

CERVICAL CURETTAGE AS A ROUTINE OFFICE PROCEDURE FOR THE DETECTION OF CARCINOMA OF THE UTERINE CERVIX

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IN CANADIAN WOMEN, the uterine cervix is the fourth most common site of origin of lethal cancer.¹ Results of treatment are generally agreed to be good when carcinoma is still confined to the uterine cervix.² It appears, therefore, that diagnosis at this stage should lower significantly the present considerable mortality from this disease. The planned, periodic, thorough examination of asymptomatic women obviously forms the basis of efforts to achieve this. Since carcinoma has been found repeatedly in the grossly healthy cervix and since it is frequently impossible with the naked eye to distinguish between chronic cervicitis, cervical erosion and early carcinoma, an adequate diagnostic technique should include not only a complete gynaecological history, speculum examination and bimanual pelvic examination, but also microscopical evaluation of cells or tissue from the cervix. While cone knife biopsy is indicated in suspicious cases, some simpler and less traumatic procedure that can be done in the office is required as a routine "screening" test.

The cytological examination of suitably stained smears of fluid from the posterior fornix or cervical canal has proved valuable in the detection of early cervical carcinoma.³⁻⁵ However, practical difficulties in the establishment of special cytological laboratories frequently exist.⁶ Another diagnostic aid that has been used with success is the microscopical examination of paraffin-embedded and sectioned tissue scraped from the cervix. Material for preparations of this sort can be obtained in the office, and sections can be made and examined as part of the daily routine in any laboratory of surgical pathology. This cervical scraping "surface biopsy" technique was suggested by Schiller⁷ in 1928, but was little used at first. Of recent years Novak⁸ and Hilliard⁹ among others have employed it with good results. For this type of examination, Nolan and Budd¹⁰ devised a curette having as its head a wedge-shaped spiral cup with a cutting edge, in order to obtain mucosa not only from the squamo-columnar junction, but also from higher in the endocervical canal.

We report our experience with the cervical scraping "surface biopsy" technique, using the instrument devised by Nolan and Budd, in 500 consecutive biopsies.

MATERIAL AND METHODS

The 500 biopsies were obtained in the office from 417 patients encountered in the private gynaecological practice of one of us (A.H.) over a 5½-year period from May 1951 to October 1956. The majority of the patients were parous women with an endocervical discharge. The procedure was incorporated into the routine pelvic examination, without use of sedatives or local anaesthesia. Sponging of the cervix was avoided. With the earlier patients the cervix was steadied with a tenaculum, but later this was not found to be necessary, except in cases with very relaxed ligaments. The Nolan-Budd curette was introduced gently into the cervical canal, with rotation in a counter-clockwise direction, until inserted as high in the canal as possible. Then, with moderate pressure of the edge of the instrument against the cervix, it was rotated fully in a clockwise direction one or two times. (Nolan¹¹ recommends that the handle of the curette be given a wide sweep, as in the Scanzoni manoeuvre, to keep the blade firmly against the cervix, thus obtaining more material.) The tissue so obtained was wiped from the instrument's cup on to a piece of white scratch-pad paper, which was folded and at once placed in Bouin's fixative. The patients at most experienced a slight crampy pain. Adequate material was ensured only if sufficient pressure was exerted to give some discomfort and produce bleeding. The patients were reassured about the inevitable spotting and given a pad or tampon to wear. In every case bleeding stopped spontaneously.

On arrival at the laboratory the square of paper containing the specimen was unfolded and the coagulated material gently scraped from it with a scalpel blade. The material was then transferred to a square of filter paper, placed in a bouton and processed in an automatic tissue processor in the usual way. The specimen was removed from the paper after the second paraffin bath, embedded in fresh paraffin, and sectioned. The sections were stained with hæmatein, phloxine, and saffron.

