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REMARKS

ON THE

Surgical Treatment of Appendicitis.

BY

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REMARKS ON THE SURGICAL TREATMENT OF APPENDICITIS.[1]

BY MAURICE H. RICHARDSON, M.D.

THE remarks which I wish to make upon the treatment of appendicitis are based upon my personal experience in the following cases, which have come under my care at the hospital or to which I have been called in private practice for the purpose of deciding whether or not operative interference was necessary. In every case, the question of operation has been raised.

I have arranged my cases as follows to show very briefly the nature of each. That many of them were cases of perforative appendicitis, was shown either by the operation or by the autopsy. Others undoubtedly had the same origin, though recovery without operation or death without autopsy left the diagnosis without absolute proof. I think there is little doubt that the cause of the trouble, in most of the milder cases accompanied by abscess, was in an inflammation of the appendix. In some of them, however, the source was quite uncertain. Of such cases, as well as of the very mild ones which recovered without serious symptoms, I would say that they throw very little light upon the main question of early interference. They may even be productive of harm unless we emphasize the fact that at no time are their symptoms such as to make the case urgent, or to raise the question of early laparotomy.

[1] Read before the Surgical Section of the Suffolk District Medical Society, April 6, 1892.

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I. CHRONIC CASES: RECOVERY WITHOUT OPERATION.

1. W. P. K., aged fifty, Boston. Attack in 1887. Indigestion, colic, tenderness and marked tumor. Said he had had it many times before. Advised watching. Recovery. No recurrence in 1892.

2. Dr. O., aged forty-two. 1889. Thirteenth attack. With each attack a large bunch in region of appendix, tender and slightly painful. After last attack tumor slowly subsided. Operation not advised. Remains well.

3. J. J. C., aged twenty-nine, Massachusets General Hospital. July 30, 1890. Family and personal history good. Sixteen months ago sharp pains with nausea and vomiting, followed by constipation. Something broke in region of liver, followed by coughing and expectoration of dark-colored fetid matter. Recovery from that. Since then several similar attacks. Well-developed but emaciated. Temperature 100°, pulse 120. Conditions improved. Advised to wait and report later.

4. Dr. G. E. L., aged thirty-seven, Lowell. Dr. Bass. Three months ago taken with sudden pain in right abdomen, vomiting and chilly sensations. Tenderness and occasional pain in right iliac fossa now. No operation advised. Recovery.

II. CHRONIC APPENDICITIS: DEATH WITHOUT OPERATION: AUTOPSY.

1. W. H., aged twenty-one, Saxton's River, Vt. Dr. Hill. March 15, 1892. First taken with severe pain in right iliac region early in the winter. Recovered, but still tender. Recurrence of pain in March. No physical signs. Tuberculous disease of hand also. Operation seemed inadvisable. Died in July. Appendix inflamed, an inch in diameter. Old abscess cavity found behind cæcum, with peritoneal tuberculosis. Tuberculosis of lungs.

III. APPENDICITIS, CHRONIC, WITH ABSCESS: OPERATION: RECOVERY.

1. Dr. G. C. P., Ashland. Dr. Bigelow, Framingham. November 18, 1890. Uneasiness in right side six or eight months ago, which disappeared. Two weeks ago it re-appeared. Tender over appendix; some vomiting. Tumor

size of small lemon, freely movable, tender, hard. December 25th, abscess opened and drained. Rapid recovery.

2. Bridget K., aged thirty-six, Massachusetts General Hospital. Dr. O'Donnell, Newtonville. February 14, 1891. In October, 1890, jaundice. One week ago chill and severe pain. From ribs to iliac crest tender, dull, resistant. Operation: four ounces odorless pus and blood. Appendix not found. Recovery. Origin of abscess doubtful.

3. Frank H., aged about forty, Massachusetts General Hospital. Dr. Dudley, Abington. August 12, 1891. Began to have steady pain in right lumbar region last winter, which passed away after a time. May 1st, general malaise and severe pain; chill. Weak and emaciated. Mass size of orange in right lumbar region. Operation: small quantity of pus and shreddy material. Recovery. Origin doubtful.

4. Georgina M., aged eighteen, East Cambridge. Dr. Cahill. July 8, 1891. Vomiting, severe pain, right leg drawn up, tympanites, constipation and chills. Induration in right iliac fossa. Operation: small amount odorless pus. Good recovery.

5. E. E. R., aged nine, Roxbury. Drs. J. P. Oliver and Fitz. Recovered from the first attack; had a recurrence and abscess. Operation: pus evacuated. Origin undoubtedly appendicular. Recovery. March 25, 1892.

6. Ira Y. K., aged 60, Athol. Dr. Oliver. April 11, 1892. Not well for two years. About three months before, taken with pain in right iliac region. Later, bunch appeared, supposed to be malignant. Tumor appeared behind ilium; opened; fetid pus. Cavity extended to brim of pelvis. Probably arose from appendix. Slow recovery. Now well.

