ABDOMINAL SECTION FOR TRAUMA OF THE UTERUS.

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Puncture of the nonpuerperal uterus, with prolapse of bowel; violent seizure and tearing away of sixteen inches of gut; immediate abdominal section, repair of uterine lacerations; intestinal anastomosis; recovery.

In presenting this subject for consideration I will offer the brief history of a recent case upon which I operated.

Mrs. L., aged 39 years, mother of two children; the older 2 years, the younger 5 months, entered the City Hospital April 7, 1906.

She had been suffering from vague abdominal pain and discomfort for some months prior to her last pregnancy, more marked since the birth of the last child.

Her physician, thinking it probable that she was suffering from an endometritis or possibly from some retained secundines, but more particularly in the line of diagnosis, had given her an anesthetic, dilated the uterus and curetted. Believing that he felt some growth foreign to the uterine cavity he attempted its removal by the use of the placental forceps. He grasped the growth, made traction, and twisted. When it gave way and was removed he discovered that he had 40.5 cm. of small intestine. Fully realizing the seriousness of the situation he brought her immediately to the hospital. Her condition on arrival was one of shock, temperature subnormal, pulse 140.

On opening the abdomen, which was done immediately, through a median incision 11 cm. long, blood gushed out and it was found that the entire abdominal cavity, including the pelvis, was filled with it.

That the hemorrhage was recent was evident from the fact that little clotted blood was found. There were two lacerations of the uterus; one through the fundus extending from tube to tube, the second through the uterus and broad ligament on the

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left side. These lacerations were bleeding freely. Their surfaces were at once brought together with catgut sutures, which completely checked the hemorrhage from those parts.

Next it was found that 40.5 cm. of the ileum was missing (which corroborated the doctor's statement) beginning at the ileocecal valve and extending upward. Hemorrhage from the mesentery had ceased, in spite of the laceration of large vessels. The mesentery was ligated with heavy silk and trimmed; the ileum also was trimmed and the opening at the ileocecal valve was closed because it was so lacerated and contused as to render it unadvisable to form the anastomosis at that point. An opening was made farther up in the cecum and the ileum connected to it with a Murphy button.

The abdomen was flushed, dried, and closed without drainage. The subsequent history of the case can be briefly stated by saying that she made an apyretic recovery, the button passing on the thirty-first day, and the patient going home in five weeks in perfect health.

The cases in literature may be classified as follows:

A. Early Cases at or Near Term Before the Era of Abdominal Operation or of Unusual Operative Interference by Instruments, Within the Uterus.—The numbers refer to the cases as listed in the bibliography.

1. Baudeloque. No details. Death.
2. M'Reever. Spontaneous rupture during labor, 122 cm. intestine, fecal fistula, recovery and subsequent pregnancy, normal labor.
20. Robiquet. Spontaneous rupture during labor, forceps extraction, small intestines and omentum, reposition immediately, interrupted by uterine contraction, again on second day. Recovery.
21. Radcliffe Wood. Seventh month, putrid fetus, spontaneous rupture. Recovery.
22. Currie. Breech presentation, spontaneous rupture, recovery.
23. Murphy. Term, spontaneous rupture, child delivered by forceps from abdomen. Death from intercurrent affection.
24. Birch. Same version, perforation of cranium. Recovery.
25. Collins. Same.
26. Hooper. Same, rupture after ergot, fetus extracted by hook from abdomen. Death.
27. Trask. Seventh month, shoulder presentation, version. Recovery and subsequent delivery.
28. Trask. Similar.
29. Trask. Quoted from Duncan, term, spontaneous rupture, child and placenta extracted from abdomen. Recovery.
30. Monroe. Same.
31. Percy. Same, arm presentation. Death, bowel strangulation in uterine rent.

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32. Smellie. Same.
33. Amussat. Same, sigmoid in uterus.
34. Holmstead. Term, contracted pelvis (4-para), version and perforation. Death.
35. Dubois. Same (8-para). Recovery
36. Bedford. Same. Death.
37. Collins. Primipara, spontaneous rupture, delivery by version from abdomen. Death after twenty-five days.

Not enough data are given to determine the relative predisposition of primipara and multipara nor of early or advanced age. It may be said, however, that neither opposed condition offers immunity. Of the twenty foregoing cases, twelve recovered, with subsequent successful delivery specified in two. Although allowance must be made for reluctance to report unsuccessful cases, it may be said that, at present, there is considerable argument for reposition of the prolapsed bowel under aseptic precautions, provided that the uterus closes firmly, that there is not severe hemorrhage, and that no great degree of force has been applied to the bowel. This is especially true in view of the depressed condition of the patient after uterine rupture. It is not always possible to distinguish between spontaneous and traumatic rupture, nor does the former exculpate nor the latter incriminate the accoucheur. In many cases, spontaneous rupture implies neglect of the patient during a difficult labor and, conversely, during the application of forceps, version or other obstetric operation. Abundantly indicated on general principles, for the safety of the patient, rupture of the uterus may occur independently of the operation itself or may be an inevitable result of the most careful procedure. By conceding that after a rupture during labor, it may be wise to reposit the prolapsed bowel without opening the abdomen, it is by no means intended to imply an indorsement of a "laissez faire" policy during the entire labor, such as was generally indicated before the development of modern surgical methods. On the contrary, in cases in which rupture of the uterus is imminent, Cesarean section is plainly indicated before the labor has been protracted so far, at least, as to render intrauterine manipulation difficult and dangerous, and to reduce the patient's strength to a minimum.

B. Cases at or Near Term, with Operative Interference.—

3. Coe. Multipara, version and forceps. Immediate reposition, next day resection of 122 cm. of gangrenous bowel and extirpation of uterus. Death same day.

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15. Amann. 5-para, version rupturing uterus, extirpation of uterus, suture of torn cecal attachment, temporary vesicovaginal fistula. Recovery.
16. Ullman. 6-para, suture of uterus, resection of 250 cm. of small intestine. Death after two days.
17. Boldt. Similar, details not described, abdominal section after fifty hours, ileum separated from mesentery for 14 cm. and gangrenous. Death.
38. Bedford. 3-para, delivery via abdominal incision, uterus sutured Recovery.
39. Pusch. 13-para, rachitic pelvis, labor induced three weeks before term, version ineffectual, forceps tore off fetal head, next day resection of 2 m. of small intestine. Death same day.
55. Stewart. 6-para, omentum and uterus extirpated. Recovery.
58. Girvin. 5-para. Extirpation of uterus. Death from shock.
60. Fraser. 9-para. Hysterectomy. Recovery.
63. Kolomenkin. 7-para. Total hysterectomy. Recovery.
68. Seitz. Multipara. Porro. Death, shock.
71. Andr.ws. Hysterectomy. Death, shock.
72. Pilcher. Rent stitched and drainage. Result not stated.
77. Fornari. 2-para. Supravaginal hysterectomy. Death.
79. Freund. 5-para. Abdominal section, no details. Death third day.
80. Freund. 4-para. Reposition by traction from above. Suture of rent. Death after three days, peritonitis.
82. Walcher. Hysterectomy. Drainage through vagina. Recovery
84. Stajmer. 7-para. Abdominal section, extraperitoneal amputation of uterus. Drainage by vagina and preperitoneal space. Recovery.
86. Bacher. 3-para. Porro. Death from secondary hemorrhage.
87 Dietel. Resection of 65 cm. small intestine. Suture of tear. Death shock.
89. Frank. Primipara. Suture of uterovaginal tear, from below ?).Recovery.
90. Frank. 6-para. Transverse abdominal section, decapsulation of uterus. Recovery.
91. Everke. Suture of vagina. Recovery.
92. Everke. 6-para. Suture of uterine tear from below (?). Recovery.
95. Klien. 9-para. Abdominal section, suture of uterine tear through serosa only. Recovery.

