MANAGEMENT OF POSITIVE CERVICOVAGINAL SMEAR

Essay

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By

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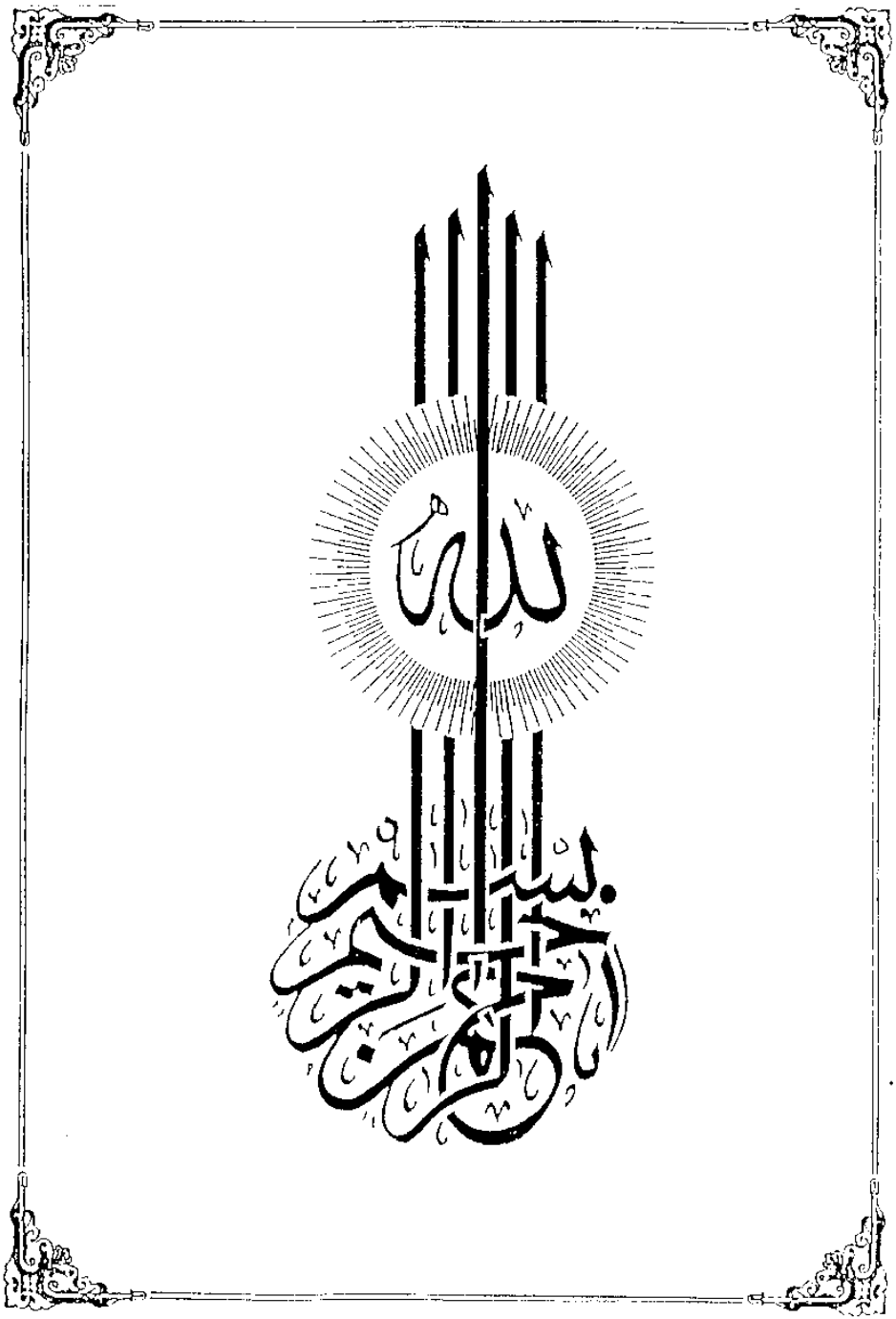

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HISTORICAL BACKGROUND

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In 1886 in London sir John Williams gave a Harveian lecture reporting eight cases of cervical cancer, one of which provided the first description of the lesion described today as cervical Intraepithelial Neoplasia (CIN or carcinoma in situ). He stated "this is the earliest condition of undoubted cancer of the portio vaginalis that I have met with; and it is the earliest condition which is recognizable as cancer. It presented no distinct symptoms, and was discovered accidently" *(Anderson, 1987)*.

Other reports followed, and the significance of the precancerous state was summarized by Rubin 1910, who commented "The routine and complete pathological examination of parts or whole of the uterus removed for whatever cause may often furnish the first evidence of a latest carcinoma, and the pathological diagnosis of carcinoma of the uterus in the preclinical stage is possible". He went on to say "what shall we regard as metaplastic", non malignant epithelial changes, and what shall we regard as typical carcinomatous epithelium, or an atypical epithelium that will sooner or later develop into a fully fledged carcinoma? Unless we can decide upon the determining features of the diagnosis of a cancerous epithelium, it is evident that we may never hope

to improve prophylactic therapy for carcinoma *(Cook & Drapper, 1984)*.

Thus in 1910, pathologists and clinicians had decided that there was such a condition as preclinical carcinoma and that if this could be detected and treated then this would give infinitely better results than treating established cancer with the methods available to them at that time, namely surgery and radiotherapy. For many years the diagnosis of the existence of the preinvasive lesion was a chance occurrence based on the histological examination *(Anderson, 1987)*.

A major breakthrough occurred in 1925 when Hinselman in Germany described the earliest colposcope, a microscope with which he expected to observe cancer at its very earliest stages either as a small ulcer or a small exophytic lesions invisible to the naked eye *(Kohan et al., 1985)*.

