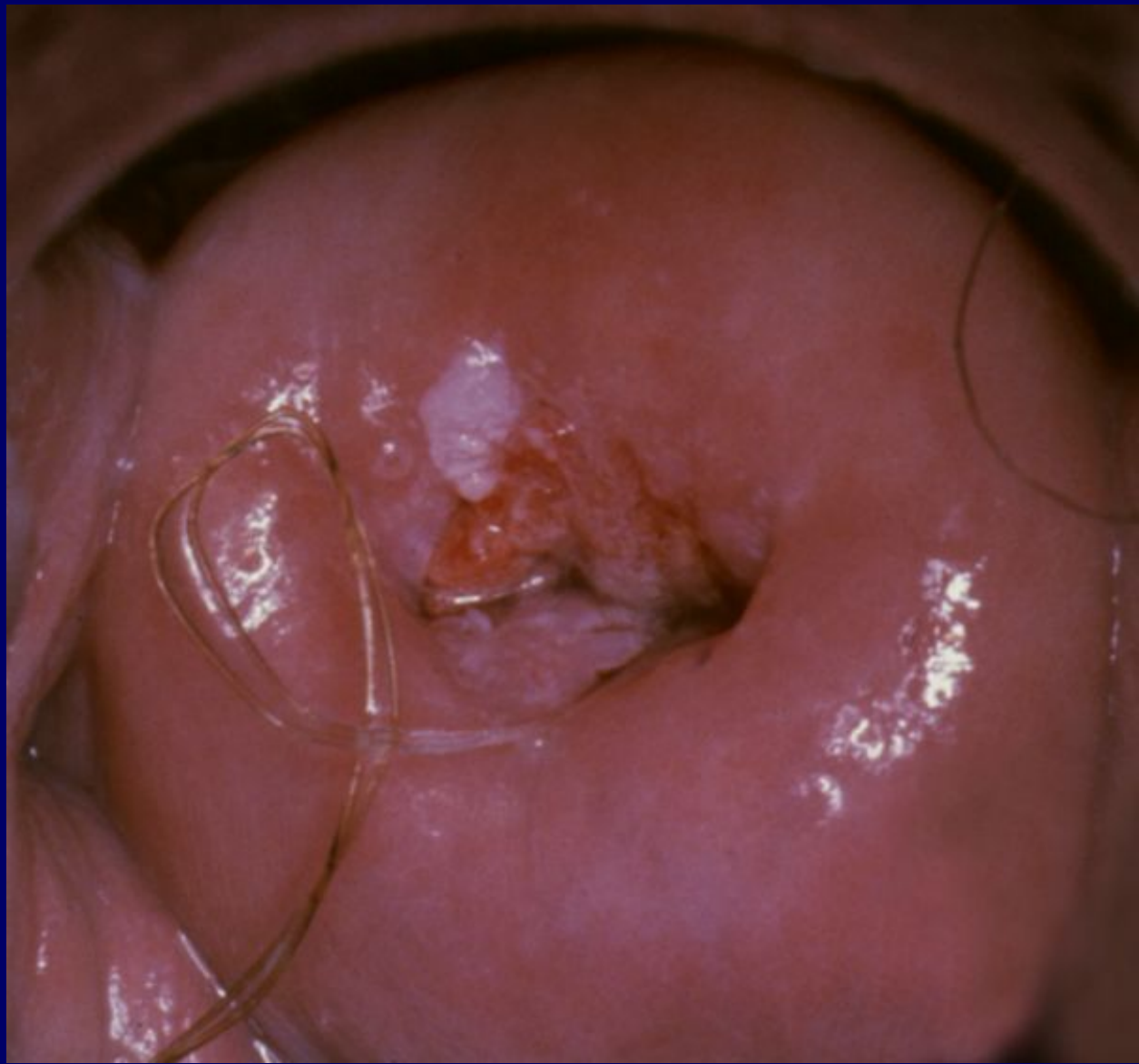
It is easier to determine that a cervix is either normal or very abnormal, than it is to distinguish between minor degrees of change

Misinterpretation of trivial changes  
as atypical findings can lead  
to mismanagement and  
overtreatment of the patient

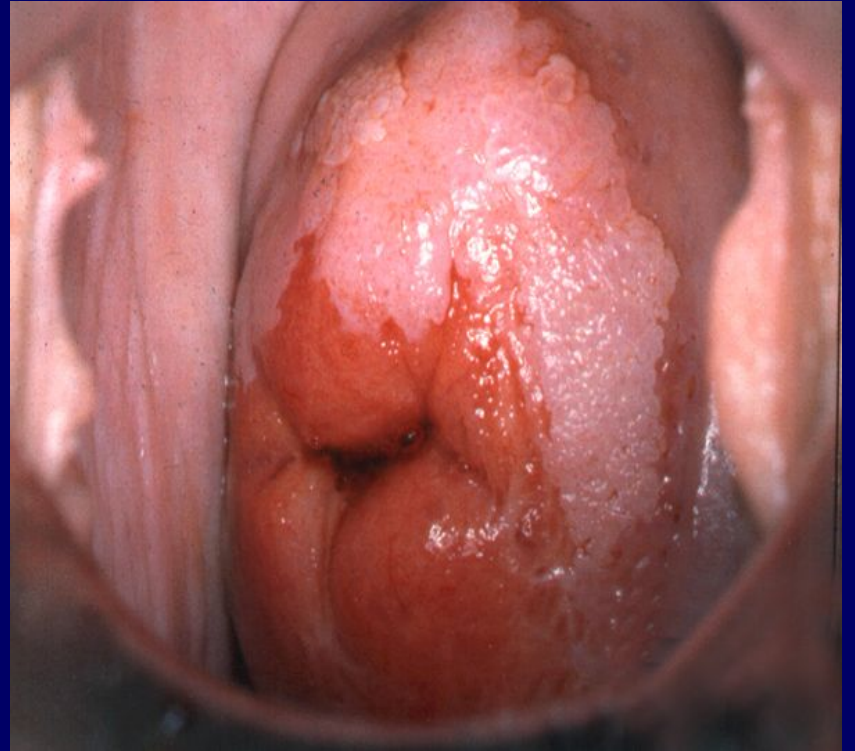
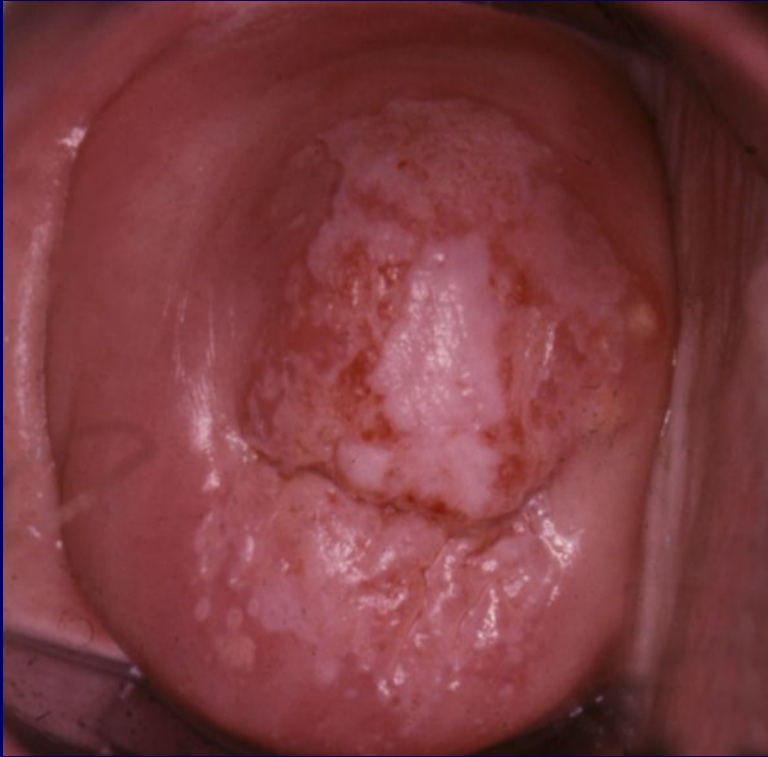
## Colposcopic features suggestive of **high- grade disease**