C. *Recent Cases, At or Near Term, Without Operation.*

12. Mendel. 7-para. Seven months fetus, macerated, spontaneous rupture, reposition in spite of contact with bed, iodoform gauze tampon. Recovery.
13. Peham. 2-para. Justo-minor pelvis, reposition and tampon as above. Recovery, subsequent 7-months' induced labor, rupture of uterine scar, Porro operation.

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14. Toth 7-para. Spontaneous rupture and escape of fetus and placenta into abdomen, delivery by feet and umbilical cord, reposition and gauze tampon, peritonitis, abdominal abscess and hernia drainage. Recovery in three months.
56. Hargrave. 10-para. Death before operation could be done.
61. Schmidt. 2-para. Immediate reposition and packing of lower uterine segment and vagina. Recovery.
62. Woods. 1-para. Reposition. Recovery.
64. Reumer. Evisceration of woman by intoxicated physician. Death.
66. Wirtz. 8-para. Death before operation could be done.
67. Mors. Intestine reposited into vagina only, gangrene. Death.
69. Merz. 7-para. Reposition, rubber drain through tear. Death after nineteen days, peritonitis.
70. Merz. 4-para. Reposition and gauze packing. Recovery.
73. Schleisner. 5-para. Reposition. Recovery.
74. Schuchard. 3-para. Reposition, irrigation. Recovery implied.
75. Osterbind. 7-para. Reposition. Death after seven days, peritonitis.
76. J. D. Thomas. 9-para. Death from shock, after eight hours.
78. Freund. 9-para. Reposition and iodoform packing. Death after three days, peritonitis.
81. Rieinger. 2-para. Omentum reposited, iodoform gauze packing. Recovery.
83. Cook. 4-para. Reposition and iodoform gauze packing. Death from shock after eight hours.
85. Schaffer. Reposition. Recovery.
86. Klien. 7-para. Reposition, iodoform gauze packing. Recovery with rectovaginal fistula.
93. Roberts. 10-para. Reposition of omentum and intestine, gauze packing. Recovery.
94. Hochstetter. 29 cm. intestine separated from mesentery. Death no details.
96. Burger. 4-para. Reposition. Ergotin. Recovery.

It is obviously difficult to outline any given treatment in such cases and it should be remembered that the reporters, whether they operated or not, were usually not the original attendants, and that they were often summoned late. There is an obvious general indication, especially on account of the liability of a uterine scar to rupture in a subsequent delivery, to prevent conception after such cases, and in many instances this is tantamount to stating that the uterus should be extirpated, with or without the adnexa, according to circumstances. In many instances, however, conditions analogous to those encountered in other abdominal lesions, render an interval operation preferable to an early operation in collapse, or to a delayed primary operation. Even after abdominal section, ideal operations are occasionally impossible. Aside from the obvious indication

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to extirpate the uterus, it is usually necessary to suture the rent, though, owing to the contraction of its fibers, there is seldom much hemorrhage from this source and the indication for suture is not so absolute as theoretically appears.

According to the degree of laceration of the intestine, minor repairs, resection, anastomosis, either end-to-end or by means of establishing patency around a more or less typically resected cecum, establishment of an artificial anus, temporary or permanent, must be practised. Even when large mesenteric vessels are divided, there may be surprisingly little hemorrhage, or a copious hemorrhage may cease spontaneously, as in the writer's case. The peritoneal toilet must be made in accordance with existing conditions. Even when there has been considerable hemorrhage or escape of fecal contents, flushing is liable to spread the infection and careful sponging and drainage may be preferable. Open treatment will at times be indicated. Unless there has been gross carelessness and continued mauling of the intestine, it will rarely if ever happen that enough intestine will be involved to interfere with its subsequent function. Indeed, unless an attendant has been not merely careless but grossly ignorant, or has been disturbed into a state of irresponsibility, he can scarcely persist in drawing down and mangling an amount of intestine that cannot be safely sacrificed. Secondary operations for adhesions, fistula, hernia, abscesses, etc., may be indicated, especially when the primary abdominal section has been performed under adverse circumstances.

It is with some hesitation that statistical comparison is made between simple reposition and abdominal section; first, because it is not possible to determine absolutely as to the condition of the intestine, amount of infection, etc., in the abdomen and the retractibility of the uterus; and, second, because if this could be done, the cases to which simple reposition is appropriate would naturally have a better prognosis. However, of the 26 operative cases (three or four sutured through the vagina), 13 died, 12 recovered and the result of one was not stated. Of the 23 cases of reposition, 10 died and 13 recovered.

In the group of operative cases, there are 10 in which the intestine was, explicitly or implicitly, uninjured, but in which the abdomen was opened. Seven of these recovered. Of the non-operative cases, one, of nearly total evisceration, was obviously fatal: in one, the intestine was merely poked back into the vagina, while two others were hopeless without abdominal sec-

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tion, and died while preparations were being made for it. This leaves 19 cases with 13 recoveries, treated by reposition, the result being almost exactly equal to that after abdominal section. Three of the abdominal sections were required because reposition could not be effected from below; and, in one of these, badly inflamed intestine was left *in situ*, with doubtful propriety, death resulting. In three or four operative cases, suture was done from below, after reposition of the bowel, all recovering.

D. Cases Due to Curetment or Similar Operations Following Miscarriage, or to Gross Lesions in Inducing Abortion.

No Efficient Treatment.	*Reposition.*	*Operation. Through Vagina.*	*Through Abdomen.*
			4. Noble. (Three ops.) Recovery.
			5. Alberti. Recovery.
		6. Veit. Death. Sepsis.	
			7. Gusserow. Death, pulm. embolism.
			8. Orthmann. Recovery.
			9. Olshausen. Death, sepsis.
10. Martin. Death. (Patient moribund.)			
			11. Van Riper. Recovery.
			18. Ullmann. Recovery.
			40. Wilson. Death, fatty degeneration.
	41. Jarman. Recovery		
	42. Jarman. Recovery.		
	43. Dudley. Recovery.		
			44. Hessert. Recovery.
45. Hardie. No details.			
			46. Boblanck. Recovery.
			47 Ochsner. Recovery.
48. Andrews. Death in an hour.			
			49. Mann. Recovery.
			50. Mann (quoted). Death, sepsis.
51. Mann (quoted). Death.			
			52. Van de Warker. Death, collapse.
			53. Krusen. Recovery.
			54. Hoffman. Recovery.
			59. Fairchild. Death.

The cases under the first subdivision should, of course, have been subjected to immediate operation as affording the only

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chance of recovery. It should be stated, however, that in so far as the reporters or consultants were concerned, there seems to have been ample cause for discouragement.

In cases which have been kept aseptic and in which the bowel has prolapsed through an opening made by a blunt instrument, as in criminal abortions or in which the operator has accidentally pulled down the bowel with the finger or by a blunt instrument, and when the bowel can reasonably be inferred or can be demonstrated to be intact, reposition alone may be justified. Still, notwithstanding the favorable outcome in the three cases reported, the uncertainties are usually so great as to contraindicate this procedure, except in cases at or near term.

Without reference to the general discussion regarding the advisability of the vaginal or abdominal route in surgery, cases of this nature require such careful inspection and the possibilities of inaccessible lesions are so great that the abdominal incision should almost invariably be preferred. Even cases seen late, with a fecal fistula, and apparently involving only the rectum, are not an exception. As shown in the fuller report of one of the cases at term, the enema test to determine the height of the lesion in the bowel is not reliable.

The majority of cases reported show that the general consensus of opinion is in favor of a careful scrutiny of the abdominal contents. Most of the abdominal sections resulted in resection, for the reason that most of the lesions were due to involvement of the bowel in curetting the uterus. In a few of these cases, however, the bowel had, fortunately, escaped serious injury. On the other hand, in others the laceration was extreme. The physician who thought that he was simply eviscerating a three-months' fetus, instead of the mother; the consultant who insisted that the intestine was the umbilical cord; the several instances in which delivery of the intestine was persisted in, even after enough had come down to establish its identity; and the case in which, after pulling down 183 cm. of bowel, it was deliberately amputated, illustrate the extremes to which gross ignorance or desperation may lead. In case 64 there was almost complete evisceration, but the physician was intoxicated.