At about the same time Schiller 1929, described the Schiller iodine test. He had observed that squamous carcinomas of the cervix were conspicuously lacking in large amounts of glycogen, whereas normal squamous epithelium was characterized by an abundance. As a result of this observation he described the test in which an iodine solution

containing iodine (4 grams), potassium iodine (4 grams) and distilled water to 300 ml, was applied to the cervix and upper vagina. Normal squamous epithelial cells containing glycogen stained dark brown whereas columnar epithelium and abnormal epithelium containing little or no glycogen remained unstained. Schiller recommended that all non-staining areas of the portio should be carefully scraped to permit the detection of abnormal epithelium *(Cocker et al., 1986)*.

In spite of the introduction of colposcopy and the Schiller iodine test it was not until Papanicolaou and Traut 1943, described their technique of exfoliative cytology that clinicians recognized that at least they had an effective and simple way of detecting premalignant lesions of the cervix *(Anderson and Hartley, 1980)*.

Papanicolaou and Traut 1943, initially introduced the technique of cytology into clinical medicine cellular samples exfoliated or scraped from the surface of the cervix and vagina serve as microbiopsies by which the cytopathologist studies the multiple processes of health and disease. Although usually coming from the surface of organs such as the cervix, these samples reflect the deeper processes

accurately. They cover a wider surface area for examination than biopsies usually can, do not remove viable tissue, and produce little or no inflammatory or reparative processes *(Derman et al., 1981)*.

Initially the technique was viewed by skepticism by both clinicians and pathologists who were not trained in or experienced in cytopathology. In the past 20 to 25 years, however, cytopathology has been accepted within its limitations as a widely applicable, reliable diagnostic tool, and an important branch of pathology.

Even now, although there is a large subjective element in both cytology and histopathology, the cytologic diagnosis of precancerous or malignant lesions is validated by tissue examination before the patient is treated, and the accuracy of the cytologic diagnosis is measured against the histopathologic findings and diagnosis (Ng, AB, 1980).
Papanicolaou's sampling technique, initially developed to study the hormonal status of mice, was a vaginal pool smear and this was the method originally used in clinical observations on women *(Spitzer et al., 1987)*.

Microscopic examination of the vaginal smears was tedious, tissue consuming, and required the most careful

screening of the material, searching for a few abnormal cells as evidence for cervical cancers or precancerous states. It was not surprising, therefore, that when the canadian gynecologist and ardent follower of Papanicolaou, J. Ervest Ayre, proposed that a wooden tongue depressor, cut to fit the contour of the uterine cervix, would allow a direct sampling of this organ under visual control, the method was endorsed enthusiastically *(Ginsberg, 1991)*. The direct cervical smear was easier to interpret and required much less screening time than the vaginal smear *(Ginsberg, 1991)*.

METHODS OF PERFORMANCE

SAMPLING METHODS FOR PREPARATION OF CERVICAL SMEARS

- ***Patient preparation:***

Proper patient preparation is the beginning of good cervical, endocervical vaginal cytology. The patient should be instructed before coming to see the physician, that she should not douche or wash the vagina for at least one day before the examination.No intravaginal drugs or preparations should be used for at least one week before the examination, and the patient should abstain from coitus for one day before the examination *(Ross, 1989)*.

- ***Methods of preparation:***

The quality of cervical smear depends on the sampling method utilized.

- ***Sampling methods:***

1- Spatula alone.

2- Cytobrush plus spatula.

3- Cytopick.

4- Cotton swab plus spatula.

5- Cervex brush.

Smears taken from the transformation zone should be of good quality and should contain endocervical cells (EC + smears).

However some investigators have suggested that Papanicolaou smears without endocervical columnar cells (EC-smears) are not always inadequate *(Allingham & King, 1985)*.

- There are 3 major factors affecting the yield of endocervical columnar cells.

1- Hormonal influence on cervical epithelium:

Pregnant and menopausal women after having EC-smears in addition, oral adversely influence the endocervical cell yield *(Boon et al., 1987)*.

2- Method as instrument used for sample taking:

Cytobrushes are efficient than spatula for obtaining cell samples that contain endocervical cells and are clearly superior to cotton tipped applicators (Cotton swabs) *(Riessman, 1988)*.

3- Sample taker:

Well trained sample takers obtain higher rates of (EC + smear) that do general practitioners, in addition the variation of the results is ten times larger for the general practitioners *(Kivlahan & Ingram, 1986)*.

TECHNIQUE:

A) Modified Ayre spatula:

Sampling technique: rotate 360° on ectocervix.

Smear preparation: spread material from both sides of

the spatula on the glass slide, spray fix *(Allons Van Kordelaar, 1988)*.

B) Cytobrush + Spatula:

Sampling technique: Rotate cytobrush 360°in endocervical canal, then rotate spatula 360° on ectocervix.

Smear preparation: unroll brush material on one half of the glass slide and spray fix with the other half of the slide covered.

Spread spatula material on the other half of the glass slide and spray fix (Pretorius et al, 1991).

C) Cytopick (Tip on one end and spatula on the other):

Sampling technique: Rotate-tip 360°in endocervical canal then rotate spatula 360° on the ectocervix.

Smear preparation: Unroll tip material on one half of the glass slide, spread spatula material on the other half of glass slide, spray fix *(Allons Van Kordelaar, 1988)*.

D) Cotton swab + spatula:

Sampling technique: Moisten cotton swab before use, rotate cotton swab 360° in endocervical canal, rotate spatula 360° on ectocervix.