IV. ACUTE CASES: RECOVERY WITHOUT OPERATION.

1. L. L., previously reported in *Boston Medical and Surgical Journal*. Age about forty-five. Symptoms coming on suddenly. Cake in right iliac fossa. Remains well. Athol. Dr. Oliver.[2]

2. Young man with acute pain in right iliac fossa. Symptoms not very severe.[2] Recovery.

[2] See Boston Medical and Surgical Journal, Jan. 26, 1888, p. 88.

3. W. C., August 11, 1888. Sudden, sharp pain in abdomen on 7th; some fever. On 10th, vomiting. Pulse 78, temperature 99°. Abdomen soft. Tenderness over appendix. No distinct cake. Symptoms gradually disappeared, and patient was discharged August 25th, well. Massachusetts General Hospital.

4. Mabel E. I., April 15, 1888. Taken sick two weeks ago. Chilly. Pain all over abdomen. Abdomen tympanitic. No special tumor and no marked resistance. Advised watching. Perfect recovery. Swampscott. Dr. Colman, of Lynn.

5. W. J., Massachusetts General Hospital, August 10, 1889. Eleven weeks ago fell from bicycle, receiving blow in inguinal region. Five weeks ago pain and cramp. Rectal examination showed soft tumor, size of fist. Advised against operation. Improved. Discharged October 10th, well.

6. Mary H., Quincy. Dr. Donovan. September 14, 1889. September 8th, chill and pain. Subject to bilious attacks. Has angular curvature of the spine. Hard, painful swelling in right iliac fossa. Recovered, and has never had any more trouble.

7. Child, Cambridge. Patient of Dr. Stevens. Aged ten. Sudden attack of pain and vomiting; chill. In bed two weeks. Temperature 103°, pulse 116. Abdomen distended and tympanitic, excepting right iliac region, where there is dulness and resistance. Symptoms gradually improved. Recovery.

8. Boy, ten years of age, Boston. Dr. F. H. Williams. Was taken while in the country with acute pain in the abdomen, followed by tenderness in the region of the appendix. Made a good recovery without operation.

9. Mrs. C. W. H., Boston, about thirty-five years old. Dr. Strong. Acute pain in abdomen, followed by localized symptoms in the region of the appendix. Advised waiting. She made a good recovery.

10. C. M. K., aged thirty-two, Rockland, Me. Dr. Hitchcock. September 18, 1889. Good health up to May 30, 1888. On that day chilly sensations, tenderness, fever. Kidneys badly affected. Tumor. Recovery from that. Present attack began two weeks ago. Diarrhœa and pain.

Severe chill. No signs in abdomen except tenderness. Operation not advised. Recovery.

11. F. S., aged thirty, New Bedford. Dr. Swift. October 25, 1889. Pain in "middle of stomach" a year ago. Got over that. Always well. Two days ago sudden, severe pain below epigastrium on the right. Chills. Slight nausea. General appearance good. Pulse 90. Slight tenderness; slight dulness in lower quadrant. Improvement of symptoms. Recovery. Remains well.

12. Mrs. B., aged forty-three, Charlestown. Drs. Forster and Towles. December 6, 1889. Twelve children. Four months ago pleurisy. Pain in right side ten days ago. Tumor size of orange in inguinal region. Temperature 101°, pulse 100. Chill, intense pain. Recovery without operation.

13. Mrs. H. W., age about thirty, Boston. Dr. J. J. Minot. January 4, 1890. Began with distress in upper part of bowels. Lameness and soreness with wind. Pain worked down into right iliac fossa. Tenderness and sense of resistance. Pulse 72 to 80, temperature normal. No vomiting. Recovery.

14. W. R., age six, Charlestown. Dr. Blood. July 14, 1890. Pain near anterior superior process of ilium. Nausea and vomiting. Dulness and marked resistance in right iliac fossa. Temperature 101.2°, pulse 116. No marked tympanites. Circumscribed peritonitis. Advised watching. Recovery.

15. F. P., age sixteen, Allston. Dr. O. H. Marion. August 4, 1890. Two weeks ago taken with sharp pains across stomach; vomiting. No tympanites. Temperature 102°, pulse 100. Circumscribed peritonitis right abdomen, little above umbilicus. In this place increased resistance and dulness. Advised watching. Recovery.

16. J. D. M., age fifteen, Massachusetts General Hospital. August 9, 1890. No previous attack. Seized with sharp pain in right inguinal region twelve days ago. Vomiting. Pulse 102, temperature, 101.8°. Hard, resistant mass, flat on percussion, above crest of ilium, about size of two fists. Poultices and liquid diet. Recovery.

17. Miss S., East Somerville. Dr. M. A. Morris. November 12, 1890. Similar attack twelve months ago, and

another three months ago. November 1st, pain came on gradually. Vomiting. Tumor size of pigeon's egg. Temperature 100°, pulse 88. Advised watching. Made a good recovery.

18. M. McL., age thirty-five, Boston. November 13, 1890. Taken with sudden pain in right iliac fossa. Vomiting; no chill. Tenderness in region of appendix. Referred to Massachusetts General Hospital for nursing and observation. Good recovery.

