Evaluation of cervical smears at King Hussein Medical Centre, Jordan, over three and a half years

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SUMMARY Cervical smears taken from women referred for a check-up or with vaginal itching/discharge over a period of 3.5 years were reviewed at the King Hussein Medical Centre, Jordan. All smears were fixed with 96% alcohol, stained with Papanicolaou stain and screened microscopically. Of the smears from 1176 women aged 18–70 years, 4.5% were classified as inadequate, 7.7% were normal and 79.9% showed non-specific inflammation. Abnormal vaginal flora was found in 4.8% of cases, Candida albicans in 1.2%, Trichomonas vaginalis in 0.9% and actinomycosis in 1 case. Dysphasic changes were rare: 9 cases (0.8%) were classified as atypical squamous cells of undetermined significance (ASCUS) and 2 cases (0.2%) were low-grade squamous intraepithelial lesion (LSIL). No cases of human papillomavirus infection (HPV) or cervical carcinoma were found.

Introduction

The cervical smear (Papanicolaou, Pap smear) is a routine screening test used for the detection of early cervical abnormalities, namely precancerous dysplastic changes of the uterine cervix [1], together with viral, bacterial, and fungal infections of the cervix and vagina. Cervical screening is a relatively simple, low cost and non-invasive method. Regular screening for cervical cancer reduces both the mortality and incidence of cervical carcinoma. Cervical neoplasia typically develops into invasive cancer over a 10-year period [3–6] and apparent cases of rapidly progressive cervical cancer are likely to be among women who have escaped screening and proper follow-up. Annual screening reduces the probability of developing invasive carcinoma by over 95% [2].

There is also epidemiological and experimental evidence that Pap smears are beneficial in detecting infections that are risk factors associated with cervical cancer, such as human papillomavirus (HPV) [7,8]. Societies where sexual activity starts at a young age and where multiple partners are common are at a higher risk of exposure to HPV than in conservative societies such as Jordan. HPV is a virus that infects reproducing cells, thus enhancing proliferation of the cell population; this increases the risk of transformation to high-grade lesions or carcinomas [9–11]. A cervical smear also detects vaginal infections such as Candida albicans, where patients present with physical discomfort, excess vaginal discharge, itching and other complaints.

In the absence of a national cervical screening programme in Jordan, the aim of
this study was to evaluate the prevalence of cervical lesions in cervical smears analysed at the Princess Iman Research and Laboratory Sciences Centre, Jordan.

**Methods**

Over a period of 3.5 years from August 1999 to February 2003, a retrospective review was made of records of 1176 cervical smears analysed at the Princess Iman Research and Laboratory Sciences Centre at King Hussein Medical Centre in Jordan. Patients were those who had been referred from all military hospitals in Jordan to the gynaecology clinic at the Centre with complaints of vaginal itching or discharge, and those who came for a first-time or follow-up cervical smear.

Cervical smears were taken by gynaecologists at the clinics using a speculum and brush; endocervical cells were smeared onto slides with direct fixation by 96% ethanol.

Smears were sent to the laboratory fixed in 96% ethyl alcohol. All smears were stained with Papanicolaou stain and stained slides were screened microscopically by trained staff comprising 2 cytotechnologists and 1 pathologist. The adequacy of smears was determined by the presence of a good number of ecto- and endocervical components, no air dryness and no artefacts. All smears were routinely stained by Papanicolaou stain using a Leica Autostainer programmed for the purpose.

Slides were classified into 5 main categories: specific cervicitis, non-specific cervicitis, normal, cervical dysplasia, cervical carcinoma and inadequate.

**Results**

Of the cervical smears from 1176 women aged from 18–70 years, 91 (7.7%) were normal, while 53 (4.5%) smears were classified as inadequate (Table 1).

Of the remaining smears, 940 (79.9%) showed non-specific inflammation, i.e. an inflammatory background with no evidence of viral changes or bacteria.

Specific inflammation was found in 81 cases: 56 (4.8%) cases showed abnormal vaginal flora, including *Gardnerella vaginalis*, 14 cases had *Candida albicans* (1.2%), 10 cases (0.9%) had *Trichomonas vaginalis* and 1 case had actinomycosis (0.1%). No cases of HPV infection were found.

Low-grade cervical abnormalities were seen in 11 cases: 9 cases (0.8%) were classified as atypical squamous cells of undetermined significance (ASCUS) and 2 cases (0.2%) were low-grade squamous intraepithelial lesion (LSIL). No malignant cases were reported within this study period.

<table>
<thead>
<tr>
<th>Category</th>
<th>No. of smears</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inadequate</td>
<td>53</td>
<td>4.5</td>
</tr>
<tr>
<td>Normal</td>
<td>91</td>
<td>7.7</td>
</tr>
<tr>
<td>Non-specific cervicitis</td>
<td>940</td>
<td>79.9</td>
</tr>
<tr>
<td>Specific cervicitis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abnormal vaginal flora,</td>
<td>56</td>
<td>4.8</td>
</tr>
<tr>
<td>including <em>Gardnerella vaginalis</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Candida albicans</em></td>
<td>14</td>
<td>1.2</td>
</tr>
<tr>
<td><em>Trichomonas vaginalis</em></td>
<td>10</td>
<td>0.9</td>
</tr>
<tr>
<td>Actinomycosis</td>
<td>1</td>
<td>0.1</td>
</tr>
<tr>
<td>Cervical dysplasia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASCUS</td>
<td>9</td>
<td>0.8</td>
</tr>
<tr>
<td>LSIL</td>
<td>2</td>
<td>0.2</td>
</tr>
<tr>
<td>Cervical carcinoma</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>1176</td>
<td>100.0</td>
</tr>
</tbody>
</table>

ASCUS = atypical squamous cells of undetermined significance.
LSIL = low-grade squamous intraepithelial lesion.
Discussion

The cervical smear is a widely used routine test with many benefits, especially in detecting early cervical changes that can be treated to limit dysplastic processes developing into cancer. Of the cervical smear tests on 1176 women in our hospital, 79.9% showed non-specific inflammation, namely unexplained inflammatory background, thus showing no bacterial or viral features. The remaining cases of inflammation showed 4.8% cases of specific inflammation, 1.2% candida infections, 0.9% trichomonal infections and 1 case of actinomycosis.

The incidence of dysplastic changes in our study (1.0%) was low compared with other studies performed in industrialized countries [1,13,14] and we found no cases of cervical carcinoma. This contrasts, for example, with a study in New England in the United States of America (USA) which found that 11.8% of women aged 20–29 years and 8.4% of those over 30 years had infectious processes and 3.5% and 1.3% respectively showed squamous intraepithelial lesions (SIL) [15].

No cases of HPV infection were recorded in our hospital during this study period. Statistics from the Centers for Disease Control and Prevention’s National Center for HIV, STD, and TB Prevention showed that 5.5 million people in the USA became infected with HPV each year, and infection rates were highest in young women [12]. In Jordan, sexual activity typically starts only after marriage where the marital age is over 16 years, and the cultural and religious traditions of our conservative society restrict the likelihood of multiple sexual partners. This may explain why no cases of sexually transmitted HPV, or cervical carcinoma, were found in our study group of women.

References


