

Original Article

# Emergency Hemorrhoidectomy for Treating Acute Hemorrhoidal Crisis: A Single Institute Experience

Huang-Jen Lai<sup>1</sup>  
Cheng-Wen Hsiao<sup>1</sup>  
Jung-Cheng Kang<sup>1,2</sup>  
Pei-Chieh Chao<sup>1</sup>  
Ching-Ching Wan<sup>1</sup>  
Shu-Wen Jao<sup>1</sup>

<sup>1</sup> Division of Colorectal Surgery, Department of Surgery, Tri-Service General Hospital, Taipei, Taiwan.

<sup>2</sup> Division of Colorectal Surgery, Department of Surgery, Buddhist Tzu-Chi General Hospital, Taipei, Taiwan.

## Key Words

Emergency;  
Hemorrhoidectomy;  
Hemorrhoidal crisis;  
Acute

**Purpose.** We present our clinical outcomes following emergency hemorrhoidectomy for treating patients with an acute hemorrhoidal crisis and assess various risk factors associated with complications.

**Methods.** Between January 2001 and December 2003, 40 consecutive patients presenting with acute hemorrhoidal crisis were enrolled in the study. Acute hemorrhoidal crisis was defined as painful fixed prolapse or strangulated prolapse leading to thrombosis, ulceration or gangrene. All underwent emergency semiclosed hemorrhoidectomy under local anesthesia with conscious sedation within 12 h of admission. Patients were evaluated for clinical symptoms, operative data, perioperative pain, analgesic use, disability and complications.

**Results.** The patients (29 men and 11 women) had a mean age of 40.3 years. The mean time between onset of prolapsed hemorrhoids and hospital admission was 34.4 hours. Thirteen patients (33%) had anemia. The mean duration of postoperative hospital stay was 2.8 days and the mean interval to resume normal activity was 10.6 days. There were no recurrent hemorrhoids with a mean follow-up of 15 months. Fever (18%) and urinary retention (10%) were the most common early complications. Anal stenosis developed in two patients (5%), and one of them needed further surgical intervention. No serious complications were recorded in this series. Increased age was identified as a factor with significantly elevated risk of late complications (OR: 1.07, 95% CI: 1.01-1.14). We also found about a twofold increased risk of early and late complications for the patients with anemia, although this was not significant.

**Conclusion.** Emergency hemorrhoidectomy in the treating of patients with an acute hemorrhoidal crisis is safe and suitable. The complications are minor and acceptable. However, we should pay attention to older patients receiving emergency hemorrhoidectomy, as they require outpatient follow-up more frequently.

[J Soc Colon Rectal Surgeon (Taiwan) 2006;17:87-94]

The acute stage of hemorrhoidal disease, termed hemorrhoidal crisis, is when patients present with severely disabling, irreducibly prolapsed or gangrenous hemorrhoids.<sup>1</sup> Most of these patients have had long-

standing hemorrhoidal disease of variable severity. The crisis is characterized by acute pain, bleeding, inflammation, a foul-smelling discharge and circumferentially irreducible hemorrhoids. It occurs because

Received: July 24, 2006.

Accepted: September 15, 2006.

Correspondence to: Dr. Shu-Wen Jao, Division of Colorectal Surgery, Tri-Service General Hospital, No. 325, Section 2, Cheng Kong Road, Nei-Hu 114, Taipei, Taiwan. Tel: +886-2-8792-7223; Fax: +886-2-8792-7411; E-mail: surgeon.lai@msa.hinet.net

the anal sphincter squeezes and strangles the prolapsed internal hemorrhoids. The result of sphincter spasm and blockade of venous return causes edema and, occasionally, thrombosis of the external hemorrhoids. The resulting pain, swelling and disability are dramatic and very painful.<sup>2</sup>

