Posterior Vaginal Enterocele (Hernia of the Cul-de-Sac of Douglas)

A study based on 91 private patients

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I FIRST BECAME interested in the lesion of posterior vaginal enterocele, or hernia of the cul-de-sac of Douglas, in 1920. (During the period of my training, when I was serving as a House Surgeon, this condition was referred to as a high rectocele.) The diagnosis of enterocele first appeared in the records of the Carney Hospital on November 29, 1922, when I operated on my first case. My interest in the subject was aroused when, after I had operated upon 2 women for so-called high rectocele and the perineum had healed well (there was no question but that the rectocele had been overcome), in each instance as the patient got out of bed, a mass appeared through the vaginal introitus above the well-repaired rectocele. The introduction of a small, folded sponge, well lubricated with sterile Vaseline and held in a ring forceps, through the anus readily demonstrated the upper limit of the rectum, indicating that the mass which rolled out above it was the cul-de-sac of Douglas.

A search through the meager literature revealed that three methods had been proposed to correct this disorder surgically. In 1909 Marion proposed an abdominal operation for obliterating the cul-de-sac of Douglas by means of superimposed purse-string sutures of nonabsorbable suture material, such as linen or silk. In 1912 Moschcowitz described a similar, but more extensive, procedure for the cure of prolapse of the rectum, this being equally applicable to hernias of the cul-de-sac of Douglas. In 1922 George Gray Ward presented the subject of posterior vaginal enterocele before the American Medical Association and described a well-planned vaginal operation for the radical cure of this hernia.

TABLE 1. AGE DISTRIBUTION OF THE 91 PATIENTS STUDIED

Ages (in years)	*Patients*
35–40	7
40–45	12
45–50	8
50–55	28
55–60	13
60–65	13
65–70	6
70–75	3
75–80	1
TOTAL	91

From the etiologic standpoint two conditions seem to be responsible for the formation of these hernias: First, an abnormally deep cul-de-sac of Douglas, a congenital defect; with intra-abdominal pressure directed against the cul-de-sac, traction is applied to the posterior lip of the cervix and the an-

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TABLE 2. DIAGNOSES OF POSTERIOR VAGINAL ENTEROCELE

Hernia of cul-de-sac of Douglas	91
ADDITIONAL DIAGNOSES:*	
Uterine procidentia	12
First degree prolapse	2
Recurrent prolapse	5
Virginal prolapse	3
Prolapse of cervical stump	2
Ulcer of cervix	1
Laceration of cervix	2
Cervical polyps	2
Cystocele	12
Rectocele	16
Vaginal ulcer	11
Hypertrophied suburethral fold	1
Complete laceration of perineum	2
Prolapse of rectum	2
Prolapse of vaginal vault	1
Ventral hernia	2
Myomas of uterus	2
Hemorrhoids	4
Traumatic amputation of cervix	1
Diabetes	2
Cholelithiasis	1

* Conditions accompanying the finding of posterior vaginal enterocele.

terior wall of the rectum, resulting in prolapse of the uterus, the rectum, and the anteriorly-attached bladder. By this mechanism, a congenitally deep cul-de-sac of Douglas may be responsible, in most cases, for the so-called nulliparous prolapse. A second factor rests in the trauma of labor, which consists of the tearing or stretching of the thin rectovaginal fascia during parturition, and especially during operative deliveries. This results in the formation of a hernial sac, which increases in size as time goes on.

As a complement of vaginal hysterectomy in the treatment of uterine prolapse and its allied lesions, the cul-de-sac of Douglas should be closed or obliterated, and the uterosacral ligaments approximated to each other in their entire length to prevent the subsequent formation of an enterocele.

