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RESULTS OF CERVICAL AND VAGINAL SMEAR EXAMINATIONS AT HENRY FORD HOSPITAL IN 1957

JOHN D. KEYE, JR., M.D.* AND GORDON M. JASEY, M.D.*

A total of 4,361 sets of either cervical or vaginal and cervical smears were examined during 1957. The bulk of the smears were examined by one screener, although on occasion members of the staff and resident staff assisted. A small number of the sets of smears examined represented repeat smears. Smears were repeated at the election of the clinicians, or when requested by the laboratory staff.

METHOD OF REPORTING: The results of the smear examinations were reported as follows:

- Unsatisfactory
- Negative
- Negative (atypical cells; please repeat smears)
- Suspicious (please repeat smears)
- Positive (please repeat smears prior to biopsy)

Those smears reported as Unsatisfactory were deemed so due to paucity of cells, poor staining, or artifacts resulting from air drying or degeneration.

Negative reports were rendered when the screener did not find abnormal cells (other than cells distorted as a result of inflammation or degeneration). These smears were not examined further by the staff.

Occasional cells which could not readily be classified were found. In such instances the report was as follows: Negative (atypical cells; please repeat smears). In most instances subsequent smears proved to be negative.

When cells were found having some of the features of malignant cells (usually "dyskaryotic" cells) but lacking clear-cut cytologic evidence of malignancy a report of Suspicious was made. Repeat smears were requested. These repeat smears and also occasional biopsy material gave highly variable results. One purpose of this survey was to detect, if possible, some of the causes leading to a diagnosis of Suspicious.

A diagnosis of Positive was made when screener and staff decided that smears contained cells having cytologic features of malignancy. Repeat smears were requested and biopsy recommended in such cases. In most cases biopsy confirmed the cytologic report of malignancy. As always, there were exceptions.

REASON FOR SURVEY: An effort was made to compare the results of our use of the smear technique with mass surveys in other centers. The results proved to be satisfactory in this regard. Unexpected findings sometimes occurred in subsequent biopsy material. These will be explained. An effort was made to determine the cause of the cells which were Suspicious, but not clearly Positive.

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TECHNIQUE: Patients' histories, cytologic studies and surgical and autopsy material were correlated when possible. It should be mentioned that almost all of the smears came from the Department of Gynecology and that most of the patients had either symptoms or physical findings which resulted in their being examined by a gynecologist. In such a group of patients a higher incidence of malignancy would be expected than in a "normal" asymptomatic female population.

RESULTS: In considering results of the survey the following will be discussed: age, smear diagnosis, menstrual data, pregnancy, clinical diagnosis, treatment (cervical biopsy, D & C, conization, hysterectomy, X-radiation, and other diagnostic or therapeutic measures), and correlation of smear diagnosis with subsequent tissue diagnosis.

AGE: As indicated in Figure 1, the age distribution curves for patients with Positive and Suspicious smears were similar. Perhaps this is a coincidental observation and is related to the ages of all patients seen in the Department of Gynecology (i.e. most patients being in the 4th, 5th and 6th decades).

Figure 1

![Patients with Suspicious Smears](image1)

![Patients with Positive Smears](image2)

CYTOLOGIC DIAGNOSIS: Of 4,361 sets of slides examined 39 patients were reported as Suspicious at one time or another. This represents an incidence of 0.9% or 9 cases per 1,000 sets of slides examined.

Of 4,361 sets of slides examined 34 patients were reported as Positive at one time or another. This represents an incidence of 0.8% or 8 cases per 1,000 sets of slides.

The actual case finding rate has not been determined because of smears which were repeated and would be higher than indicated by the figures since there are more sets of smears than patients.

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MENSTRUAL DATA: Menstrual histories when given were quite variable in patients with Positive and Suspicious smears. Of the 34 patients with Positive smears, 13 were either normally or surgically post-menopausal. Only two of these 13 patients gave histories of post menopausal bleeding. Ten of the 21 patients in the child-bearing age group had varying complaints of menstrual irregularity, the most common being inter-menstrual spotting. Other complaints were of meno-metrorrhagia and one woman noted amenorrhea of 3 months duration. Of the 39 patients who had Suspicious but not Positive, smears 13 were normally or surgically post-menopausal. Three of these women had post-menopausal bleeding or spotting. Other complaints were of meno-metrorrhagia and one woman noted amenorrhea of 3 months duration.

PREGNANCY: One of the patients was known to be pregnant and one other woman was said to have "possible early pregnancy". In each case the smears were reported as Suspicious.

CLINICAL DIAGNOSIS (prior to smear report): Review of the charts revealed clinical diagnoses relating to the gynecologic condition to be infrequently stated prior to the smear report. As a general rule the clinicians described what they saw at time of examination, but did not always state a diagnosis. For this reason it is difficult to state the exact number of "unsuspected" cases of carcinoma which were detected in this survey.