(major changes)

- A generally smooth surface with sharp outer border
- Dense acetowhite change, may be oyster white  
appears early  
slow to resolve
- Iodine negativity
- Coarse punctation and wide irregular mosaic of  
different sizes



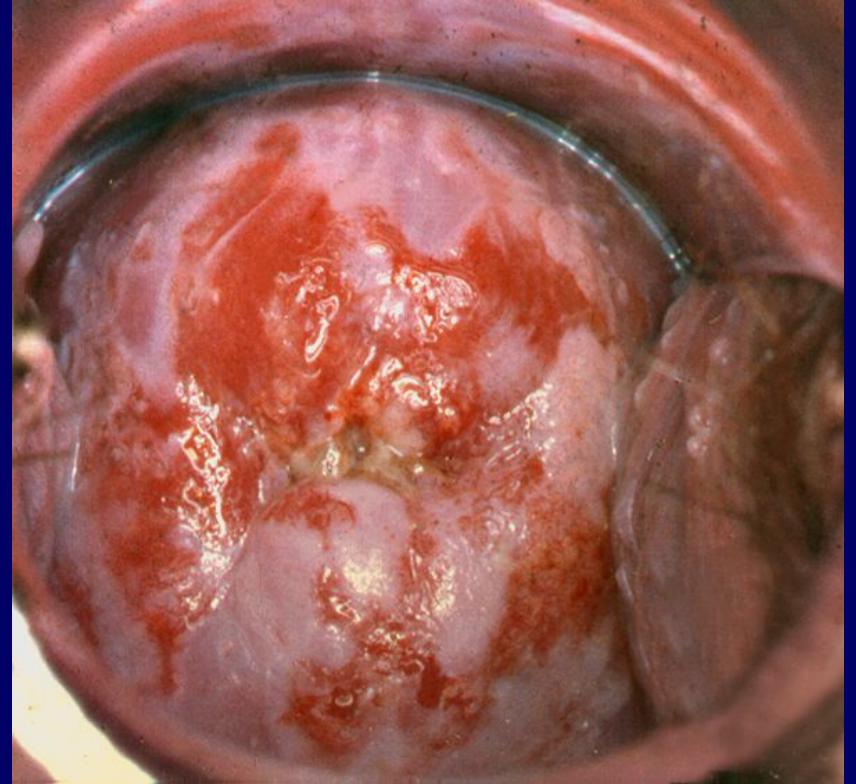
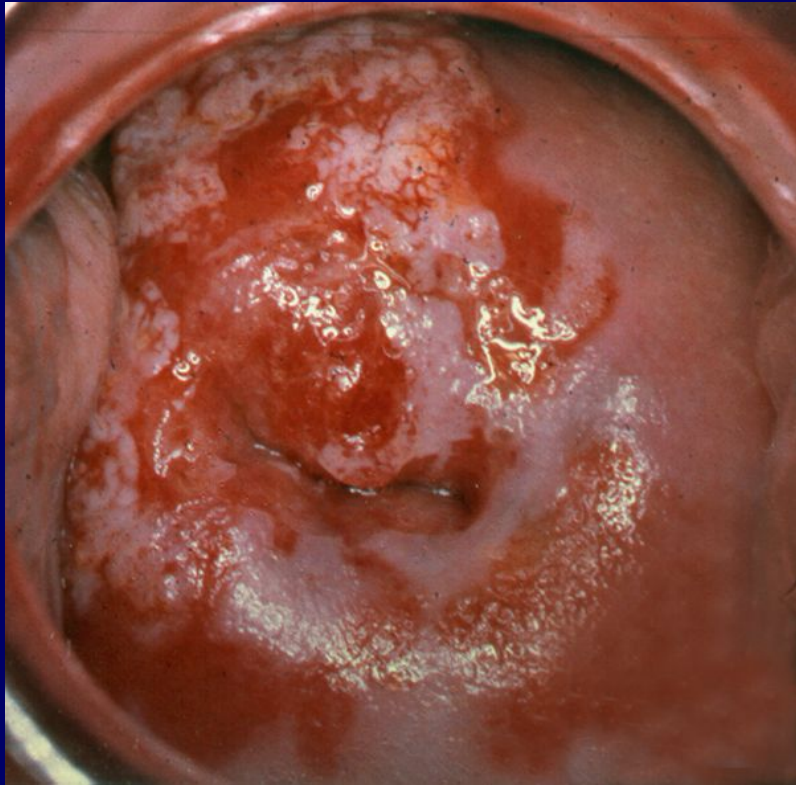


