

Anyone can quickly satisfy himself of the presence of this reaction in normal individuals. I wish here to report the results of the examination in two notable cases of paralysis.

The first case, one of great interest, is that of a young man, 20 years of age, who had a tumor of the pons. The first symptom to appear was paralysis of the left external rectus muscle, which was soon followed by paralysis of the right arm and leg, and in the course of three months, before the fatal termination, nearly every voluntary muscle of the body became paralyzed.

The examination for the sign under consideration was made on the patient at a time when the right leg was absolutely paralyzed, while the left one was apparently normal. When he lifted the left, the sound leg, there was not the least movement of the other; but when he was told to try to lift the paralyzed leg, while it did not move in the least, the heel of the other foot dug into the bed.

The second case is that of a married woman of 28, with hysterical hemiplegia. She had suffered for a number of years with pain in the abdomen, on account of which a year ago a cystic ovary was removed, and again a month ago an exploratory operation was made, and the appendix removed. Several weeks after the latter operation, when this patient was convalescent and feeling very well, another patient, who had just been operated on and on whom some blood could be seen, was brought into her room. The sight of blood had always affected the patient. She says she did not feel ill at the time but that one-half hour later she became suddenly blind (a transient condition), then the right arm and leg trembled greatly; and later were paralyzed.

I saw her four days subsequently. She presented a right hemiplegia and hemianesthesia. The right arm and leg were completely paralyzed, not the least movement being manifested. The face was not paralyzed. On the same side there was loss also of all qualities of sensation, tactile, pain, temperature and muscular sense. On the face and trunk the anesthesia extended exactly to the median line. There was blindness of the right eye, deafness of the right ear and loss of smell of the right nostril. The sense of taste was not carefully tested.

When this patient was told to lift the right, the paralyzed leg, or at least to make every effort to do so, there was no movement whatever either of that leg or of the other; but when she lifted the sound leg the heel of the paralyzed one dug into the bed.

My purpose in making this report is to speak of the mode of examination. I stated that when the second patient lifted the sound leg the heel of the paralyzed one always dug into the bed. Yet this movement was not very pronounced. In fact, it was so slight that I could not help questioning whether the movement of the right heel was not because the lifting of the sound leg shook the bed and mattress, or caused a movement of the trunk, which was transmitted to the paralyzed leg. Further examination quickly removed this doubt. When the hand was placed under the right thigh, just above the knee, and the sound leg was lifted, the biceps and semitendinosus and semimembranosus of the paralyzed leg were felt to contract forcibly. Further examinations have satisfied me that this mode of examination brings out this sign more clearly.

It would appear that in cases like the two I reported—one leg completely paralyzed, the other normal—this

sign should positively determine whether the paralysis were due to a pathologic lesion, or were either hysterical or simulated.* But in case the affected limb is not completely paralyzed so that it not only has the power of movement but also shows some complementary opposition, even in hysterical cases, the sign must be of far less value. Here the question would be whether the complementary opposition is as strong as it should be, a question which would be difficult to answer and would often lead to error.

Hoover says in his article that the movements may be carried out in the reverse order; that if a normal person press one leg against the couch there will be a counter lifting force exhibited in the other. I tested for this sign in a number of instances, in both normal and paralyzed individuals, watching the movement of the foot on the counter-lifting side, but failed to observe any movement in nearly every instance. A number of other physicians told me that they also had failed in this test.

After my observations in the case of hysterical hemiplegia, I again made the test, observing the uncovered thigh, or feeling for contractions of the thigh muscles. I was now able to see evidence of this counter-lifting force in every case. Those examined were normal individuals and hemiplegics, who had some power in the paralyzed leg. Some movement could be seen in the thigh, and different muscles were felt to contract, the adductor longus, parts of the quadriceps, and even the flexors of the knees, the results not being alike in various individuals. This pressing the leg against the couch is not so simple an action as lifting the foot, and doubtless is somewhat differently executed by different individuals—that is, as to the group of muscles brought into play and the comparative force of their contractions. For this reason the manifestations in the counter-lifting force vary in different individuals. It may be that this sign, that of the counter-lifting force, will prove of special service in some cases.

PERFORATIVE APPENDICITIS COMPLICATING PREGNANCY.

