ACUTE PERITONITIS TREATED BY ABDOMINAL SECTION.

BY

FREDERICK TREVES, F.R.C.S.,
SURGEON TO, AND LECTURER ON ANATOMY AT, THE LONDON HOSPITAL.

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AMONG the great changes that have of late years taken place in the practice of surgery there are probably none more remarkable or more revolutionary than those that concern the serous membranes. Within quite recent times serous cavities were held by surgeons in a kind of respectful dread—they were sacred enclosures, into which the knife of the boldest seldom ventured; they held an immunity from all forms of active interference and were accounted exempt from the rudimentary principles of surgical treatment. With regard to the larger cavities—those of the chest and abdomen—it is interesting to note how abruptly operative procedures ceased at the confines of the pleura and peritoneum. Disease was pursued by the knife up to the very walls of these cavities, but when it had found a place within the enclosure itself it had found a sanctuary into which the surgeon did not trespass.

The most remarkable advances of modern surgery are

based upon a disregard of the supposed peculiarities of the serous membranes and—following after this—upon the application to serous cavities, and the viscera they contain, of the common general principles of surgical practice. Ovariectomy is founded upon the same principle that advises the removal of a tumour of the surface; extirpation of a disorganised kidney upon the same principle that urges the excision of a disorganised eyeball; and excision of an epithelioma of the colon, or pylorus, upon the same principle that sanctions the removal of an epithelioma of the lip. It cannot, indeed, be said that the surgery of the chest and abdomen, as it now appears, involves any new element in the treatment of disease. The most striking of the operations that have of late years been directed against the serous cavities and their viscera, consist at the best merely of the application to those parts of common principles of treatment that have long been applied to other portions of the body.

It is to the treatment of inflammatory affections of serous membranes that I would venture to especially draw attention.

In the management of inflammatory conditions of superficial parts or—it may even be said—of parts beyond the confines of the serous membranes, it is the common and most ancient practice (when milder means have failed) to freely incise the involved part, for the purpose of relieving congestion and tension, and more especially for the purpose of giving a free escape to all inflammatory products. It is only within comparatively recent times, and only in a progressive and cautious manner, that surgeons have applied this common principle to the treatment of inflammations of serous cavities. They began in the first place with small serous cavities—with the joints. The disordered joint was cut into, the inflammatory matters that it contained were evacuated, it was washed out and drained, and the result was satisfactory. One has not to go far back in the history of surgery to find a time when the treatment of a synovitis of the knee by

incision and drainage, and a washing out of the joint, would be considered a violent and reprehensible measure. Next in turn came a much larger serous membrane—the pleura. The inflammatory products of pleuritis were at first cautiously removed by tapping; gradually the common principle of treatment was extended, and the pleural cavity was cut into; it was washed out and drained. The results were good, although the means employed would have struck terror to the heart of the ancient surgeon.

Quite recently, even the pericardium has been attacked and suppurative pericarditis has been treated upon the same principles that direct the treatment of suppurative affections elsewhere.

Finally, this common therapeutic measure has been applied to the greatest of the serous membranes—the peritoneum. Cases of chronic localised peritonitis, and especially of pelvic peritonitis, have been treated with considerable success by means of abdominal section, with subsequent irrigation, and drainage of the suppurating cavity.

Considering the very high death-rate of acute diffused peritonitis, and, indeed, the almost invariable fatality of that disease, it appeared to me that the common surgical measure above alluded to might well be applied to this affection.

Its success in chronic localised peritonitis appeared to encourage its application to the more violent and rapid form of inflammation.

Apart from some such active treatment it must be confessed that the treatment of acute peritonitis, and particularly of that form depending upon perforation, remains in about the same condition at the present time that it held a hundred years ago. Thus Heister, writing in 1739 on perforation of the bowel, could only advise that the patient be kept quiet, that he be urged to eat abstemiously, and to lie upon his belly. "The rest," says this ingenious author, "is to be left to Divine Providence and the strength of the constitution."

I might now give details of a case of acute diffused peritonitis that was treated with success by abdominal section. It is the only case upon which I have performed the operation, and I am not aware that this form of peritonitis has hitherto been deliberately subjected to this particular proceeding.

A single woman, æt. 20, was admitted into the London Hospital, under the care of my colleague, Dr. Herman, on January 21st, 1884. For twelve months she had led an immoral life, and had acquired gonorrhœa. On admission she was found to be suffering from chronic pelvic peritonitis, which appears to have commenced two months previously and to have been due to the extension of the gonorrhœal inflammation to the uterus and Fallopian tubes. She was weak, wasted, and anæmic, and had a purulent vaginal discharge. She had much pain and tenderness in the left iliac region, and in that position a slight swelling could be detected, which appeared to extend down into the anterior *cul-de-sac*. There was no general abdominal tenderness; her bowels acted regularly without medicine; she took her food fairly, and was not sick. Her temperature ranged between 99° and 101° or 102°. She remained in this condition, getting neither better nor worse, for about a month, and on February 25th she suddenly developed the evidences of acute peritonitis. When I saw her on the following day, at Dr. Herman's request, I found her greatly prostrated. Her abdomen, which had hitherto been flaccid, was now very tense, evenly distended and tympanitic, and exceedingly tender. Her bowels had ceased to act. She was troubled with almost constant vomiting, and could retain nothing on her stomach. The ejected matters had an unpleasant intestinal odour. Her pulse was very small, weak, and frequent, and her tongue dry. She had had morphia. Her condition being very critical, I arranged at once to open the abdomen, which I did on the afternoon of February 26th. I made an incision in the linea alba below the umbilicus large enough to admit my hand. On open-