Van de Warker and others emphasize the danger of curetting the uterus. Yet, with all possible allowance for the concealment of cases, the number in which the intestine is brought down through the opening or drops into the uterus, is exceed-

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ingly small in comparison with the number of cases in which abortions are induced or are radically treated by physicians. The diminution of mortality by the policy of thorough evacuation of the uterus after induced abortion is great, the danger of lacerating the intestine very small. Yet, it must not be forgotten that the uterus after an abortion, especially when septic inflammation has already set in, is liable to be very fragile and that apparently careful exploration and instrumental removal of secundines, may cause perforation. Granting that the intestine prolapses through a rent, its further withdrawal or even its laceration, is almost inevitable and it is scarcely conceivable that any method of inspection, palpation, direct or instrumental, or other diagnostic means can determine this point or that any delicacy of manipulation of an instrument, efficient to clear the uterus of débris but insufficient to lacerate the bowel, or at least to jeopardize its connections, can be attained. This point is important, both from the medico-legal, the bibliographic and the practical standpoint.

Involvement of the intestine in instrumental abortion obviously renders the prognosis grave and predisposes to such catastrophies as lead to the indictment of the abortionist. In justifiable abortion, which should never be performed without council, unless in peculiarly isolated communities, the proper choice of instruments and the proper manipulations can scarcely result in uterine perforation. Granting that an abortion has begun through previous criminal instrumentality by the patient or otherwise, the weight of authority is that the regular practitioner, now assuming charge of the case, should thoroughly evacuate the uterus, dilating and curetting if necessary. While reasonable care and skill are legally required and while the individual practitioner should set his own standard at a maximum, witnesses called by the court should clearly state the prevailing opinion of the profession to be in favor of instrumental emptying of the uterus, should emphasize the fact that, in the long run, the danger of sepsis and of subsequent inflammatory and neoplastic lesions of the uterus from neglect of this treatment, far exceeds that from the extremely rare accident of uterine puncture, with or without intestinal prolapse, should explain that the alteration of size and texture of the uterus during an abortion is such that penetration of its wall may, occasionally, occur even with the most expert attendance and that, if the uterine wall is once perforated, no mediate tactile

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skill could detect the difference between intestine and secundines until considerable damage may have been done. Uterine rupture at or near term is also occasionally inevitable, and the fact that it occurs during endeavors to expedite labor rather than spontaneously, is by no means to the discredit of the accoucheur. If anything, the accoucher should be blamed if the rupture occurs during a prolonged and difficult labor without instrumental or manual assistance. It is a matter for surprise that intestinal prolapse does not occur with greater frequency in uterine rupture, during labor. As a matter of fact it occurs only in about three per cent. of cases of rupture.

It is important to impress upon the profession and courts of law that the mere fact that intestine is brought down into the genital canal during labor, or after abortion, does not justify the indictment, much less the punishment of the attendant. In one of the early cases reported, the reporter seems to have been more concerned in securing the conviction of the attendant than in rendering prompt radical attention that might have saved life. The details, as published, leave some doubt as to the responsibility, at least in a criminal sense, of the convicted, first attendant but none at all that the reporter failed to give the patient whatever chance of life remained.

There are many deplorable, but, fortunately, rare accidents that may occur in medical practice, including the one under discussion. The profession should be on their guard against them, but should be assured of legal immunity and professional sympathy when they do occur in the practice of careful and conscientious men. Without such assurance there will inevitably result attempted concealment of the occurrence, lack of skilled council, bungling attempts at radical treatment by those unprepared to render it or totally inefficient palliation, which here is literally an attempt to cover the condition with the mantle of obscurity. On the other hand, a fair understanding of the subject will obviate the terrible and hopeless mutilations that have occurred, will lead to prompt intervention to meet the conditions, so that the mortality need not exceed 50 per cent. and will probably be less than 10 per cent. Indeed, aside from immediate hemorrhage, previous depletion of strength, as in prolonged labor, and occasional implantation of septic germs in the peritoneum, the mortality of promptly and appropriately treated cases should be reduced to the one or two per cent., practically inevitable for major operations.

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Undoubtedly, cases of this nature, occur much more frequently than the present bibliography shows. It is highly desirable that all cases should be promptly and fully reported, with statement of age and general condition, number of previous pregnancies and abortions, condition of the pelvis, course of previous confinements and pregnancies, apparent etiology and extent of the uterine or vaginal rupture, time and details of the operation or other method of treatment, and result both as to immediate recovery and subsequent events.

Including the author's case, a very thorough search of the literature reveals only ninety-seven cases in which the intestine or omentum or both, have engaged in the uterus and vagina through ruptured or instrumental openings. Sixty-nine of these cases (summarized under A. B. & C.) were incidental to rupture during labor, in most cases at term, in a few a month or two premature. In all but three of these the uterus itself was ruptured, the exceptions being cases 67, 79 and 91, in which the vagina was involved. The vagina was torn along with the uterus in a few others.

Twenty-five cases of uterine rupture occurred in connection with abortions, in a few due to instrumental abortion, in most, to subsequent dilatation or clearing out of the uterus. In many considerable doubt exists as to the time of the lesion.

Case 57 was one of rupture of the vagina due to muscular strain, quite independently of pregnancy.

The only case closely analogous to the author's is 65, in which curetment was practised thirty days after delivery for a mass which, in the light of recent reports, may be considered as possibly syncytial. In the author's case, the curetment was practised five months after delivery at term, the symptoms of endometritis having preceded the pregnancy.

R. Klien of Dresden (*Arch. für Gyn.*, Vol. 62, 1901), collected 367 cases of uterine rupture in the literature of the last twenty years and added 14 cases, a total of 381. Among these were only 9 complicated by prolapse of intestine, less than 2.4 per cent. or a ratio of about 1.42. In 70 cases of rupture in which no operative treatment was undertaken, the mortality was 31 from hemorrhage, 18 from sepsis; total mortality 49 or about 70 per cent. Curiously enough in the series discussed under B. & C., the recoveries from uterine rupture during labor, complicated by intestinal prolapse, whether treated by abdominal section

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or, in appropriate cases, by simple reposition, amounted to almost exactly 70 per cent.

TABULAR REVIEW OF CASES IN LITERATURE.

1. Baudeloque. Quoted by Wm. Campbell.	No details. Died.
2. M'Reever. *Lancet*, Vol. 1, 1828.	Term. Spontaneous rupture of uterus, 120 cm. intestine sloughed off on sixth day, fecal fistula closing spontaneously after two years, conception one and one-half years later, normal labor. Recovered.
3. H. D. Coe. *Am. Jour. Obs.*, Vol. 24, 1901.	Term, multipara. Previous labor eighteen months before, child weighing 14½ pounds by forceps. Present labor, version in first stage and forceps to head. After twenty minutes, attempt at manual extraction of placenta, 90 cm. intestine followed hand. Reposition, removal of placenta, gauze tampon. Next day, extirpation of uterus, 120 cm. gangrenous bowel clamped and pelvis and vagina packed. Resection of bowel impossible at time. Death after 9½ hours.
4. Th. Noble. *Ind. Med. Jour.*, Vol. 21, 1903.	Abortion, 4-inch fetus. Dilatation with instruments and fingers and removal of fetus and decidua. Three days later, fecal fistula. First operation, breaking up adhesions and mopping out pus from Douglas's cul-de-sac. Second operation, three weeks later, abandoned on account of collapse. Third operation, three weeks later, resection of matted intestine, anastomosis into rectum over rubber tube, removed after four days. Temporary fecal leakage at suture line. Ultimate recovery.
5. Alberti. Oberstabsartzt, Potsdam, 1894.	Probably early, septic abortion. Five previous labors. Polypus forceps brought away tissue supposed to be retained fetus or decidua. Abdominal section three hours later revealed 17 inches of incarcerated (small?) intestine. Resection, recovery.
6. Veit. Discussion of No. 5.	Details not given. Retention of placenta, three days. Forceps brought down coil of (small?) intestine. Reposition through vagina unsuccessful. Opening of Douglas's cul-de-sac, reposition of bowel, extirpation of uterus, per vaginam. Death from septic peritonitis.

