Chapter 10

Avoiding errors in the colposcopic assessment of the cervix and colposcopic provisional diagnosis

- A thorough knowledge of anatomy, pathophysiology and natural history of diseases of the female genital tract is essential to avoid errors in colposcopic assessment.

- Strict adherence to a diagnostic protocol and an awareness of the limitations of colposcopy are equally important.

- Regular interaction with the pathologists and clinical audits help to improve the quality of colposcopy.

- We encourage arriving at a provisional diagnosis, based on the colposcopic findings.

An adequate knowledge of pathophysiology and understanding of the natural history of diseases of the female genital tract that can be diagnosed with the colposcope and then treated are essential for satisfactory performance of colposcopy. A thorough knowledge of instrumentation, methods of examination and terminology is equally important. A high degree of accuracy in diagnosing cervical intraepithelial neoplasia (CIN) and ruling out invasive cancer may be achieved with good clinical judgement. Scrupulous adherence to a diagnostic protocol and awareness of the limitations and pitfalls of colposcopy are important.

Errors are commonly committed due to a lack of awareness and to deviation from established colposcopic protocol and practice. Good training, experience, an innate interest, and an established diagnostic algorithm will diminish the possibility of errors. These factors are particularly important in low-resource environments, where there are limited opportunities for mutual consultations and continuing education. The colposcopist should try to achieve the same degree of accuracy as a histopathologist can achieve with cervical conization specimens.

A summary of common sources of shortcomings in colposcopic practice is presented in Table 10.1. Regular interaction with the pathologist and clinical audits, to correlate colposcopic diagnoses with histological diagnoses, helps to improve the quality of colposcopy. It is important for the provider to learn the art of taking colposcopically directed biopsies from appropriate area(s) in the transformation zone by using sharp biopsy forceps without crushing specimens. If the squamocolumnar junction is hidden in the endocervical canal, it is necessary to perform endocervical curettage (ECC) or cone biopsy in order to investigate the canal properly. It is obligatory to wait for 60 seconds after a liberal application of acetic acid for it to take full effect. Specific mention should be made of the location of the squamocolumnar junction and the acetowhite areas in relation to the junction. Careful inspection of the vagina should also be made for any extension of cervical lesions. It is best to examine the vagina when the speculum is being withdrawn at the end of each examination. Findings must be clearly and legibly documented. Using an objective scoring system such as Reid’s score (Appendix 5) is particularly helpful for beginners to arrive at a colposcopic diagnosis and to select appropriate sites for directed biopsies. Continuing education is important to enable the colposcopist to keep up with developments. Avoidance of missing or undertreating an invasive cancer and ensuring the provision of adequate treatment is largely dependent on the skills of the colposcopist.

Colposcopic provisional diagnosis

We strongly encourage the colposcopists to make a provisional diagnosis, based on the findings of
The provisional diagnosis may be in terms of normal, inflammation, leukoplakia, condyloma, low-grade CIN, high-grade CIN, early invasive cancer, overt invasive cancer, others (atrophy, cervical polyp, radiation changes, etc.) and inconclusive. Such diagnosis is based on the evaluation of all the findings such as the characteristics of the acetowhite areas, vascular features, colour change after iodine application, surface characteristics such as ulceration, and other signs such as bleeding on touch, the nature of cervical and vaginal discharge and the findings of examination of external anogenitalia, groin and lower abdomen. These are described in detail in Chapters 6-9. Once a provisional diagnosis is made, a plan for management of the condition diagnosed should be developed. Table 10.2 provides a summary of the colposcopic findings that help in making the provisional diagnosis.

### Table 10.1: Common sources of colposcopic errors

- Inadequate training and experience
- Inadequate understanding of the natural history of disease
- Failure to use an established diagnostic protocol or deviation from the protocol
- Failure to use the largest speculum possible
- False squamocolumnar junction caused by abrasion
- Failure to choose appropriate biopsy sites and failure to take enough biopsies
- Failure to take a biopsy when in doubt
- Using a blunt, non-sharp biopsy punch to obtain tissue specimens
- Failure to take a colposcopically directed biopsy
- Failure to perform biopsies from condylomata or leukoplakia
- Failure to wait for the full effect of acetic acid
- Failure to apply Lugol’s iodine solution and examine
- Failure to examine the endocervical canal adequately when the lesion limit or squamocolumnar junction is not seen
- Failure to do endocervical curettage (ECC) when the lesion limit is not seen
- Failure to perform excision when the lesion limit is not seen with an endocervical speculum or when ECC is equivocal or positive
- Failure to perform excision when microinvasion is suspected
- Failure to inspect the vagina and vulva
- Failure to properly and legibly record colposcopic findings
- Failure to communicate with the pathologist
- Failure to correlate histological and colposcopic findings
- Failure to consult experts in difficult cases
- Failure to keep up with continuing education
- Failure to self-audit

Adapted from: Popkin (1995)
### Table 10.2: A summary of colposcopic features guiding provisional diagnosis

