Colposcopic Appearances, Normal and Abnormal Cervix

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Transformation Zone

Metaplastic squamous epithelium
Abnormal (atypical) epithelium
Transformation Zone
Transformation Zone

- pre-puberty
- menopause
Transformation Zone

- reproductive age
Transformation Zone

- pregnancy
- ectropian
Normal Cervix
Normal Cervix
Normal Squamous Epithelium

pink and smooth epithelium
Normal Columnar Epithelium

grape like or villous appearance, villi turns white with acetic acid
Squamo-columnar Junction
Normal Capillaries

irregular branching pattern, branches decrease stepwise in diameter
Metaplasia

• Greek: change in form

• a reversible process to replace one differentiated cell type with another mature differentiated cell type

• the change from one type of cell to another may generally be a part of normal maturation process or caused by some sort of abnormal stimulus
Metaplasia

• in simplistic terms, if the original cells are not strong enough to withstand the new environment, they change into another type more suited to the new environment

• if the stimulus that caused mataplasia is removed or ceases, tissues return to their normal pattern of differentiation

• metaplasia ≠ dysplasia, and is not directly considered carcinogenic
Immature Metaplasia

- a process of being transformed from columnar to squamous epithelium
- acetowhite epithelium (ghost white)
- sometimes need biopsy to differentiate between metaplasia and cervical neoplasia
Immature Metaplasia

without acetic acid

with acetic acid (ghost white)
Immature Metaplasia

with Lugol’s Iodine
Immature Metaplasia

before acetic acid

applied acetic acid
White Gland Openings
Nabothian Cyst

- a mucus filled cyst on the surface of the cervix
Nabothian Cyst
Nabothian Cyst

smooth epithelium, normal branching vessels
Nabothian Cyst
Endocervical Polyp

arise from endocervical epithelium covered by immature metaplasia
Post-menopausal cervix

pale and thin atrophic epithelium
Post-menopausal cervix

transformation zone retracted into canal
Post-menopausal cervix

pinpoint os
Abnormal Colposcopic Features
Abnormal epithelium or Dysplasia
Grading Lesions

Less Severe >> >> >> More Severe

mild acetowhite ▶ intensely acetowhite

no blood vessel pattern ▶ punctation ▶ mosaic

diffuse vague borders ▶ sharp demarcated borders

normal contours of cervix ▶ cuffing

normal iodine reaction (dark) ▶ iodine negative (yellow)
Reid Colposcopic Index

1. sharpness of margins
2. epithelial colour
3. vascular pattern
4. iodine staining

- 0 to 2 scores for each assessment criteria
Acetic Acid Technique
Acetowhite Lesion

• a transient, white appearing epithelium following the application of acetic acid

• areas of aceto-whiteness correlate with higher nuclear density
## Colour

<table>
<thead>
<tr>
<th>0 point</th>
<th>1 point</th>
<th>2 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>shiny, snow-white,</td>
<td>shiny, grey white, intermediate</td>
<td>dull, oyster grey</td>
</tr>
<tr>
<td>semi-transparent</td>
<td>white</td>
<td></td>
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<tr>
<td></td>
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</tr>
</tbody>
</table>


Acetowhite Lesion

- epithelial changes that may be acetowhite
  - cervical intraepithelial neoplasia
  - human papillomavirus infection
  - combine CIN and HPV
  - immature squamous metaplasia
  - healing / regenerating epithelium
  - congenital transformation zone
  - inflammation
  - adenocarcinoma
  - invasive squamous cell carcinoma
Semi-transparent Lesions
Semi-transparent Lesions
Snowy White Lesion
Snowy White Lesion
Oyster Gray
Oyster Gray vs Snowy White
<table>
<thead>
<tr>
<th>0 point</th>
<th>1 point</th>
<th>2 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>condylomatous &amp; micropapillary structure, feathered margin, jagged edge</td>
<td>regular and smooth outline</td>
<td>rolled peeled edge, internal borders</td>
</tr>
</tbody>
</table>
Feathered Border
Regular Margin
Jagged Edge
Internal Border
Peeled Off
Peeled Off
## Vessels

<table>
<thead>
<tr>
<th>0 point</th>
<th>1 point</th>
<th>2 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>uniform and fine</td>
<td>absence of surface vessels</td>
<td>punctuation, mosaic pattern</td>
</tr>
</tbody>
</table>
Green Filter
Green Filter
Green Filter
Punctuation

- A stippled appearance to capillaries seen end-on, often found within acetowhite area appearing as fine to coarse red dots.
Punctuation

Punctuation in Cross-section

Vessels
Punctuation
Punctuation
Punctuation
Mosaicism
Mosaicism

- an abnormal pattern of small blood vessels suggesting a confluence of “tile” or “chickenwire” reddish borders
Mosaicism
Coarse Mosaicism
Fine Mosaic Pattern
Fine Mosaic Pattern
Fine Mosaic Pattern
Cuffing
Cuffing
Atypical Vessels

- atypical, irregular vessels with abrupt courses and pattern
- often appearing as commas, corkscrews, or spaghetti
- no definite pattern is recognised, suspect invasive cancer
Atypical Vessels
Atypical Vessels
CIN 1

CIN1 with geographic outline
CIN  III

CIN3: dense white, irregular surface, with punctomosaic
Squamous Cell Carcinoma
Squamous Cell Carcinoma
Squamous Cell Carcinoma
## Iodine Staining

<table>
<thead>
<tr>
<th>0 point</th>
<th>1 point</th>
<th>2 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>brown, yellow staining in areas appeared to be low grade</td>
<td>partial iodine uptake</td>
<td>yellow staining in areas suggestive of high grade lesion</td>
</tr>
</tbody>
</table>
Iodine Negative Lesion
Iodine Negative Lesion
Iodine Negative Lesions
Grading Lesions

Less Severe >> >> >> >> More Severe

- mild acetowhite > intensely acetowhite
- no blood vessel pattern > punctation > mosaic
- diffuse vague borders > sharp demarcated borders
- Normal contours of cervix > cuffing
- Normal iodine reaction (dark) > iodine negative (yellow)
# Reid Colposcopic Index

<table>
<thead>
<tr>
<th>0 - 2 point</th>
<th>3 - 4 point</th>
<th>5 - 8 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPV or CIN I</td>
<td>CIN I or CIN2</td>
<td>CIN II or III</td>
</tr>
</tbody>
</table>

Infections
Human Papillomavirus – cervical condyloma
Human Papillomavirus – cervical condyloma
Human Papillomavirus – micropapillary lesion
Human Papillomavirus –
cervical condyloma
Human Papillomavirus – cervical condyloma with dense hyperkeratotic surface (without acetic acid)
Trichomonas Infections-
Strawberry patches
Trichomonas Infections-
Strawberry patches (Lugol’s Iodine)
Thank You

References