

The Vaginal Approach in Gynecologic Surgery

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THE surgical approach to pelvic disease through the vaginal canal is not only one of the oldest but one of the safest and most satisfactory procedures in gynecology. Surgeons working in other fields that may be reached through a natural passage have generally appreciated this increased factor of safety. Major pathologic growths are being removed regularly by these workers through the urethra, aural, nasal and rectal canals. In these days one does not choose to deliver an infant by laparotomy unless it is impossible to do so through the birth canal or unless the operator is unskilled in instrumental manipulation through the vagina.

HISTORICAL DEVELOPMENT

The pioneer surgeons in gynecology, especially in the days before aseptic technics were developed, found that they could remove major growths through the vagina with greater safety than they could through the abdominal wall. In 1899 Dührssen¹ began to report his phenomenal results obtained by vaginal surgery. He reported 1600 vaginal operations done in his clinic with an uncorrected mortality rate of 2 per cent. His skill as a vaginal gynecologist is attested to by the fact that these patients represented 80 per cent of all the women operated upon by him during this period. Few individuals or American clinics have equaled this record. Pean,² the originator of vaginal hysterectomy by the clamp method, was the first to accomplish morcellation of the myomatous uterus through the vagina. Those surgeons who have perfected their technics in morcellation are as enthusiastic about it today as was Pean in 1889. Landau³ in 1877, writing about morcellation, said, "In removing

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a myomatous uterus, as far as a matter of choice, we should always seek first for a contraindication to the vaginal removal rather than indications for laparotomy." At present we believe that this observation is still true.

Perfection of aseptic technic and the advent of the exploratory laparotomy gradually led doctors with less exact and less critical methods of differential diagnosis than we have today to use incision in the anterior abdominal wall as a diagnostic as well as a therapeutic procedure. In some quarters it is still less physical effort and time-consuming to suggest to the patient that the surgeon can "sort of look around and see what is necessary to be done," rather than carry out the careful preoperative study of a patient before vaginal surgery is undertaken.

FACTORS IN INCREASED USE OF THE VAGINAL APPROACH

Teaching Practices

The wide variations in the percentage of vaginal gynecologic procedures used in teaching clinics in this country and abroad are probably due to many factors. Foremost of these influences is the type of training of the attending staff during their formative years. Second is the type of patient cared for in that particular clinic. A high incidence of gross pathologic changes and pelvic inflammatory disease will decrease the possibilities of vaginal diagnosis and therapy. A third influence is the parallel teaching of obstetrics and gynecology; thus the student, in his early years, comes to think in terms of the vaginal approach in diagnosis and treatment of pelvic disease. The always present human inertia against changing habits of thinking or procedure has unduly delayed early acceptance of advances in all fields of medicine. Such brilliant nonconformists as Blalock in cardiac conditions, Graham in pulmonary surgery, Phemister in diseases of bone, and Sippy, Billroth and Mayo in gastrointestinal disease, by persistent efforts have finally overcome some of the delayed acceptance of their concepts. In the field of vaginal surgery the continuous efforts of such experts as Heaney,⁴ Schauta¹⁰ and others are finally bringing about comparable changes. Until recently in America and in Britain vaginal surgery was largely limited to exploration of the uterine cavity, repair of procidentia and correction of lesions of the vaginal walls and external genitals, indeed a narrow field for an expert gynecologic surgeon.