Patients whose cervical scrapings were reported to be suspicious subsequently underwent a cone knife biopsy of the cervix, except in one case. Cone biopsy was also done in spite of a negative report on the scrapings if the clinical findings seemed to warrant it. Total hysterectomy, done for a variety of gynaecological conditions, permitted confirmation of the report on the scrapings in a further group of patients.

The cervical surface biopsies were examined by one of us (D.M.) while another (J.S.C.), usually unaware of the report on the scrapings, examined the cone biopsy and hysterectomy specimens.

RESULTS

Composition of samples.—The surface biopsies in 446 instances showed a various composition of cervical tissue fragments, cervical epithelial cells or both, frequently mixed with mucus and polymorphonuclear leukocytes. Fifty-four samples consisted of coagulated mucopurulent exudate and were adjudged inadequate.

In the biopsies containing tissue fragments, exocervical tissue was present alone in 108 samples and endocervical tissue alone was seen in 145 cases. In 95 instances both exocervical and endo-

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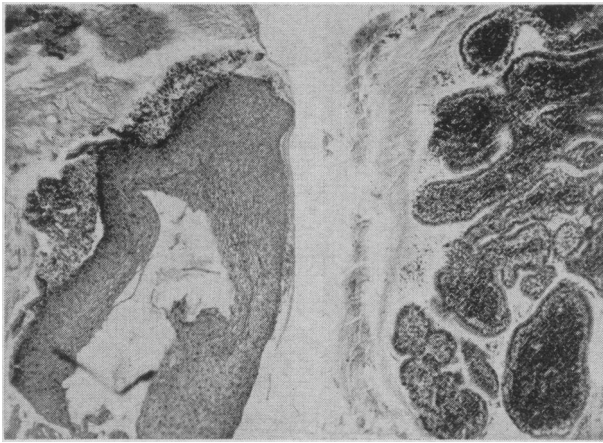


Fig. 1.—Cervical scrapings. On left, strips of stratified squamous epithelium. On right, polypoid endocervical fragments, covered by columnar epithelium and infiltrated with lymphocytes. Hæmatein, phloxine and saffron stain. $\times 55$.

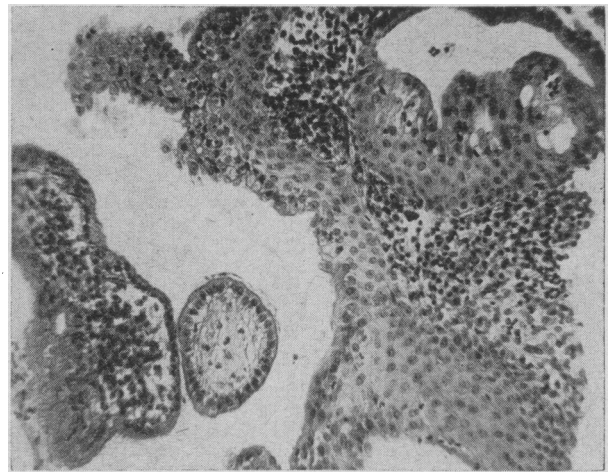


Fig. 2.—Cervical scrapings. Endocervical fragments showing orderly squamous metaplasia and lymphocytic infiltration. Hæmatein, phloxine and saffron stain. $\times 200$.

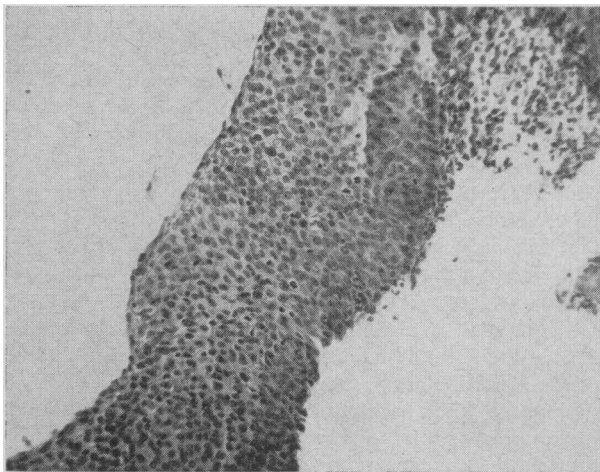


Fig. 3.—Cervical scrapings. A strip of epithelium showing loss of normal cell stratification throughout its thickness, and cell atypism. This was interpreted as "carcinoma *in situ*". Subsequent cervical biopsy was negative. Hæmatein, phloxine and saffron stain. $\times 200$.