WITH REPORT OF A SUCCESSFUL CASE.

EDMUND A. BABLER, M.D.

Associate Surgeon, St. Louis Skin and Cancer Hospital; Assistant in Surgery, Washington University.
ST. LOUIS.

Experience corroborates the contention that perforative appendicitis is one of the most grave and, fortunately, one of the most infrequent complications of pregnancy with which the surgeon has to deal. That a dissemination of our present-day knowledge of the complication is needed is exemplified by the high mortality and the frequency with which the autopsy findings bring the first intimation of the true cause of the clinical picture. A sufficient number of cases of appendicitis complicating pregnancy has been reported to enable us to draw important conclusions for our future guidance. At present our object is to briefly present these findings and to report a successful case in point.

HISTORICAL DATA.

Hancock,¹ in 1848, reported the first clear case of appendicitis complicating pregnancy. Ten days after

*There is the possibility that a malingerer, familiar with the test, might inhibit the complementary opposition of the apparently paralyzed leg, but care on the part of the physician should ward off even this source of error.

1. *Lancet*, 1848, ii, 381.

a premature delivery Hancock incised a perityphlitic abscess. The patient recovered. In 1885 Korn,² and in 1888 Müller,³ cited a case in which the autopsy showed death due to a perforated appendix. Wiggins,⁴ in 1892, reported the first case in which the diagnosis was made and an operation advised at a time when the life of both mother and infant could have been saved. Unfortunately, the patient's friends refused the only hope. In 1894 Munde⁵ tabulated the first successful American case. In the same year Hirst⁶ reported a perforative case treated surgically before premature birth had occurred. The patient had general peritonitis. Patient went to term and was delivered of a living infant. Our active knowledge concerning appendicitis complicating pregnancy dates from Wiggins' monograph.

FREQUENCY OF CONDITION.

Up to the present time it has not been possible to estimate accurately the frequency of appendicitis during pregnancy; since many of the simple cases are not recognized, and many others are not reported. In 1902 Rosner found 22 cases of appendicitis in fifteen hundred pregnancies. In 1905 von Oordt stated that he had observed the complication in only three of the 10,000 pregnancies at the Rotterdam Maternity. In a thorough, painstaking review of the literature I have been able to collect 235 cases of appendicitis complicating pregnancy, labor and the puerperium. Of the 207 cases occurring during pregnancy, 103 were of the perforative or gangrenous, and 104 of the non-perforative variety. The seemingly greater frequency of the perforative form is partially explained by the fact that they are more often recognized than the non-perforative variety. I am confident that appendicitis complicates pregnancy with greater frequency than the reported cases would tend to lead us to believe.

ETIOLOGY.

The etiology of appendicitis complicating pregnancy differs very little, perhaps, from that of appendicitis in the non-pregnant. I believe that pregnancy does, at times, precipitate an acute exacerbation in those cases in which the appendix is bound down by dense adhesion, or contains a fecal concretion, or in which the mesentery of the appendix is abnormally short and pressed upon by the pregnant uterus. I can not reconcile myself to the thought that pregnancy predisposes to primary attacks of appendicitis. If pregnancy was a predisposing factor, many more cases would be reported than is at present the case.

PATHOLOGY.

I have been forcibly impressed with finding that in 75.7 per cent. of the cases the complication occurred after the third month of pregnancy. As previously stated, in more than 44.6 per cent. of the collected cases perforation occurred. McArthur⁷ held that after the third month of gestation a portion of the wall of an appendiceal abscess is usually formed by a part of the right wall of the uterus. Waldeyer, Futh and others observed that the pregnant uterus pushes the cecum upward and backward, so that if appendicitis develops it is more dangerous in the later than in the earlier

months of gestation. I have been surprised to find how rarely portal infection follows development of an appendiceal abscess. In one of Oidtman's⁸ cases a subphrenic abscess developed after the opening of an ilio-inguinal abscess. In my own case a left femoral phlebitis developed four weeks after incising a large appendiceal abscess. Jewett's⁹ patient recovered after the spontaneous evacuation of a quantity of very offensive pus by rectum. Hlawacek¹⁰ and Semb¹¹ cited cases in which pus was found in the tubes and uterus at autopsy. Rostowzew¹² has mentioned that infection reaches the uterus in three ways:

1. Through the peritoneum in case of diffuse peritonitis.

2. Through the lymph and blood vessels in the appendiculo-ovarian ligament.

3. Through the adhesions between the abscess wall and the generative organs.

Heaton¹³ held that abortion must occur in all cases where the pregnant uterus forms a part of the abscess wall. Koenig¹⁴ found that when the uterus formed part of the wall of a periappendicular abscess, expulsion of the fetus and sudden contraction of the uterus is almost invariably followed by rupture of the abscess. Betts¹⁵ cites a very interesting case, in which a pelvic mass obstructed the delivery of the infant. Cesarean section was performed, and the cause of the obstruction was found to be an appendiceal abscess. Cases have been reported in which the dense adhesions between the uterus and appendicular tissues interfered with the normal contraction of the uterus.

SYMPTOMS.

In my case the clinical picture was not clouded by the pregnancy. The sudden onset, the fever, the character and site of the pain, the marked tenderness, the vomiting, and the picture in general differs very little from that of appendicitis in the non-pregnant.

DIAGNOSIS.

A careful consideration of the previous history and of the mode of onset of the present attack, combined with a thorough examination, will usually eliminate error. Webster has very fittingly said that before a diagnosis of appendicitis is made, we should bear in mind the possibility of ureteritis and pyelitis. Frankenthal found that blood in the urine could be due to an appendix in relation with the ureter.

In pyelitis the lumbar pain, the frequent micturition, the pus in the urine, the daily chill followed by high temperature, the marked tenderness in the region of the kidney and along the course of the ureter, and the absence of rigidity of the right rectus and point tenderness suffice to guide correctly. While preparing the monograph, I saw, in consultation, a case of pyelitis complicating pregnancy. The diagnosis was readily made by the attending physician, Dr. Niebruegge.

Vineburg thinks that in ruptured tubal gestation sac the pain is more paroxysmal and more severe than in appendicitis. My experience has been that the clinical

2. *Centralbl. f. Gynäk.*, 1885, ix, 444.

3. Quoted by Bolje.

4. *Med. Rec.*, 1892, xli, 109.

5. *Med. Rec.*, New York, 1894, xlii, 678; 1895, xlii, 28 and 379.

6. *Med. News*, 1894, lxx, 667.

7. *Am. Jour. Obst.*, 1895, xxxi, 181.

8. *Centralbl. f. Gynäk.*, 1905, xxviii, 596.

9. *Brooklyn Med. Jour.*, 1899, xlii, 356.

10. *Monatschr. f. Geburtsh. u. Gynäk.*, 1897, vi, 327.

11. *Centralbl. f. Gynäk.*, 1901, xxvi.

12. *Med. Obozr.*, 1902, lvii, 9.

13. *Brit. Med. Jour.*, 1905, i, 463.

14. *Beitr. z. Geburtsh. u. Gynäk.*, Berlin, 1900, iii, 33; and *Centralbl. f. Gynäk.*, 1900, xxiv, 1214.

15. *Homeop. Jour. Obst., Gynec. and Pediat.*, 1903, xxv, 9.

PERFORATIVE APPENDICITIS COMPLICATING PREGNANCY.