A posterior vaginal hernia may also occur following an operation for prolapse. This type of operation was much in vogue at the beginning of this century and is still employed. The procedure consists of amputation of the cervix, anterior and posterior colporrhaphy, perineorrhaphy and fixation of the uterus to/or incorporation of the

TABLE 3. PREVIOUS OPERATIONS FOR PROLAPSE IN THIS GROUP

Operations	*Patients*
FOR PROLAPSE:	
1 previous operation	17
2 previous operations	4
3 previous operations	4
FOR OTHER CONDITIONS:	
Vaginal plastics and suspension	2
Oophorocystectomy for dermoid and ventral herniorrhaphy	1
Panhysterectomy (abdominal)	3
Vaginal plastics	3
Cholecystectomy	1
Perineorrhaphy	2
Supravaginal hysterectomy	1
D and C, Schuchardt incision and anterior colporrhaphy	1

uterus in the abdominal wall. Following this operation a wide space is left posteriorly between the remaining cervical tissue after amputation and the rectum. As I have observed it in the course of 10 to 15 years, a large hernia of the cul-de-sac of Douglas may develop; I have operated on several with such recurrences.

Three methods have been mentioned in the treatment of enterocele: the abdominal operations of Marion and Moschcowitz and the vaginal operation proposed by George Gray Ward (Table 4). In a certain number of large enteroceles in old and feeble patients, and in certain recurrences in which the tissues are overstretched and atrophied, the operation of Colpocleisis, subtotal or total, may render valuable service. While it is true that this operation will end sexual life in this group (although these patients volunteer that this is of no importance to them), they can be given considerable comfort, and the operation carries no shock and

no great danger. In most cases the Ward vaginal operation is the ideal method, the abdominal methods being reserved for the very large hernias and those complicated by adhesions.

TABLE 4. OPERATIVE PROCEDURES EMPLOYED

Operative Procedures	*Patients*
Vaginal operation (Ward)	79
Partial colpocleisis	1
Total colpocleisis	1
Abdominal operations	10
TOTAL	91
ADDITIONAL OPERATIVE PROCEDURES:*	
Vaginal hysterectomy	13
Interposition operation	6
Supravaginal hysterectomy	4
Fundectomy	1
Abdominal fixation of uterus	4
Incorporation of uterus in abdominal wall	1
Cervicopexy (abdominal)	4
Amputation of cervix	7
Trachelectomy (cervical stump)	1
Cauterization of cervix	1
Anterior colporrhaphy	4
Colpoperineorrhaphy	55
Perineorrhaphy for complete laceration	1
Partial colpocleisis	1
Excision of urethral caruncle	1
Manchester operation	1
Excision of polypoid mass at cervix	1
Bladder advancement	1
Resection of suburethral fold	1
Myorrhaphy of sphincter ani	1
Bilateral salpingo-oophorectomy	4
Appendectomy	1
Cholecystectomy (Two weeks after plastic operation)	1
Incisional herniotomy	2
Hemorrhoidectomy	1

* Performed at the time of operation for vaginal enterocele.

The Ward vaginal operation consists of the dissection of the posterior vaginal segment to the cervix uteri or the vaginal vault, as the case may be, exposing the rectum and the cul-de-sac hernia. This exposure is facilitated by the introduction of a small, folded

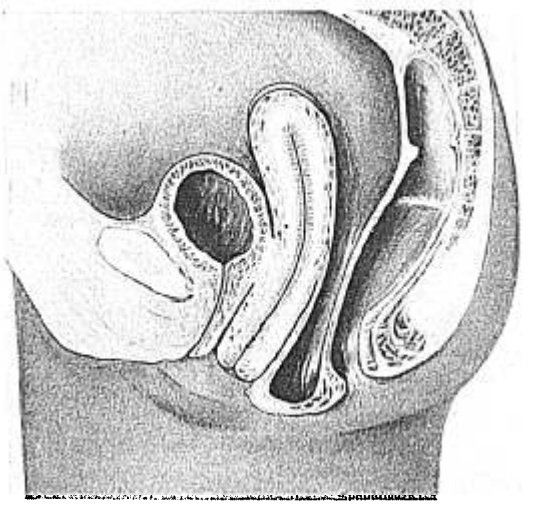

Fig. 1. Enterocele (posterior vaginal hernia); sagittal section of the pelvis to illustrate the prolapse of the cul-de-sac of Douglas. The abnormally deep pouch of Douglas, filled with omentum or intestine or both, usually accompanies uterine prolapse.

