

# Histopathologic evaluation of uteri curetted by flexible suction cannula

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*A prospective study was undertaken to evaluate the use of the flexible plastic cannula for obtaining endometrial specimens for diagnostic purposes. Suction curettage was performed immediately posthysterectomy, the specimens evaluated, and then compared to similar specimens obtained by a metal curette. Another group of patients had suction curettage performed as an office procedure 24 to 72 hours before hysterectomy. The results of our study confirm the adequacy of this method for obtaining endometrial samples.*

WHILE CYTOLOGIC screening of exfoliated cervical cells is a successful technique for detecting cervical neoplasia, it is not as accurate when used for endometrial cancer screening.<sup>1-3</sup> Consequently, removal of endometrial tissue for diagnostic evaluation has become the primary method for detection of early endometrial carcinoma in high-risk females. This usually means a dilatation and curettage of the uterus in a hospital operating room. Therefore it would seem worthwhile to develop modifications that would permit outpatient screening which are safe, efficient, inexpensive, and relatively painless.

At our institution, the use of the small, flexible, plastic cannula for menstrual aspiration and early pregnancy termination has proved to be a highly successful tool.<sup>4-6</sup> This study was undertaken to evaluate the use of the same instrument in obtaining endometrial specimens for diagnostic purposes.<sup>7,8</sup>

## Materials and methods

Eighty patients who were scheduled for abdominal or vaginal hysterectomy had a suction curettage

**Table I.** Suction curettage: Microscopic and macroscopic histopathology (23 cases)

Endometrium removed	Superficial		Intermediate		Basal	
	No.	%	No.	%	No.	%
Isthmus	23	100	17	74	6	26
Uterine						
Anterior	22	96	15	68	5	22
Posterior	23	100	14	61	4	17
Cornua						
Right	20	87	9	50	0	0
Left	17	74	8	35	0	0

performed with the flexible plastic cannula immediately prior to their operative procedure. The curettages and uterus were then evaluated microscopically for histologic quality and depth of sampling. The depth was based on the presence or absence of spongy or superficial tissue, compact or intermediate layer tissue and basal or deep endometrium in the removed uterus. The uteri were also evaluated for residual endometrial tissue in the following sites: isthmus, anterior and posterior end portion, and right and left cornual regions.

Twenty-three of the uteri were submitted to a detailed microscopic and gross examination. Fifty-seven additional specimens were studied in detail by gross examination alone. Seven specimens were microscopically and grossly evaluated following curettage with only a standard sharp metal curette.

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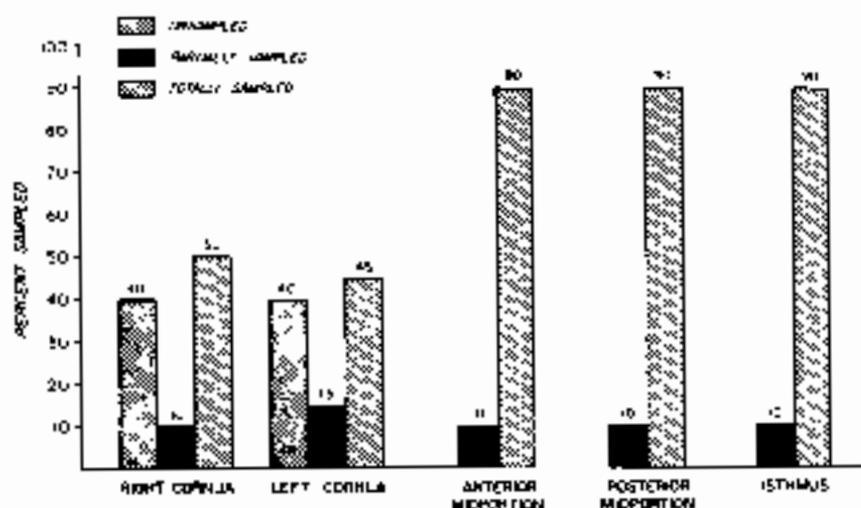


Fig. 1. Macroscopic screening of 57 uteri.