	Author	Time	Prev. Attack	Operated	Appendix	Peritonitis	Aborted	Mortality	
								Infant	Mother
1	Hancock			Yes	Perf.	Local	No	D	R
2	Korn	6 mo.		No	Perf.	General	Before Oper.	D	D
3	Mueller	9 mo.		No	Perf.	General	Before Oper.	D	D
4	Wiggins	3 mo.		No	Perf.	General	No	D	D
5	Krafft	4 mo.	Yes	Yes	Perf.	Local	No	D	D
6	Munde	8 mo.	?	Yes	Perf.	Local	Before Oper.	D	D
7	Hirst	4½ mo.		Yes	Perf.	General	No	D	D
8	Munde	2 mo.		Yes	Perf.	General	Before Oper.	D	D
9	Harrison	5 mo.		Yes	Perf.	Local	Before Oper.	D	D
10	Munde	5 mo.		Yes	Perf.	Local	Before Oper.	D	D
11	McArthur	4½ mo.	Yes	Yes	Perf.	Local	After Oper.	D	D
12	"	4½ mo.		Yes	Perf.	Local	Before Oper.	D	D
13	Abrahams	3 mo.		Yes	Perf.	Local		D	D
14	Penrose	2 mo.	Yes	Yes	Perf.	Local	No	D	D
15	Crutcher	2 mo.		Yes	Perf. and Gang.	Local	Before Oper.	D	D
16	Abbe	7 mo.		Yes	Perf.	General	No	D	D
17	Bul	3½ mo.		Yes	Perf.	Local	No	D	D
18	Laroyenne	3½ mo.		Yes	Perf.	Local	No	D	D
19	Le Gendre	2½ mo.		Yes	Perf.	Local	No	D	D
20	Kroenig	8 mo.	No	Yes	Perf.	General	After Oper.	D	D
21	Oppenheimer	7 mo.		Yes	Perf.	General	Before Oper.	D	D
22	Hlawacek	9 mo.		No	Perf.	General	Before Oper.	D	D
23	Marx	7 mo.	Yes	Yes	Perf.	Local	After Oper.	D	D
24	"	4½ mo.		Yes	Perf.	Local	After Oper.	D	D
25	Budin	5 mo.		Yes	Perf.	General		D	D
26	Pinard	5 mo.		Yes	Perf.	General	After Oper.	D	D
27	Fraenkel	6 mo.	Yes	Yes	Perf.	Local	After Oper.	D	D
28	"	2 mo.		Yes	Perf.	Local	After Oper.	D	D
29	Maygrier	6 mo.		Yes	Perf.	General	After Oper.	D	D
30	P. rak & Schwartz	7½ mo.		Yes	Perf. and Gang.	General	After Oper.	D	D
31	Gordon	3 mo.		No	Perf. and Gang.	General	Before Oper.	D	D
32	Segoud	5 mo.		Yes	Perf. and Gang.	General	After Oper.	D	D
33	Falk	6 mo.		Yes	Perf.	Local	No	D	D
34	Pinard	6 mo.		Yes	Gang.	General	After Oper.	D	D
35	"	3 mo.		Yes	Perf.	General	After Oper.	D	D
36	Koenig	5 mo.	Yes	No	Perf. and Gang.	General	Before Oper.	D	D
37	"	4½ mo.		Yes	Perf.	General	Before Oper.	D	D
38	"	6 mo.	Yes	Yes	Perf.	Local	Before Oper.	D	D
39	"	9 mo.	Yes	Yes	Perf.	General	Before Oper.	D	D
40	Hagapoff	8 mo.		Yes	Perf.	Local	No	D	D
41	Harrgott	8 mo.		Yes	Perf.	General	Before Oper.	D	D
42	"	9 mo.		Yes	Perf.	Local	After Oper.	D	D
43	Semb	6 mo.	No	Yes	Perf.	General	After Oper.	D	D
44	"	3 mo.	Yes	Yes	Perf.	General	After Oper.	D	D
45	Lewis	4 mo.		Yes	Perf.	Local	No	D	D
46	Sonnenberg	5 mo.		Yes	Perf.	Local	After Oper.	D	D
47	B others	6 mo.		Yes	Perf. and Gang.	Local	Before Oper.	D	D
48	D. oghue	3½ mo.		Yes	Gang.	Local	No	D	D
49	Kellar	2 mo.		Yes	Perf.	Local	After Oper.	D	D
50	Caenlo	6 mo.		Yes	Perf.	Local	No	D	D
51	Oui	8 mo.		Yes	Perf.	Local		D	D