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Colour tone</th>
<th>Demarcation</th>
<th>Margin</th>
<th>Surface</th>
<th>Relation to TZ and SCJ</th>
<th>Duration of effect</th>
<th>Vascular features</th>
<th>Iodine uptake</th>
<th>Bleeding on touch</th>
<th>Ulceration</th>
<th>Discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Normal vascular pattern</td>
<td>Squamous epithelium black in colour; columnar epithelium, no change in colour</td>
<td>Nil</td>
<td>Nil</td>
<td>Clear secretion from the columnar epithelium</td>
</tr>
<tr>
<td>Normal, immature metaplasia</td>
<td>Pinkish white, or snow white, translucent, patchy acetowhite areas</td>
<td>Nil</td>
<td>Indistinct, blends with the rest of the epithelium</td>
<td>Smooth; crypt openings, islands of columnar epithelium seen</td>
<td>Restricted to TZ; prominent near the SCJ</td>
<td>&lt; 1 minute</td>
<td>Normal vascular pattern</td>
<td>No or partial uptake</td>
<td>Nil</td>
<td>Nil</td>
<td>Clear secretion from the columnar epithelium</td>
</tr>
<tr>
<td>Normal, mature metaplasia</td>
<td>Light pinkish white hue. No confluent acetowhite area</td>
<td>Nil</td>
<td>Blends with the rest of the epithelium</td>
<td>Smooth, reveals crypt openings, nabothian follicles</td>
<td>Restricted to TZ</td>
<td>-</td>
<td>Normal vascular pattern</td>
<td>Takes up iodine, turns black or brown</td>
<td>Nil</td>
<td>Nil</td>
<td>Clear secretion from the columnar epithelium</td>
</tr>
<tr>
<td>Inflammation</td>
<td>Pale, patchy areas, with intervening red areas and/or necrotic areas</td>
<td>Nil</td>
<td>Indistinct, blends with the rest of the epithelium</td>
<td>Irregular, variegated appearance</td>
<td>Not restricted to TZ, may be widely disseminated</td>
<td>&lt; 2 minutes</td>
<td>Diffusely distributed, fine red punctuation involving cervix and vagina</td>
<td>Partial iodine uptake</td>
<td>May be present</td>
<td>May be present</td>
<td>Malodorous, profuse, mucopurulent or seropurulent or non-odorous thick, sticky, white discharge</td>
</tr>
<tr>
<td>Low-grade CIN</td>
<td>Moderately dense, shiny, opaque, thin lesions</td>
<td>Well demarcated confluent lesions</td>
<td>Irregular, feathery, jagged, digitating, angular or geographic</td>
<td>Flat, smooth or microcondyloma-tous or micropapillary</td>
<td>Mostly seen in the TZ, abuts the SCJ. Very early lesions may be outside TZ as satellite lesions</td>
<td>1-2 minutes</td>
<td>Fine punctation and/or mosaic with in the AW lesion may be seen</td>
<td>No uptake</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
</tbody>
</table>

**Acetowhitening**: Pinkish white, or snow white, translucent, patchy acetowhite areas.
### Table 10.2 (cont.): A summary of colposcopic features guiding provisional diagnosis

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Colour tone</th>
<th>Demarcation</th>
<th>Margin</th>
<th>Vascular features</th>
<th>Reaction to TZ and SCJ</th>
<th>Duration of effect</th>
<th>Ulceration</th>
<th>Bleeding on touch</th>
<th>Discharge</th>
<th>Acetowhitening</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-grade CIN</td>
<td>Dull, dense, greyish-white or oyster-white opaque lesion</td>
<td>Well demarcated confluent lesions; internal demarcations and borders may be present</td>
<td>Regular, smooth outlines; occasionally nodular surface</td>
<td>Coarse punctation and/or coarse mosaic within the lesion may be seen; atypical vessels may be seen (+)</td>
<td>Restricted to TZ, abutting the SCJ</td>
<td>24 minutes</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>Preclinical</td>
<td>Chalky white, thick, dense, opaque lesions</td>
<td>Well demarcated</td>
<td>Raised and rolled out margins</td>
<td>Coarse raised mosaics and/or coarse punctations; atypical vessels always present (++++)</td>
<td>Nil</td>
<td>&gt; 3 minutes</td>
<td>May be present due to secondary infection</td>
<td>May be present</td>
<td>Nil</td>
<td>Always present</td>
</tr>
<tr>
<td>Overt invasive</td>
<td>Dense white areas, may be obliterated by profuse bleeding</td>
<td>Entire cervix replaced by growth extending to adjacent tissues</td>
<td>Entire cervix replaced by growth</td>
<td>Ulceroproliferative growth</td>
<td>Nil</td>
<td>Entire cervix replaced by growth</td>
<td>Nil</td>
<td>May be present in severe lesions</td>
<td>May be present due to secondary infection</td>
<td>May be present</td>
</tr>
<tr>
<td>Overt invasive cancer</td>
<td>Dense white areas, may be obliterated by profuse bleeding</td>
<td>Entire cervix replaced by growth</td>
<td>Entire cervix replaced by growth</td>
<td>Ulceroproliferative growth</td>
<td>Nil</td>
<td>Entire cervix replaced by growth</td>
<td>Nil</td>
<td>May be present in severe lesions</td>
<td>May be present due to secondary infection</td>
<td>May be present</td>
</tr>
</tbody>
</table>

TZ: transformation zone; SCJ: squamocolumnar junction; AW: Acetowhitening.