**Table II.** Metal curettage: Macroscopic and macroscopic histopathology (7 cases)

Endometrium removed	Superficial		Intermediate		Basal	
	No.	%	No.	%	No.	%
Isthmus	7	100	5	71	5	71
Uterine						
Anterior	7	100	5	71	4	57
Posterior	7	100	6	86	5	71
Cervix						
High	1	57	2	28	0	
Low	5	43	4	0	0	

The patients ranged in age between 26 and 75 years with a majority between 35 and 45 years. The primary indications for surgery were sterilization and pelvic relaxation. Other indications included adenocarcinoma, leiomyomas, and endometriosis.

The cannulas\* used for this study were flexible, blunt tipped, with a double aperture at the distal end, and measured 4, 5, and 6 mm. in diameter. Vacuum sources during the procedures were usually a 50 cc. syringe,<sup>†</sup> We also used a "bicycle pump" vacuum apparatus,<sup>‡</sup> an electric pump,<sup>§</sup> and a "Mity-vac" hand pump.<sup>||</sup> None of the vacuum sources altered the findings presented since all pressures were maintained at about 650 mm. Hg.

### Results

Table I reveals the results obtained by careful evaluation of the initial 23 uteri. Grossly and macro-

scopically, the superficial layer of the endometrium was removed completely or nearly completely in the pelvic and mid portions of all but one patient. The superficial endometrium was removed from the right cornua in 20 patients (87 per cent) and from the left cornua in 17 patients (74 per cent).

Table II reveals the results obtained in the seven patients in whom a metal curette was used. Note that the superficial endometrium was removed from the right cornual region in four cases (57 per cent) and from the left in three (43 per cent). The basal endometrium was damaged or removed in the isthmus and mid portions in five (71 per cent) of the patients. Menstrual fragments were found in these five patients.

Five-seven additional uteri were screened macroscopically following suction curettage. The results are shown in Fig. 1. The only areas that were inadequately sampled were in the cornua. These areas were interpreted as being incompletely sampled in 40 per cent of these patients.

The use of the suction catheter consistently resulted in larger intact strips of tissue which aided the pathologist in tissue interpretation and diagnosis. Vacuum aspiration did not seem to alter or impair the histologic quality of cellular detail. In one instance an invasive epidermoid carcinoma of the cervix was diagnosed in a 60-year-old postmenopausal woman who presented with abnormal bleeding. The tissue was obtained during diagnostic aspiration utilizing a fractional technique and later confirmed by cone biopsy.

Blood loss in all cases was reported as minimal. There were no uterine perforations reported.

Based on the initial findings with this method of endometrial sampling, an additional 25 patients un-

derwent office procedure except for the anesthesia. Immediately assessed quality of uterine suction 3 days later was satisfactory. In another study with the 4 mm. diameter suction catheter by anesthesia confirmed the

### Comment

Suction curettage removed sufficient tissue for diagnosis. The

### REFERENCE

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### Discussion

DR. HERMAN reports accurate dilatation and simplifies method of the endometrium of adenocarcinoma. An interesting fact for ambulatory early abortion procedure was there have been abortion that has procedures for bleeding. These endometrial carcinoma operates efficiently. Hale's studies know 100% of 10 to 28 per cent. than the experimental itself well to the frequently and the dysfunction gave in nature simple and di-

\*Obtained from Berkeley Bio-Engineering, Inc.

†Obtained from Rocket of London, Inc.

‡Obtained from Nalgene, Inc.

erent office endometrial biopsies with the same procedure except that paracervical block was used for anesthesia. Although it was impossible to immediately assess the adequacy of sampling, the amount and quality of tissue obtained at hysterectomy 1 to 3 months later was identical to that obtained in the earlier study. In another twenty patients, endometrial biopsies with the 4 mm. cannula was performed without use of paracervical anesthesia. Again, histopathologic evaluation confirmed the adequacy of the specimens.