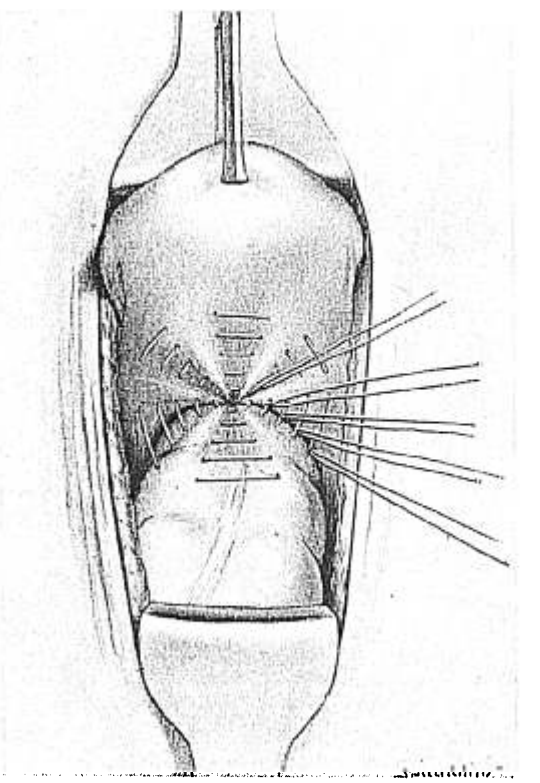

Fig. 2. Enterocele (posterior vaginal hernia); abdominal route. Contents of enterocele pulled up and reduced, illustrating the placing of linen or silk sutures in superimposed layers to obliterate the cul-de-sac of Douglas. The first suture should be placed as low as possible.

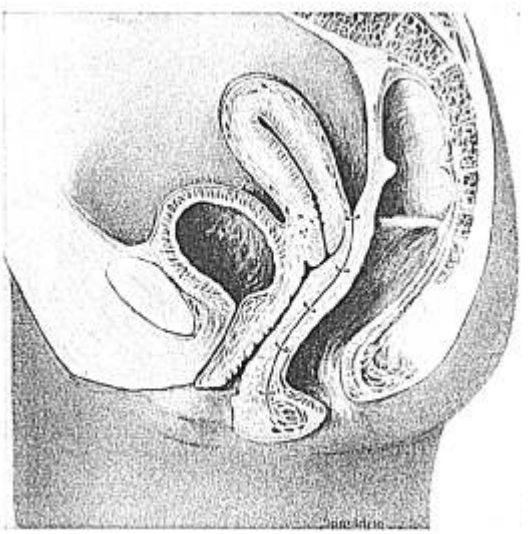

Fig. 3. Enterocele (posterior vaginal hernia); abdominal route. Sagittal section of the pelvis showing the linen or silk sutures tied and the pouch of Douglas obliterated.

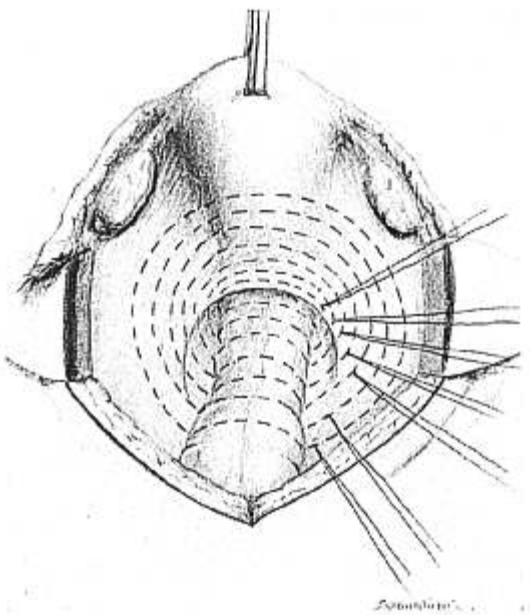

Fig. 4. Enterocele (posterior vaginal hernia); the Moschcowitz operation, abdominal route.

sponge, well lubricated with vaseline and held by ring forceps into the rectum. The forceps is covered by sterile drapings and manipulated through the sterile coverings. The hernial sac is picked up with Allis forceps and is freed from all surrounding structures by sharp and blunt dissection. It is then opened superiorly and its contents reduced; the base of the sac is ligated, and the sac is amputated. The uterosacral ligaments are then approximated in their entire length by interrupted sutures of fine silk or catgut, and the pelvic floor is repaired by uniting its component layers.