ing the serous cavity a quantity of semi-opaque fluid gushed out, which was mixed with flakes of lymph and pus. It was very offensive and had a decided feculent odour. It ran out on to the floor, and the amount therefore could not be measured. I then gently introduced a sponge, and cleared out a sufficient amount of the remaining fluid to enable me to see the condition of the parts. Examination showed localised pelvic peritonitis on the left side; this had led to a large abscess, the walls of which were formed partly by the left pelvic peritoneum and partly by many coils of small intestine which were matted together in the utmost confusion. The slight swelling previously felt in the left iliac region had been apparently caused by this mass of intestines, while that detected in the anterior *cul-de-sac* had been due to the purulent collection. The abscess that had been so long hemmed in by a barrier of adherent intestines had burst, at last, into the general peritoneal cavity, and had so set up acute and general peritonitis. I enlarged, with my finger, the opening into the abscess, and sponged out a large quantity of thin stinking pus, which welled up on pressure from the depths of the pelvis. Such adhesions between the matted bowels as could be broken down I tore through. The majority were too tough. The general surface of the peritoneum exhibited the ordinary appearances of acute peritonitis. The intestines were lightly glued together where they were in contact with one another. I now proceeded to thoroughly wash out the whole peritoneal cavity. I poured in many quarts of warm water mixed with a little carbolic solution. The pelvis was well sponged out. I continued the cleansing process until the water returned quite clear and free from smell. A large drainage-tube, six inches in length, was passed down to the bottom of the pelvis, and the abdominal wound—save the part occupied by the tube—was carefully closed. The operation was conducted under strict Listerian precautions, and the usual gauze dressings applied. The patient only vomited twice after the operation, probably from the

effects of the ether. No food of any kind was administered by the mouth for four days, during which time morphia was freely given and the strength supported by enemata of peptonized beef-tea and brandy. These enemata were administered every two or three hours and were readily absorbed. The bowels acted spontaneously on the fifth day after the operation. For four days the patient suffered from carboluria. There was a very copious purulent discharge from the wound, which for nearly a fortnight was dressed twice a day. The antiseptic dressings were discontinued on the fifth day. The carbolic acid produced severe irritation of the skin, and apparently caused the edges of the wound to slough. After the fifth day iodoform gauze was used; and the wound was well irrigated with very weak carbolic lotion twice or three times every day. The tube of the irrigator was passed deep down into the pelvis. The wound healed all but the part occupied by the drain; the discharge gradually diminished, and the patient underwent a very rapid and remarkable improvement. In time a very small drainage-tube took the place of the larger one, and the discharge diminished to about two drachms in the twenty-four hours. By April 5th the patient was allowed to walk in the garden. On May 3rd the tube was removed and the wound allowed to close. She was kept under observation until June 6th, when she was finally discharged. In August last she again came to the hospital. She had just menstruated for the first time since her illness; the process had been attended with severe pain and vomiting. A few days afterwards the thin scar over the site of the old drainage-hole gave way and some pus again escaped. The urgent trouble, however, soon subsided, and she went out with a minute tube in the wound to prevent its healing, although the amount of discharge barely soiled a piece of lint in the course of twenty-four hours.

With the effect of the operation upon the original pelvic trouble the present inquiry is not directly concerned; nor has sufficient time elapsed for that question to be de-

cided. I think that it may, however, be claimed that the treatment of the acute affection was successful, and that the abdominal section in every probability saved the patient's life.

In many instances the abdomen has been opened in cases of acute perforative peritonitis where an error in diagnosis had been made and the affection mistaken for intestinal obstruction. Duplay has collected several of such cases.¹

In many reported instances, moreover, laparotomy, undertaken for some independent disease, has been performed, during the progress of an acute peritoneal inflammation. I am not aware, however, that abdominal section has been deliberately adopted as a means of treatment in this acute affection.

So long ago as 1848 Mr. Hancock, in a paper read before the Medical Society, threw out a proposal for this method of treating peritonitis, and presumably he included the acute as well as the chronic form. Mr. Hancock has described a case of localised chronic peritonitis, following disease in the appendix, in which he had evacuated a quantity of inflammatory matter through an abdominal incision. He concludes his comments with this remark, "I trust the time will come when this plan will be successfully employed in other cases of peritonitis."