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7. Gusserow. Discussion of No. 5.	Similar to Veit's case but only omentum prolapsed. Similar operation, except by laparotomy. Death on twenty-fifth day from pulmonary embolism.
8 Orthmann. Discussion of No. 85.	Abortion, third month. Curettage. Removal of intestine by forceps. Disinfection and reposition. Immediate abdominal section. Intestine torn from mesentery, 6 or 7 cm. Resection of intestine, uterus and enlarged and adherent tubes and ovaries. Recovery.
9. Olshausen. Discussion of No. 5.	Similar to No. 8. Resection. Death from acute sepsis. Necropsy showed that intestinal sutures were perfect.
10. A. Martin. Discussion of No. 5.	Abortion. Operator removed 75 cm. of intestine by forceps after curettage. Stripped from mesentery, under notion that intestine was umbilical cord. Martin found woman in collapse, replaced intestine. Death.
11. Van Riper. C. S., *Med. News*, Vol. 69. 1896.	Multipara, last labor one year previously. Uterine hemorrhage, diagnosed as polypoid endometritis. Goodell's dilator used prior to intended curettage. Sound passed six inches. Forceps grasped what was supposed to be membranes but proved to be intestine. Van Riper called. Rent in uterus enlarged to release intestine. Uterus and adnexa removed. 68 cm. of jejunum and omentum involved, 40 cm. minced by forceps. Resection, recovery.
12. F. Mendel. *Deutsch. Med. Woch.*, Vol. 28, 1902.	7-para. Seven months, macerated fetus. Spontaneous rupture of uterus. Reposition of intestine, in spite of contact with bed. Iodoform gauze tampon. Recovery.
13. Heinrich Peham. *Centralb. für Gyn.*, Vol. 26, 1902.	2-para. Justo-minor pelvis. First labor normal. Spontaneous rupture at term. Uterus filled with intestine. Reposition and uterus packed with iodoform gauze, pushed through into peritoneum. Recovery. Subsequent premature labor at seventh month, rupture of scar, Porro operation.
14. Toth. Same. Vol. 27, 1903.	8-para. Aged 43, spontaneous rupture and escape of fetus and placenta into abdomen. Delivery by feet and umbilical cord. Reposition of intestine and gauze tampon. Peritonitis, abdominal abscess and hernia. Drainage. Recovery in three months.
15. J. A. Amann, Jr. *Munch. Med. Woch.*, Vol. 49, 1902.	5-para. Aged 30. Cross-birth, version, rupture uterus. Cecum torn loose from attachment, also bladder from uterus. Extirpation of uterus, suture of intestinal at-

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	tachment. Normal salt flushing. Temporary vesicovaginal fistula. Recovery.
16. Emerich Ullmann. *Wiener Klin. Woch.*, Vol. 16, 1903.	6-para. Aged 36. Term. Manual emptying of uterus, curettage, intestine protruded at vulva. Abdominal section three hours later. 30 cm. of gut removed in vulva. Altogether 250 cm. of small intestine, beginning 1.5 cm. from ileocecal valve resected. Uterine tears sutured. Death two days later.
17. Boldt. Cited by Ullmann, above.	Similar, details not given. First attendant had curetted, removed fragments of tissue and had torn a white tube in two. Laparotomy fifty hours later. Ileum separated from mesentery for 14 cm., gangrenous, almost divided at one point. Operation not described. Death.
18. Ullmann. Same.	2-para. Aged 21. Laminaria abortion, time not stated. Curettage. Finger detected intestine. Reposition, at least into uterus. Ullmann did abdominal section fifteen hours later; 15 cm. of bowel torn from mesentery 24 cm. resected. End-to-end anastomosis. Recovery.
19. Guthrod. *Zeit. für Geb. e Gyn.*, Vol. 47, 1902.	Abortion, two months. Bowel drawn down by forceps, reposition and tampon. Recovery. Subsequent abdominal section for adhesions.
20. Robiquet. *Jour. de Med. et de Chir.*	2-para. Term. Aged 32. Spontaneous rupture. Forceps extraction. Small intestine and omentum protruded from vulva. Reposition interrupted by uterine contraction. Two days later, reposition of small knuckle of gut in uterus. Ultimate recovery.
21. Radcliffe Wood. *Lond. Med. Repos.*, Vol. 15	Primipara. Aged 24. Labor at seventh month Putrid fetus expelled after three days' dry labor. Spontaneous rupture, large mass of intestine reposited. Ultimate recovery. Seven months later, vagina blocked by hard, insensible substance.
22. John Stewart Currie. *Lond. Med. Gas.*, Vol. 17, 1836.	3-para. Aged 28. Breech presentation. Spontaneous rupture after delivery of half of trunk. Placenta manually and incompletely removed. Intestine reposited. Recovery.
23. Edward W. Murphy. *Dub. Jour. Med. Sci.*, Vol. 15, 1839.	7-para. Term. Spontaneous rupture. Child in abdomen, easily delivered by forceps. Reposition. Recovery claimed but patient died from other cause on eleventh day.

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24. Wm. Birch. *Med. Chir. Trans.*, Vol. 13, 1825.	4-para. Aged 29. Term. Spontaneous rupture. Version and perforation of cranium. Several coils of intestine in vagina. Reposition. Recovery.
25. Robert Collins. *Dub. Med. Trans.*	6-para. Term. Spontaneous rupture. Perforator and crochet used. Same as preceding.
26. Hooper. *Lancet*, Vol. 1, 1837.	10-para. Aged 32. Term. Rupture after ergot. Placenta and intestines expelled. (Sigmoid.) Intestine replaced and fetus extracted from abdomen by blunt hook. Death in a few hours.
27. Jas. D. Trask. *Am. Jour. Med. Sci.* Cited from unknown source. Vol. 15, 1848.	Seventh month, labor following sudden hemorrhage. Shoulder presentation, version. Rupture and protrusion; intestine discovered after removal of placenta. Recovery and subsequent child.
28. Same	Aged 24. Version. Similar, sponge used to keep up intestine. Recovery.
29. Same. Quoted from Duncan's.	Term. Spontaneous rupture, early in pregnancy, child and placenta easily extracted from abdomen. Recovered.
30 A. Monroe, Sr. New Edin. Essays, Vol. 2. Quoted by Trask.	Audible rupture of belly wall after three days' labor (two cracks heard). Intestines seen. Child and placenta expelled through abdominal wound. Recovery.
31. Percy. *Observ. Acad. de Chir.*, 1783. Quoted by Trask.	6-para. Term. Arm presentation, spontaneous rupture, fetus delivered from abdomen. Symptoms of strangulated hernia. Death after one day. Viscera found gangrenous (?) at necropsy and bowel strangulated in uterine rent.
32. Smellie's Cases, Vol. 3. Quoted by Trask.	Primipara. Aged 40. Term. Spontaneous rupture. Death in ten hours. Hernia of bowel through rent found post mortem.
33. M. Amussat. *Lond. Med. Repos.*, 1820.	3-para. Term. Convulsions. Forceps tried in vain, extraction by feet. Rupture. Death. Post mortem, sigmoid found in uterus.
34. Geo. Cook Holmstead. Same, Vol. 2, 1824.	4-para. Aged 26. Term. Contracted pelvis. Version and perforation. Intestine found in uterine tear. Death.
35. Dubois. Chailly's Pract. Treat. on Midwifery, 1844.	8-para. Spontaneous rupture, delivery by version from abdomen. Reposition. Recovery.
36. Bedford. 1 bid.	Term. Rupture of uterus and death of fetus ascribed to previous attendants. Death. Intestine between thighs.

