THE SURGICAL TREATMENT OF DIVERTICULITIS

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The surgical problems presented in the treatment of diverticulitis do not parallel those of acute appendicitis in many cases. However, the differing opinions held by men of wide experience cannot be dismissed without serious thought.

Erdmann in 1932 reported a series of 71 cases of diverticulitis and stated that the acute condition of the abdomen presents but one solution to him and that is early operation. He believes that one should no more wait for resolution in an abdomen in the acute type of this disease than in an allied condition due to appendicitis or to suppurating tubes. However, he does not state the specific type of treatment in a given number of cases, and he does not state the mortality from the various procedures so that it is difficult to make a comparison with other series.

In reading case reports in the literature, one is impressed by the number in which exploratory operation was done during the acute phase of the disease with termination a few days later in death due to peritonitis. One is justified in wondering whether or not localization might have occurred in a certain percentage of these cases in a period of days and surgical intervention later might have been more safe. This condition calls for more individualization than does acute appendicitis, and while general rules may be formulated, each patient must be studied carefully.

One outstanding clinical fact is that diverticulitis is practically always confined to the sigmoid colon, even though the diverticula may be very extensive and involve the entire colon. There are few reported cases of complications developing in diverticula in other segments of the colon. This is probably due to the smaller caliber of the bowel and the firmer stool in the sigmoid area.

The symptoms vary greatly according to the pathologic condition found. There may be only mild attacks of pain in the left lower quadrant and any graduation up to the signs and symptoms arising from grave complications such as perforation with peritonitis, obstruction, or formation of a fistula.

An accurate history is invaluable, and a careful differential diagnosis must be made in some instances. Any given case in which operation is not performed will terminate in one of the following ways:

1. The diverticulitis may resolve completely but this, of course, does not militate against subsequent attacks either in the same diverticulum or in others in the same segment.

2. Perforation may occur:
   a. Into the rectum with discharge of pus
   b. Into the bladder
   c. Into the surrounding tissues and become walled off
   d. Into the surrounding tissues without becoming walled off but is generalized with resultant peritonitis.

3. Obstruction may result in cases where the process is not resolved. This is due to great thickening of the mesentery and all coats of the bowel.

The important problem then is, should operation be performed, and if so, when is the optimum time? This is most difficult to answer in the fulminating variety and here surgeons differ widely. The answer depends somewhat on when the surgeon saw the patient in relation to the onset of the attack. If seen early—within 12 hours—it may be justifiable to explore. If a long diverticulum without too much thickening of the bowel wall is found, excision and suture may give a brilliant result, but such cases are greatly in the minority.

In cases where there is considerable thickening around the diverticulum, a Mikulicz type of operation may be used. This may be done easily in a long movable segment of the bowel, but if the bowel must be mobilized to a considerable extent to bring it out, it is not a safe procedure in the presence of much infection. The other alternative would be to do a colostomy above the inflammation and place drains down to the affected area in order to form a channel should an abscess develop. In cases where the mesocolon is greatly thickened, it is well to incise the peritoneum of the mesosigmoid for the relief of tension and for drainage.

However, the diagnosis of this variety is not often thought of early and the surgeon generally does not see the patient until several days have elapsed. By this time, there is considerable distension and it is not a simple matter to decide the best procedure. Judging from the reported cases, the mortality rate is high and I personally wait for localization. If there is evidence of any obstruction whatever, an immediate cecostomy is performed, this being away from the infected area. Clinically, more of these localize than perforate into the general abdominal cavity, thus causing peritonitis. If they localize, they can be drained laterally.

In the subacute variety, no emergency exists and sufficient time may be taken to establish a more accurate diagnosis. Roentgen examination is of great assistance in determining the location of the diverticula and their extent, and in this way, a well planned operative procedure may be carried out. If the process is limited to one segment, involving perhaps four or five inches of the sigmoid, the area may be resected, and an end-to-end anastomosis made. The same principles apply to resection

here as they do for resection of a neoplasm; i.e., some type of preliminary decompression operation should be done before the resection, such as transverse colostomy or cecostomy. If the diverticula extend throughout the sigmoid and descending colon, however, one must resort to expectant treatment or perform a colostomy which may or may not be a permanent one.

When patients are observed who have had a subacute condition over a period of 10 or more years with occasional attacks which clear up, it is quite difficult to recommend colostomy in all cases. Many of these are physicians who certainly will not have a colostomy, but prefer to endure the occasional inconvenience. So, I do not think it is justifiable to force patients to have a colostomy as long as they understand that an attack may come along which makes operative intervention imperative. Furthermore, resection of one segment, when many more diverticula may be present above or below, does not insure the patient against further attacks in the remaining ones.