Increased Safety and Flexibility

Today, extensive experience of many gynecologists in the use of vaginal hysterectomy, particularly in this country, has led them not only to its more frequent use but also to extend the various steps in its technic to many valuable diagnostic procedures and treatments in pelvic disease. Inspection of the lower pelvis and its contents through posterior

or anterior colpotomy, as well as the added visibility obtained through the open vaginal vault after vaginal hysterectomy, has enabled the gynecologist to increase the scope of his vaginal diagnosis and treatment of gynecologic conditions tremendously. Such pioneers as Heaney,⁴ Danforth,⁵ Masson,⁶ Waugh,⁷ Averett,⁸ Babcock⁹ in this country, and Schauta,¹⁰ Bastiaanse¹¹ and others abroad have demonstrated the increased safety and flexibility of vaginal procedures as compared with those of abdominal gynecologic approaches in a great number of pelvic abnormalities. If vaginal removal of the malignant corpus or cervix is added, as it is in some clinics, these percentages will be higher. Generally, we have not used the vaginal approach in our Clinic for removal of malignant disease of the cervix, adnexa or uterine body. A progressive acquisition of the fundamental steps in vaginal hysterectomy and morcellation such as anterior and posterior colpotomy, version of the uterus and inspection of the adnexa with a precise knowledge of the "upside down" anatomy involved, should enable one to far surpass the results reported by these previously named expert vaginal surgeons.

The rather spectacular decrease in morbidity and mortality that has occurred in other types of surgery in the last few years, due to use of blood and fluids, the antibiotics, better anesthesia, preoperative study and prophylaxis, and other factors of safety, has paralleled the recent series reported by well trained men in the field of vaginal surgery. If comparable studies during identical time intervals are made of vaginal versus dominal procedure, whether it be in obstetrics or gynecology, therapy carried out through the vaginal tract is found to be not only safer, but also attended with much less discomfort to the patient. Those patients who have been subjected to both laparotomy and vaginal surgery have no question in their minds as to the relative merits of the two procedures.

Proper Selection of Patients

There is little doubt that certain procedures in gynecology should be carried out through the vagina and others through the abdominal wall. Campbell¹² in 1945, reporting the work of our staff at Presbyterian Hospital, Chicago, demonstrated that proper selection of the prospective patient for vaginal surgery, and the application of a standard technic in preoperative and postoperative care, are almost as essential for good results as is the skill of the surgeon. In that series 2798 vaginal hysterectomies were reported for the years 1931 to 1944. In the series 1361 patients were operated upon by Dr. N. S. Heaney, Chief of Gynecology, while 1437 patients were attended to by the remainder of the staff. The series includes those clinic patients cared for by the resident and intern during their regular service rotation. There were three deaths in each group, a total of six, giving an over-all mortality rate of 0.21 per cent. During the same time interval 893 uteri were removed through the ab-

domen. Ten of these patients were lost, a death rate of 1.7 per cent. Many of the patients in both groups needed additional surgery such as vaginal repair, salpingo-oophorectomy, appendectomy, or ovarian and tubal resection.

Lower Morbidity and Mortality Rates

A compilation of statistics from the literature presented in Campbell's report covering approximately the same time interval revealed that the average mortality rate for abdominal hysterectomy was 2.4 per cent as compared to the collected group of vaginal hysterectomies with an average mortality of 0.32 per cent. During the years 1945 to February 1952, 3905 hysterectomies were performed on our Gynecological Service; 909 were abdominal, while 2996 were vaginal hysterectomies. This relative proportion is essentially the same as was reported in the previous series. The difference in mortality rates for this recent group of patients,

Table 1
HYSTERECTOMIES PERFORMED AT THE PRESBYTERIAN HOSPITAL OF
CHICAGO, 1945-1952

TYPE	NUMBER	DEATHS	PERCENTAGE 1945-1952	PERCENTAGE 1931-1944 ¹²
Abdominal	909	5	0.55	1.7
Vaginal	2996	3	0.01	0.22
Total	3905			

i.e., five deaths in 909 laparotomies and three deaths in 2996 vaginal operations (Table 1), not only reflects the general effect of improved surgical procedures, but also indicates even more graphically the increased safety of vaginal over abdominal hysterectomy. We must concede that the more complicated conditions which indicate abdominal removal of the uterus will account for a portion of the increased mortality in the two groups of patients. However, in the first group of vaginal hysterectomies, 609 required morcellation of the uterus and many of them salpingo-oophorectomies. Approximately one-half of them also required some form of repair for relaxed pelvic supports. Morecellations and repairs in the second group maintained approximately the same ratio of additional procedures.