52	Betts	9 mo.	Yes	Yes	Perf. and Gang.	Local	Before Oper.	D	D
53	Rostovsky	2 mo.		Yes	Perf.	Local	Before Oper.	D	D
54	"	8 mo.		Yes	Perf.	Local	No	D	D
55	"	1 mo.		Yes	Perf.	General	No	D	D
56	"	7 mo.		No	Perf.	General	No	D	D
57	"	8 mo.		No	Perf.	General	Before Oper.	D	D
58	"	3 mo.		Yes	Perf.	General	After Oper.	D	D
59	"	9 mo.		No	Perf.	General	Before Oper.	D	D
60	Rosner	4 mo.		Yes	Perf.	General	No	D	D
61	"	10 mo.		No	Perf.	General	Before Oper.	D	D
62	"	4 mo.		Yes	Perf. and Gang.	General	After Oper.	D	D
63	"	8 mo.		No	Perf.	General		D	D
64	Ricketts	2 mo.		Yes	Gang.	General	After Oper.	D	D
65	Holmes	4 mo.		Yes	Gang.	General	No	D	D
66	Treves	9 mo.		Yes	Perf. and Gang.	General	No	D	D
67	Labhardt	3 mo.		Yes	Perf.	Local	Before Oper.	D	D
68	Lediard & Sedgwick	6 mo.		Yes	Perf.	Local	After Oper.	D	D
69	Thring	6 mo.	Yes	Yes	Gang.	Local	No	D	D
70	Tscherning	5½ mo.		Yes	Perf.	General	No	D	D
71	"	2 mo.		Yes	Perf. and Gang.	General	After Oper.	D	D
72	"	6 mo.		Yes	Gang.	Local	After Oper.	D	D
73	Heaton	2 mo.		Yes	Perf.	Local	No	D	D
74	"	5 mo.		Yes	Perf.	General	Before Oper.	D	D
75	"	7 mo.		Yes	Perf.	Local	Before Oper.	D	D
76	Maclaure	4 mo.		Yes	Gang.	General	No	D	D
77	Sherping	5 mo.		Yes	Perf.	Local	After Oper.	D	D
78	McB rney	5 mo.		Yes	Perf.	Local	No	D	D
79	Sears	3 mo.		Yes	Gang.	Local	No	D	D
80	Freund	2 mo.		No	Perf.	Local	Before Oper.	D	D
81	Sonnenberg	4 mo.		Yes	Gang.	General	After Oper.	D	D
82	Hermes	5 mo.		Yes	Perf.	General	After Oper.	D	D
83	Oidtman	3 mo.	Yes	Yes	Perf.	Local	Before Oper.	D	D
84	Meurer	9 mo.		No	Perf.	General	No	D	D
85	Jung	5 mo.	Yes	Yes	Gang.	General	After Oper.	D	D
86	Shoemaker	5 mo.		Yes	Perf.	Local		D	D
87	"	5 mo.		Yes	Perf. and Gang.	Local	After Oper.	D	D
88	Tisser & Lemeland	9 mo.		Yes	Perf.	General	After Oper.	D	D
89	Roncagli	3½ mo.		Yes	Gang.	General	After Oper.	D	D
90	"	1 mo.		Yes	Perf. and Gang.	General	Before Oper.	D	D
91	Stahler	24 wks.		Yes	Perf.	General	After Oper.	D	D
92	Linder	8 mo.		Yes	Perf.	Local	Before Oper.	D	D
93	"	8 mo.		Yes	Perf.	Local	Before Oper.	D	D
94	"	9 mo.		Yes	Perf.	General	Before Oper.	D	D
95	" (Webster's)	3 mo.		Yes	Perf. and Gang.	General	After Oper.	D	D
96	"	4 mo.		Yes	Gang.	Local	After Oper.	D	D
97	Lockyer	8 mo.		Yes	Perf.	General	Before Oper.	D	D
98	"	7 mo.		Yes	Gang.	General	Before Oper.	D	D
99	von Rosthorn	8 mo.		No	Perf.	General	Before Oper.	D	D
100	"	4½ mo.		Yes	Perf. and Gang.	General	No	D	D
101	Cr il	6 mo.		Yes	Perf.	Local	After Oper.	D	D
102	Cooke	8 mo.	Yes	Yes	Gang.	General	After Oper.	D	D
103	Bab er	6 mo.	Yes	Yes	Perf.	Local	After Oper.	D	D

