

Let Sleeping Dogs Lie: Role of the Omentum in the Ileal Pouch-Anal Anastomosis Procedure

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A surgical aphorism has long held that the omentum is the "watchdog of the abdomen." However, detractors believe that leaving the omentum behind after colectomy precipitates later small bowel obstruction. A retrospective comparison was made between a group of 406 patients (Group I) having omentectomy with proctocolectomy and ileoanal anastomosis and a group of 239 patients (Group II) having a similar procedure without omentectomy. Follow-up in this series of 645 patients was 4.3 ± 2.1 years (mean \pm SEM). No difference was present in the rate of partial small bowel obstruction or complete small bowel obstruction between Group I patients (32 percent partial, 12 percent complete) and Group II patients (29 percent partial, 12 percent complete; $P > 0.1$). However, a better outcome with regard to postoperative sepsis and sepsis requiring operation was apparent in Group II patients retaining the omentum (4 percent and 3 percent, respectively) than in Group I patients (10 percent and 8 percent, respectively), in whom the omentum was removed ($P < 0.01$). As this experience would support, we urge surgeons to "let sleeping dogs lie" and, when possible, retain the omentum when performing colectomy or proctocolectomy. [Key words: Omentum; Small bowel obstruction; Sepsis; Ileal pouch]

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The clinical role of the omentum with regard to complications following major abdominal surgery remains speculative. While some surgeons recognize the possible benefit of containing an area of inflammation by the macrophage-rich omentum, others claim that this advantage is minimal and that omental adhesions or two-point fixation of the omentum can serve as a nidus for intestinal obstruction.¹ The ileal pouch-anal anastomosis (IPAA) procedure, while generally asso-

ciated with a good clinical outcome, does have a high rate of postoperative abdominopelvic sepsis and small bowel obstruction.² For this reason, we chose the IPAA procedure to study whether omentectomy affects the outcome of surgery with regard to postoperative abdominal sepsis or bowel obstruction.

METHODS

The results of 645 patients who underwent the IPAA procedure by four surgeons between 1981 and 1988 at the Mayo Clinic were studied. Patients who had a prior abdominal operation or who required an emergency operation were excluded. One patient died of a pulmonary embolus, and 18 were lost to follow-up. The patients were divided into two groups: Group I ($n = 406$), whose operation was done by one of two surgeons who routinely remove the omentum during the IPAA procedure, and Group II ($n = 239$), whose surgery was done by one of two surgeons who leave the omentum intact during this procedure. Mean follow-up was 4.3 ± 2.1 years (mean \pm SD). Variables, including age, sex, diagnosis, pouch design, and diverting ileostomy, were compared between groups. Finally, the incidence of intestinal obstruction, intestinal obstruction requiring reoperation, abdominopelvic sepsis, and abdominopelvic sepsis requiring drainage was analyzed in each group.

All data were collected and follow-up surveys done by a data clerk on an annual basis without involvement of the operating surgeon. Comparisons of proportions of events were made with a chi-square test. Comparisons of the distributions of continuous variables were made with a two-sample t -test. All significance tests were two sided, and P values less than 0.05 were considered statistically significant.

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RESULTS

No statistical difference was present between the omentectomy and nonomentectomy groups with regard to age, sex, or diagnosis (Table 1). There was no significant difference ($P > 0.05$) in pouch design, with 98 percent of the omentectomy group getting a J-pouch, *vs.* 95 percent for the nonomentectomy group. Similarly, there was no difference in the percentage of patients who had a diverting ileostomy (97 percent for the omentectomy group *vs.* 93 percent for the nonomentectomy group; $P > 0.05$).

In addition, no difference was found between the groups in the percentage of patients who developed a postoperative bowel obstruction or those who required surgical intervention to relieve the obstruction ($P > 0.1$; Table 2). There was, however, a significant difference with regard to abdominopelvic sepsis between the groups ($P < 0.01$). The omentectomy group had greater than twice the incidence of sepsis, and sepsis requiring drainage, than the nonomentectomy group (Table 2).