In our experience the addition of vaginal plastic to the vaginal hysterectomy increases the morbidity over that of straight vaginal hysterectomy or even one done by morcellation. In many teaching clinics vaginal removal of the uterus is practically limited to instances in which the uterus protrudes from the vagina and repair for procidentia is necessary. In our experience this is one of the most technical and difficult of vaginal operations. The displacement of bladder, ureters and bowel, and the wide

dissection necessary, increase the possibilities of morbidity and damage to important structures. We believe, however, that this additional risk is justified and that it is even less than it would be if the patient were subjected at separate times to two separate operations or to the combined operations of vaginal plastic and abdominal hysterectomy. There can be no doubt that the sum total discomfort of the patient is less by the first procedure than it is in either of the other two methods.

Many statements occur in the literature that vaginal hysterectomy unduly shortens the vagina. This has not been our experience except in those patients in whom the vagina was already shortened by marked protrusion or inversion. It seems logical to presume that the length of the vagina is determined by the level at which it is separated from the cervix rather than by the method by which the uterus is removed. In many instances we believe that the vagina can actually be lengthened by including that portion of the mucosa covering the upper part of the portio. This dissection can be done more accurately per vaginam than through an abdominal incision.

Adequate Exposure by Anterior and Posterior Colpotomy

When the uterus is to be left in, sufficient operative space can still be secured for adequate exposure and manipulative procedures, through which many important diagnostic and therapeutic procedures may safely be carried out (Figs. 17, 18). Naturally this space is less constricted in the posterior fornix of the vagina than in the anterior, because the uterus may be displaced forward and upward, and the posterior vaginal wall can be displaced backward and outward. In addition to the matter of obtaining adequate exposure, such important organs as the ovaries and tubes lie directly behind the posterior cul-de-sac, the thinnest portion of the abdominal wall. Occasionally, however, a fixed tumor involves the anterior cul-de-sac and may be reached more readily by anterior colpotomy. A small opening in either vaginal fornix may be sufficient for simple diagnostic procedures. If wider visualization becomes necessary or, as frequently happens, if therapeutic procedures are indicated, additional space may be obtained by stretching the angles of the incision or by widening them by clamping and cutting.

In the posterior colpotomy primary ligation of the sacrouterine ligaments not only gives increased visualization but also increased mobility for organs to be removed. During closure of the incision these ligaments are reattached to their normal locations. Rotation of the uterus in all axes, including its delivery into the vagina, will bring into view its various surfaces and draw into the opening the supports of the adnexa so that they may be delivered with ease (Figs. 19, 20). Complete visualization of the peritoneum of the cul-de-sac, a portion of the sigmoid colon, small bowel, and occasionally with a low lying cecum the vermiform appendix,

can be accomplished readily by posterior colpotomy. We believe that the procedure of colpotomy should be used much more widely than it is as a diagnostic as well as a therapeutic procedure. Everyone uses the diagnostic curettage; few use colpotomy. Risk to the patient or hospital days required for convalescence are not materially increased one over the other.

Fig. 17.

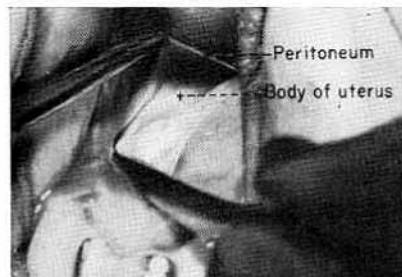


Fig. 18.