19. H. A. R., age thirty-seven, Lynn. Dr. Marshall. November 26, 1890. Four weeks before taken with pain, fever, vomiting. Legs drawn up. Chills, no tumor. Pulse 108 to 120. Ten or twelve days later pus broke into intestine. After this, better. Pneumonia. Abscess filled and broke again. Bunch in side disappeared when abscess broke. Good recovery.

20. J. R. H., age fifty-three, colored, Boston. Dr. J. B. Ayer. September 17, 1891. First attack three years ago, severe cramp. Since then several attacks. This attack came on suddenly. 16th, pain and vomiting. 17th, chill. Then began to improve and was out in carriage September 23d. Perfect recovery.

21. C. M., age twenty-two, Cambridge. Patient of Dr. Hildreth. December 5, 1891. Acute abdominal symptoms with tenderness and pain in right iliac fossa. Recovery without operation. St. Margaret's.

22. H. M., age about twelve, Roxbury. Dr. Withington. January 11, 1892. Acute symptoms pointing to right iliac fossa. Recovery without operation.

23. W. W. P., student, Cambridge. Dr. Hildreth. February 6, 1892. Two days ago general *malaise*, pain in middle of abdomen, tympanites, resistance, tenderness. No vomiting. Looks very well indeed. Pulse 80, temperature 98.4°. Recovery without operation.

24. Mrs. J. R., age thirty-nine, Charlestown. Dr. Blood. February 29, 1892. Taken with chill. Pain below and to the right of umbilicus; nausea. Abdomen tympanitic everywhere. Doubtful dulness in right. Pulse 116, temperature 99.5°. Advised watching. Recovery.

25. A. A. F., age twenty-nine, Providence. Dr. Fuller, Boston; Dr. Abbott, Providence. May 19, 1892. Dulness

in right iliac fossa. Improving. Did not seem necessary to do anything. Recovered.

26. H. W., age fifty-three, East Cambridge. May 20, 1892. Acute pain in lower abdomen. Tenderness over appendix. High fever and constitutional disturbance. Distension. Sent to Massachusetts General Hospital, where he recovered slowly, without operation. Dr. Finnegan.

27. Mr. D., age eighteen, Reading. Drs. Dow and Fitz. Pain and tenderness in right lower quadrant. Constitutional disturbance. No marked physical signs except tenderness. Advised delay. Rapid and permanent recovery.

V. ACUTE CASES: OPERATION: RECOVERY.

1. Male, M. G. H. Mild. Abscess. Operation: recovery.[3]

2. Male, M. G. H. Mild. Abscess. Operation: recovery.[3]

3. William C., Massachusetts General Hospital. July 6, 1888. Loss of appetite and weakness for eight weeks. Two weeks ago severe pain coming on suddenly. Fairly nourished; abdomen not distended; slight prominence in right lumbar region. Operation: one pint thick, odorless pus. Recovery rapid and uneventful. Origin doubtful.

4. Jeremiah S., aged fifty-eight, Massachusetts General Hospital. October 30, 1888. For two years more or less pain in right groin. Within three weeks general malaise; fever at night. Mass size of two fists, hard, semi-fluid, and tender on pressure. Operation: four ounces pus with fæcal odor. Recovery.

5. Young lady, with pain, tenderness and tumor. Drs. Marion and Fitz. Brighton. Abscess containing a very large quantity of foul pus. Uneventful recovery.

6. Mr. H., aged about eighteen. Drs. Goss and Fitz. Roxbury. June, 1889. Usual symptoms of acute inflammation of the appendix, with dulness, but no tumor. Sent into the Massachusetts General Hospital. Was operated on by Dr. Warren, who removed an enormous amount of pus from the abdominal cavity. Several large pockets. Recovered, and has been well ever since.

[3] *Vide* Boston Med. and Surg. Jour., loc. cit.

7. Master J., about twelve, Lexington. Dr. Tilton. Acute appendicitis: dulness and tumor. Advised waiting. A day or two later an operation was performed and pus evacuated by Dr. Cutler, of Waltham.

8. Charles S., painter, Athol, aged thirty-five. Patient of Dr. Oliver. Symptoms acute, with large abscess; opened above Poupart's ligament. Made a rapid recovery.

9. Walter S. R., aged seventeen, Massachusetts General Hospital. May 4, 1889. Excision knee. During convalescence developed appendicitis. June 2d, sharp, cutting pain in ileo-cæcal region; tenderness; vomiting; temperature and pulse up; distinct cake. June 14th, operation: escape of large amount of thick, very foul pus; several pockets found; appendix not found. July 1st, pneumonia; 28th, discharged, well.

10. Charles A., aged thirty-four, Malden. Drs. Odlin and Fitz. February 2, 1890. After previous attacks, had a sudden attack two weeks ago, resulting in an abscess in the region of the appendix. Operation: evacuation of fæcal pus. Recovery.

11. Michael J. L., medical student, aged eighteen, Cambridgeport. Drs. McCarthy and Fitz. March 2, 1890. Eight days ago slight pain in abdomen, which became localized in right iliac region. Constitutional disturbance severe. Tumor, with tenderness. Operation: foul abscess cavity evacuated and irrigated; appendix not found. Recovery.

