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THE USE OF THE CERVICAL SPREAD IN CANCER DETECTION

An Effective Method and an Evaluation

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THE cervical spread, stained by the Papanicolaou method, is so useful that it is in danger of being looked upon as an infallible diagnostic aid—both by physicians and by patients. Some surgeons have performed hysterectomy on the sole basis of a cytologic diagnosis of cervical cancer; and patients themselves have become so imbued with the fear of cancer that the mere mention of their having an atypical or a positive "cancer spread" persuades them that immediate drastic treatment alone will avoid the consequences of the dread disease. The cervical spread has great diagnostic value only if the physician is fully aware of its specific limitations.

It is the purpose of this report to indicate some of the sources of possible error in making a cytologic diagnosis, to describe an effective cervical spread technic, and to summarize our results from its use.

Sources of Error

Cytologic study, like other laboratory studies, is subject to technical and human error. The judgment and actions of several persons are involved. They are: (1) the patient, (2) the examining physician, (3) the cytotechnician, and (4) the pathologist.

The fastidious patient usually will take a douche in preparation for a pelvic examination, not realizing that cells of diagnostic value may be washed away or destroyed. Normal findings after a douche could be false. Every woman who makes an appointment for a pelvic or a general examination should be advised to refrain from douching for from 48 to 72 hours before the examination.

The examining physician may make a digital examination first, or use an excessive amount of lubricant on the speculum; both conditions render the cervical specimen less satisfactory for cytologic examination. He may smear the material on the slide and cause clumping of the cells; he may let the slide dry before he fixes the material and thereby make a true evaluation impossible.

The cytotechnician who stains the laboratory specimens and who is responsible for the initial screening, also is subject to human error. Occasionally, even in the best-regulated laboratory, specimens will be incorrectly labeled.

The pathologist constantly must temper his interpretation with skill and judgment. In doubtful cases he may purposely record the most serious interpretation possible, in order to avoid undertreatment by the physician. The pathologist's experience and skill are hampered or enhanced according to the extent that the sources of error mentioned above are in force.

The problem of obtaining cervical specimens for spreads, and of interpreting the findings, is complex because of the chance for human error. We believe that a definite, standardized technic in obtaining specimens will provide pathologists with optimal material for evaluation, and that a simple method is less likely to be subject to human error.

An Effective Technic

Obtaining cervical spreads. The technic that we find highly effective is as follows:

1. The patient is advised to omit douches for from 48 to 72 hours prior to examination.

2. Before making a digital examination, the physician visualizes the cervix by means of a *lightly* lubricated or wet speculum.

3. He next obtains a cervical specimen. A cotton applicator stick is twirled in the cervical os and is rolled across the surface of the cervix.

4. The swab is *immediately rolled* across a clean, dry, glass slide. It must not be smeared or scrubbed on the slide.

5. The completed spread and slide are *immediately* immersed in a solution of 97 parts of 95 per cent alcohol and 3 parts of glacial acetic acid. The slide is taken to the laboratory in this solution.

6. The spread is stained by the Papanicolaou method.[1]

Classifying results, and further study. Results in our practice are designated as negative or positive for atypical cells. Results positive for atypical cells are grouped according to compatibility with (1) malignancy (invasive carcinoma), (2) carcinoma in situ, (3) carcinoma in situ or severe dysplasia, (4) severe dysplasia. The first two groups correspond to Papanicolaou's[1] class V, and the remainder to his class IV.

Positive-cell findings demand further study. If a questionable lesion is seen, a biopsy specimen is immediately obtained. If no gross cervical lesion is visible, a sharp-knife conization is performed. This procedure will provide the pathologist with a ring of tissue, including the squamocolumnar junction that has not been distorted by heat as in a cautery conization. The specimen is cut into serial blocks and usually about 12 sections are examined.

Sharp-knife conizations may be performed with a standard number 11 or 12 Bard Parker knife blade employing a sawing motion. After the conization the cervix will require hemostasis and often it is somewhat irregular. A Bovie cautery conization and electrocoagulation are immediately performed.

Review of Results

A total of 22,716 cytologic specimens of cervical origin were studied in the pathology laboratory of the Cleveland Clinic between October 1, 1951, and May 31, 1957. So far, 104 cases of invasive squamous-cell carcinoma and 110 cases of carcinoma in situ have been found. In an earlier study[2] the spread technic was accurate in 94 per cent of the diagnoses later histologically confirmed as preinvasive or invasive cervical carcinoma. Fifteen per cent of the cases of invasive carcinoma were detected from the cervical spread in the absence of a visible lesion. Four per cent of the spreads were false-positive—cytologically positive and unsubstantiated histologically. This percentage was obtained by dividing the total number of histologically unsubstantiated—cytologically positive spreads by the total number of cytologically positive spreads. Thus, when a positive spread is reported, the chance of a later negative histologic report on biopsy is 1 in 25.

Comment

The cervical spread technic is designed to help detect lesions that deserve more meticulous study than is afforded by the unaided eye. There is no doubt that where facilities are adequate, the cytologic study should be employed. Cervical spread does not supplant biopsy—it supplements biopsy. All women between 30 and 60 years of age who have no gynecologic symptoms should have

a cervical spread made at least every 18 months. The technic may be employed more frequently if bleeding irregularities occur. After a spread has been made, a suspicious lesion should be biopsied and studied histologically. Where laboratory facilities are limited and personnel are inexperienced in cytologic interpretation, frequent meticulous inspections of the cervix, and biopsies of all erosions or cervical abnormalities, are preferable to poorly executed spreads and unskillful cytologic interpretation.

Summary

The cervical spread technic for cytologic diagnosis could fall into disrepute unless certain precautions are constantly employed in obtaining the specimens and in interpreting the results. The possible sources of error or failure are primarily related to human factors and those persons concerned are the patient, the examining physician, the cytotechnician, and the pathologist.

The simpler the method for obtaining material and making the cytologic study, the less likely it is to be subject to error. Such a method is described.

Although the results obtained from cervical spreads have a high degree of accuracy, histologic confirmation must be obtained before an exact diagnosis can be made and treatment instituted.

References

1. Papanicolaou, G. N.: New procedure for staining vaginal smears. Science **95:** 438-439, April 24, 1942.

2. McCormack, L. J.; Belovich, Doris, and Krieger, J. S.: Invasive carcinoma of cervix uteri; cytohistologic study. Am. J. Clin. Path.: In press.