picture and the findings on thorough examination suffice to guide to the seat of trouble.

When the symptoms of appendicitis appear during the puerperium, difficulty in reaching a correct diagnosis may be met. Pinard¹⁶ has mentioned the fact that in septicemia a chill seldom appears before the third day after delivery, while in perforative appendicitis or in ruptured appendiceal abscess the patient may experience a chill on the day of the delivery or the following day. The character of the lochia, the previous history, the mode of onset, the muscular rigidity and the findings in general will suffice to guide to the appendix.

PROGNOSIS.

The mortality of appendicitis complicating pregnancy and the puerperium is the mortality of delay.

Delay until perforation has occurred means an infant mortality of 66 per cent. and a parent mortality of 48.5 per cent. Of the 103 perforative cases complicating pregnancy that I have collected, operation was performed in 89. Thirty-three aborted before, and 37 after operation; 36 mothers died. Of the 14 perforative cases treated medically, all the patients died; 10 aborted, and in 4 the child died in utero, a parent mortality of 100 per cent. and an infant mortality of 75 per cent. Of the 104 non-perforative cases, 50 patients were operated on; 7 aborted; one mother died. Of the 54 not operated on, 6 aborted and 4 mothers died. I found 28 cases of appendicitis complicating the first ten days of the puerperium; eighteen were perforative. In these 18 cases 12 patients were operated on, with a mortality of 33.3 per cent. Two of the 6 not operated on recovered by accident; the pus burrowed through the rectum. Nine cases were non-perforative. In these 3 patients were operated on and 6 were treated medically. All recovered. In one case (Michel's¹⁷) complicating the puerperium, full details are lacking. I have not collected the cases occurring after the tenth day of the puerperium, because I do not think they should be considered here.

TREATMENT.

Early, efficient surgical intervention is the secret of success in the treatment of appendicitis complicating pregnancy and the puerperium. If perforation has occurred, and if the abscess is localized, incision and free drainage should be immediately secured. The great danger of rupturing the abscess and flooding the peritoneal cavity with pus, if the uterus is emptied before operation, is so real that it demands consideration. Muret,¹⁸ Koenig¹⁴ and others have reported fatal cases in point. In my case delivery did not occur until 48 hours after the operation, thereby giving time for the formation of a protecting wall between the general peritoneal cavity and the gauze drains.

If the patient has general peritonitis, incision and drainage, without disturbing the gestation, are indicated, provided the pregnancy has not advanced beyond the fourth or fifth month. If the patient is at the end of gestation, *accouchement forcé*, followed by abdominal section for the securing of efficient drainage, are called for. The exaggerated Fowler posture and continuous saline infusion per rectum are of very great benefit in the postoperative treatment.

Cesarean section has been suggested for perforative cases with general peritonitis, if the patient is near the

end of pregnancy. The subject needs more thorough consideration. We should at least be sure that the infant is alive, before we resort to Cesarean section. It seems to me that *accouchement forcé* or vaginal section, followed by abdominal incision and free drainage, offer the best results in these very distressing conditions. The surgeon must be guided by the individual case.

REPORT OF CASE.

Patient.—Mrs. L. S., aged 29, was seen in consultation with Dr. Soliss of Sapulpa, Okla., to whom I am indebted for the following data:

Previous History.—Family history was negative. Menses began at 12; always regular and free from pain. Married at 19. Mother of three healthy children. Has had five miscarriages. Last menses appeared in October, 1907. During the present gestation she had frequently been seized with sudden, more or less severe pain in the right, lower abdomen. During the past few months the pain had become more frequent and more severe.

Present Illness.—On Sunday, April 26, 1908, shortly after having partaken of a substantial dinner, she was suddenly seized with an excruciating pain in the abdomen. It was so severe that she could not move. Gradually the pain shifted to the right side and became intermittent and cramp-like in character. On Monday morning she arose and got breakfast but would occasionally have to sit down on account of the pain in her right side. Monday night the excruciating pain returned and seemed localized in her right side. She vomited and felt hot. Early Tuesday morning Dr. Soliss was called. He found the patient in excruciating pain. There was marked tenderness over McBurney's point and the patient presented the usual clinical manifestations of a severe attack of acute appendicitis. Ice bags were applied to the right inguinal region and sedatives were administered to alleviate the intense suffering. Urinalysis showed absence of pus, blood, casts and albumin. Vaginal examination showed slight dilatation of cervix. Fetal heart sounds normal. A diagnosis of acute appendicitis was made. On Wednesday the condition of the patient being unchanged, and the symptoms continuing unabated, an operation was advised. Since the slightest exertion was followed by excruciating pain in the lower right quadrant of abdomen the patient hesitated to be moved. On Friday morning she decided to make the trip to St. Louis. While en route, the patient was restless and feverish. Dr. Soliss feared she might be confined on the train. I saw the patient with Dr. Soliss, Saturday afternoon, at the Deaconess Hospital, and readily confirmed his diagnosis. The history, the pain, the fever, the localized tenderness, the absence of pus, blood or casts in the urine, and the picture in general pointed to the appendix. The fetal heart sounds showed the infant in good condition. The cervix was somewhat dilated and softened.