Of 34 patients with Positive smears a clinical diagnosis of carcinoma was made in 6 patients. Diagnoses such as "? carcinoma", "rule out carcinoma", etc. were not counted. Similarly, of the 39 patients having Suspicious but not Positive smears a clinical diagnosis of carcinoma was made in 4 patients.

TREATMENT: Under treatment are included both diagnostic and therapeutic measures, specifically, cervical biopsy, D & C, conization, hysterectomy, x-radiation, as well as other measures.

Biopsy results are best presented in tabular form (see Figure 2). It is apparent from Figure 2 that 25 patients with either positive or suspicious smears did not have a biopsy at this hospital. In the positive-not-biopsied group, review of the charts indicated that an effort had been made to obtain a tissue diagnosis in all instances. The suspicious-not-biopsied group, however, were usually not biopsied at the election of the gynecologist. It is perhaps relevant in this regard that Figure 2 indicates that 6 of 20 (30%) suspicious-biopsied patients had cervical carcinoma. Biopsy of the remaining 19 patients might well disclose additional unsuspected cancers. It should be stated that 10 of these 19 patients have had negative smear reports since the smear report of suspicious.

It is interesting that of 6 patients with a biopsy diagnosis of carcinoma-in-situ none had evidence of invasive epidermoid carcinoma in the subsequent hysterectomy specimen. Two additional patients with subsequent cervical amputation similarly had no evidence of invasive carcinoma. Residual carcinoma-in-situ was noted in two of the former group and in both of the cases having cervical amputation.

Only one false negative report was made to the best of our knowledge (M. R., H.F.H. No. 889045, C 3855, S58-101). This patient had stress incontinence and "a
Figure 2

BIOPSY RESULTS OF 34 PATIENTS WITH
POSITIVE SMEARS AND 40 PATIENTS WITH SUSPICIOUS SMEARS

<table>
<thead>
<tr>
<th>CYTOLOGIC DIAGNOSIS</th>
<th>NUMBER OF PATIENTS</th>
<th>NUMBER OF NEGATIVE BIOPSIES</th>
<th>NUMBER NOT BIOPSIED</th>
<th>NUMBER OF PATIENTS WITH:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ATYPICAL HYPERPLASIA OF CERVIX</td>
</tr>
<tr>
<td>SUSPICIOUS</td>
<td>39</td>
<td>13</td>
<td>19</td>
<td>1</td>
</tr>
<tr>
<td>POSITIVE</td>
<td>34</td>
<td>4</td>
<td>6</td>
<td>4*</td>
</tr>
</tbody>
</table>

* 1 Patient had biopsy diagnosis of "Leukoplakia" of cervix.

# 1 Patient had biopsy diagnosis of "? Carcinoma-in-situ" of cervix.

** 1 Patient had papillary adenocarcinoma of ovary with secondary involvement of uterus.
small, fine erosion of the cervix which does not appear at all malignant”. Subsequent vaginal hysterectomy specimen showed extensive carcinoma-in-situ. The smears were reviewed and, in retrospect, are regarded as Positive.

Five cases in the Suspicious and Positive group (Figure 2) had a biopsy diagnosis of atypical hyperplasia. This is a particularly interesting group since they present a problem as to disposition. Rawson and Knoblich\(^1\) state that careful follow-up of these patients is indicated since approximately 1/6th will subsequently be shown to have carcinoma of the cervix. In most instances others have obtained an answer by smear and repeat biopsy (conization of cervix) within 2 months.

In regard to the above change and the pregnant state the accumulated reports in the literature suggest that this is merely a fortuitous relationship and that there is no relationship per se between atypical hyperplasia and pregnancy.

One patient with Suspicious smears subsequently had a D & C which disclosed tuberculosis of the endometrium. We do not believe there is any relationship between the atypicalities in smears and the endometrial tuberculosis.

In contrast, another patient (P.O., H.F.H. No. 879062, C 1742, S57-5785) with ovarian carcinoma had malignant cells in the cervical smear. The explanation for this was found when the uterus was examined and metastatic papillary tumor could be seen between endometrial glands and projecting into the uterine cavity (Figure 3).

**SUMMARY:**

1. 30% of patients with Suspicious cervical smears, who were biopsied, had cervical carcinoma.
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2. 85% of patients with Positive cervical smears, who were biopsied, had the following pathologic abnormalities:
   - 64% — cervical carcinoma
   - 7% — endometrial carcinoma
   - 14% — atypical hyperplasia

3. 15% of patients with Positive cervical smears had negative biopsies.

4. We believe that all patients with Suspicious smears should have the benefit of repeat smears or biopsy or both.

5. We recommend that those patients having a biopsy diagnosis of atypical hyperplasia be followed with repeat smears after 2 months and have a conization if these are again Positive.

BIBLIOGRAPHY