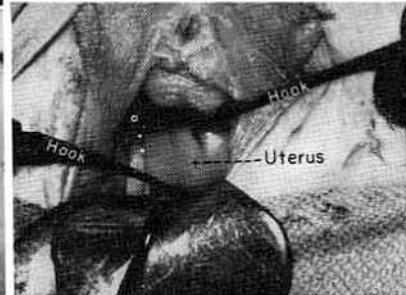
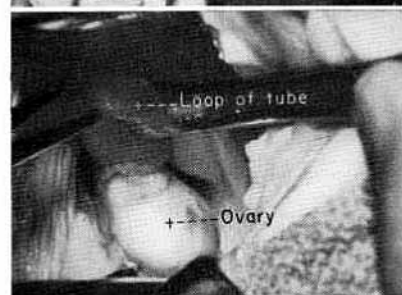


Fig. 19.

Fig. 20.

Fig. 17. Anterior colpotomy opening in peritoneum of anterior cul-de-sac as large as that through which the vermiform appendix is regularly removed.

Fig. 18. Posterior colpotomy. Vaginal mucous membrane incised, peritoneum being opened.

Fig. 19. Inspection of tube through posterior colpotomy during Pomeroy sterilization.

Fig. 20. Manipulation of corpus with hooks to inspect it and draw adnexa into view.

OPERATIVE PROCEDURES PERFORMED THROUGH THE POSTERIOR COLPOTOMY INCISION

Diagnosis of Ectopic Pregnancy

Our extensive use of the colpotomy incision for both diagnosis and as an approach to pelvic disease (Table 2) has been a development over many years, beginning with its use in suspected ectopic pregnancy. Successive reports from this Clinic,^{13, 14, 15} we believe, have amply demonstrated its applicability and safety. Our reports¹⁴ comparing results with those obtained by our general surgical service in the care of ectopic

pregnancy, using other regularly accepted methods, strongly suggest addition of colpotomy rather than colpopuncture to the usual surgical armamentarium. In most of the reports on extrauterine pregnancy in the literature, posterior colpotomy is either not mentioned or, if so, only to be condemned. Mortality and morbidity rates in most of their reports do not warrant the lack of use of posterior colpotomy for diagnosis or even as a therapeutic approach (Table 3).

Table 2

POSTERIOR COLPOTOMIES PERFORMED AT THE PRESBYTERIAN HOSPITAL OF CHICAGO, MAY 1945 TO JULY 1950

Total number of posterior colpotomies done	432
Total number of vaginal sterilizations	97
Diagnostic (only) colpotomies	129
Total number of tubal pregnancies	60
Colpotomy alone	38
Colpotomy and laparotomy	22
Operative procedures performed through the posterior colpotomy incision	146
Ovarian resection (cysts)	56
Wedge ovarian resection	6
Oophorectomy	16
Twisted ovarian cyst resection	1
Ovarian cyst aspiration	5
Unilateral salpingo-oophorectomy	4
Myomectomy	13
Endometrial transplants (cautery)	15
Endometrial transplants (resection)	7
Cul-de-sac wall biopsy	2
Drainage pelvic abscess	5
Salpingectomy (nonpregnant)	10
Aspiration hydrosalpinx	1
Resection paraovarian cysts	5

Tubal Sterilization

Tubal sterilization alone or accompanying vaginal repair is one of the common procedures of gynecologic practice. The consensus of our Obstetrical Service is that the indications for sterilization should be only a contributory element rather than the deciding factor when need for cesarean section is being considered. We feel that sterilization should otherwise be done either during the immediate postpartum period or preferably through the vagina when involution is complete, menstrual function resumed and when a more logical choice of procedure can therefore be arrived at.¹⁵ We no longer sterilize patients as a part of the procedure of therapeutic abortion except under unusual conditions. Sterilization by the Pomeroy method, through the posterior cul-de-sac, has been much more satisfactory and simpler than resection of the cornua or those procedures which bury the tube in various structures (Fig. 19).

In our series there were 52 cases of sterilization without plastic. There was a morbidity of two days in 3 cases. There were 117 cases of steriliza-

tion and additional procedures with morbidity in 31 cases, an average of 4.9 days. There were no deaths in the series. An analysis is presented in Table 4.