DISCUSSION

The policing function of the omentum has earned it the title of "watchdog of the abdomen."

Investigations in recent years have demonstrated that under pathologic conditions the omentum has various distinct capabilities, including: adhesive and cohesive properties to traumatized and inflamed surfaces, capillary ingrowth with neovascularization, absorption of fluid and molecular substances from the peritoneal cavity, phagocytosis of particulate matter, and hemostasis.^{3,4} Within 24 hours of an intra-abdominal injury, the omentum forms adhesions to the interrupted serosal or peritoneal surface, with a subsequent decrease in fat cells and an increase in fibrous and angioplastic elements. This results in improved containment of infection initiated by the injury, improved delivery of hematologic elements to combat localized infection at the injury site, and improved blood supply to the injured tissue.⁴

However, the concept that the effects of the omentum are exclusively beneficial has often been challenged. Some believe that the adhesions formed by the omentum, like other visceral adhesions, can be a nidus for small bowel obstruction.^{1,5} Furthermore, the omentum itself, when its distal end anchors to an injured surface, becomes a fixed "band" around which the small bowel can form a volvulus. This possibility has led to the routine resection of the greater omentum by some sur-

Table 1.
Characteristics of Patients Undergoing Ileal Pouch-Anal Anastomosis

| Parameter | Omentectomy Group (n = 406) | Nonomentectomy Group (n = 239) | P value |
|-------------------------------------|--------------------------------|-----------------------------------|------------|
| Mean \pm SD age (yr) | 31 \pm 9 | 31 \pm 9 | $P > 0.1$ |
| Men/women | 207/199 | 120/119 | $P > 0.1$ |
| Pouch design (% of patients) | | | |
| J-pouch | 98 | 95 | |
| S-pouch | 2 | 5 | $P > 0.05$ |
| Diverting ileostomy (% of patients) | 97 | 93 | $P > 0.05$ |
| Diagnosis (% of patients) | | | |
| Ulcerative colitis | 92 | 89 | |
| Familial polyposis | 8 | 11 | $P > 0.1$ |

Table 2.
Complications Following Ileal Pouch-Anal Anastomosis (Percentage of Patients)

| Patient Group | Bowel Obstruction | Obstruction Requiring Surgery | Abdominopelvic Sepsis | Abdominopelvic Sepsis Requiring Operation |
|--------------------------|-------------------|-------------------------------|-----------------------|---|
| Omentectomy (n = 406) | 32 | 12 | 10 | 8 |
| Nonomentectomy (n = 239) | 29* | 12* | 4† | 3† |

* $P > 0.1$ compared with above value.

† $P < 0.01$ compared with above value.

geons during procedures with a high risk of post-operative small bowel obstruction.

Our study demonstrated no increase in the rate of obstruction following the IPAA procedure in patients whose procedure was done by surgeons who leave the omentum intact compared with those who routinely remove the omentum. We did find, however, that, with other parameters being similar, the group in whom the omentum was left intact had a significantly lower rate of abdominal sepsis.

We recognize that sepsis rates among surgeons vary and that patient populations in terms of degree of illness may vary among surgeons. However, at the Mayo Clinic, the four surgeons whose results were surveyed use basically the same technique for the ileoanal procedure. Furthermore, the institutional referral system at the Mayo Clinic is structured such that each surgeon has similar patients in terms of risk factors for sepsis. As such, variables such as extent of illness at the time of surgery, steroid levels, and nutritional status should not differ significantly between the two groups studied and should not favor the outcome of one group relative to the other.

Based upon our finding that obstructive complications are not altered in patients where the omentum is left intact and that septic complications are reduced in this group, we urge surgeons to "let sleeping dogs lie" and preserve the omentum, when possible, in performing colectomy and proctocolectomy.

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