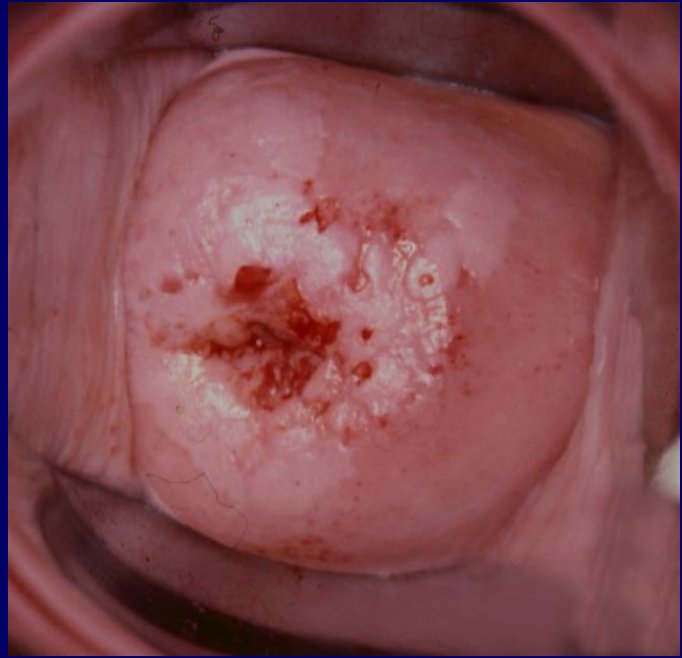
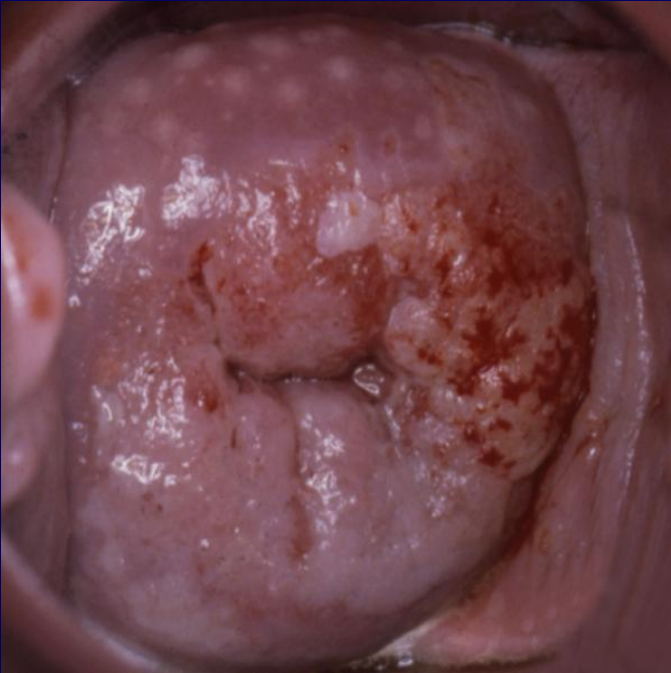


## Signs of microinvasion

- Yellow discoloration
- Ulceration
- Thickened areas
- Nodularity
- Abnormal vascularity
- Rapid increase in size