Table 3
ANALYSIS OF MORBIDITY¹³

	TOTAL NUMBER	AFE- BRILE	FEBRILE	NO. OF DAYS FEBRILE	PER- CENT- AGE FEBRILE	NO. OF FEBRILE DAYS DIVIDED BY TOTAL NUMBER OF PATIENTS TREATED
Ectopic pregnancy re- moved through pos- terior colpotomy in- cision	68	47	21	85	30.8	1.25 days
Ectopic pregnancy re- moved through pos- terior colpotomy in- cision plus additional surgery	9	6	3	17	33.3	1.88 days
Ectopic pregnancy re- moved by laparotomy after colpotomy or colpopuncture	80	36	43	166	53.7	2.07 days
Ectopic pregnancy re- moved by laparotomy after dilatation and curettage	31	12	19	82	61.2	2.64 days
Ectopic pregnancy re- moved by straight laparotomy	19	7	12	75	63.1	3.94 days
Ectopic pregnancy re- moved by straight laparotomy plus ad- ditional surgery	17	4	14	59	82.3	3.47 days

Table 4
TECHNIC OF STERILIZATION¹⁶

Pomeroy, posterior colpotomy.....	64	} 62.7 per cent
Pomeroy, anterior colpotomy.....	42	
Cornual resection, anterior colpotomy.....	35	} 34.9 per cent
Cornual resection, posterior colpotomy.....	25	
Defundectomy, anterior colpotomy.....	3	2.4 per cent

HOSPITAL STAY

Pomeroy (without plastic).....	6.4 days
Cornual resection (without plastic).....	10.2 days*
Sterilization and vaginal plastic.....	11.0 days

* Performed largely before advent of early ambulation.

We have not used culdoscopy on our gynecologic service largely, I believe, because we have found posterior colpotomy so satisfactory and because valuable therapeutic procedures may be carried out at any time during this operative procedure. We have erred perhaps on the side of using it too frequently as a method of accurate early diagnosis rather than subjecting the patient, as we have already suggested, to the increased risk of later diagnosis in ectopic pregnancy or in small persistent tumors of the ovary or tube.

Fig. 21.

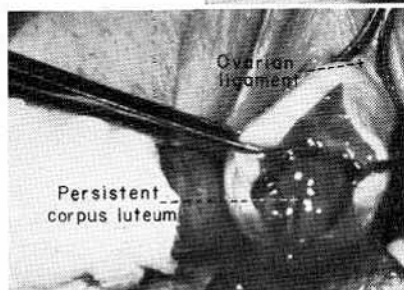
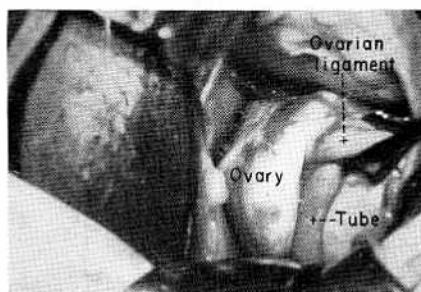


Fig. 22.

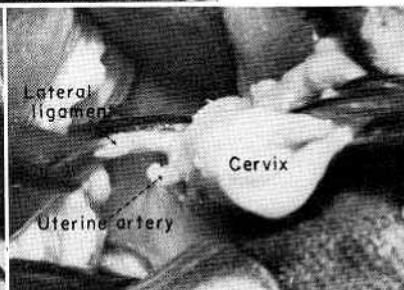


Fig. 23.

- Fig. 21. Delivery of adnexa through posterior colpotomy.
 Fig. 22. Resection of persistent corpus luteum through posterior colpotomy.
 Fig. 23. Division of the lateral ligament and uterine vessels.