12. William F., aged fourteen, Salesville, R. I. Drs. Nickerson and Fitz. December 20, 1890, fell on the ice and "knocked the wind out of me"; 22d, pain in stomach, pain increasing; 26th, chill and prostration; pulse 100, temperature 104°; marked tenderness and dulness of right side; extreme prostration. 31st, operation. Discharged well on March 4, 1891.

13. George M., aged thirty-two, Swampscott. Dr. Stevens, of Lynn. May 18, 1891. Had attack of colic one year ago, also two months ago. May 12th, pain in region of appendix and vomiting; not any very severe pain; abdomen tense; general appearance good; pulse 90, temperature about normal. Operation: everything glued together in right iliac fossa; general peritoneal cavity opened; small amount offensive pus; drainage-tube. Perfect recovery.

14. Jarvis K., aged eleven. Cambridge. Dr. McIntyre. July 4, 1891. Bilious attacks all his life. Taken July 1st with pain in stomach, vomiting; knees drawn up; temperature 102°, pulse 135; face darkly suffused. July 4th, operation: tissues œdematous, bowel adherent; half a pint of fæcal and offensive pus. Perfect recovery. Second operation by Dr. Cabot. Recovery.

15. Leander P., aged four, Fairhaven. September 21, 1891. Dr. W. N. Swift. Strong and healthy child. Taken with pain in stomach and vomiting; temperature 102°, pulse 140; general appearance bad: abdomen slightly distended and very tender in right iliac fossa; no dulness. Operation: gangrenous and perforated appendix removed; localized peritonitis deep among intestines. Recovery.

16. Alice T. L., aged fourteen, Charlestown. Drs. Cutter and Fitz. October 1, 1891. Three days ago pain and vomiting; general appearance good; temperature 100°, pulse 128; both legs drawn up. Operation: discharge of thin, watery fluid, with fetid odor; appendix, inflamed, gangrenous and perforated, was ligated and removed. Recovery.

17. Mrs. H. S. P., aged about thirty, Auburndale. Dr. F. E. Porter. November 18, 1891. November 13th, colic and indigestion, vomiting, delirium; pulse 125, temperature 101.5°; pain in right iliac fossa; tympanites; no distention; great prominence in rectum; tumor punctured through rectum by Dr. Porter; drainage-tube. Perfect recovery in about three weeks.[4]

18. James W. B., aged twenty-six, South Boston. Dr. Fogg. December 14, 1891. December 11th began to feel uncomfortable — distress in bowels; next day severe cramp; constantly vomiting; pulse 104; no chill; improved, then suddenly grew worse; dulness in right iliac fossa; large tender tumor pressing upon rectum just back of bladder; general condition very bad; rectal trocar introduced into tumor; immediate discharge of fetid pus; canula fastened in mass; during night vomiting ceased and two and a half quarts fetid pus escaped through canula. Recovery. Appendix removed in June, 1892, by Dr. Beach during remission. Recovery.[4]

[4] *Vide* Boston Medical and Surgical Journal, March 17, 1892.

19. Thomas J. D., aged eighteen, Charlestown. Dr. Blood. May 16, 1892, strained himself lifting a stone. Some pain during week. Friday, symptoms severe. Temperature, 101.5°. Face dusky, red. Abdomen distended and tympanitic, very tender. Large mass felt by rectum. Monday, operation; pus in abdomen thick and very foul. Appendix perforated and wrapped up in gangrenous mesentery. Adhesions down in pelvis, but whole cavity invaded. Supposed to be dying that night. Recovery.

20. Arthur J. L., aged twenty-four, Holbrook. Dr. Kingsbury. June 28, 1892. Pain in right iliac fossa a week ago. Severe constitutional disturbance. Localized peritonitis. Fetid pus evacuated. Appendix not removed. Recovery.

21. Patrick H., aged forty-four, East Boston. Dr. O'Keefe. July 6, 1892. Pain in bowels ten days ago. chills, fever, etc. Localized peritonitis. Evacuation of pus with fæcal odor. Appendix not found. Recovery.

VI. ACUTE CASES: OPERATION: DEATH.

1. Oscar G., Somerville. Drs. Aldrich and Morris. May 10, 1889. Two years ago, attack of abdominal pain, chill and tenderness. Second attack, April 29th. Sharp pain, right iliac region. Restless. Temperature 101°, pulse 88. Tenth day I was called and found him almost moribund. Immediate operation. Abscess in intestines. Drained through healthy bowels. Died in a few hours.

2. G. W. S., aged twenty-nine, Cambridge. Drs. Hildreth and Fitz. Massachusetts General Hospital. Friday, December 28, 1889. Instructor in Mathematics, Harvard University. Last Monday night, nausea, vomiting, acute pain in left hypochondrium. Vomitus gradually stercoraceous. General condition good. Abdomen tympanitic throughout. Resistance in region of pain. Diagnosis, acute intestinal obstruction. Operation: Eight feet small intestine overhauled, a portion very dark in color. No cause discovered. Wound closed. Patient died at four A. M. Autopsy showed gangrenous and perforated appendix.