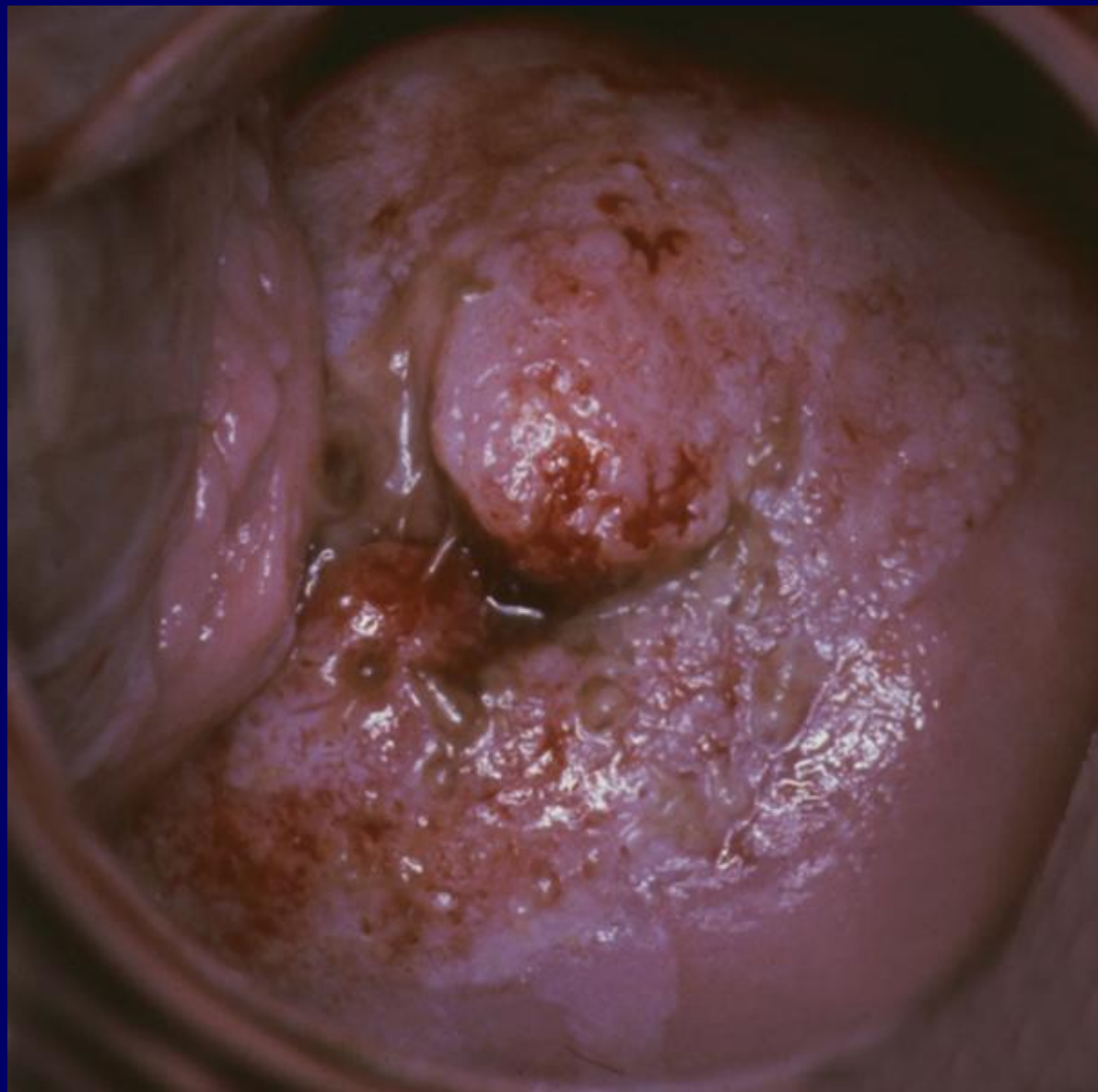


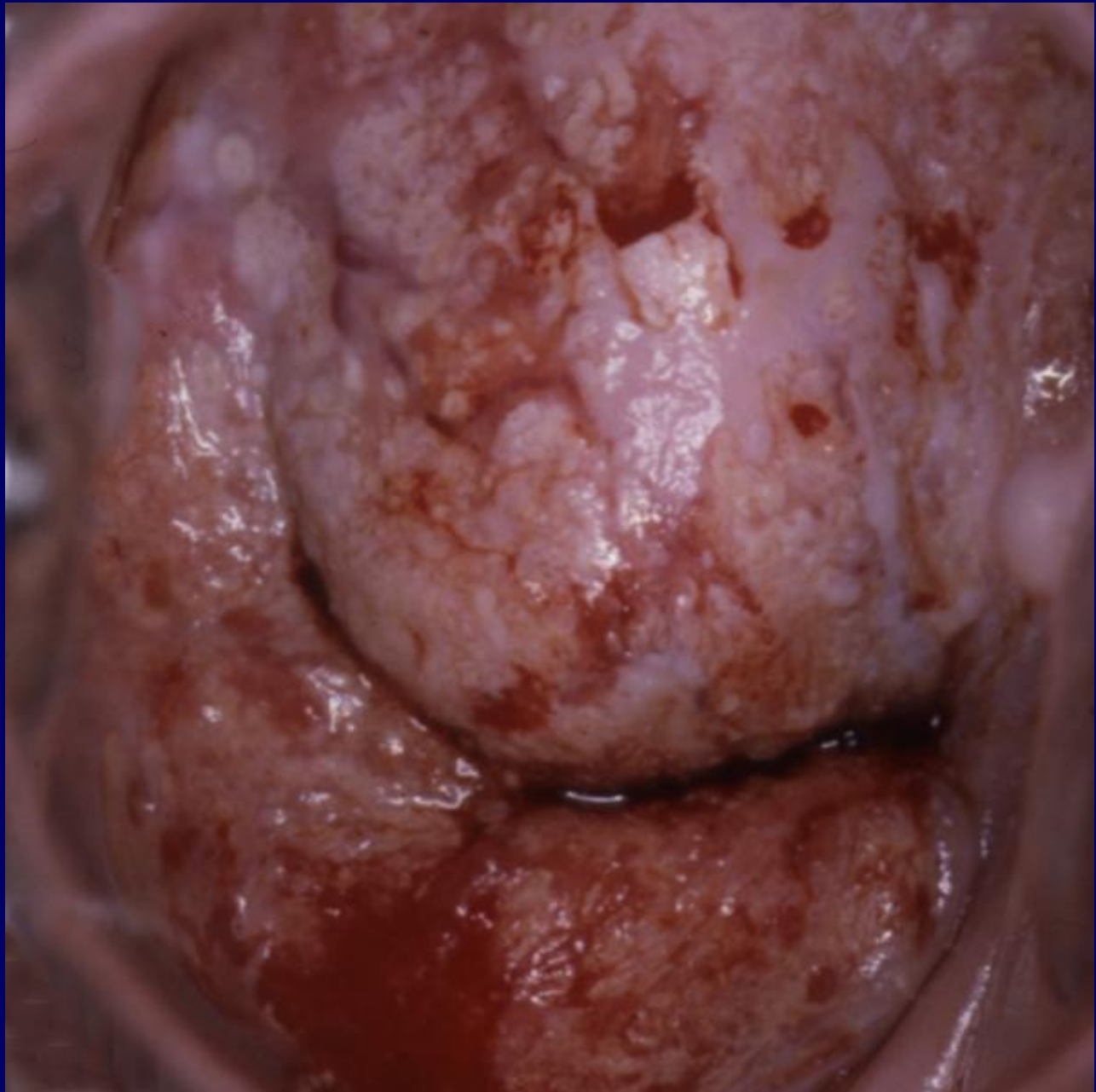
There is a direct relationship  
between the size of a lesion and  
the likelihood of invasion