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37. Robert Collins. Pract. Treat. on Midwifery, 1835.
: Primipara. Aged 25. Spontaneous rupture. Perforation. Placenta found in vagina, rent discovered, reposition and removal of coagulated blood. Death after twenty-five days. Rent nearly healed, but double psoas abscess.

38. W. A. Bedford. *Tex. State Jour. of Med.*, 1906.
: 3-para. Spontaneous rupture. Term. Fetus and placenta into abdomen, and intestine prolapsed. Abdominal section. Uterus sutured. Delivery through operation wound. Recovery.

39. Hans Pusch. *Zeit. für Medizinalbeamte*, Vol. 5, 1906.
: 13-para. Rachitic pelvis. Aged 42. Labor induced three weeks early. Version ineffectual. Forceps tore off fetal head. Placenta followed, with loops of small intestine, reposited with iodoform gauze. Next morning, intestine gangrenous. Abdominal section; small intestine 2 meters long torn from mesentery. Resection, death, same day.

40. Thos. Wilson. *Lancet*, Feb. 3, 1906.
: Primipara. Aged 35. Criminal (?) abortion, fourth month. Fetid placenta removed on second day, followed by large intestine. Reposition. Fecal fistula and enema returned through vagina. Plastic operation and resection two months later. Death from shock; organs fatty.

41. Geo. W. Jarman. *Trans. Am. Gyn. Soc.*, 1905.
: Aged 34. Incomplete abortion, third month, two weeks before. Wylie's dilator used and then curet, which brought down intestine. J. then called, cleaned out uterus with finger, repaired intestine, which was not completely perforated, and reposited. Recovery, complicated by mural abscess.

42. Same.
: Four-months dead fetus, supposed to be dead seven months. Dilator caused rupture in old cervical scar. Intestine and omentum prolapsed. Reposition, recovery.

43. A. Palmer Dudley and Hanks. Discussion of No. 42.
: Curetment, after abortion, perforation of uterus and escape of 20 cm. of small intestine. Reposition, recovery.

44. Wm. Hessert. *Chicago Med. Recorder*, Vol. 27, 1905.
: 6-para. Aged 46. Several miscarriages. Early abortion. Curetment brought out small intestine; reposited and iodoform gauze used in vagina. H. called and did abdominal section seven hours later. Bowel slightly bruised but mesentery torn, requiring resection of 80 cm. Recovery.

45. J. B. Harvie. Quoted by Kelly. See No. 44.
: 180 cm. of bowel cut off during curetment. No details.

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46. Boblanck. *Gesell. für Gyn.*, Wurz.	Abortion, curetment, loop of intestine pulled out by forceps. Resection, recovery.
47. A. J. Ochsner. Discussion of same paper, pub. in *Am. Jour. Obs.* Vol. 51.	Aged 36. Criminal abortion, 235 cm. 10 inches of ileum, pulled down between thighs, replaced in vagina. O. did abdominal section resected, end-to-end anastomosis. Recovery.
48. Frank T. Andrews. Discussion of above.	Criminal abortion, intestine pulled out in attempting to clean uterus. Death within an hour.
49. M. D. Mann. *Am. Jour. Obs.*, 1895.	Abortion, intestine torn across in cleaning uterus. Abdominal section; 15 cm. of ileum near valve torn from mesentery. Resection, implantation of ileum into cecum. Recovery.
50. Same, cited from anonymous source.	Abortion, placental forceps pulled down intestine; immediate abdominal section, reposition, suture of uterus. Death from septic peritonitis.
51. Same, cited from anonymous source.	Similar case. Physician lost his head and pulled out 180 cm. of intestine, thinking it fetal (three-months fetus), and cut it off. Death without operation.
52. Ely Van de Warker. *N. Y. M. J.*, Vol. 78, 1903.	Early abortion; middle-aged woman. Small intestine and omentum pulled down during curetment; abdominal section, resection of 10 cm. Death in collapse, next day.
53. Wilmer Krusen. *Penn. Med. Jour.*, Vol. 5, 1902.	No details. Curetment pulled down omentum. Reposition. Abdominal section within two hours. Resection of involved omentum. Recovery.
54. Joseph Hoffman. *Ann. Gyn. and Ped.*, Vol. 3.	Delayed miscarriage, six weeks. Omentum brought down during curetment. Abdominal section. Recovery.
55. Francis T. Stewart. *N. Y. Med. Jour.*, Vol. 78, 1903	Term. 8-para. Aged 38. Podalic version, omentum followed placenta. Vagina packed with sterile gauze. Abdominal section after seven hours. Omentum and uterus extirpated. Recovery.
56. Edw. T. Hargrave. *N. Y. Med. Jour.*, Vol. 79, 1904.	10-para. Aged 39; negress. Term. Version. Fibroid tumor. Rupture probably preceded version. Loops of intestine prolapsed. Death before operation could be undertaken.
57. R. Rommel. *Deut. Zeit. für Chir.* Vol. 64, 1902.	6-para. Muscular strain caused rupture of posterior wall of vagina and prolapse of intestine in mass of size of man's head. Reposition, in spite of strangulation and loosening from mesentery at one point. Vaginal tampon. Death next day.

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58\. John H. Girvin. *Am. Jour. Obs.*, Vol. 48, 1903.
5-para. Aged 23, negress. Shoulder presentation at term. Version. Rupture probably due to ergot. Intestines prolapsed. Prompt abdominal section. Extirpation of uterus, which was in shreds. Death from shock.

59\. D. S. Fairchild. *Annals of Gyn.*, Vol. 17. 1904. (Quoted.)
Instrumental abortion. Soft catheter lost in uterus. Forceps pulled down 45 cm. of small intestine. Operation next morning revealed catheter in abdomen and intestine partly separated from mesentery Resection. Death on table.

60\. Nutting Fraser. *Med. News*, Vol. 82, 1903.
9-para. Aged 45. Term. Version. Hand entered rent in uterus. Immediate hysterectomy. Recovery.

61\. H. Schmidt. *Monats. für Geb. und Gyn.*, Vol. 12, 1900.
2-para. Aged 25. Term. Justo-minor pelvis. Forceps unsuccessful. Craniotomy. Uterus found ruptured and intestines prolapsed. Immediate reposition, packing of lower uterine segment and vagina. Recovery.

62\. W. V. Woods. *Monats. fur Geb. und Gyn.*, Vol. 12, 1900.
1-para. Aged 25. Term. Spontaneous delivery. On seventeenth day, uterus found ruptured and containing intestine. Reposition, Recovery.

63\. N. Kolomenkin. *Idem*, Vol. 17, 1903.
7-para. Aged 40. Term. Spontaneous rupture, perforation of child. Total extirpation of uterus. Recovery.

64\. Beumer. *Monats. für Geb. und Gyn.*, Vol. 20, 1904.
Term. Transverse presentation. Attendant drunk, uterus partially torn from vagina, entire small intestine torn out, placenta missing.

65\. Dienst. Same, Vol. 20, 1904.
5-para. Aged 31. Curetment thirty days after labor. After removal of tumor from uterine cavity. Loop of small intestine pulled down. Abdominal section. Intestine not seriously affected. Repair of uterine rent. Peritonitis, gauze drainage of uterus. Recovery.

66\. Wirtz. *Monats. für Geb. und Gyn.*, Vol. 15, 1902.
8-para. Aged 43. Term. Spontaneous delivery. Retained placenta. Bowel brought down during manual extraction. Death during transportation to hospital.

67\. Mörs. Discussion of No. 66.
Term. Rupture of vagina by forceps. Intestine reposited into vagina only. Death. Intestine gangrenous.

68\. Ludwig Seitz. *Monats. für Geb. und Gyn.*, Vol. 15, 1902.
Multipara. Spontaneous rupture. Child in abdomen, placenta loose in cervix. Porro operation. Death in two and a-half hours

NOTE.—All cases after No. 55 at term, except Nos. 57, 59 and 65.