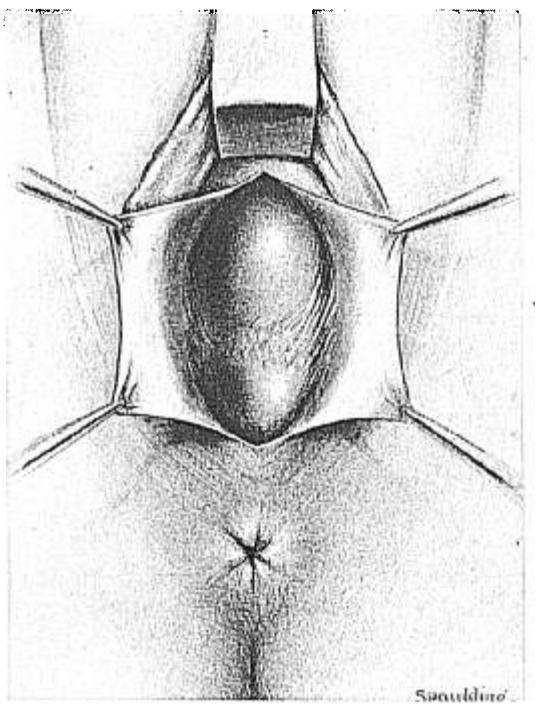

Fig. 5. Enterocele (posterior vaginal hernia); vaginal route. The pelvic floor is opened; the cul-de-sac of Douglas, filled with omentum or intestine, is shown bulging over the rectocele and separated from it by a layer of fibrous and adipose tissue. The cervix and bladder are held under the retractor. Adapted from George Gray Ward.

The abdominal procedures, as previously described, rely upon the application of superimposed purse-string sutures of nonabsorbable material from below upward in order to obliterate the cul-de-sac, using due care not to include the ureters in the sutures. If the surgeon is in doubt as to the course of the ureters, catheters may be introduced into them as a preliminary step.

In my first publication on this subject,[3] I

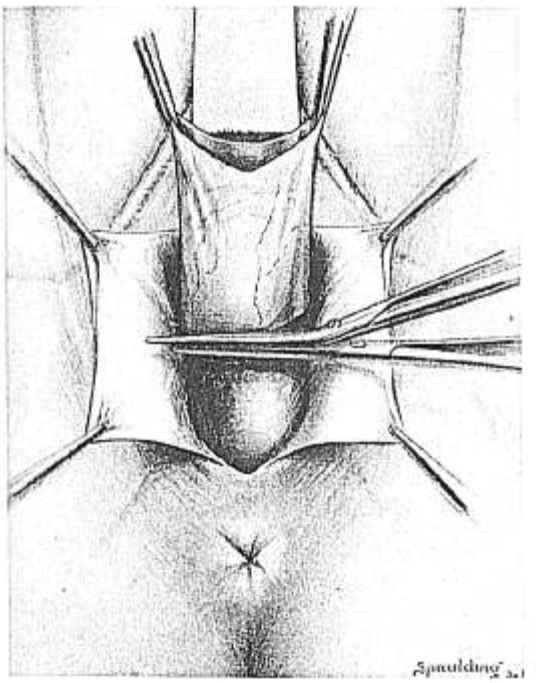

Fig. 6. Enterocele (posterior vaginal hernia); vaginal route. The cul-de-sac is dissected free, opened, contents reduced, clamped, excess cut away, and base tied with a running stitch of catgut. The rectocele is distinctly shown below the clamp. Following the removal of the cul-de-sac, the uterosacral ligaments are united and a high perineorrhaphy performed. Adapted from George Gray Ward.

reported a series of 4 patients on whom I had operated for this disorder, 3 by the vaginal route and 1 by the abdominal route. In a later publication[4] I reported a series of 48 patients operated on for enterocele, 36 by the vaginal route and 12 by the abdominal route. In this paper I am adding 43 more patients, all operated on by the vaginal route, or a total of 91 patients operated on for enterocele from November 29, 1922 to June 1, 1952, a period of slightly less than 30 years.