#### Comment

Suction curettage with small, flexible cannula removed sufficient endometrium for accurate pathological diagnosis. The advantages of this technique are less

trauma to the basal endometrial layers, a more uniform removal of tissue, and easier access to the cervical regions. The removal of the basal layer and fragmentation of tissue were found to be less extensive with suction when compared to sharp curettage. Because the flexibility of the tip of the cannula decreases the likelihood of penetrating the uterine wall, it should diminish the risk of uterine perforation.

Histologic sampling by the small, flexible cannula may prove advantageous as a screening procedure in high-risk patients with or without symptoms. This method of endometrial sampling appeared to be more effective than the traditional sharp metal curette used in the operating room.

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#### Discussion

Dr. HERMAN S. RICE, JR., Tucson, Arizona: This report accurately depicts the efficiency of suction dilation and curettage (D & C). Its availability and simplicity make it a primary tool for preoperative evaluation of the endometrium, and especially the early diagnosis of adenocarcinoma of the endometrium. It is an interesting fact that, until many devices were designed for ambulatory suction curettage in conjunction with early abortion, the instrumentation for this type of procedure was for the most part not available. Now there have been many developments in the field of abortion that have been translated into early diagnostic procedures for use in every phase of obstetrician-bleeding. These have resulted in the early diagnosis of endometrial carcinoma or premalignant lesions of the endometrium. This is a "vacuum cleaning device" that operates efficiently and effectively in the uterus. Dr. Hale's studies have clearly shown this. His accuracy, we know from other studies, is in the neighborhood of 95 to 96 per cent. It certainly is as effective, if not more so, than the expensive procedure of sharp curettage as an in-hospital or ambulatory care procedure. It adapts itself well to the office and can be used, therefore, very frequently and more promptly in the management of the dysfunctional bleeding episodes that may be quite grave in nature. Dr. Hale is to be congratulated for his simple and direct approach to this problem. He has

added a contribution to the field of early cancer diagnosis. Office endometrial sampling techniques are not new and date back to the days of Howard Kelly at Johns Hopkins. The recent reinstitution of sharp D & C techniques and instrumentation have been an outgrowth from the liberalization of abortion. It is my opinion that we have the instrumentation for adequate in-office suction D & C. Comparative studies using various methods of curettage with or without suction indicate that the procedure is as accurate as an in-hospital D & C, probably 95 to 98 per cent. A differential D & C (cervix and uterus) can be carried out in the office. Dr. John Wall of Houston, Texas, described this procedure 15 or 20 years ago, but it was infrequently used until Dr. Fred Halmesmayer of Milwaukee, Wisconsin, reported a massive series in the early 1970's (20,677 endometrial biopsies in the *American Journal of Obstetrics and Gynecology*, **118**: 773-777). About this same time, many other gynecologists began reporting "extended endometrial biopsies," outpatient D & C, (Dr. William Mengert), and finally suction D & C procedures with or without anesthesia. Recently, Dr. John Poyas of Newport Beach, California, designed a simple suction apparatus for office use. The Grader-Jet Washer has been recently developed and has a wide group of enthusiastic followers. It is apparent that liberal use of intrauterine diagnostic techniques has improved the

early diagnosis rate and favorably influenced the management of endometrial cancer and its precursors. The current ratio of cervix to endometrial cancer has approached 1:1.

This report neatly analyzes and compares the thoroughness of outpatient D & C versus in-hospital D & C. Its clear-cut, gross and microscopic slides attest to the completeness of the procedure.

The development of laparoscopy has recently been phenomenal. One cannot resist the opportunity suggested that its more liberal use in screening the vaguely symptomatic patient with abnormal dyscri-

tori and/or pain may result in the early diagnosis of intra-abdominal malignancy and especially carcinoma of the ovary.

Dr. Eugene W. Pace, Piscataway, New Jersey. There is a certain amount of pain when the cannula is introduced through the internal os. Over the years I have found that such pain may be markedly reduced by simply making a Q-tip in 1 or 2 per cent lubricate, placing it within the internal os, and leaving it there for a full minute. Many gynecologists are not aware of this, but you may find that it will obviate the need for a paracervical block.

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