Operation.—An incision was made over the area of dulness and about a quart of offensive pus evacuated. The wall of the uterus formed a part of the wall of the abscess. The appendix could be felt near the margin of the ribs in the right mammary line. It was curled on itself, perforated, contained a fecal concretion, and was so firmly adherent and up so high that I feared that undue manipulation would too greatly endanger the life of both patient and infant. The distal, free portion of the appendix was removed. Two rubber tubes were used to secure good drainage. Three small gauze drains were placed between the abdominal wall and the uterus, so that the general peritoneal cavity would be protected if premature delivery occurred. A figure-of-eight silk-worm-gut suture was placed in the upper and one in the lower angle of the incision as a precaution. The entire operation occupied possibly fifteen minutes. The patient required very little ether, and quickly recovered from same.

Postoperative History.—Two days after operation labor pains appeared and caused considerable anxiety. A hypodermic injection of $\frac{1}{4}$ grain of morphin sulphate was given. Five hours later a living, apparently six months old infant was born. The placenta was not readily expelled, but as there was not any undue hemorrhage I did not resort to Credé's method. I was

16. Ann. de gynec., 1898, xlix, 345.

17. Rev. méd. de l'est, 1906, xxxvi, 257.

18. Quoted by Pinard.

afraid of inducing rupture of the newly formed adhesions about the abscess wall. On the day after delivery the temperature was 101.4 F., pulse, 100. The general condition of patient was satisfactory. Symptoms of peritoneal soiling were absent. The lochial discharge was normal. During the first four days after delivery the daily temperature fluctuated between 100 and 104.4 F., pulse, 100 and 140. The abdomen was soft and the lochia normal. The patient complained of severe pain in the hepatic region and I feared a portal infection. On removing the drains I found the entire surface of wound covered with a necrotic membrane. On palpation of abscess cavity I found the general peritoneal cavity well walled off. Gentle irrigation of wound twice daily was of great benefit. The temperature dropped to 101 F. and the patient's general condition improved.

The patient left the hospital June 3. The high temperature which developed during the week after delivery was due to absorption of septic material at site of operation. The patient developed a phlebitis in the left thigh one week after leaving the hospital. She departed for home July 4, 1908, in the best of spirits.

CONCLUSIONS.

The following conclusions seem justified:

1. Perforative appendicitis is one of the gravest complications of pregnancy with which the surgeon has to deal.
2. Appendicitis complicates pregnancy with greater frequency than the tabulated cases would indicate.
3. Pregnancy does not seem to predispose to primary appendicitis. It may precipitate an attack in certain chronic cases.
4. The clinical manifestations do not differ from those of appendicitis in the non-pregnant.
5. Before a diagnosis is made, the medical attendant must bear in mind the possibility of ureteritis and pyelitis. The diagnosis is not, as a rule, difficult.

APPENDICITIS COMPLICATING THE PUERPERIUM.