RESULTS

The results obtained in the 91 patients operated on for enterocele were studied in two groups. In the first group, which consisted of 48 patients, 3 recurrences were encountered. In the second group, which consisted of 43 patients, 3 recurrences were also observed. The series included women from all of the New England states, which made it difficult for the older patients to keep returning for examination. Six patients did not report for examination after they left the hospital and 6 other patients could not be traced, but at the time of their discharge satisfactory results had been noted. Thus, in the group of 91 patients operated on, 12 were not included in the follow-up.

We know of 6 recurrences in the group of 79 which were followed, a proportion of 7.6 per cent. In Case 1, there was a recurrence after Moschowitz operation. Six years after the recurrence, total colpocleisis was performed, with a satisfactory result. Cases 2, 3, 5 and 6 showed slight bulging of the cul-de-sac after the vaginal operation. Case 4 suffered a recurrence after the vaginal operation, which was cured by the LeFort subtotal colpectomy.

There was 1 death in the 91 patients, a mortality of 1.09 per cent. This patient, 73 years of age, was operated on under spinal anesthesia, 100 mg. of novocaine crystals being used. The intervention consisted of an interposition operation, vaginal resection of the cul-de-sac of Douglas, approximation of the uterosacral ligaments, and colpoperineorrhaphy. The operation was performed on May 15, 1928. On May 16, the patient had a small pulmonary embolus, from which she had recovered. On May 22, 1 week after operation, she had a second, massive pulmonary embolus from which she died.

TABLE 5. TYPE OF ANESTHESIA USED IN PATIENTS STUDIED

Anesthesia	*Patients*
Spinal anesthesia	47
Spinal anesthesia and intravenous sodium pentothal	5
General anesthesia	39
TOTAL	91

SUMMARY AND CONCLUSIONS

1. A deep cul-de-sac of Douglas may be congenital or may be acquired as the result of parturition. In either case, it plays an important role as a cause of uterine prolapse.

2. A hernia of the cul-de-sac may occur after a vaginal hysterectomy for prolapse if care has not been taken to approximate the uterosacral ligaments in their entire length at the time of operation.

3. A large hernia may develop following the combined method of operating for uterine prolapse, namely amputation of the cervix, anterior colporrhaphy, colpoperineorrhaphy and fixation of the uterus to, or its incorporation in, the anterior abdominal wall. Following this operation a wide space is left between the remnant of cervix and the rectum, through which a hernia may develop in the course of the years.

4. A hernia of the cul-de-sac of Douglas should be differentiated from a high rectocele.

5. Lack of recognition of this condition leads to failures in operations on the posterior vaginal segment.

6. Vaginal and abdominal operations have been devised for the correction of this lesion.

7. The vaginal route is employed in most cases, while the abdominal route is reserved for very large hernias and those complicated by adhesions.

8. Ninety-one cases of posterior vaginal enterocele are reported.

REFERENCES

1. MARION, G. De L'oblitération du cul-de-sac de Douglas dans le traitement de certains prolapsus utérins. *Rev. Gynec. et Chir. Abdom. 13, 3:*435, 1909.
2. MOSCHCOWITZ, A. V. The pathogenesis, anatomy and cure of prolapse of the rectum. *Surg. Gynec. & Obst. 11, 7:*1912.
3. PHANEUF, L. E. Prolapse of the cul-de-sac of Douglas or posterior vaginal enterocele. *Am. J. Obst. & Gynec. 9:*507, 1925.
4. PHANEUF, L. E. Posterior vaginal enterocele. *Am. J. Obst. & Gynec. 45:*490, 1943.
5. PHANEUF, L. E. "The Management of Prolapse of the Uterus and Vagina." In MEIGS, and STURGIS: *Progress in Gynecology.* Grune and Stratton, vol. 2, 1950, pp. 654-677.
6. WARD, G. G. Technic of repair of enterocele (posterior vaginal hernia) and rectocele as an entity and when associated with prolapse of the uterus. *J.A.M.A. 79, 9:*709 (Discussion p. 712), 1922.