Diagnosis and Removal of Ovarian Growths

The cure of ovarian malignancy depends more upon its early diagnosis than does almost any of the other pelvic neoplasms. The delay caused by the patient's or the surgeon's contemplation of exploratory abdominal incision has cost many women their lives. In our experience women accept intravaginal exploration more readily, probably because it leaves no visible scar, and they are becoming cognizant that vaginal procedures cause less pain than do the abdominal. Patients spreading this knowledge among women will probably do more to bring about a wider use of diagnostic and therapeutic vaginal surgery than will the carefully controlled studies of numerous investigators in this field. If a diagnosis of malignant

disease is made during the procedure of colpotomy, further therapy is carried out through the abdomen. In this way manipulation of the lesion can be diminished and exposure increased to the maximum. However, when the disease is found to be benign, manipulation is the essence of accurate visualization and adequate therapy (Figs. 20, 21, 22). Single or multiple benign cysts of the ovary, small dermoids, some endometrial cysts or peritoneal implants, small fibromas and most certainly persistent or ruptured corpora lutea can be readily removed or excised through the posterior colpotomy openings. Simple myomectomy of small subserous or intramural fibroids lends itself to similar treatment, though less frequently. If this general type of pathologic involvement is suspected or encountered in a patient who is to be subjected to vaginal hysterectomy, the increased space through the vault incision makes removal doubly simple. Salpingo-oophorectomy in the premenopausal or postmenopausal patient is equally simple except in a few of the most elderly women in whom shrinking and atrophy of the ovarian ligament have occurred.

Vaginal Hysterectomy

In our Clinic vaginal hysterectomy is frequently chosen as a method of sterilization when the function of menstruation is disturbed, when benign disease such as fibroids is present or when there is prolapse of the pelvic organs. Need for therapeutic sterilization has decreased rapidly in the last ten years because of the more efficient medical care of heart disease, tuberculosis, nervous diseases, and others; but we feel that a couple may have a considerable right in the decision as to what risks they may choose to take in future pregnancies. We are still unconvinced that the uterus has other essential functions than that of childbearing and that when this function is completed, it is necessary to retain it at all costs. A functionless although normal organ that may disturb the health, happiness and even the pocketbook of a pair of parents we believe need not cause us as much concern as has been expressed in several recent articles concerning hysterectomy in the current literature. Competent ethical surgeons will not unnecessarily remove uteri, and their advice to patients should not be hampered or constricted by the present agitation over lost uteri which have in most instances fulfilled their function of reproduction.

We have as a group followed the technic of vaginal hysterectomy described and illustrated by Heaney⁴ in his many contributions to the literature. Several other authors have reported excellent results with slight modifications of his original procedure. Well illustrated descriptions of these various operative procedures are now a part of most standard textbooks on operative gynecology. No attempt to further describe the details of technic is necessary, but the plates accompanying this article with their descriptive text illustrate those essential steps in vaginal

hysterectomy which will permit one to use them in a wide variety of different diagnostic and therapeutic procedures for many of the most important diseases of the female pelvis.

After the preliminary incisions in the anterior and posterior vaginal walls, progressive division of the supportive structure produces increased mobility of normal or pathologic structures. Fixation of the pelvic organs by tumors or disease may frequently be overcome more accurately through the open vaginal vault than by way of abdominal incision. Adhesions in the cul-de-sac or about prolapsed adnexa are closer to the incision here than they are to the usual midline incision through the abdominal wall. Low lying uterine and adnexal growths may be "sneaked" out from beneath these midabdominal adhesions more safely than "plowing" down through them to arrive finally at the primary tumor in the depth of the cul-de-sac. In that group of patients reported from this Clinic in 1945, 494 patients had had previous abdominal surgery of whom 82 had been subjected to operations on the pelvic organs. This does not take into account the many remaining patients in whom previous pelvic or extrapelvic inflammation had occurred or in whom tumorous growths of the uterus or adnexa were encountered during the operative procedures. Seventy-five per cent of this group required surgery other than simple vaginal hysterectomy. One or both of the adnexa were removed in 655 of these patients. Two hundred and nineteen of the 640 patients operated upon during 1949 and upon whom vaginal hysterectomy was performed required morcellation of the uterus.¹⁴