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69. K. Merz. *Arch. für Gyn.*, Vol. 45, 1894. Quoting Piskacek, 1885, 1894. — 7-para. Aged 36. Head presentation, justeminor rachitic pelvis. Perforation of cranium. Spontaneous rupture, version. Prolapse of omentum. Reposition. Rubber drain through tear. Death after nineteen days, peritonitis.

70. Same, 1888. — 4-para. Aged 33. Term. Oblique presentation. Rupture by midwife in attempting correction. Head in abdomen. Version and extraction. Prolapse of omentum. Reposition and gauze packing. Recovery.

71. E. C. Andrews. *Lancet*, 1887. — Term. Spontaneous rupture. Forceps extraction. Pracenta retained and hand encountered it in abdomen. Ergot one hour later; intestine in vagina. Abdominal section and hysterectomy. Death soon after.

72. J. G. Pilcher. *Lancet*, Vol. 2, 1888. — Aged 25. Term. Spontaneous rupture. Head in abdomen and prolapse of omentum. Abdominal section. Rent stitched and drainage by vagina.

73. G. Schleisner. *Ugeskrift f. Laeger*, 1884. — 5-para. Term. Forceps. Reposition. Recovery.

74. Schuchard. *Inaug. Dis.*, 1884. — 3-para. Hydrocephalus. Placenta previa. Rupture after twenty hours' labor. Version. Perforation of cranium. Reposition, irrigation.

75. Osterbind. Dissertation, 1884. — 7-para. Justo-minor pelvis. Forceps at every labor. Term. Fetus in abdomen. Perforation, cranioclasty. Reposition. Death after seven days, peritonitis.

76. J. D. Thomas. *Am. Jour. Obs.*, Vol. 15, 1882. — 9-para. Aged 35. Term. Mesentery grasped by hand in attempting to remove placenta. Child and placenta delivered from abdomen through vagina. Death from shock, eight hours after.

77. Federico Fornari. *Raccog. Med.*, Vol. 15, 1882. — 2-para. Aged 27. Term. Spontaneous (?) rupture, version. Reposition failed. Laparotomy, supravaginal hysterectomy. Death thirty-one yours later.

78. Herman W. Freund. *Zeit. für Geb. und* Vol. 23, 1892. — 9-para. Aged 43. Term. Rachitic pelvis. Forceps. Intestine and umbilical cord found on attempting to extract placenta after an hour. Reposition and iodoform gauze packing. Death after three days, peritonitis.

79. Same. — 5-para. Aged 24. Spontaneous rupture. Fetus in abdomen; abdominal section. Death sixty-six hours later. Uterus intact. vagina torn.

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80. Same.	4-para. Aged 46. Contracted pelvis. Term. Version. Intestine incarcerated in uterus. Abdominal section next day. Reposition by traction from above, intestine inflamed and covered with fibrin. Sublimate to intestine and endometrium. Suture of rent. Death after three days, peritonitis.
81. Riedinger. *Prag. Med. Woch.*, Vol. 15, 1901.	2-para. Aged 31. Brow presentation. Forceps after fifty-four hours' labor. Complete rupture. Cranioclasty. Omentum reposited. Iodoform gauze. Recovery.
82. G. Walcher. *Med. Correspondens-blatt des Wurtt. Aerztliches Landes-vereins*, Vol. 60, 1890.	Head presentation, hydrocephalus, spontaneous rupture. Reposition followed by Abdominal section. Hysterectomy. Drainage through vagina. Recovery.
83. Henry W. J. Cook *Lancet*, Vol. 1, 1898.	4-para. Aged 33. Rupture, version, slight prolapse of intestine, easily returned. Iodoform gauze packing. Death from shock, six hours later.
84. E. Stajmer. *Centralb. für Gyn.* Vol. 19, 1895.	7-para. Aged 37. Feet presentation, spontaneous rupture. Intestine found prolapsed in seeking placenta. Reposition and iodoform gauze. Abdominal section, extraperitoneal amputation of uterus. Drainage by vagina and preperitoneal space. Recovery.
85. Schäffer. *Therap. Monassch.*, Vol. 11, 1897.	Aged 37. Term. Forceps. Placenta, followed immediately. Reposition. recovery.
86. Bäcker. *Centralb. für Gyn.*, 1897.	3-para. Slight contracted pelvis; previous births normal. Perforation and cranioclasty. Manual extraction of placenta. Spontaneous (?) rupture. Omentum and loop of intestine prolapsed. Reposition impossible. Abdominal section three hours later. Porro. Death after seven hours, secondary hemorrhage from stump.
87. Dietel. *Centralb. für Gyn.* 1897.	Term. Perforation of uterus in removing placenta. Abdominal section; 65 cm. of small intestine torn from mesentery. Much hemorrhage. Resection. Tear in ligamentum latum sutured. Death after a few hours.
88. R. Klien. *Arch. für Gyn.*, Vol. 56, 1898.	7-para. Lumbosacral kyphotic pelvis. Spontaneous rupture, escape of fetus into abdomen, head remaining in pelvis. Forceps unsuccessful. Cranioclasty. Reposition of small intestine. Manual removal of pla-

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	centa. Reprolapse and reposition. Iodoform gauze. Recovery with rectovaginal fistula. Three unsuccessful operations on fistula.
[illegible]. Frank. *Centralb. für Gyn.*, Vol. 56, 1898.	Primipara, flat pelvis. Aged 27. Forceps (?) delivery with much force. Child dead. Rectovaginal septum torn up to internal os. Omentum and portions of small intestine prolapsed. Reposition. Suture of uterovaginal tear and perineum. Recovery, four years later normal delivery.
90. Same.	6-para. Aged 29. Head presentation. Forceps unsuccessful. Collapse, child in abdomen. Placenta in vagina. Small intestine and omentum prolapsed. Abdominal section, transverse incision, decapsulation of uterus (author's method). Recovery.
91. Everke *Berlin. klin. Woch* 1890.	Aged 31. Transverse presentation with prolapse of arm. Spontaneous (?) rupture. Child in abdomen. Kyphoscoliosis. Placenta extracted from abdomen. Prolapse of three loops of intestine. Tear in rear and both sides of vaginal vault. Suture, iodoform gauze tampon of vagina. Recovery.
92. Everke. *Monasch. für Geb. und Gyn.*, Vol. 7	6-para. Former births easy. Kyphoscoliosi splanchnoptosis. Spontaneous rupture. Child in abdomen, version. Prolapse of intestine. Reposition, suture of tear. Recovery.
93. C. Hubert Roberts. *Lancet*, Vol. 2, 1896.	8-para. Two abortions. Aged 31. Seven spontaneous births. Hydrocephalus. Rupture. Manual removal of placenta. Reposition of omentum and intestine gauze packing. Recovery.
94. Hochstetter. *Charite Annalen*, Berlin, 1892-3.	Uterus almost severed from vagina. Death. 29 cm. intestine separated from mesentery. Death, no details.
95. Klien. *Arch. für Gyn.*, Vol. 62, 1901. Quoting Porak 1901.	9-para. Aged 37. Transverse presentation, spontaneous rupture, version, extraction of placenta from abdomen. Intestinal prolapse. Abdominal section after fourteen hours. Suture of uterine tears through serosa only. Recovery.
96. Same, quoting Burger.	4-para. Former births normal. Transverse presentation with prolapse of arm. Spontaneous rupture. Version. Reposition Ergotin. Recovery, in spite of coitus on fif·eenth day. Spontaneous birth nine months and six days later

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DISCUSSION.