Although hemorrhoidal crisis is infrequent, it usually requires emergency medical treatment. Nonoperative treatments (e.g., warm sitz baths, analgesics, stool softeners, local ointment, suppositories and manual reduction) have been considered as a safety option. However, these may prolong disability and may cause financial hardship. Moreover, most such patients may need subsequent rehospitalization for surgery.<sup>3</sup>

Many investigators have suggested acceptable alternatives to the nonoperative treatment<sup>2,4,5</sup> and have proposed emergency excision of the hemorrhoids.<sup>1,6-13</sup> Some of these studies also found that emergency hemorrhoidectomy for hemorrhoidal crisis was safe and effective and had a similar complication rate as elective surgery for chronic hemorrhoids.<sup>7,8,12,13</sup> However, few recent studies have evaluated the results of emergency hemorrhoidectomy, especially in Taiwan. Therefore, we conducted a prospective study to evaluate the long-term efficacy of emergency hemorrhoidectomy for patients presenting with a hemorrhoidal crisis. We assessed various risk factors associated

with its complications and compared our results with those reported in literatures.

## Methods

Between January 2001 and December 2003, we recruited 40 consecutive patients presenting with an acute hemorrhoidal crisis. This was defined as a painful fixed prolapse or strangulated prolapse leading to thrombosis, ulceration or gangrene (Fig. 1). Exclusion criteria included patients with previous anal surgery, other anorectal disorders, pregnancy or severe medical problems. No cases of simple thrombosed external hemorrhoids were included. All patients underwent operation within 12 hours of admission. Routine laboratory tests were performed preoperatively in all patients, along with taking a complete medical and surgical history. Detailed written informed consent was obtained from all patients. Patients were instructed to complete a preoperative and postoperative subjective pain survey using a visual analog scale (VAS) ranging from 0 (no pain) to 10 (the worst pain ever experienced). All data were recorded by a surgical nurse on a prepared information sheet.

All patients received two warm-water enemas before the operation. Preoperative antibiotics were not



**Fig. 1.** (A) Swelling, prolapsed and thrombosed hemorrhoids. These are circumferentially irreducible and have an element of mucosal prolapse. (B) The strangulated prolapse led to gangrene.

routinely administered. All were operated on by the same surgical team. All patients received local anesthesia with conscious sedation. A preoperative flexible sigmoidoscopy was carried out to exclude any anorectal disorders. All patients were then placed on the operating table in the prone jackknife position for surgery. After the anal sphincters had been completely relaxed, direct massaging pressure was applied with a sterile pad to reduce the fixed prolapsed hemorrhoids, allowing an adequate and safe operation to be performed. The surgical technique was that of three-quadrant semiclosed hemorrhoidectomy. The excisional step of the procedure was similar to a Milligan–Morgan hemorrhoidectomy. Each section of hemorrhoidal tissue was excised from the external pile and then deepened into the level of the anorectal junction using scissors. The pedicles of hemorrhoids containing the hemorrhoidal vessels were transfixed using 2-0 chromic catgut sutures. Then, the anorectal mucosa and anoderm of both sides of the resected hemorrhoids were approximated using the same stitch from the level of the anorectal junction to the anoderm skin border. If the patient had whole circumferential prolapsed hemorrhoids, additional transverse excisions were carried out in the intervening area of internal hemorrhoids. Finally, a small roll of Gelfoam® (Pharmacia and Upjohn, Kalamazoo, MI) coated with tetracycline ointment was placed into the anal canal and several pieces of gauze applied to the perianal skin. We removed the gauze and Gelfoam® in the evening of operation day or in the next morning.

Postoperatively, all patients were administered regular ketorolac tablets (10 mg four times daily by mouth). Intramuscular meperidine (1 mg/kg body weight each dose) was administered as rescue analgesia. Patients were discharged from the hospital when free from severe pain that required intramuscular analgesia, regardless of whether any bowel evacuation had occurred. At the time of discharge, oral analgesia (ketorolac tablets), stool softening agents and oral antibiotics were prescribed until the next clinic visit. Patients were advised to return to work or return to normal activity as soon as they felt able to. Clinical evaluation was performed by the operating surgeon at the seventh and fourteenth days and at the first and sixth months following surgery. A follow-up telephone in-

terview was also subsequently conducted for patients who did not attend the final assessment. Postoperative pain, analgesic requirements and time to return to normal activity were also recorded by a surgical nurse.