3. Alexander F., student. Massachusetts General Hospital. December 14, 1889. No movement for fifteen days.

Three days ago, sharp pain, free vomiting. Delirious on entrance. Temperature 102.8°, pulse 132, full but not strong. Abdomen tympanitic, tender, with large flat cake. Operation: One ounce thin, red, ichorous pus. Violent delirium continued after operation until death. Autopsy showed gangrenous appendix.

4. Thomas W., aged twenty-one, clerk, Woburn. Dr. Graves. Pain in right lower quadrant; abscess, which was opened. Did well for a week and then died with a recurrence, apparently, on the other side. General peritonitis.

5. H. H., aged twelve. February 27, 1891. Pain twelve days before in abdomen. Localized pain in region of cæcum. Nausea and vomiting five or six days later. Great improvement of symptoms on sixth day. On the eleventh day, sudden aggravation of symptoms; twelfth day, abdomen distended and tympanitic. Condition very serious. Operation urgent. I advised immediate operation; performed by attending surgeon. Large quantities of pus found and evacuated. Patient died that night.

6. Charles R., aged about twenty-four, Swampscott. Dr. Hunt. May 26, 1891. Appendicitis with spreading peritonitis. Taken Saturday May 23d, with severe pain in right iliac region; tenderness. Abdomen tympanitic. Pulse 120, temperature 103°. Restless, vomiting. Monday, operation: large abscess, with general peritonitis. Dark-colored, fæcal and very offensive matter. After operation pulse went down to 108, but patient restless and anxious. Bowels distended. Very little discharge from tube. Death. Autopsy; perforated and gangrenous appendix. General peritonitis.

7. George B. O., aged thirty, attendant at McLean Asylum. August 21, 1891. Four days ago complained of pain in right iliac fossa. Increased and abdomen became tender. Nausea, vomiting, thirst. Dull over region of appendix, tender, resistant. Operation: escape of dark-brown pus with fæcal odor. Fluid apparently free in abdominal cavity. Peri cæcal tissues gangrenous. Appendix perforated and gangrenous. Died at 9 P. M.

8. John J. H., aged twenty, medical student, Saugus. Dr. C. W. Galloupe. Temperature 100.5°, pulse 100. Pain and tenderness, vomiting and fever. No chill. Operation

October 23, 1891. Abscess back of cæcum. Found something that felt like appendix but could not get it out on account of his bad condition. Increased vomiting. Died at 10 P. M. General peritonitis.

9. Corlis G., aged thirteen, Newburyport. Drs. Young and Howe. May 10, 1892. Pain and vomiting four days before. Temperature 101°, pulse 120. Subject to bilious attacks. Improved and then suddenly grew worse. Operation urgent. Large abscess down in pelvis. Appendix found, but everywhere adherent. Not removed. Died before morning. General peritonitis.

10. James M., aged twelve. Came into hospital latter part of June, 1892, with pain in right iliac fossa, nausea and vomiting. Operated on by Dr. Beach, who removed a gangrenous appendix. The boy did very well until the first week in July, when he developed, in the left iliac fossa, another tumor and abscess, which I opened. A week later he was taken with sudden, violent pains in the abdomen, and collapse. The family insisted on taking him home, where he probably died.

11. C. R. G., aged thirty-four. Massachusetts General Hospital. Dr. Finnegan. July 9, 1892. On July 7th was taken with pain in the epigastrium and right abdomen, followed by nausea and vomiting. Distention. Urgent case. Operation. Found much foul pus in the abdominal cavity and also yellowish fluid containing many flakes. The appendix, swollen and gangrenous, was removed. Irrigation. Died two days later. General peritonitis.

12. Thomas F. K. Entered the Massachusetts General Hospital on Tuesday, July 12, 1892. Dr. Fogg. On the preceding Saturday began to have pain in the right iliac fossa, followed by general abdominal distention and pain. Bowels moved by enemata. General tympanites. No marked dulness or resistance. Patient in poor condition, but it was thought best to operate. Very quick operation, which showed gangrenous appendix. Abdomen filled with serum, flakes, etc. Died in four hours. General peritonitis.

13. J. W. P., aged twenty-eight, Topsfield. Dr. Allen. July 23, 1892. Severe pain in lower abdomen on Wednesday. Violent constitutional disturbance — nausea, vomit-

ing, distention, constipation — on Saturday. Operation Saturday afternoon. Long appendix, gangrenous and perforated, and containing large fæcal concretion. Large quantity of fæcal matter evacuated. Appendix ligated. Cavity irrigated. Death in three hours. General peritonitis.

VI. ACUTE: OPERATION HOPELESS: DEATH.

1. Mr. G. L. D., 1879, received a blow in right iliac fossa. Three weeks later pain in right iliac fossa. Death in ten days. Autopsy showed general peritonitis; appendix not observed. Probably appendicitis.

2. Mr. H. K., age about fifty. Vomiting, constipation, distention. Death on third day without operation. Autopsy showed gangrenous appendix and general peritonitis.[5]

3. Chinaman, about thirty-five years of age, with constipation, distention, feculent vomiting, pain. Died without operation in the course of a few hours. Probably appendicitis. Dr. Murphy.