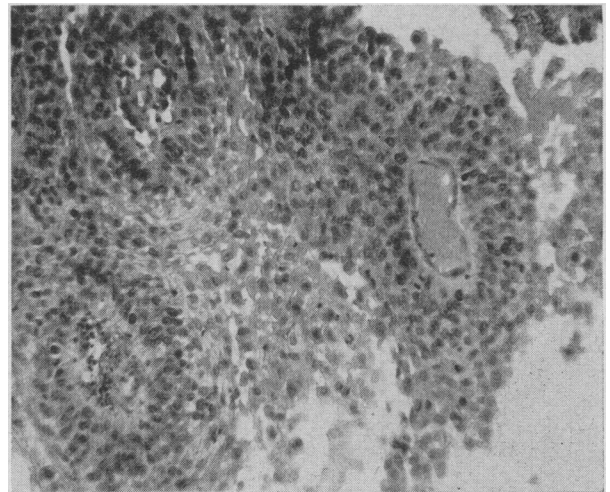


Fig. 4.—Cervical scrapings from a case not in this series. The loss of polarity of the epithelial cells and their extreme atypism permitted a diagnosis of carcinoma. Subsequent incisional biopsy revealed this to be invasive. Hæmatein, phloxine and saffron. $\times 200$.

cervical elements were present. Endocervical tissue was usually represented by gland fragments or rounded structures having stromal cores covered by columnar epithelium. The latter evidently represented polypoid excrescences of endocervical lining. Squamous epithelium was often seen as fairly long epithelial strips, thought to represent strips of exocervical covering. Squamous epithelium was also present within endocervical gland lumina, replacing columnar epithelium to a greater or lesser extent and clearly representing metaplastic change. It was sometimes not possible to decide whether small fragments or rounded masses of squamous epithelium represented tissue from the portio vaginalis or endocervical foci of squamous metaplasia (Figs. 1 and 2).

Masses of epithelial cells seen in the scrapings were usually of the squamous type, although columnar cells from the endocervical mucosa were sometimes present. It was not possible to state whether squamous cells were derived from the epithelium of the portio vaginalis or from foci of endocervical squamous metaplasia, although when

they occurred in the absence of endocervical elements the former view seemed more reasonable.

Pathological findings.—Of the 446 adequate cervical scrapings 438 were reported as negative (Table I). This group included 23 scrapings show-

TABLE I.

Total number of "adequate" surface biopsies	446
Number of surface biopsies reported as "negative"	438
Number of patients subsequently submitted to cone biopsy	84
Number of patients subsequently submitted to hysterectomy for various benign gynæcological conditions	58
Number of biopsies rated as "false negative" on the basis of pathological examination of cone biopsy or hysterectomy specimen	2

ing changes thought to represent simple epidermization of endocervical glands, a condition probably present in a larger number of specimens, for, as mentioned above, difficulty was encountered in distinguishing small fragment of exocervical epithelium from areas of endocervical squamous metaplasia. Also included in the negative group were 24 biopsies showing mild degrees of cervical

dysplasia of the type that has been described under such terms as basal cell hyperactivity¹² and atypical hyperplasia.¹³ The clinical findings in 84 patients in this negative group were deemed sufficient to warrant cone biopsy of the cervix to exclude carcinoma. Total hysterectomy was done in 58 other cases for a variety of gynaecological conditions. Pathological examination of this material confirmed the surface biopsy report, except in two cases. These two patients were reported pathologically to have carcinoma *in situ*. The surface biopsy reports had indicated the presence of cervical dysplasia but of a degree not considered to be alarming.

