TRANSACTIONS

OF THE

PHILADELPHIA ACADEMY OF SURGERY

STATED MEETING HELD MAY 1, 1933

The President, DR. JOHN SPEESE, in the Chair,
CALVIN M. SMYTH, JR., M.D., Recorder

PERISTALSIS AND PERITONITIS

DR. HENRY P. BROWN, JR., read a paper with the above title.

DR. I. S. RAVDIN remarked as to the relationship of intestinal peristalsis to the spread of peritonitis, doubtless only those cases in which the original focus of infection had been removed or repaired were referred to. There has been a tendency, not so much in this country as abroad, to use the so-called cathartic treatment in peritonitis. Doctor Brown believes that the overcoming of the factor of toxic absorption is a definite advantage in the recovery of a good many of his patients. Just what this toxic factor is no one at present knows. As for the infections in the lower abdomen, if the peristalsis is a factor in their spread this must take place in a reverse direction to normal peristaltic activity. Very little is known regarding the relationship of the administration of drugs and their influence on the rate of absorption of substances from the peritoneal cavity. In regard to the use of morphine it is well to remember that in the dog morphine acts entirely different than in the human being in that it stimulates peristalsis.

Good surgery, plus fluid and salt, are essential in the treatment of these cases, an aspect of the problem which deserves more attention than it has received in the past. During the past four months the speaker has used "Pitressin" in cases of this type. Pitressin stimulates peristalsis and in certain instances its use has proven quite beneficial. An ampule may be given every four hours for as many as seventy-two hours after operation.

DR. CALVIN M. SMYTH, JR., said that about twelve years ago, Dr. J. E. Sweet and he were conducting a series of studies on peritoneal absorption. In their experiments upon dogs the rate and absorption from the peritoneal cavity was determined by injecting various solutions and also particulate bodies in suspension. The particulate bodies used were red blood-cells and lamp black. By collecting the thoracic-duct lymph it was possible to determine the rate of absorption by noting the appearance time in and the time required for disappearance from the thoracic-duct lymph of these bodies. It was noted among other things that anything which increased peristalsis increased the rate and amount of absorption of both fluids and particulate bodies from the peritoneal cavity. The speaker was sufficiently impressed

by his observations at that time to completely satisfy himself regarding the desirability of complete anatomical and physiological rest of the intestine in the presence of intraperitoneal infection. He added that if one accepts the dictum that the source of the toxæmia lies in the peritoneal cavity, anything which tends to increase absorption from this area is harmful to the patient. Naturally, the retention of potentially toxic material within the lumen of the bowel is harmful to the patient also, but it would seem more logical to relieve this situation by a decompression of the bowel through enterostomy or cæcostomy, which entails no stimulation of peristalsis, rather than by forced evacuation of the bowel through increasing peristalsis. May not the fact that the surgeon always waited anxiously for the passage of flatus following the operations under consideration be regarded as the evidence of abatement of the infection rather than assume that the improvement following the return of peristalsis is *"post hoc ergo propter hoc"*?

Dr. John O. Bower said that a survey of the clinical records of patients operated upon for appendicitis in the hospitals of Philadelphia showed that of those admitted without having taken a laxative one in eighty died; of those who took one laxative, one in thirteen died and those who took more than one, one in seven. Increased peristalsis and increased intestinal pressure increase the possibility of perforation and spreading peritonitis, the cause of death in over 90 per cent. of those who died from acute appendicitis.

Dr. J. Stewart Rodman said that he was very much impressed a year ago while visiting one of the New York clinics to hear the report of a series of cases of peritonitis in which pituitrin had been used. Up to that time he had held the prevailing opinion that it was distinctly not the thing to do, to stir up peristalsis under such circumstances. Since that time he has tried it in about six cases. While he is not armed with accurate statistics as to the amount used in each case, the usual dose was one ampule of surgical pituitrin every four hours for several days or one week if necessary. One of these cases died, but might have also had not this been done. The distention was greatly relieved in most of the patients and vomiting checked. Doctor Brown has emphasized the importance of removing the focus of infection and drainage prior to the use of pituitrin; this is important, and the answer, Doctor Rodman believed, to the objection raised to its use by Doctor Bower. While he has just begun its use, therefore, his preliminary impression is that it is a distinct help in the management of these cases.