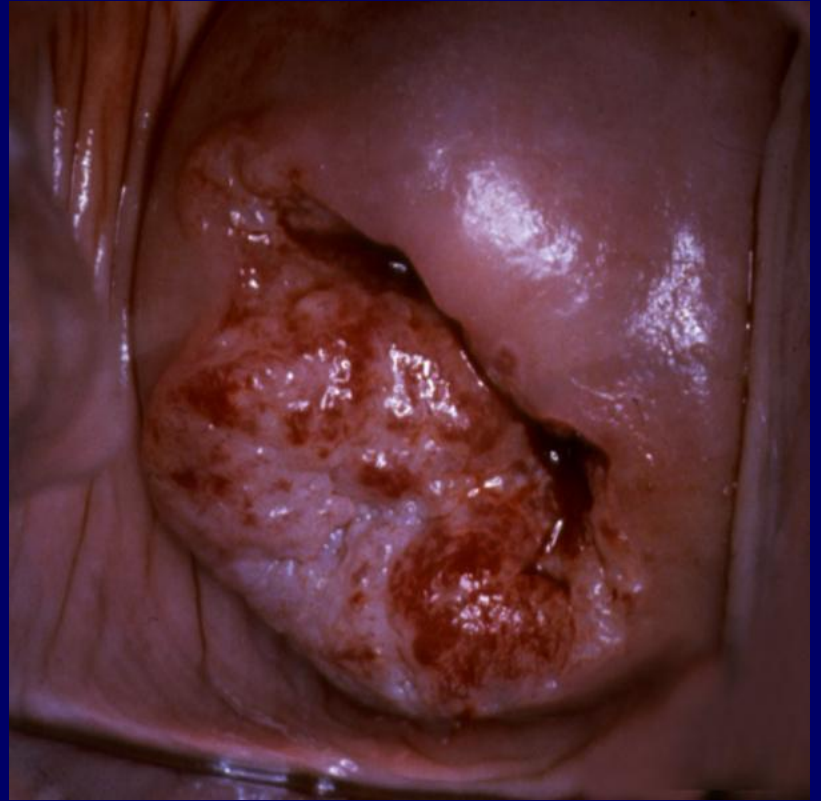
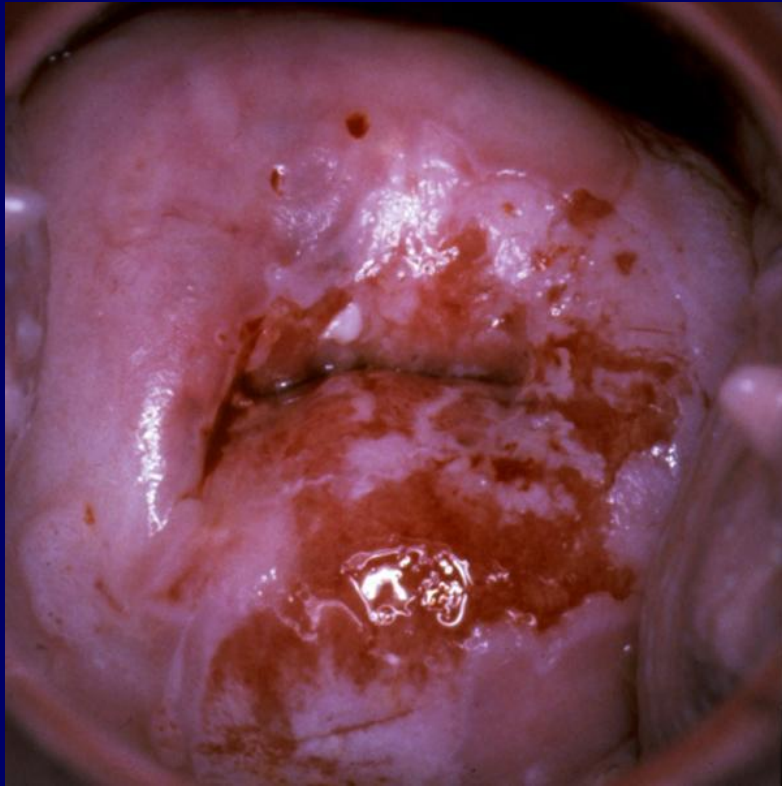
Early stromal invasion  
is more common when  
there are different types of epithelia  
(complex colposcopic changes)





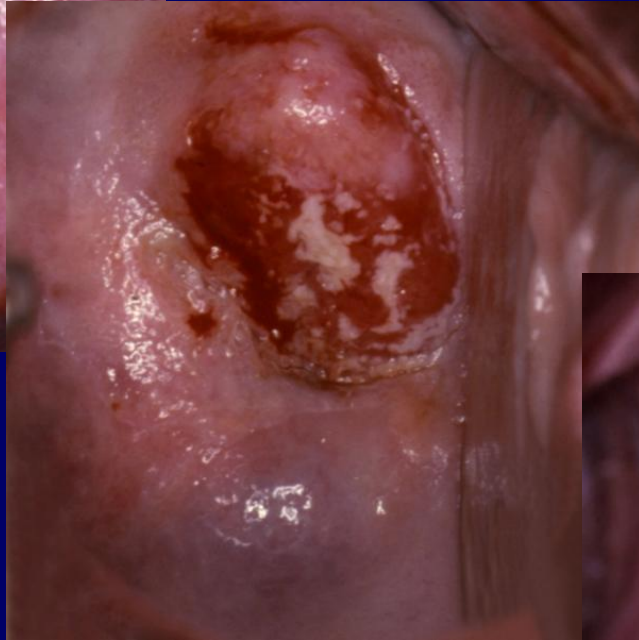
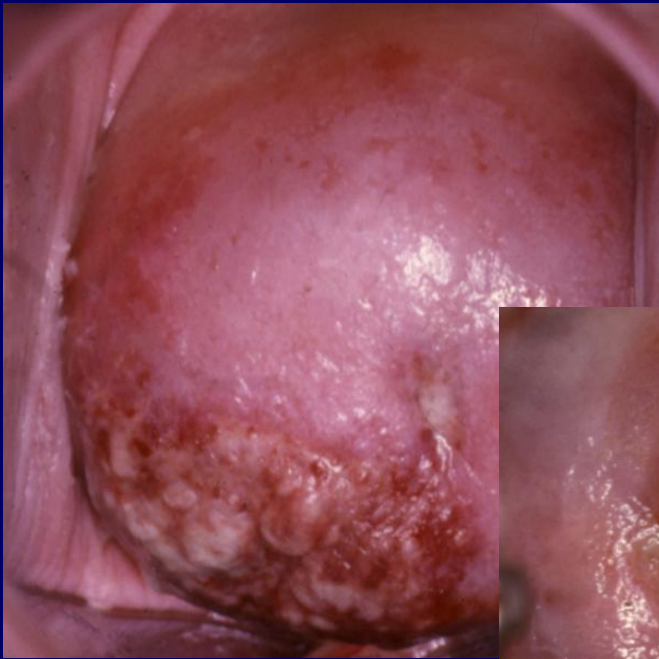


Microinvasion should be suspected  
when relatively flat lesions  
display focal collections of  
atypical vessels