Dr. Edwin Walker, Evansville.—I desire to place on record a case of rupture of the uterus with prolapse of the intestine. The history of it was as follows: I was invited in the evening about 11 o'clock by a physician who does a good deal of obstetric work to see a patient who had aborted at about the fourth month. The physician was called the same evening to deliver the placenta. He used an instrument known as the uterine augur, which he introduced and began to turn; before he realized it he had delivered quite a large mass, which upon examination was found to be a large portion of intestine. When I saw the woman fully a handful of intestine presented at the vulva, much of which had been torn from the mesentery. I replaced it in the vagina, put on a tight binder, had the woman taken to the hospital, opened the abdomen, and found by measurement thirty-one inches of the intestine torn away from the mesentery. I resected the intestine, used a Murphy button, but did not take any sutures in the uterus, there being little or no hemorrhage. The parts fell together so well that I think it would have complicated matters to have used sutures; at all events, the patient made a good recovery.

I once saw, also, a rupture of the uterus in which the bowel was drawn into the vagina during labor. This was four or five days after labor, the woman was moribund, and no effort was made to operate. Death, however, was clearly due to the prolapse of the intestine, which was allowed to remain in the uterus without interference. Dr. Charles P. Noble, of Philadelphia, told me afterward that he had had a similar experience to my first case, in which he removed thirty-six inches of the bowel.

Dr. Merrill B. Ricketts, of Cincinnati, told me that he had collected in that city two other cases in which similar accidents occurred, both of them with the augur.

In another case I punctured the uterus during curetment. The patient was a young woman who was suffering from endometritis. In this instance the uterus was rather sharply flexed anteriorly, and I am at a loss to understand how the perforation happened. I used the dilator as usual—the Sims dilator first, and then the curet, which went in very easily, and following it some of the omentum came right down to the forceps. I employed a Bozeman forceps in replacing it, and the patient did not have any further trouble.

Dr. Rufus B. Hall, Cincinnati.—I wish to compliment the author of this paper on the report of a very interesting case. He displayed good judgment and great skill in curing the patient. It is an interesting and valuable paper, also, from a statistical standpoint. I believe perforation of the uterus is more frequent than

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most of us are willing to admit, especially in produced abortion. I do not believe we have prolapse of the intestine often in cases of perforation of the uterus. I had an experience in one season in my service at the Presbyterian Hospital a few years ago, that impressed upon my mind the fact that these cases often run in groups, and that, in produced abortions, uteri are perforated more frequently than is supposed. Within a period of eight days I had five patients in the charity ward who had produced abortions on themselves and had perforated their uteri. These patients were suffering at various stages of infection. Pus was present, and all of them were treated by vaginal section, the pus being emptied out; three of them recovered and two died. I have seen in my service there, taking one year with another, a number of patients who came in three or four weeks after abortion had been produced by themselves or by "doctors."

I will report a case that came under my observation quite recently. The patient was a young woman, twenty-seven years of age. I saw her in consultation with Dr. Van Meter of this city June 9 at night, who himself saw her for the first time the same day. The history of her condition was that she had one child about two years old; she had never been quite well after bearing that child, and for four or five months her health had been poor. She was irregular in her menstruation and had lost flesh. She was a frail little woman, and she conceived the idea that she was pregnant. She went to a doctor to have an abortion produced, naming the doctor. He introduced what was described as a uterine sound, which caused some distress. There was little or no bleeding, however, and in three or four days he repeated the operation, at which time she said it hurt her very much, and for which she took whisky and medicine to relieve the pain before she could leave his office. She then went home, the doctor visited her at her house, and two or three times at intervals of a week he attempted to produce an abortion; each time after his work she had a chill and high temperature. She remained in bed after his first visit to the house. Her last visit to the doctor was about the last day of March. Another doctor was called in consultation a month or so before my visit, who said she had a tumor in the abdomen larger than a man's head, and did not believe she was pregnant.

This last-named physician was a thoroughly good practitioner, and one who would not produce a criminal abortion. He was called into the case again the day preceding my visit, when he said the tumor had greatly increased in size, and expressed the opinion that the woman should be operated immediately. Both of these physicians were discharged. Dr. Van Meter was then called to see the patient, and he invited me to consult with him. Her pulse then was 140 to 160; temperature 102-103°. She was greatly emaciated, and her abdomen was larger than it would be at full term of gestation. There was fluctuation. It looked as though she had an enormous ovarian cyst, but considering the

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history one could not accept that conclusion. I will say that her history up to this time, as given to Dr. Van Meter and myself, could not be relied on, as the woman's mental condition was somewhat impaired. She was not pregnant at the time these attempts to produce abortion were made. She did not menstruate on account of her poor health. We advised her to go to the hospital, and the next day she was sent at 5 o'clock in the evening. The next morning, at the Bethesda Hospital, in the presence of the house doctor, I opened the abdomen in the midline and found two gallons or more of pus in the abdominal cavity. The uterus was perforated from horn to horn, the opening being filled with a segment of omentum. The only operating done inside the abdomen was the tying off this piece of omentum and closing the abdominal incision. She recovered promptly from the anesthetic and did well for twelve days, taking liquid nourishment with satisfaction.

I should have said that when I opened the abdomen I was unable at first to recognize the fundus of the uterus as such on account of inflammatory exudate. About the twelfth day she grew worse, and within twelve hours had intestinal obstruction, and I was urged to open the abdomen. I advised against any attempt to liberate the intestinal obstruction, because I could not see how one could do so under the conditions present. I said I believed she would stand a better chance to let her alone, and that I was not willing to do any more surgery inside the woman's abdomen. Up to that time she had taken liquid food exclusively. A rubber drainage tube was still in the abdomen. For five days her life was despaired of. We washed out her stomach, gave calomel, and at the end of the fifth day she passed fluids, and in twenty-four hours more the intestinal obstruction was relieved. She made a prompt recovery from that time. She menstruated for the first time normally ten days ago.

This case is interesting to me as showing what a dirty instrument will do, and what a woman can endure without fatal results.

DR. JAMES F. BALDWIN, Columbus.—If we were to go into this subject of puncture of the uterus as an experience meeting, as they did a year or two ago at a meeting of the American Gynecological Society, I am sure that almost everyone present would be able to report one or two cases, or perhaps more, from his own observation. Dr. Hall will doubtless remember a case that we saw together several years ago, at Columbus, of abscess which was fully as large as the one he has just described. The patient was the relative of a physician. We were both called in consultation. We did not know exactly what the nature of the case was. The woman had supposed herself pregnant, and some physician had punctured her uterus in trying to bring on an abortion. We decided that discretion was the better part of valor, and did not operate. The next day there was an enormous amount of pus discharged through the vagina, after which the woman promptly recovered.

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If Dr. Congdon wishes to add to his statistics, I will say that we have had in Columbus two cases that I can now recall of perforation of the uterus, one in which a doctor in curetting the uterus brought out, and cut away, many feet of the intestine, which he gathered up, dropped into the privy, and said nothing. The woman, of course, died. In another case the doctor delivered a woman of a dead baby with forceps; she had a number of fibroid tumors interfering with delivery. Following the delivery of the child a quantity of intestine came into the vagina. He pushed it back and packed the vagina with cotton. I saw the woman a few hours afterward and she was in a desperate condition. She was hurriedly taken to the hospital, salt solution was given, a few whiffs of chloroform administered, and the abdomen opened rapidly, the woman being in the Trendelenburg position, so as to get as much blood as possible to the brain. I do not know how it had been done, but the uterus was practically detached, except for a little shred of tissue half an inch in diameter on one side, and the organ was clear up against the diaphragm. It had been completely torn loose, but how I have never been able to determine. The doctor himself did not know that he had more than torn the uterus, but it was thus completely detached.

I know of a number of less marked cases that could be recorded. In the report of the meeting of the American Gynecological Society, two years ago, will be found a large number of cases reported in which the uterus was perforated during curetment. I have done it twice, in each case the curetting being preliminary to an abdominal section. In one case I did a hysterectomy; in the other the uterus was not disturbed; both patients recovered. At the experience meeting of the Gynecological Society it was brought out that nearly all of these women got well whether anything was done or not.