Morcellation of the Uterus. The ease and safety with which morcellation of the uterus may be accomplished depend to a large extent upon the location of the component parts of the tumor rather than upon its size. Small tumors lying just beneath the bladder and occupying the region where ligation of the uterine arteries is done, or extending into the intraligamentary space between the leaves of the broad ligaments, may interfere with proper visualization and hemostasis, while a tumor of the fundus of large size may be manipulated readily and bloodlessly, and may be removed with ease. In this latter type of tumor, after the uterine arteries have been ligated (Fig. 23), wedge-shaped excision (Fig. 24) rapidly decreases the size of the tumor until the anastomosing branches with the ovarian blood supply can be ligated under direct vision.

We believe that a preliminary diagnostic curettage should be done before any vaginal removal of the uterus is undertaken. Undiscovered malignancy of the corpus or cervix will radically change the course of procedure. This is particularly true when morcellation is contemplated. Frozen section of the scrapings should be routine in all questionable cases. If carcinoma of the corpus is discovered, vaginal closure of the cervix or even wide cuff resection of the vaginal vault and ligation of the

lower group of blood vessels may add materially to the ease and safety with which the growth may be widely removed through an abdominal incision.

The general experience of the service confirms the observations made upon those patients operated upon by the author and reported in 1949. Conclusions were drawn in that study^{14b} that morcellation of the uterus is as safe as, and certainly more comfortable for the patient than, abdominal hysterectomy. A slight increase in the incidence of bladder infection over that following simple vaginal hysterectomy was the only demonstrable increase in morbidity. This morbidity was less following

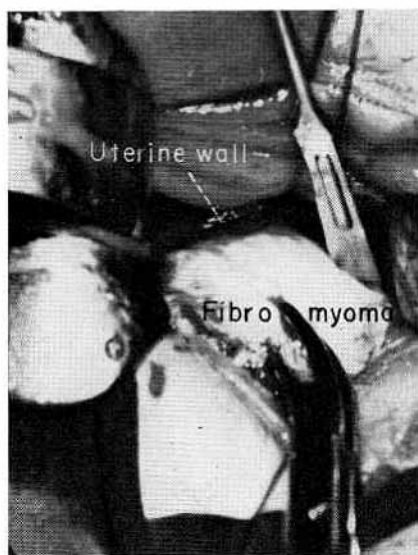


Fig. 24. Intracapsular morcellation of fibromyomas during vaginal hysterectomy.

morcellation than it was in those patients in whom vaginal plastic was necessary as an additional procedure. Vaginal hysterectomy is undertaken in many clinics only when the repair of procidentia is the essential pathologic change. Two hundred and nineteen of 640 patients, or slightly over one-third in this latter series, required some degree of morcellation. Approximately one-fifth of the 2496 patients operated upon per vaginam between 1945 and February 1952 have required morcellation. A more detailed report of these more recent cases will be made in the near future.

Repair of Prolapsed Pelvic Organs

Adequate repair for prolapse of the pelvic organs has been, and still is, one of the most confused problems in gynecologic surgery. Innumerable procedures have been devised, using the abdominal, vaginal or com-

bined approaches for repair. None of them has proved adequate. Fixation procedures, except perhaps with the help of fascial strips, have largely been discontinued in most clinics. Interposition of all or a portion of the uterus is being used less and less with the possible exception of the composite operation, and this has not been widely accepted. Reposition in the milder degrees of prolapse or in younger patients by standard types of colporrhaphy alone or combined with some form of shortening of the lateral ligaments, as in the Manchester operation, is a more or less standard procedure. In some clinics the favorite type of abdominal reposition is added to the technic.