Dr. Thomas J. Ryan said that there is grave danger in advising the use of pituitrin in the routine of post-operative treatment. At least until we have means at our command to differentiate between dynamic and adynamic ileus we should desist from anything that is going to stimulate peristalsis. No one has scientifically proven that the patients die from absorption of toxins from the gastro-intestinal tract, but rather, from the bacteria in the peritoneal cavity which are producing the stimulus for the production of ileus

which in itself is protective. The speaker wished to go on record as being opposed to the routine use of pituitrin post-operatively until its use is based upon scientific information rather than clinical impressions.

DR. F. A. BOTHE said that he had used "Pitressin" in cases of distention recently and had some very good results. In some instances great quantities of gas were expelled. In addition to extracts of the pituitary gland, certain drugs have been used to stimulate peristalsis. The intravenous use of 20 per cent. sodium chloride appears to have been the most satisfactory. Experimentally, the peristalsis has increased more in the obstructed animal than in one in which there was no obstruction present. This finding has raised the question as to whether osmosis plays any part in the increased peristaltic activity.

DR. BENJAMIN LIPSHUTZ said that about two years ago Doctor Fleming reported a number of cases of peritonitis from perforated ulcers and he showed clearly that those patients who received pituitrin and those who had enemas always exhibited elevation of temperature and that particular group had a much higher mortality than the group treated without any peristaltic aggravation.

DR. EDWARD T. CROSSAN said that in spite of the successful results reported by Doctor Brown and the favorable experiences noted by Doctor Ravdin, there is a distinct danger in this form of treatment. He had in mind the possibility of kinks which could be caused by the use of pituitrin or allied drugs when used in cases of peritonitis. In peritonitis the intestines are glued together by a plastic lymph exudate and it is this exudate that acts as anchors to cause kinks. It is a well-known fact that such kinks do occur in convalescent cases of peritonitis at which time the patients show signs of intestinal obstruction; this obstruction is usually relieved by morphine and abstention of everything from mouth. If this complication occurs when peristaltic stimulants are used, it will be difficult to prove that the drug is blameless.

DR. HENRY P. BROWN, JR., in closing the discussion, emphasized the fact that he did not advocate the routine post-operative use of pituitrin, but believed that it should be used only when indicated—usually in those cases showing a toxic ileus after the removal of the focus of infection, when such ileus does not respond to the usual post-operative measures. All agree with the statement that in pre-operative cases of acute appendicitis, laxatives tend to cause perforation. The paper did not deal with this subject. He fully agreed that the routine post-operative use of pituitrin is undesirable and he does not recommend its use in this manner. It would be interesting to know what degree of intestinal paralysis and distention was present in those cases which did not receive a peristaltic stimulant, and whether or not their condition improved when such distention and paralysis were relieved. He agreed that there are factors which stimulate vomiting in peritonitis and believed

that intestinal paralysis with its sequelæ plays an important part. The convalescent cases he mentioned which presented signs of obstruction, relieved by withholding fluids, bore out the first statement of this paper, namely, that in paralysis of the intestines, one withholds nourishment by mouth because the intestinal tract is unable to handle such nourishment in a normal manner. If it is not a toxic substance (in the broad use of this term) which kills patients suffering from peritonitis aside from such complications as those of the respiratory, cardiac and renal systems, *etc.*, what does cause the fatal outcome?

THE CAROTID SINUS AS AN ETIOLOGICAL FACTOR IN SUDDEN ANÆSTHETIC DEATHS

DR. T. MCKEAN DOWNS read a paper with the above title.

REPAIR OF LARGE INCISIONAL HERNIA BY FLAPS OF ANTERIOR SHEATH OF RECTUS

DR. NORMAN ROTHSCHILD read a paper with the above title.

DR. CALVIN M. SMYTH, JR., said that the operation described by Doctor Rothschild appears to be based on sound principles. It has certain features in common with the operations described by Gibson, of New York, and Dixon, of The Mayo Clinic. In these operations, after exposure of the sac, an incision is made in the anterior fascia about 0.5 centimetres from its margin and extending throughout its circumference. This leaves a narrow strip or margin of fascia, the edges of which are approximated by a continuous suture of No. 1 chromic catgut. In order to prevent small bits of fat from working between the fascial layers and preventing solid healing, a single running suture is placed near the approximation of the two layers. The edge of the fascia which has been overlapped is then tacked to the underlying portion with another running suture of chromic catgut. The advantage of this procedure is that the peritoneal cavity is not opened and no attempt made to free extensive adhesions, thus rendering the operation much less shocking and decreasing the chance of ileus and peritonitis which are relatively common complications following repair of large incisional hernia by other technics.