4. Male, about twenty years of age. Had swallowed large numbers of water-melon seeds. Taken with pain and symptoms of intestinal obstruction. Aspirated several times. Patient died, probably from perforation of the appendix.

5. Mrs. P., aged seventy, Boston, 1888. Symptoms referable to liver and stomach. Appendicitis not suspected. Death at end of week. Appendix gangrenous and perforated, containing a gall-stone.

6. Edward M., aged twenty-six, Melrose Highlands. Drs. Jack and Fitz. February 19, 1888. Typhoid fever in September. Last Saturday taken with colic. No fever, no tumor. Dulness in right flank. Pulse 140. Patient moribund. No operation justifiable. Died in about an hour. Autopsy showed general peritonitis, with perforation of appendix.

7. John P. H., aged twenty-one, Melrose. March 28, 1890. Six days before, taken with vomiting and pain. Extreme tenderness. General peritonitis developed, and he became collapsed in twenty-four hours. Abdomen distended, tender over appendix. Pulse 156, temperature 97°, respiration 36. Died in a few hours.

[5] See Boston Medical and Surgical Journal, March 17, 1892.

8. F. B. M., aged twenty-seven, Lynn. Dr. Stevens, of Lynn. July 3, 1890. Pain for two days; vomiting. General condition very bad. Restless. Pulse 176, feeble and thready. Tenderness over appendix. No operation justifiable. Died that day. Autopsy showed appendix perforated and general peritonitis.

9. Henry P., aged thirteen, Massachusetts General Hospital. October 19, 1890. Pain in abdomen and fever for two weeks. Five days ago, sharp pain. Diarrhœa; constant vomiting. Abdomen distended, reddened, tender, tympanitic. Operation not justifiable. Patient died in one hour.

SUMMARY.

Chronic: Recovery without operation		4
Chronic: Death without operation		1
Chronic: Recovery after operation		6
Acute: Recovery without operation		27
Acute: Operation — recovery		21
Acute: Operation — death		13
Acute: No operation advisable — death		9
		81
Total recovery without operation	32	
Total recovery with operation	27	
Deaths with operation	13	
Deaths without operation	9	
	81	
Additional cases.	6	
	87	

It will be noticed, that several cases have been added since the meeting at which these remarks were made. Most of them have been accompanied by a rapidly spreading peritonitis, with a speedy death.

The first and most important observation to be made upon these cases is the frightful mortality. Out of 81 cases 24 were fatal (29 per cent).

Of 34 cases operated upon, 13 died (38 per cent).

Of 43 acute cases where operation should have been done at some period, 22 died (a little less than 50 per cent).

Of 70 acute cases, mild, severe, and fulminating, 22 died (31 per cent).

If we exclude from the list of acute cases recovering without operation those in which the symptoms were mild and interference not seriously considered, we shall have left only 16 in which there would now be any suggestion of operating. This would leave a total of 59 acute operable cases with a mortality of 22 (37 per cent). In other words, during the past four years, at the lowest calculation, the mortality in acute appendicitis, as I have seen it in this community, is 31 per cent., and excluding the mildest cases, more than 38 per cent.

No one can seriously maintain that there would have been any such mortality if in the 70 acute cases the appendix had been removed immediately after the first onset. Even in the 34 cases that came to operation, with 13 deaths, there would have been no such mortality, and probably most of the nine hopeless cases would have been saved. I believe that it is a serious operation to open the abdominal cavity, and not without danger to life, but that the mortality is extremely small in simple explorations. Had the rule been followed in every case reported above — that the appendix be sought, ligated and removed — we should have done no more than we tried to do in 34 cases — than ought to have been done in 43 cases, and we should have subjected the 27 acute cases which recovered without operation to the slight, though always present dangers of an exploration. I have no douht that the total mortality would have been enormously lessened, but it does not seem to me necessary to apply any rule of indiscriminate operating. There are many cases where the most enthusiastic surgeon cannot seriously advise the removal of the appendix. Such are the mild attacks of pain, with slight constitutional disturbance, which are so common and which never require surgical aid except in recurrent attacks which have

become unbearable. *If there is any rule to be laid down in this connection it is, that in appendicitis the surgeon should have the opportunity to see and decide at once.* There is an idea in this community that the third day is the time for operating. The third day is frequently the day of death, and the favorable opportunity has been lost forever. Even in serious cases it is my experience that chill is seldom observed. The absence of this symptom, therefore, is no reason for waiting, and its existence is of little consequence. If the attending physician does not send at once for the surgeon upon the recognition of those symptoms which denote a perforation of the intestinal canal it is obvious that safety can lie only in the formation of adhesions and a partial peritonitis. In most of the cases which are here recorded the favorable issue has been due to such adhesion-formation, and the fatal ones have been those in which Nature has failed to isolate the destructive processes set up by the escape of septic fluid.