TABLE II.

Total number of "adequate" surface biopsies	446
Total number of patients with surface biopsies reported as "suspicious"	8
Number of patients with "suspicious" surface biopsies subsequently examined by cone biopsy	7
Report of cone biopsy:	
Early invasive carcinoma	1
Carcinoma <i>in situ</i>	2
Severe cervical dysplasia	3
Chronic cervicitis only	1

Cervical scrapings from 8 patients were considered to be "suspicious" (Table II). In 4 of these the microscopical appearance was such as to indicate the probability of carcinoma while in the other 4 the abnormal epithelium was somewhat less atypical. Of the 4 more suspicious cases subsequent biopsy revealed early invasive carcinoma in one case, carcinoma *in situ* in one case and cervical dysplasia deemed insufficient to warrant a diagnosis of carcinoma *in situ* in a third patient. The fourth case was negative on biopsy, but re-examination of the cervical scrapings (Fig. 3) did not alter the diagnosis and it was felt that the endocervical curettage had removed a carcinoma *in situ*. Of the 4 somewhat less suspicious cases, subsequent biopsy revealed carcinoma *in situ* in one case and cervical dysplasia in 2 cases; the fourth patient had left the country.

COMMENT

It is necessary to emphasize that the diagnosis of carcinoma *in situ* of the uterine cervix may vary with the pathologist examining the section.¹⁴ We believe that we are conservative in the use of this term, and apply it only when normal stratification is lost throughout the thickness of the epithelium, with associated cellular atypism and loss of polarity. We would also like to stress that it has not been established that carcinoma *in situ* progresses invariably to invasive carcinoma¹⁵ and that the biological relationship of cervical dysplasia to *in situ* and invasive cervical carcinoma has not been defined.¹⁶ If one sets aside the uncertainties in the pathological diagnosis of cervical

carcinoma *in situ* by whatever means, the method described in this paper would appear to be of value as a "screening" procedure suitable for office practice. It is usually not difficult to obtain the specimen once a little experience has been gained, if the curette is kept sharp. The specimen is easily handled in the pathological laboratory and the microscopic preparations can be thoroughly examined by the pathologist in a relatively short space of time. As in other screening procedures, false negative reports occur, so that a negative surface biopsy report does not allow one to dispense with cone biopsy in clinically suspicious cases.

SUMMARY AND CONCLUSIONS

Five hundred surface biopsies from 417 patients, obtained in the office by cervical curettage, included eight "suspicious" scrapings. Subsequent cone biopsy resulted in a pathological diagnosis of early invasive carcinoma in one case, carcinoma *in situ* in two cases and severe cervical dysplasia insufficient to warrant a diagnosis of carcinoma *in situ* in three cases. One case, negative on cone biopsy, was considered nevertheless to be carcinoma *in situ*. One case could not be followed up. Two "false negative" reports have been discovered, both cases of carcinoma *in situ*. The method would seem to be valuable as a "screening" test applicable to office practice, used as part of a procedure designed to detect carcinoma of the uterine cervix.

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RÉSUMÉ

Cet article traite des résultats obtenus au cabinet de consultation par curettage de l'exocol. Huit patientes d'une série de 417 chez qui on avait pratiqué un total de 500 biopsies de surface donnèrent un frottis suspect. L'évidement conoïde chez ces dernières permit de porter un diagnostic histologique de carcinome précoce invasif chez une malade, de carcinome *in situ* chez deux autres et de dysplasie cervicale avancée mais non encore néoplasique chez trois autres. Un autre cas fut considéré cancéreux en dépit d'une biopsie négative; la dernière malade ne se présentait pas pour l'examen de contrôle. La confrontation clinique ultérieure montra que deux rapports faussement négatifs furent donnés chez des cas de cancers intra-épithéliaux. La méthode offre un certain intérêt dans le dépistage au cabinet de consultation des lésions cancéreuses du col.