Of the instances above alluded to, of laparotomy performed during acute peritoneal inflammation, owing to an error in diagnosis, death appears—with one exception—to have been the result in all. They were principally cases of acute perforative peritonitis, and as soon as the nature of the case was rendered evident by the laparotomy, all further treatment was abandoned, and the case left, as Heister would say, "to Divine Providence and the strength of the constitution." The exception alluded to was afforded by a most interesting case recorded by Dr. Buchanan, of Glasgow.² The symptoms were believed to

¹ 'Archives gén. de Méd.,' 1879, p. 207.

² 'Lancet,' vol. i, 1871, p. 776.

be due to intestinal obstruction. The abdomen was opened; no cause of obstruction was found, but, on the other hand, an extensive acute peritonitis. The abdominal cavity was sponged out, and the patient recovered. The cause of the serous inflammation was not evident, and the precise nature of the case is a little obscure.

With regard to the instances where laparotomy has been performed during the height of acute peritonitis, for some intercurrent disease, it must be confessed also that death has followed in the majority of the cases. In many of these examples, however, operative interference was undertaken when the patient was *in extremis*, and no especial treatment was directed against the peritoneal inflammation.

There are at the same time some notable instances of recovery under this circumstance. As examples I might cite two cases, one by M. Terrier,¹ the other by Professor Juillard.² In the former a laparotomy was performed to relieve a strangulation of the gut, by a band; in the latter an ovariectomy was undertaken in a case where symptoms of acute intestinal obstruction had suddenly set in. In both there was acute general peritonitis, in both strict Listerian precautions were adopted, in both a perfect recovery followed.

Another most successful case is reported by Mr. Thomas Keith, of Edinburgh.³ Here an ovariectomy was performed when the cyst was gangrenous, and when distinct evidences of acute peritonitis existed. This bold operation of Mr. Keith's is, so far as I know, the first of its kind in this country.

I have selected these three cases because they present another common feature of considerable interest. The three patients had suffered from previous attacks of peritonitis of a localised or chronic form. I believe that this latter circumstance contributed in no small degree to the final

¹ 'Bull. et Mém. de la Soc. de Chir. de Paris,' 1879, p. 564.

² *Ibid.*, p. 627.

³ 'Lancet,' vol. ii, 1865, p. 36.

success of the operations. The peritoneum would appear to become in time almost acclimatised to inflammatory attacks, and there is certain evidence to show that a peritoneum that has once been inflamed will bear operative interference with greater indifference than will a membrane upon which no such morbid process has encroached.

It is to be noted that, in my own case, the patient had had somewhat extensive chronic peritonitis before the acute attack, for which the abdominal cavity was opened, set in.

In conclusion, I would venture to suggest the use of abdominal section in the treatment of acute general peritonitis; the incision to be followed by irrigation of the serous cavity, and subsequent drainage.

The cases for which this measure would appear to be best adapted are those of acute peritoneal inflammation, depending upon sudden perforation by ulcer, or by gunshot or other wound, cases due to injuries other than those producing perforation, and examples of acute peritonitis due to the bursting of an abscess into the serous cavity.

In all such instances the incision, if it be made at all, should be made without delay, and, indeed, as soon as possible after the diagnosis has been distinctly established. It would be difficult to name a condition in disease where temporising would be more utterly futile, or more reckless, or more entirely purposeless. The grave character of the affection would render almost any measure justifiable. Indeed, the lover of the curious will have to search far into the records of medicine before he will find an instance of recovery from acute perforative peritonitis; and in a case so urgent and so desperate it can hardly be a violent or unreasonable act to apply to the relief of peritoneal inflammation the same measures that have been so successful in the cure of inflammations of other parts.

Dr. Parkes, of Chicago, has shown by a series of valuable experiments how much can be done to save life in

cases of perforation of the intestine by gunshot wounds. This surgeon shot a number of dogs through the abdomen. He allowed an interval to elapse during which extravasation of intestinal contents could take place. He then opened the abdomen, closed the perforations in the bowel by suture or resection, cleaned the peritoneal cavity and united the parietal incision. By this means he saved the lives of many dogs who would otherwise have died without doubt of acute perforative peritonitis.¹

Professor Kocher, of Berne, has performed laparotomy in a pistol-shot wound of the stomach with success. The operation was performed three hours after the injury, and the wound in the stomach was closed by sutures. Dr. William Bull has also published² a most successful case of laparotomy for gunshot wound of the intestine. The holes in the intestine were closed by sutures and the peritoneal cavity washed out. The operation was performed seventeen hours after the accident, and there were already evidences of extensive peritoneal inflammation.

There are, of course, cases of acute inflammation of the peritoneum, to which this mode of treatment, or any other measure of like purport, would not be applicable. Among such may be named peritonitis in connection with carcinoma, or tuberculosis of the serous membrane, the peritonitis that is the outcome of general septicæmia, and that attended with extensive rupture of certain of the viscera.

¹ 'Gunshot Wounds of the Small Intestine,' Chicago, 1884.

² 'New York Medical Journal,' Feb. 14th, 1885.

(For report of the discussion on this paper see 'Proceedings of the Royal Medical and Chirurgical Society,' New Series, vol. i, p. 362.)