The recognition of this condition and the distinction between a localized and a general peritonitis is always of the greatest importance; for whatever may be our views as to the proper treatment during the first hours of a fæcal extravasation, it is a matter of the greatest importance to decide, when called on the third day or later, whether to leave Nature alone in establishing her defence by adhesions or to interfere and possibly break down the barriers which may be successfully shutting off the fatal poison. I have no doubt that such interference at times causes much harm, and that a localized peritonitis may have been converted into a general inflammation by ill-advised exploration or too forcible manipulations undertaken at this time. Unfortunately there is no rule by which we may be guided, except by experience, and I am unable to say why in one case I operate and in another

advocate delay. In the cases detailed above I have never regretted operating, and but once or twice have been sorry that I delayed. In the delayed cases recovery followed, but it was clearly an error of judgment.

It should be stated here that the operations upon the acute cases, with perhaps one or two exceptions, were undertaken immediately after examination.

Since the vast importance of this subject was first emphasized by Fitz before the Association of American Physicians, the conclusions reached by him have in the main been justified by our experience in this community. In the consideration of the mild cases there is very little to be said. If it were not for the fact that these may at any time become fulminating ones, the questions which have arisen would be very easily solved. There is no hard and fast rule by which all these cases may be judged, no course of symptoms by which we may be able with certainty to foretell the result. If we have a case beginning with a slight malaise, moderate constitutional disturbance, and without physical signs in the region of the appendix, and if we are able to say that such a case is in no danger of perforation, then we may safely leave it to the course of time and to Nature. Unfortunately we cannot judge of the prognosis in any case with certainty. One which begins mildly may at any time, without warning, assume the aspect of a violent peritonitis. The first question, therefore, to consider is whether a given case is to be one of general peritonitis or not. In my experience mild cases rarely become fulminating ones; yet several times this has occurred. The symptoms by which we may recognize this accident are to be found in constitutional disturbance, sudden rise of temperature, acute pain, general distention, with peristaltic paralysis and vomiting. This train of symptoms would indicate that perforation has taken place and that the general peritoneal cavity is being invaded.

In such cases, the patient is placed at once in the utmost jeopardy, and his life depends upon the immediate recognition of this pathological condition and the most prompt operative interference. In my opinion nothing is more clear in this connection than that exploration must be early to be of any avail.

Clinically, the symptoms caused by acute inflammations of the appendix arrange themselves into three classes. In the first are the cases of localized peritonitis without abscess. The second comprises those cases the course of which may be mild or quite severe, resulting in the formation of abscess, either at the usual seat of the appendix or in some of the unusual positions in which that organ may be found. The third variety, and by far the most important one, is that in which the symptoms of perforation are the first ones which are noticed. The second or middle class, the more common class of operative cases, though these are not as numerous as the mild or "medical" ones, is that in which, after more or less pain and constitutional disturbance, we find prominence and localized tenderness with dulness and other signs of abdominal tumor. Such cases always mean circumscribed peritonitis and abscess, and the only safe course is to open them as early as they are recognized. In the pathology of this condition we find that the appendix is the centre of a circumscribed peritonitis from which the general abdominal cavity has been shut off by adhesions more or less firm. In my experience these adhesions are generally strong enough to withstand the continued formation of matter, although there is always some danger of rupture into the peritoneal cavity.

Perforation into some important viscus is the natural result of leaving such cases too long. The anatomical arrangement of this part of the body would make it more likely that perforation should take place into some soft viscus like the intestine or the bladder than

that the strong abdominal walls should be pierced. The history of the cases left to themselves would show that perforation of the intestine or bladder does take place and that breaking externally is a very rare sequel. While many recover after this effort of Nature yet many continue a lingering illness and finally die of exhaustion.

Where the knife offers the complete and ready solution it does, there is no need of considering further the proper method of treatment. The early recognition of a circumscribed tumor with the existence of constitutional infection even slight, makes drainage of the abscess cavity imperative. Many of my operative cases have been of this kind. The constitutional symptoms have been of all orders of severity from those in which there has been very little fever slight acceleration of the pulse and moderate malaise to others in which the symptoms have been of great severity. In all of them an operation has been imperative. Though some of them have died yet in no case has there been any reason whatever to regret the operation. In most if not all the fatal cases I have been called too late, and in one or two cases there have been complications not clearly understood. If any rule can be laid down in the treatment of appendicitis it certainly may be in the consideration of a circumscribed peritonitis or abscess of appendicular origin — early and thorough incision. Where the symptoms are severe and the patient feeble it is best to explore as little as possible. In those cases where the abscess is pointing, free incision is all that is necessary. In cases where there is a circumscribed peritonitis in the centre of a mass of small intestines, where it is necessary to go through the healthy abdominal cavity for purposes of drainage, we have a complication of a very serious nature. It is this form of appendicitis which, though not as hopeless as that in which there is a spreading

peritonitis, requires judgment and experience in its treatment. The only rule in such cases is to explore early when there is neither cake nor tumor. One is seldom able to feel any resistance or any evidence of pus. Therefore the surgeon must be guided entirely by the history and the constitutional symptoms.

