How many histological levels should be examined from tissue blocks originating in cone biopsy and large loop excision of the transformation zone specimens of cervix?

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Abstract

Aims—To establish the value of examining additional histological levels in cone biopsy and large loop excision of the transformation zone (LLETZ) specimens of cervix.

Methods—Three deeper levels were examined from 200 consecutive cone biopsy and LLETZ specimens reported by a single pathologist.

Results—Examination of the first deeper level resulted in cervical intraepithelial neoplasia (CIN) being identified for the first time in five cases and in CIN1 being upgraded in five more. Invasive cancer was discovered in two cases that had shown high grade CIN initially.

Conclusion—Examination of a single further level appears to be sufficient in those patients in whom a specimen is compromised because epithelium including the squamocolumnar junction is missing, or if there is a discrepancy between the histological findings and the preceding colposcopic or cytological history. If invasive disease is suspected on the basis of the cytological, colposcopic, or histological features, one or preferably two further levels should be examined.

Keywords: cervix uteri; quality control; diagnosis

Results

Of the 200 specimens, 170 were intact, 21 were incomplete, usually because one or both lateral edges were missing, and nine were received in two or more fragments. Table 1 includes details of the maximum basal dimension, apical height, and number of blocks from each group. Fragmented specimens tended to be shallower and to yield a greater number of blocks than either intact or incomplete samples. The condition of the specimen was not associated with a change in histological grade when deeper levels were examined. Table 2 describes the findings on the initial level and the first level for the cases reviewed. Examination of the first
Some epithelium was not represented in the initial section, where there was a suggestion that invasive disease had not been present in the initial or first deeper level was identified on a second deeper level. Cutting a third deeper level did not appear to improve the yield of invasive disease in these cases, although on occasion, the profile occupied by the invasive focus increased in size. A higher grade of CIN was identified in seven of the 36 women in whom there was no evidence of CIN in the initial section from the cone biopsy or LLETZ specimen and those in whom there was a discrepancy between the findings in the definitive and original samples.

Table 1  Details of the condition in which the specimens were received and the association with specimen size, number of blocks, and change in grade upon examining deeper levels histologically

<table>
<thead>
<tr>
<th></th>
<th>Intact</th>
<th>Incomplete</th>
<th>Fragmented</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of specimens</td>
<td>170</td>
<td>21</td>
<td>9</td>
<td>200</td>
</tr>
<tr>
<td>Maximum basal dimension (mm)</td>
<td>21.0</td>
<td>22.9</td>
<td>23.9</td>
<td>21.3</td>
</tr>
<tr>
<td>Mean</td>
<td>13.6</td>
<td>12.9</td>
<td>7.9</td>
<td>13.25</td>
</tr>
<tr>
<td>Minimum</td>
<td>7.0</td>
<td>12.0</td>
<td>15.0</td>
<td>7.0</td>
</tr>
<tr>
<td>Maximum</td>
<td>40.0</td>
<td>40.0</td>
<td>32.0</td>
<td>40.0</td>
</tr>
<tr>
<td>Maximum apical height (mm)</td>
<td>35.0</td>
<td>26.0</td>
<td>13.0</td>
<td>35.0</td>
</tr>
</tbody>
</table>

The dimensions and number of blocks were compared statistically with the condition of the specimen using the Kruskal-Wallis test.

Discussion

The findings re-enforce the advisability of selectively examining further material in cone biopsy and LLETZ specimens from the cervix, as recommended in standard texts. Examination of a single further level appears to suffice in most cases. Within this subgroup, invasive foci were not identified in any of the cases in which high grade disease had been identified on the initial histological slide. A similar practice is advisable if there is no evidence of a CIN lesion on the initial section. A suspicion that invasive disease may be present based on the histological features of the material examined previously, or on the basis of a clinical, colposcopic, or cytological suspicion of invasive disease would appear to justify a further two levels. Obviously, if further suspicious areas are identified, the pathologist may elect to examine additional material. Although it has been suggested that, from a purely pragmatic point of view, an area of invasion too small to be identified on sections taken at 2–3 mm intervals is too small to result in any change in the management of the patient, further studies are required to identify the pathologist's management of scarce laboratory resources.

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