If the subacute variety goes on to tumefaction with tenderness and low grade fever—up to 101° F.—it will be well to treat the patient conservatively and wait for an optimum time to make a left McBurney incision and drain the abscess. Again the surgeon must determine the optimum time for this. Of course, a fistula often develops through which feces will drain at first, but later on this becomes a simple sinus which may close in a month or it may take six months to heal. It is of little inconvenience to the patient, and no attempt should be made to close it for at least a year, and then only on the insistence of the patient.

Roentgen examination of the sinus tract with bismuth will outline its location and if any operative intervention is planned, it will be best to prepare the patient for resection of the segment because excision of the sinus with inversion of that particular area of the bowel will fail in most cases.

Particularly distressing are those instances in which a fistula has occurred into the bladder. If the opening is not too large, colostomy alone will occasionally permit of its closing but, if it does not, the constant infection in the lower loop will keep up the infection in the bladder and necessitate its closure surgically. With a preliminary colostomy having been done, the bladder may be closed and the affected segment of the colon resected after whatever method seems best.

I have reviewed the 16 cases that have come under my observation in the five year period from 1930 to 1935. Six of these patients were seen in consultation and 10 were operated upon personally. I think a very brief review of these cases will serve to show that no single method of treatment is possible or feasible.

Case 1. (1931): A woman had had pain for two weeks and it had become severe in the two days preceding examination. The temperature was 100° F. A palpable mass was present. After drainage, healing occurred, and the patient has remained well.

Case 2. (1934): A man was operated upon three days after the onset of pain in the lower quadrant. A diagnosis was made of diverticulitis with symptoms of obstruction. Colostomy was performed and this was closed six months later. The patient has remained well.

Case 3. (1933): This patient, a man, was admitted to the hospital three days after the onset of his attack. The temperature was 102° F. A mass was palpable but there was no obstruction. Expectant treatment was instituted, the temperature continued to be elevated for seven days but subsided in ten days and no operation was performed. The patient has had no trouble for two years.

Case 4. (1932): For several days before admission, this man's temperature had been 102° F. A palpable mass was present and a diagnosis of diverticulitis with abscess was made. Operation was advised but the patient refused. When he returned to the hospital four days later, complete obstruction was present. Cecostomy was performed and dirty bloody fluid was found in the abdomen and there was definite peritonitis. Death occurred seven days after operation.

Case 5. (1930): The patient was a man who had multiple diverticula with abscess and fistula into the bladder. Colostomy and drainage of the abscess were performed and recovery was uneventful. The fistula into the bladder is closed but he still has the colostomy which is advisable on account of the extent of diverticulosis.

Case 6. (1930): A woman had diverticulitis without abscess. She had experienced a similar attack which subsided six months previously. Cecostomy was performed with resection of four inches of the involved area and end-to-end anastomosis. The patient has remained well.

Case 7. (1934): A man was referred with a diagnosis of obstruction due to cancer. Investigation proved this to be caused by diverticulitis. A colostomy was made and the abscess drained into the bowel. The colostomy was closed six months later when roentgen examination revealed a normal lumen.

Case 8. (1934): This patient, a woman, was also referred with a diagnosis of malignancy. Her chief symptom was of obstruction and investigation revealed it to be due to extensive diverticulosis with diverticulitis. Colostomy was made and she does not want it closed because she is comfortable and relieved of an old, long standing constipation.

Case 9. (1934): A man was operated upon elsewhere two years previously for drainage of an abscess of diverticulitis. A sinus persisted and the abscess had recurred twice. A cecostomy was performed with resection of five inches of the sigmoid and end-to-end anastomosis. The patient recovered.

Case 10. (1934): This man had diverticulitis with abscess and obstruction. Cecostomy was performed. Localization of the abscess was apparent in one week and this was drained through a left McBurney incision. The sinus persisted for eight months but closed spontaneously and the patient has been well for more than a year.

The mortality in this series was 10 per cent.

It is obvious that each case presents a problem of its own and that a certain amount of experience with acute conditions of the abdomen is necessary for good surgical judgment in the handling of these cases.

Conclusions

The surgical treatment of diverticulitis is the management of the complications which may arise from a diverticulum and those complications are perforation, obstruction and formation of a fistula.