In cases of spreading peritonitis from a perforation of the appendix, where the focus of inflammation is not isolated by peritoneal adhesions, and where the symptoms point to an extravasation of the intestinal contents, immediate laparotomy is demanded. The more I consider this subject and the greater my experience the more I am convinced that such early exploration is imperative. Occasionally a case will begin violently, with every sign of perforation and extravasation and the symptoms will as quickly subside. Such cases occurring once in a while give us a false sense of security. I believe I have one such case in my list, where the onset was very grave and the recovery rapid and brilliant without operation. But for one such case ending favorably I have twenty or more that have ended fatally, most of which, I am firmly convinced, would have been saved by immediate laparotomy.

All cases which begin violently with sudden acute pain, with severe constitutional disturbance, distention and vomiting, with local tenderness, demand immediate operative investigation for the following reasons:

(1) It is impossible to say that the case is not going to be one of uncontrollable general septic peritonitis within a few hours.

(2) The condition of perforation admits of delay no more than perforations of the stomach, intestines or bladder, or the rupture of an extra-uterine pregnancy, or any other abdominal emergency.

(3) The mortality would undoubtedly be less in a hundred cases than by any method of selection.

Since this paper was put in type the following cases have come under my observation. With one exception, all demanded immediate interference. One died while preparations were being made for opening the abdomen, and one is now under observation and will probably require operation. This experience makes me feel more confident than before that immediate laparotomy is demanded in all severe cases.

1. F. N. C., aged ten. Thursday, July 28, 1892. Boxford. Drs. Anthony and M. D. Clarke. Taken last Monday with stomach-ache. Complains since of pain and soreness over appendix. Temperature 100°, pulse 120. Dulness over appendix. Operation performed immediately. Appendix red, swollen, and in one portion gangrenous with numerous small perforations. Large fæcal extravasation: incipient general peritonitis. Appendix excised. Abdominal cavity washed out; drained with gauze and double rubber tube. Prognosis unfavorable. August 19th, patient convalescing.

2. Henry D., aged four, Haverhill. Wednesday, August 10, 1892. Drs. L. J. Young, M. D. and I. J. Clarke. July 31st, fell out of a wagon. Doesn't know how he struck. Next day ate green apples. At noon taken with vomiting. Got over that. Wednesday, August 3d, taken sick again, sharp pain. Monday, tumor. August 10th, general appearance good. Large tumor in the abdomen little to the right of rectus, mostly in median line. No fluctuation, tender, somewhat tympanitic. Operation: violent escape of pus and fæcal matter. Appendix in bottom of cavity, very adherent, not detached. Convalescent August 19th.

3. Wm. W. B., aged eighteen. Saturday, August 13, 1892. Wayland. Drs. Jackson, Wellington and Whitman. Taken Tuesday, August 9th, with pain in the right side of abdomen and vomiting, which continued during Wednesday. Thursday first seen by Dr. Jackson. General tenderness in lower part of abdomen. On Friday night temperature 102°, pulse 100. Saturday morning at five o'clock sudden sharp pain with collapse. On my

arrival, at eleven, pulse 160, abdomen distended, vomiting black fluid, in collapse. At the urgent request of the family I was about to open the abdomen, when, having taken a few breaths of ether, he died. The abdomen, opened immediately after death, showed a long appendix, gangrenous and perforated, containing a fœcal concretion. The abdomen was full of pus and fæcal matter.

4. Edward O., aged sixteen. Sunday, August 14, 1892. North Abington. Drs. Dudley, Osgood and Hastings. Sudden pain in right side on Tuesday, the 9th. Wednesday night it came on again. Friday vomited. Sunday, seven p. m., temperature 102.5°, pulse 120, respiration 44. General appearance bad, abdomen distended. Abdomen immediately opened in right flank, where it was dull and tender. Small quantity of fœtid pus. Appendix perforated and gangrenous, firmly adherent to cœcum, not removed. Drainage-tube and gauze packing. Monday temperature normal, patient better. Doing well August 18, 1892.

5. Emil L. B., aged thirteen. Monday, August 15, 1892. North Abington. Drs. Dudley and Osgood. Taken Saturday, August 13th, with vomiting and diarrhœa. Came in crying with pain in the right inguinal region. Sent for Dr. Dudley at eleven o'clock Sunday night. Monday at three o'clock pulse 110, temperature 101°. General appearance good; abdomen not distended. Slight induration near Poupart's ligament on the right. Advised waiting. Doing well August 18, 1892.

6. James E. P., Jr., aged seventeen. Tuesday, August 16, 1892. Swampscott. Drs. Hunt, Lovejoy, Colman and Stevens. Saturday, August 13th, pain in the abdomen. Out and about Sunday with pain. Sunday night restless. No vomiting. Monday Dr. Hunt found him in a paroxysm of pain. Tender and dull in region of appendix. Abdomen not distended. Temperature 100.4°, pulse 70. Tuesday morning much worse. Abdomen hard and distended. Constipation, no vomiting. Dull on right and tender by rectum. Abdomen immediately opened. Appendix, perforated and gangrenous, tied off and removed. Pelvis full of thin pus. Spreading peritonitis. Prognosis very grave. Improving rapidly August 18, 1892.

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