	Author	Time	Operated	Perforated	Mortality	Remarks
1	Peterson	7 days	No	Yes	R	Perf. into Bowel.
2	Muret	2 days	No	Yes	D	
3	Fowler	10 days	Yes	Yes	R	
4	Munde	2 days	Yes	Yes	D	
5	No le	2 days	Yes	Yes	R	
6	Abrahams	5 days	No	No	R	
7	Iarca	7 days	No	Yes	D	
8	Faenkl	10 days	No	No	R	
9	Vasey	4 days	No	No	R	
10	Marx	5 hrs.	Yes	No	R	
11	Marx	4 days	Yes	Yes	R	Perf. into Bowel.
12	Jewett	7 days	No	Yes	R	
13	Rostov sev	3 days	Yes	Yes	R	
14	Darquier	9½ hrs.	Yes	Yes	R	
15	Porak & Daniel	2 days	No	Yes	D	
16	Maute	2 days	Yes	Yes	D	
17	Le Page	4 days	Yes	Yes	D	
18	Labhardt	2 days	No	No	R	
19	Holmes	?	No	No	R	
20	Meurer	4 days	No	No	R	No details.
21	Meurer	3 days	No	Yes	D	
22	Robson	1 day	Yes	Yes	R	
23	Robson	3 days	Yes	Yes	R	
24	Keyes	?	Yes	No	R	
25	Myer	2 days	Yes	Yes	R	
26	Davis	?	Yes	No	R	
27	Michel	9 days	Yes	Yes	D	
28	Hilton	3 days	Yes	Yes	D	

6. Of 235 cases of appendicitis complicating pregnancy and the puerperium, 103 of the 207 cases complicating pregnancy were of the perforative variety. Of these perforative cases, 89 patients were operated on; 33 aborted before and 37 after operation; 36 mothers died.

All of the 14 patients who were not operated on in perforative cases died; 9 infants died. Of the 104

non-perforative cases, 50 patients were operated on; 7 aborted and one mother died. Of the non-perforative, non-operated cases, 6 patients aborted and 4 died. (These were mild attacks.) Of the 28 cases occurring during the puerperium 18 were perforative. Of these latter, 12 patients were operated on; 4 died. Two of the five not operated on accidentally recovered; the abscess ruptured into the rectum. All of the patients in the non-perforative cases recovered.¹⁹

7. The mortality of appendicitis complicating pregnancy is the mortality of delay.

8. Early, efficient surgical intervention is the secret of success in the treatment of appendicitis complicating pregnancy.

9. It is far better to evacuate an appendiceal abscess before emptying the uterus, since such a procedure would eliminate the possibility of flooding the free peritoneal cavity with pus.

10. If general peritonitis is present at time of consultation, *accouchement forcé*, followed by abdominal section, is indicated in the cases near the end of gestation. Cases have been reported in which general peritonitis was present at the time of operation, and yet the patient went to term.

4826 Delmar Boulevard.

RESULTS OF OVARIAN TRANSPLANTATION
ON BODY WEIGHT AND EGG WEIGHTS
IN FOWLS.*

C. C. GUTHRIE, M.D.
ST. LOUIS.

It seems that lack of growth follows the removal of and transplantation of ovaries in chickens. At the end of from six to twelve months the hens operated on are distinctly lighter than the controls. Also the eggs from the hens operated on weigh less than the eggs from the normal hens. As a rule, the weight of the egg and chick relative to the body weight is also less in the hens operated on.

During the second year both the actual weight of the egg and weight relative to the body weight in the hens operated on approach the normal.¹

1907-'08.			
Fowl.	Egg wt.	Body wt.	
G 1 (control)	59.96	2020	
G 2 (operated)	47.50	1790	
G 3	43.44	1650	
B M 1 (control)	57.50	2270	
B M 2 (operated)	37.12	1770	
B M 3	41.20	1540	

1906-'07. 1907-'08.			
Fowl.	Egg wt.	Body wt.	Egg wt. Body wt.
B 1 (control)	60.1	1500	63.55 1350
B 2 (operated)	40.9	1250	51.17 1250
B 3	46.6	1250	
W 1 (control)	59.1	1480	59.01 1540
W 2 (operated)	49.2	1450	63.25 1750
W 3	48.6	1250	

19. Just as the proof-sheets of this article were being corrected, the article by Weber and that by Herrnstadt came to my notice. Weber reports three perforative and two non-perforative cases. All the patients were operated on and all recovered. Herrnstadt reports a perforative case in a patient in the ninth month of pregnancy. Premature delivery of a dead fetus preceded the incision and drainage of an appendiceal abscess; the abscess was diagnosed some time after delivery of the fetus. The patient recovered.

* Read in the Section on Pathology and Physiology of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

1. For a fuller account of these experiments the reader is referred to an article by the author entitled "Results of Removal and Transplantation of Ovaries in Fowls," Journal of Experimental Zoology, July, 1908.