When the function of the uterus is no longer necessary, vaginal hysterectomy with coincidental attachment of the supporting ligaments, notably the cardinal ligaments, with additional anterior and posterior colporrhaphy, is rapidly gaining favor, not only in America, but also in the British Isles and in Australia. Phaneuf's extensive reports¹⁶ on vaginal plastic surgery, employing most of the reposition procedures, summarizes the general preference for the use of vaginal hysterectomy. The excellent results reported by this author emphasize, we believe, the fact that the amount of shortening produced in the ligamentary division, when the uterus or cervical stump is removed, greatly facilitates further shortening and reattachment, in addition to the important obliteration of the cul-de-sac of Douglas. The wide opening in the vault of the vagina produced during hysterectomy or trachelectomy offers the most ideal approach to the structures involved as well as the opportunity to determine by downward trial traction the points of maximum support for the bladder and vaginal vault. A complete visualization of the fibrous elastic muscular envelope which supports the contents of the pelvis, with the defects in its continuity which permit herniation, is obtained when the incisions in the anterior and posterior vaginal walls are extended to meet the transverse incision in the vaginal vault. Obliteration or closure of these hernial openings and replacement of the prolapsed structures from the base of the arcuate ligament to the outer limitations of the perineal body are facilitated. Closure of the incision in the vaginal vault in the transverse direction tends to maintain a more normally shaped vaginal vault than does the side-to-side apposition of the ligamentary stumps. However, when obliteration of the cul-de-sac for enterocele is necessary, the procedure described by Kantor and co-workers¹⁷ produces a maximum of obliteration and fixation with the minimal amount of narrowing of the vaginal vault. The permanent results obtained with this method are excellent.

The recurrence rate following repair operations reported in the literature varies from 5 to 35 per cent, depending upon the methods used, the type of patient included and the accuracy and length of time included in the follow-up study. A study of the results obtained in my own pa-

tients* reveals a recurrence rate of 2.8 per cent. This rate rises to 5.3 per cent when patients are included who have had recurrence following operation plus those repaired after previous operations by other surgeons. It is our distinct feeling that we will not be able to appreciably better these results until we give more exact attention to and have more adequate knowledge of the effects of local infection and general tissue integrity on the healing and adequacy of the local supportive structures. More effective methods for the preoperative treatment of the infected vagina and more accurate ways of obtaining accurate hemostasis will go far in improving general results. A more thorough knowledge of the effect of malnutrition on the healing cell and the preoperative correction of at least the most obvious dysfunctions, particularly those of fat and carbohydrate metabolism, will also increase the permanency of our efforts at repair. In our series, 81.4 per cent of patients were "off the nutritional

Table 5

OBSERVATIONS DURING THE SURGICAL TREATMENT OF PROLAPSE OF THE UTERUS AND VAGINA¹⁴

Total number of patients.....	356
Total number of patients on whom weights were recorded.....	312
Percentage overweight.....	64.7
Percentage underweight.....	15.7
Normal weight.....	19.8
Percentage of patients with recurrent prolapse having vaginal infections... ..	24.8
Percentage of patients with recurrent inversion of vagina having vaginal infections.....	33.3

beam" as judged alone by deviations from average normal body weight (Table 5). We believe that the factors just mentioned are more important as causes of primary and secondary prolapse of the pelvic organs than are the work and strain of ordinary living which we have attributed it to in the past.

FUNDAMENTAL CONSIDERATIONS

The training of young men in our Clinic in the vaginal approach to gynecologic disease is based on these main fundamental considerations:

- I. The desire of the physician to rid the patient of all her troubles by the safest, least painful and disfiguring method, if possible by one operative procedure.
- II. To offer the patient this increased skill, often at the added expense of his own time and strength.
- III. At the same time, as far as is possible, to relieve the patient of those psychological and functional crosses common to her sex and at times so difficult for her to bear.

* Modern Medicine, November 15, 1951 (figures revised to include additional patients since study was completed).

- IV. Final results will be determined by (a) preoperative diagnosis and preparation, (b) technical skill, (c) postoperative care, (d) trained assistants, (e) proper tools, (f) adequate spot lighting, (g) minimal anesthesia, (h) adequate hemostasis, (i) every step carried out under direction vision.

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