In Doctor Rothschild's operation the feature which would appear somewhat risky is the permanent denudation of the rectus and it will be interesting to learn whether, as Doctor Rothschild hopes, there is a regeneration of the anterior fascia or whether this will prove an obstacle in the obtaining of permanent cures. Sufficient time has hardly elapsed to justify positive statements regarding this point.

TRAUMATIC ANEURISM OF THE SUBCLAVIAN ARTERY

DRS. WALTER ESTELL LEE, CHARLES F. MITCHELL, and, by invitation, DR. ARTHUR B. PEACOCK, read a paper with the above title.

DR. WALTER ESTELL LEE remarked that he approached this operation with a certain amount of respect for the surgical difficulties to be met, for one year

before he had assisted with another case with an aneurism in practically the same position. After exposing the tumor and while exploring with his forefinger, the operator unfortunately tore into the subclavian vein at its junction with the internal jugular. He had excised only the outer two-thirds of the clavicle, which gave inadequate exposure of the bleeding point, and it was necessary to complete the resection of the sternal end of the clavicle and disarticulate it at the sternoclavicular joint, while the hæmorrhage from the subclavian vein was controlled with the assistant's forefinger. This wide exposure made it possible to control the bleeding and finally close the wound in the subclavian vein with a lateral suture. The patient died several hours post-operatively.

In Doctor Lee's case, in order to provide ample exposure, the clavicle was excised subperiosteally except for its outer inch and one-half, and a flap was reflected outward which made it possible to approach the subclavian vessels from the axilla until the scar tissue surrounding the subclavian vessels was reached. The sac of the aneurism was completely isolated before the dissection was started at the junction of the jugular and subclavian veins, and to do this it was necessary to dissect it from the sheath of the brachial plexus and the anterior sheath of the scalenius anticus muscle. To expose the second portion of the subclavian vessels it was finally necessary to cut the tendon of this muscle. At this point it was very difficult to decide about the point of communication between the aneurism and the vessels, but this decision was made for them, as the neck of the sac tore. Doctor Brown, by pressing the first portion of the subclavian artery against the first rib, was able to control the bleeding and make it possible to close the opening in the wall of the subclavian artery by mattress sutures of silk. At the completion of the operation the radial pulse was present and has never disappeared. This seems to be evidence that at no time did they completely obliterate the lumen of the subclavian artery. There was some loss of sensation and tingling at the distribution of the brachial plexus but this had entirely disappeared when he was examined one week ago.

THE OPERATION OF CARDIOLYSIS IN ADHESIVE PERICARDITIS WITH PICK'S SYNDROME

Dr. Walter Estell Lee, and, by invitation, Dr. Floyd O'Hara, read a paper with the above title for which see p. 152.

Doctor Lee had been able to find records of some ninety cases of cardiolysis in the literature. This includes not only the true Delorme type of cardiolysis, but also the decompression operation of Brauer. His first case convinced him that there is a real danger in these operations of relighting latent infection. This patient had pneumonia, empyema and pericarditis some eight years before the operation and the wound infection which was developed on the tenth day first showed pneumococci and later streptococci. The first case also demonstrated the real danger of opening the pleural cavity in the Delorme procedure. In working with cadavers and in the

post-mortem room he found it the rule rather than the exception for the right and left pleura to meet in the mid-line as low down as the sixth costal cartilage. This was true in both of these cases. It was because of this difficulty that the exposure of Laney and Shipley was modified by making drill holes in the sternum and the sternoclavicular joint approached from the medial aspect. As one might expect, the real difficulty in the operation is the removal of the bony cage overlying the pericardium without opening the pleura and subsequently the separation of the pleura from the pericardium without injury. The removal of the pericardium itself is the simplest part of the procedure.

Dr. George Griffith said that he first made the diagnosis purely on the basis of finding the five criteria which Cohnheim laid down when the condition was originally described. He found no definite etiology; a very rapid heart, a very low blood-pressure, small heart, no matter in what position he was turned, and in addition a very high venous pressure. The electrocardiograph disclosed typical inversion. The cardiac output at the hospital proved this diagnosis. It was forty cubic centimetres when it should be seventy to eighty. A heart not too badly damaged, even though in auricular fibrillation should be operated upon. Two cases which the speaker saw operated upon in Boston were much more ill than this boy. His heart rate was regular and he had no signs of decompensation other than the fluid in the abdomen and lung and there was very little œdema of the ankles, so that even badly damaged hearts may be operated upon if it can be done under local anæsthesia, intratracheal, or with open drop ether.