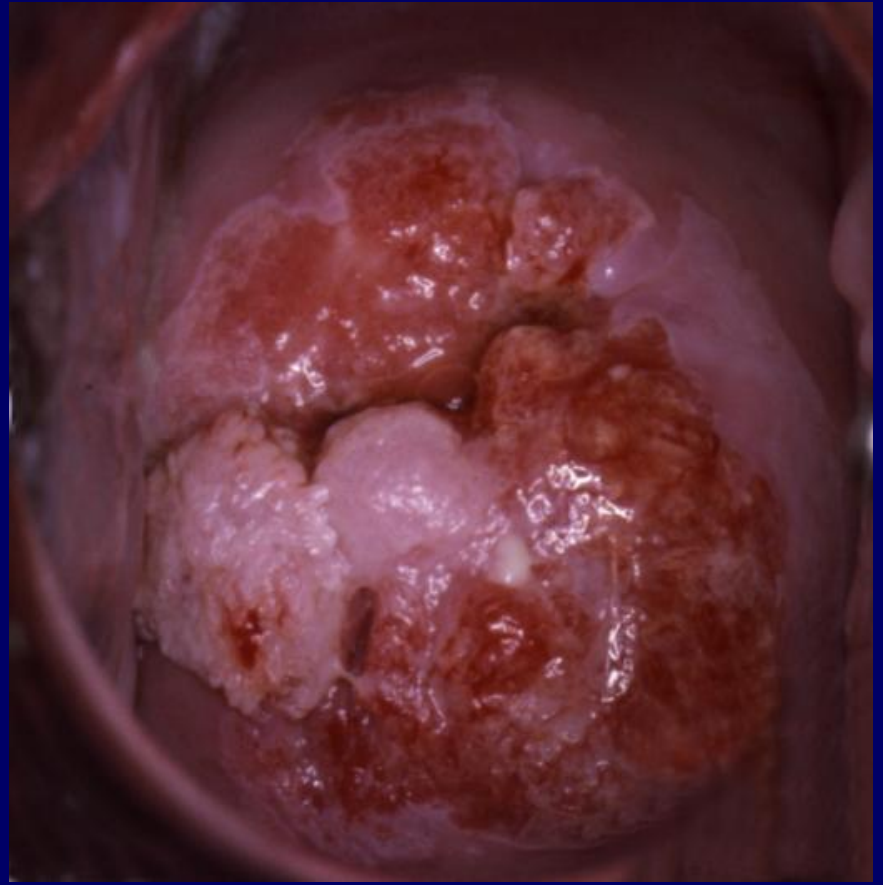
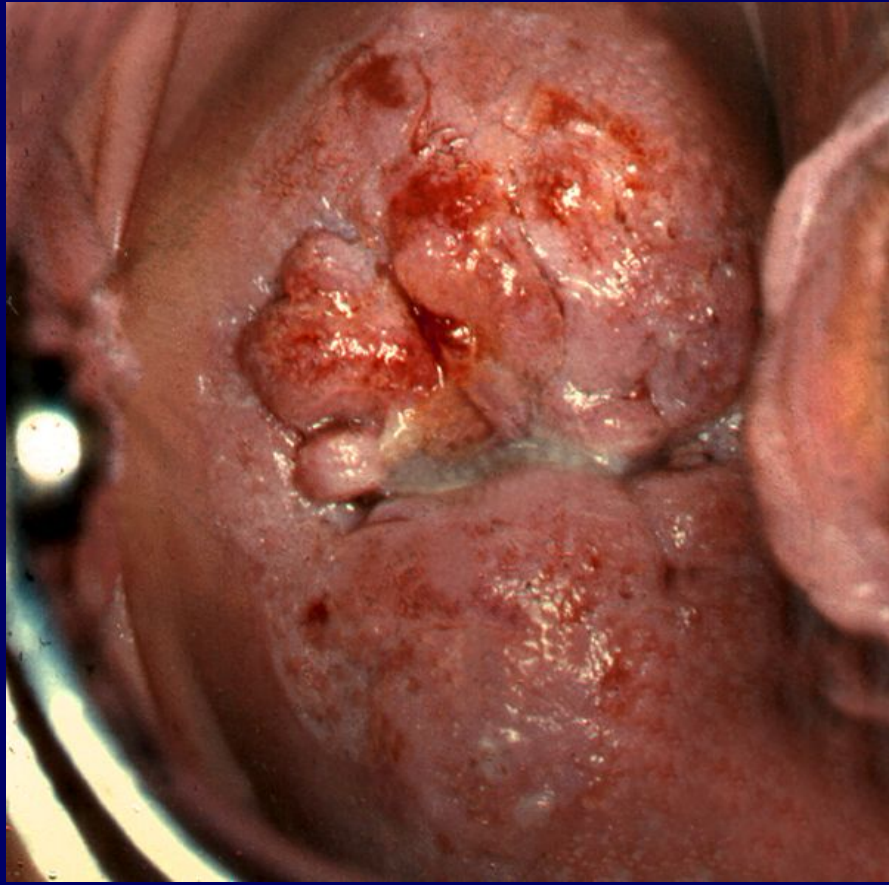
## Colposcopic features suggestive of invasive cancer

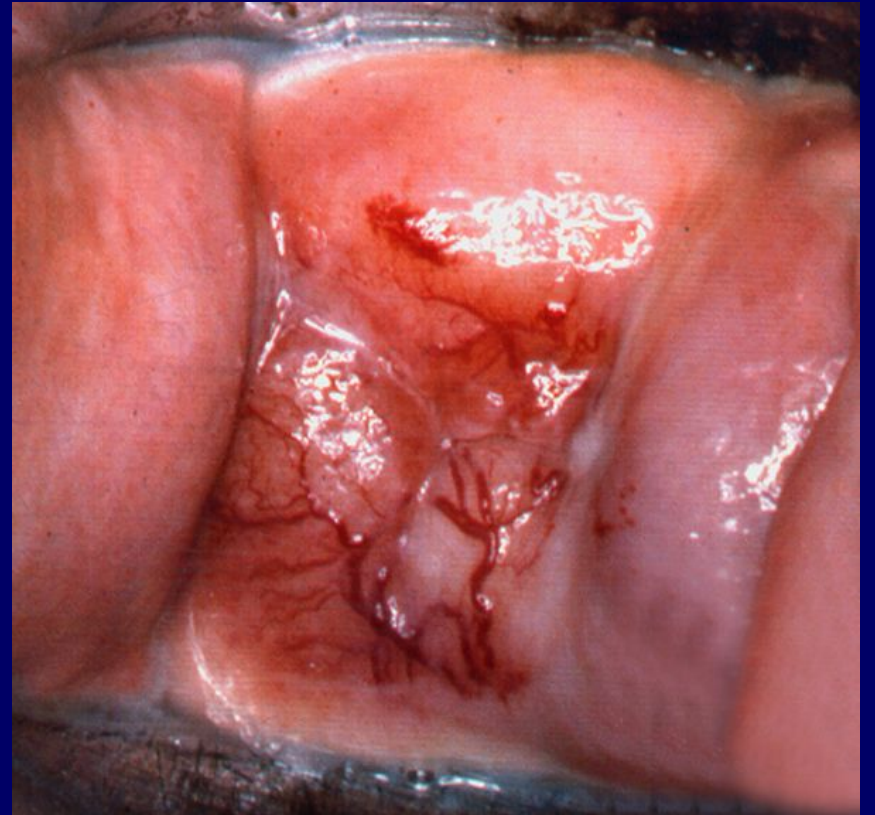
- Irregular surface, erosion or ulceration
- Dense acetowhite change
- Wide irregular punctation and mosaic
- Atypical vessels