DR. WALTER B. DORSETT, Saint Louis.—It seems to me we could go on indefinitely relating our experiences in regard to rupture of the uterus. It occurs to me the practical thing to get at is how to deal with a rupture of the uterus. The cases may be classified, perhaps, in this way. For instance, those in which we have a rupture of the uterus during labor, either in turning or by the contraction of the uterus itself, termed obstetric rupture; they are dealt with in one way, and a rupture or perforation of the uterus by a midwife or abortionist, as well as rupture of the uterus by the regular physician accidentally in the delivery of a piece of placenta or the curetment of the puerperal uterus. These latter should be dealt with in a different way, on account of the character of the trouble we have to deal with and as to the causation. I would not hesitate in any case in which I was asked to attend, where there has been perforation of the uterus by an abortionist, to make a section and clean out the pus, for the reason that the great majority of those who produce abortions are unclean, even filthy, in their methods, and there is always more or less danger

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that septic material has been carried into the uterus. It has been my fortune to operate on three such cases, in all of which the abortion was induced by the same abortionist. In these I cleaned out the pus that was present and drained. I recall one case of rupture of the uterus in labor in which nothing was done. The intestine was pushed back, and the woman made a good recovery.

Obstetrical rupture of the uterus during labor generally occurs by turning or otherwise. The tear is usually in the anterior and lower portion of the uterus; whereas perforations and ruptures by abortionists occur on the posterior wall of the uterus, so that anatomically the site is different. If it is posterior, it is more apt to become septic on account of its proximity to the rectum, hence the danger of carrying in infectious material is greater. Cases in which we have obstetric rupture are not as apt to be septic. Free hemorrhage would be the only indication for an operative procedure, such as opening the abdomen, finding the site of hemorrhage, and arresting it. It may be recognized by the issue of blood from the vagina, or by the pulse. So, it seems to me, the practical side of this subject relates to the management of the cases as they come to the surgeon rather than to a recapitulation of the number of cases that have been observed or that have occurred in practice of the different members of the association.

Dr. Hannah M. Graham, Indianapolis (by invitation).—I recall a case in which I accidentally perforated the uterus where there was also a laceration of the cervix. I repaired the lacerated cervix, but previous to doing so I curetted the uterus and accidentally perforated it. I diagnosticated slight prolapse of the intestines by the sense of touch. The intestines were put back into the abdominal cavity, and I felt that if the abdomen needed to be opened this could be done later. If not, I would let it alone. I gave the patient some medicine and she came out all right. This is the only case in which I have perforated the uterus, so far as I know.

Dr. John Young Brown, Saint Louis.—This is an exceedingly important subject. I want to congratulate Dr. Congdon on his paper and on the operative treatment he instituted in his case. In spite of the teachings of military surgeons, civil surgeons are beginning to realize the importance of penetrating wounds of the abdomen; it does not matter whether the penetration be made by a curet in curetting the uterus, or by a bullet, or stab wound, the consensus of opinion among civil surgeons is that all such wounds should be explored, and if penetration is present immediate operation should follow. It has been my good fortune to have had quite a large experience in dealing with injuries of this character, and I am firmly convinced that we have learned little or nothing from the statistics that have been presented to us by men who have had wide opportunities for observing such wounds in military practice. On the contrary, I think they have set us back quite a number of years. A review of the transactions of this Association will show an immense amount of splendid work which has been

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done by the Fellows in accentuating and emphasizing the importance of early work in wounds of this character.

The splendid work of Davis, of Vance, of Barrow, and a number of others I could name, men who have written papers on this subject, has refuted nearly every one of the teachings we have received from military men.

I quite agree with Dr. Dorsett that in punctured wounds of the uterus, or in lacerations of the uterus, it is not so much the laceration itself as it is the sequence of the laceration that should be dealt with. The case in point I think received most excellent treatment; and I believe explorations of this character should invariably be made through the abdomen. It is the only way of determining the extent of the injury, and it is the only method that offers a means of repairing the associate injury done to other viscera.

I congratulate Dr. Congdon on the method he used in resecting the bowel; that is, he removed a wide section of bowel, got well back into healthy tissue, and made the anastomosis. In this connection I want to take occasion to commend the Murphy button in emergency resection work. I have had opportunity to use the button quite frequently. I have applied it extensively in gangrenous hernia work, with great satisfaction. I have never had a bad result that I could attribute to the use of the button, and I believe to-day that if an end-to-end anastomosis were to be made on myself I should prefer that the button be used.

At the Chicago meeting of this Association, three years ago, I had occasion to present a very interesting specimen of a case operated on by my assistant, Dr. Kirchner, where a double resection of the bowel was done for gunshot wounds, attended with multiple perforations. The button was placed above the Connell suture; it passed the Connell suture without difficulty. The patient died six months after operation, and in the specimen removed at autopsy it was with the greatest difficulty that we could locate the point at which the anastomosis was made with the button, while the Connell suture anastomosis showed a very distinct diaphragm.

In addition to the thorough and beautiful anastomosis that this button makes, the time in which it can be put in place is a most important factor. I have heard surgeons make the remark that they could do a suture anastomosis as quickly as they could an anastomosis with the button, but I have never seen it done. I have never seen a surgeon who could do an end-to-end anastomosis with stitches with the rapidity that the Murphy button can be inserted.

One point I wish to speak of which I deem of importance was referred to by the essayist. He alluded to these cases coming in in the midst of shock. Most of these patients are in shock, the abdomen being generally filled with blood.

It has been my custom to start the irrigation of hot saline in such conditions as soon as the abdomen is opened. I find the saline solution is rapidly absorbed, and the stimulating effects are

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seen at once, the pulse responding immediately. In regard to irrigation, I am constantly employing it less and less. In cases where the peritoneal cavity has been soiled by fecal leakage and the case is gotten at early, irrigation is uniformly practised, but if peritonitis is present at the time of operation we never irrigate at the City Hospital. Where irrigation is practised, the case is drained, a drain being placed through a stab wound above the pubes, the end of the drain extending down to the vesicorectal pouch or the cul-de-sac.

Dr. Congdon in closing the discussion said:

The discussion has largely taken the form of an experience meeting, so that not much further is required of me. I wish to state, however, in reference to cases reported at previous meetings of this Association, that this paper is based on a careful search of the literature in the library of the Surgeon General of the Army, and that all the cases, with possibly a very few accidentally omitted, will be found tabulated in the bibliography which is appended to this paper, and which could not be read here on account of its length.

Dr. Dorsett did not understand my attitude in reference to the proper procedure with a ruptured uterus. Every case stands by itself, although certain rules of general applicability have been formulated. When there is little hemorrhage, when the bowel is not ruptured, and the patient is at or near term, simple reposition under aseptic conditions is probably all that is necessary. On the other hand cases due to instrumental abortion, attempted abortion, or to the clearing out of the uterus after abortion, should all be treated by abdominal section unless the circumstances are unusual.

The president misunderstood one detail in my own case and paid me an undeserved compliment for not irrigating the abdominal cavity. I did irrigate in this case, although my rule is to the contrary. Shock in my experience in such cases means hemorrhage. When cases of ectopic pregnancy with severe hemorrhage are placed on the table practically pulseless, one is surprised to see the improvement in the pulse within a few minutes after they are placed in bed. On examining these cases every few hours thereafter the pulse will be found to become progressively slower, stronger, and fuller.

The Murphy button is one of the most valuable adjuncts that we possess in intestinal surgery. I believe that I lost the first six or seven cases of intestinal resection because I did not know how to use the button. Since discovering the trouble, I cannot recall a single case that has terminated fatally. At the time of placing the button you have all noticed that the mucosa projected above the serosa. If, without further treatment, the two ends of the button are pushed together, the mucosa will intervene. Union cannot be secured by the apposition of mucosa to mucosa, but only by that of serosa to serosa. Proper coaptation can be secured by trimming off the projecting mucosa. I thank you all for your courteous discussion of my paper.

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