

The Hartmann Procedure in the Treatment of Diverticular Disease*

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THE MANAGEMENT of the patient with complicated sigmoidal diverticulitis remains one of the most difficult problems of colonic and rectal surgery. Although numerous modalities of treatment have been used, the usual therapy has remained that of primary sigmoid resection for symptomatic but uncomplicated cases of sigmoid diverticulitis. For complicated cases, a three-stage procedure of transverse colostomy with or without drainage, sigmoid colectomy and anastomosis, and closure of colostomy has been used. Recently, however, the Hartmann procedure has been frequently mentioned as an alternative to the three-stage procedure.^{1, 3, 4} We have reviewed our cases of patients treated with the Hartmann procedure for sigmoid diverticulitis with complications.

Results

The last 73 patients operated on for sigmoid diverticulitis included 55 patients having a primary resection, three patients having a three-stage procedure, and 15 patients having a Hartmann procedure (Table 1).

Primary Resections

Of the 55 patients having primary resection, 45 had an elective, interval, sigmoid colectomy during the relatively quiescent stage of the disease. The remaining ten were operated on for sigmoidocutaneous

TABLE 1. *Indications for Surgery*

Primary resection	
Elective sigmoidectomy	45
Mesenteric abscess	7
Sigmoidovesical fistula	1
Sigmoidouterine fistula	1
Sigmoidocutaneous fistula	1
	55
Three-stage	
Sigmoid obstruction	2
Sigmoidovesical fistula	1
	3
Hartman	
Pelvic abscess	6
Fecal peritonitis	5
Obstruction and intraperitoneal abscess	4
	15

fistula (1), sigmoidouterine fistula (1), sigmoidovesical fistula (1), and sigmoid mesenteric abscess (7). There were two deaths, for a mortality rate of 3.6 per cent.

Three-stage Procedure

Three patients were treated by a three-stage procedure. At the time of their initial transverse colostomy, two patients had a colonic obstruction at the level of the sigmoid colon. The third patient had an emergency transverse colostomy done instead of the planned Hartmann procedure due to a rapid deterioration of vital signs at the induction of anesthesia. This patient was being operated on for a sigmoidovesical fistula. There was one death following the second stage in this group. The two cases done for obstruction occurred early in this series and would now, undoubtedly, be treated by a Hartmann procedure.

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Hartmann Procedure

The Hartmann procedure was performed on 15 patients (20.5 per cent). There were three indications for this procedure. Six patients had a pelvic abscess with marked inflammation of the distal sigmoid and rectosigmoid colon which precluded a primary anastomosis. Five patients had a perforation with diffuse fecal peritonitis, which again made primary anastomosis technically impossible. The four patients in the third group had a sigmoid obstruction with intraperitoneal abscess as their indication for the Hartmann procedure. There was no death in this group of 15 patients, one of whom still has a sigmoid colostomy; anastomosis has not been possible because of severe debilitation. Five patients had no complication with either of their two procedures. The remaining ten patients had one or more complications involving either the primary or the secondary procedure. There was a total of 21 complications in these ten patients: six wound infections, four pelvic abscesses, three postoperative small-bowel obstructions (none of which necessitated operation), two cases of postoperative pneumonia, two fecal fistulas (which closed spontaneously), and one case each of: prolonged ileus, hepatitis, urinary retention, small-bowel laceration at the time of surgery which necessitated a small-bowel resection. The lengths of total hos-

TABLE 2. *Complications of the Hartmann Procedure*

Wound infections	6
Pelvic abscess	4
Small-bowel obstruction	3
Fecal fistula	2
Pneumonia	2
Ileus	1
Hepatitis	1
Urinary retention	1
Small-bowel laceration	1
TOTAL	21

TABLE 3. *Mortality Rates*

	Number of Patients	Per Cent of Total	Number of Deaths	Mortality Rate (Per Cent)
Primary resection	55	75.3	2	3.6
Three-stage procedure	3	4.1	1	33
Hartmann procedure	15	20.6	0	0
TOTAL	73	100	3	4.1

pitalization in this group ranged from 21 days to 83 days, with an overall group average of 40 days.

Comments

In our hands, the Hartmann procedure offers an excellent alternative to the standard three-stage procedure for complicated diverticular disease. Although this series of patients is small, there has been no death among the 15 patients, but there has been a relatively high incidence of complications (Table 2). The Hartmann procedure appears to offer several advantages which can be obtained with apparently no increase in mortality over the standard three-stage procedure, for which mortality rates of 0 to 8 per cent have been reported (Table 3).^{1, 4, 6, 7, 8} The patient is spared one general anesthesia and operation and his total period of disability is correspondingly shorter. The length of hospitalization of 40 days would seem to compare favorably with those reported for the three-stage procedure, which range from 50 to 75 days.^{2, 5, 6} In occasional cases where an obstructing or perforating lesion of the sigmoid colon is carcinoma misdiagnosed as diverticulitis, the patient is spared the interval between the primary transverse colostomy and the resection before the tumor is removed. This occurred in one case not included in this series, in which the diagnosis of carcinoma was not made until the final pathologic

specimen had been examined microscopically. In addition, the problem of the patient whose sepsis does not resolve following the initial transverse colostomy is obviated by the Hartmann procedure. This would appear to be especially important for those patients with free perforation with diffuse fecal peritonitis, who frequently have high mortality rates when treated by a transverse colostomy and drainage.^{1, 6} Although there were numerous complications with the Hartmann procedure, the number did not appear to be incompatible with those reported by others for the three-stage procedure.^{2, 5, 6}

Summary

The Hartmann procedure would appear to offer many advantages and few disadvantages in treating those cases of sigmoid diverticulitis complicated by obstruction or

pelvic or intraperitoneal abscesses, with or without perforation and diffuse peritonitis.

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Memoirs

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Dr. Murdoch joined the American Proctologic Society in 1930, was elected to Fellowship in 1934 and honored with Senior Fellowship in 1955. He was a diplomate of the American Board of Surgery and the American Board of Colon and Rectal Surgery; a member of the American Medical Association, and Oklahoma State Medical Society. Dr. Murdoch was on the staff of St. Anthony Hospital and a member of the faculty of the University of Oklahoma School of Medicine. He died October 16, 1972.

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Dr. Wenger joined the American Proctologic Society in 1939 and was elected to Fellowship in 1944. He was a diplomate of the American Board of Colon and Rectal Surgery and a Fellow, American College of Surgeons. He was a member of the American Medical Association, Ohio State Medical Society and Stark County Medical Society. Dr. Wenger was on the staff of Mercy and Massillon City Hospitals until his retirement in 1971. He died December 29, 1972.