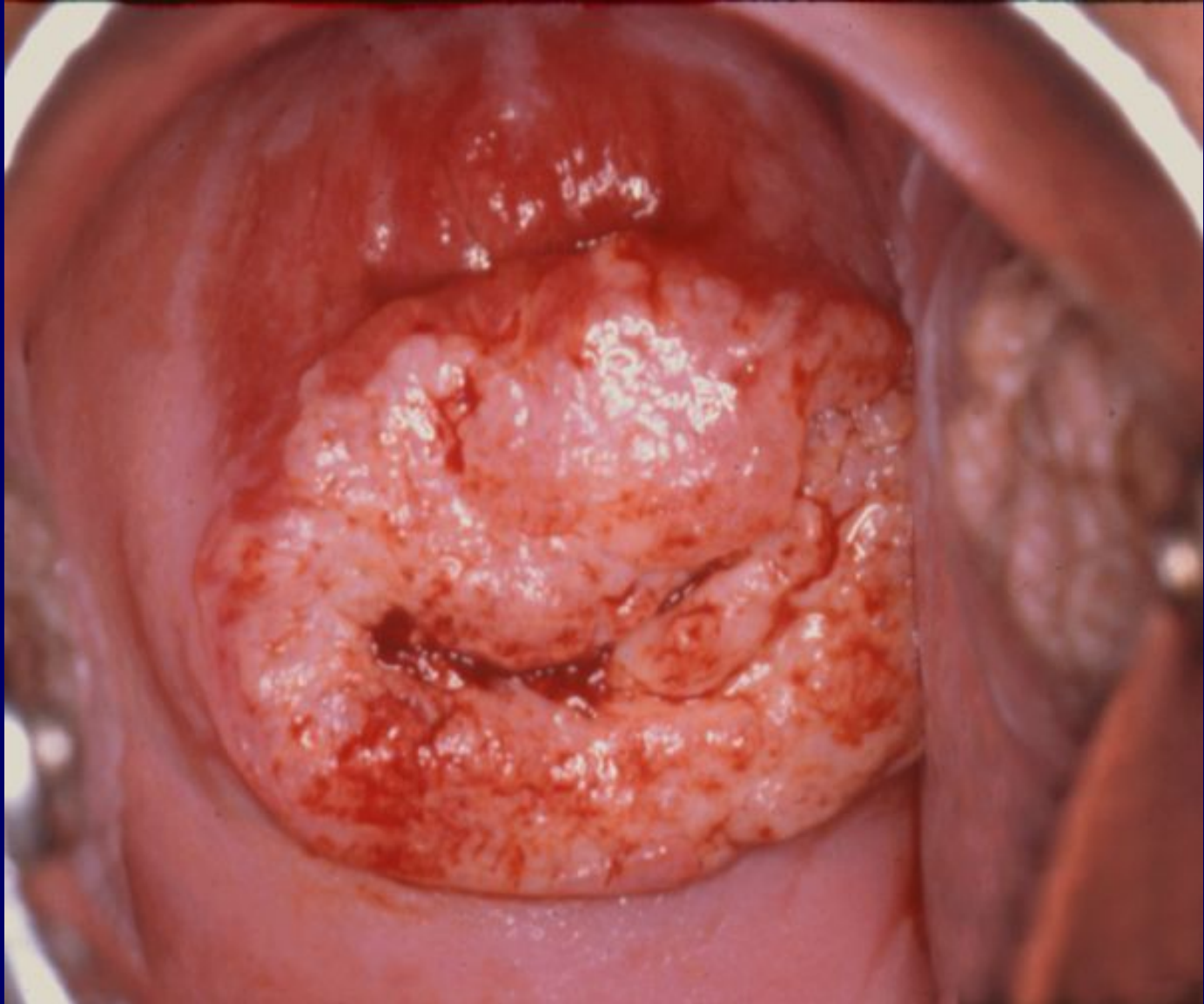


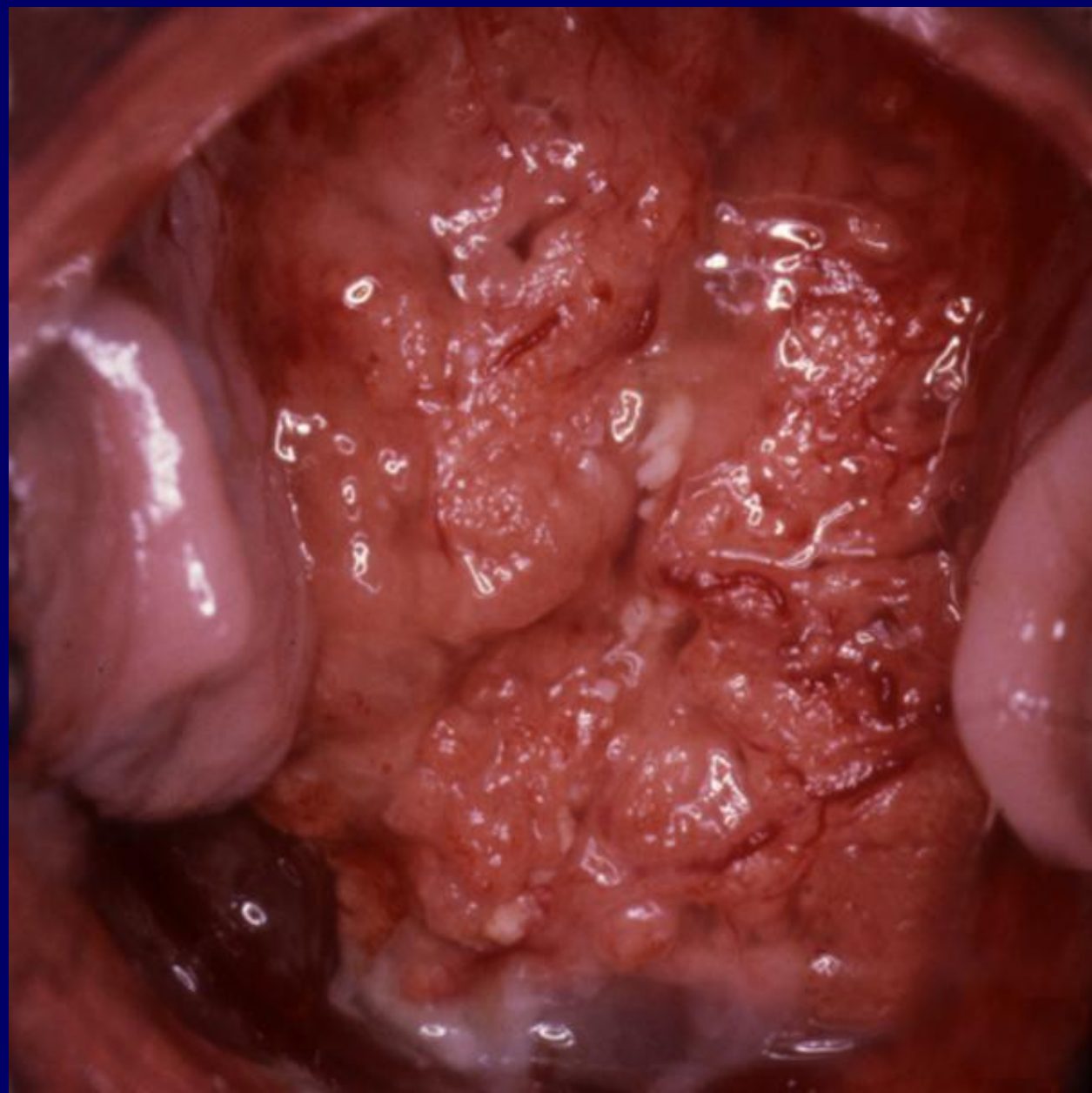


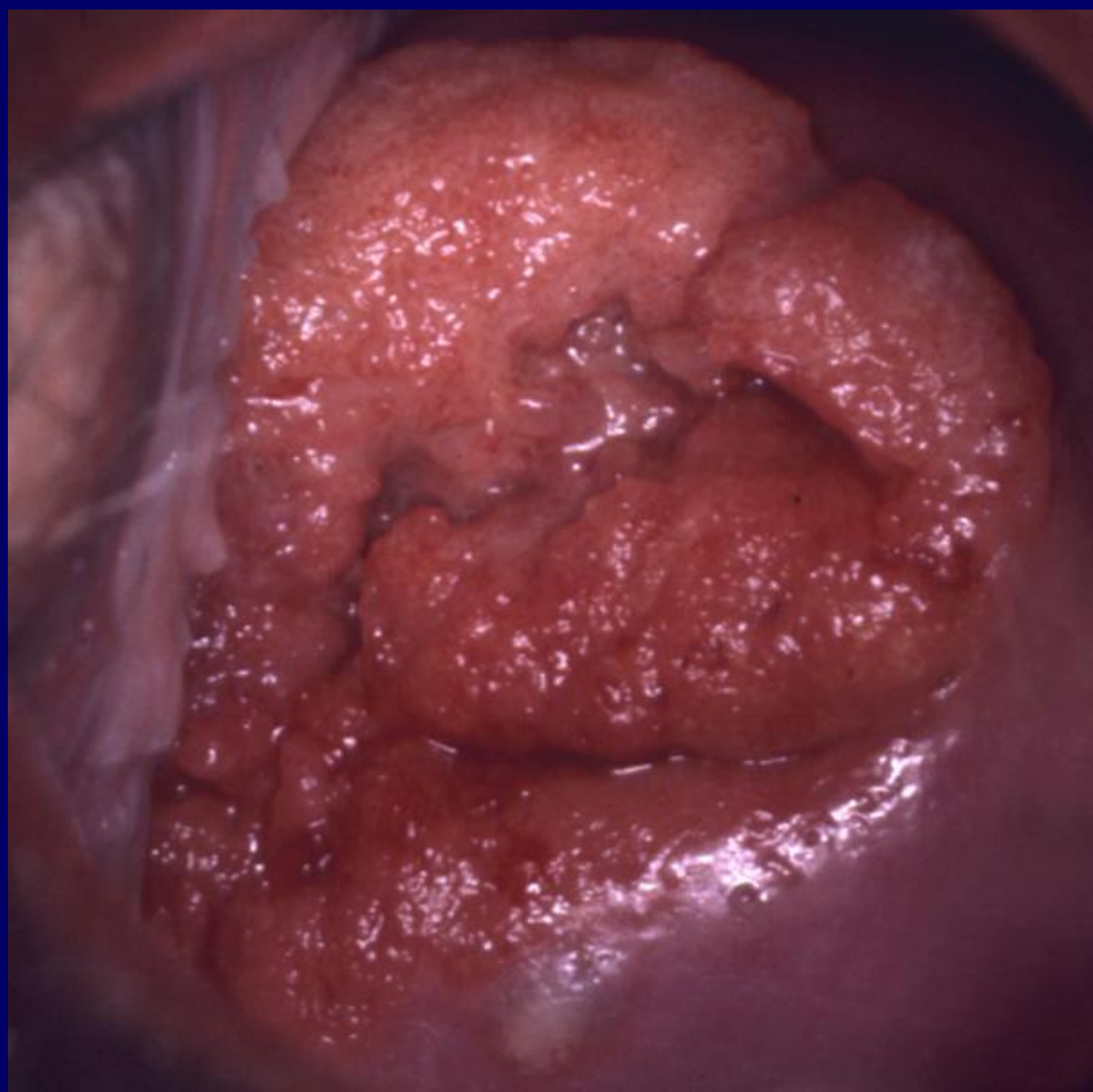
















In most cases  
biopsy is mandatory to establish  
the correct diagnosis

The primary goal of the colposcopist is  
to ensure that  
invasive disease is not missed