## Statistical Analysis

Statistical analysis was performed using the Statistical Package for the Social Sciences (version 13.0). For depicting the basic characteristics for the study subjects, the demographics, specific clinical features and descriptive statistics were expressed as means  $\pm$  standard deviations (SDs) for continuous variables; numbers were used for categorical factors, the use of analgesics and pain scores. The determinants of early and late complications, including age, gender, anemia, time between onset of prolapsed hemorrhoids and hospital admission, operation time and postoperative pain score were analyzed using logistic regression to estimate each variable's individual influence on the occurrence of early and late complications. Odds ratios (ORs) with 95% confidence intervals (CIs) for each variable were utilized to estimate relative risks. Statistical significance was set at  $p < 0.05$ .

## Results

Table 1 presents the descriptive statistics of the study subjects. The mean age was 40.3 years (range 21-76) and patients were mostly men (72.5%). The mean duration of symptoms between the onset of prolapsed hemorrhoids and hospital admission was 34.4 hours (range 3-96). Thirteen patients (32.5%) had anemia; five of these required a blood transfusion because their hemoglobin levels were below 6.5 g/dL and they presented with pallor.

Using preoperative flexible sigmoidoscopy, we found polyps of the rectum and colon in five patients (12.5%). All polyps were resected and pathology reports demonstrated benign adenoma. The mean operating time was 49 minutes (range 25-95), recorded from the beginning of the excision to the application of the dressing. The mean duration of hospital stay was 2.8 days (range 2-5) and the mean interval to resume normal activity was 10.6 days (range 4-28). The mean du-

**Table 1. Demographic data and clinical characteristics (n = 40)**

Variables	Mean $\pm$ SD, (range) Number (%)
Age in years	40.3 $\pm$ 14.7, (21-76)
Gender	
Female	11 (27.5%)
Male	29 (72.5%)
Time between onset of prolapsed hemorrhoids and hospital admission in hours	34.4 $\pm$ 24.5, (3-96)
Anemia	
Yes	13 (32.5%)
No	27 (67.5%)
Operative time in minutes	49.0 $\pm$ 19.4, (25-95)
Duration of hospital stay in days (postoperative)	2.8 $\pm$ 0.9, (2-5)
Normal activity resumed (postoperative day)	10.6 $\pm$ 5.0, (4-28)
Follow-up period in months	15 $\pm$ 7, (6-24)

ration of follow-up was 15 months (range 6-24).

Postoperative complications are shown in Table 2. Regarding early complications (within seven days of the operation), fever (17.5%) and urinary retention (10%) were the most common. All of the seven patients with fever experienced it on the night following the operation. Four patients with urinary retention were treated with temporary catheterization. Postoperative bleeding occurred in two patients (5%) and both required further surgery to check bleeding on the day of the operation. Two patients experienced two complications: one had bleeding and urinary retention; the other had bleeding and fever.

Regarding late complications (more than seven days after surgery), no recurrences of prolapsed hemorrhoids were noted. Two patients (5%) experienced fecal impaction and were managed with enemas. One patient (2.5%) had residual skin tags. He was man-

aged with conservative treatment because he did not have any discomfort. Anal stenosis developed in two patients (5%). One of these needed further surgery with anoplasty and the other received anal dilatation. One patient (2.5%) developed an anorectal abscess and was managed with incision and drainage.

Table 3 shows the pain scores and use of analgesics. Each patient needed extra intramuscular meperidine a mean of 2.7 times (1 mg/kg each time) in addition to regular oral analgesia in the hospital. The trend of VAS scores is shown in Fig. 2 with 95% CI values for each observation.

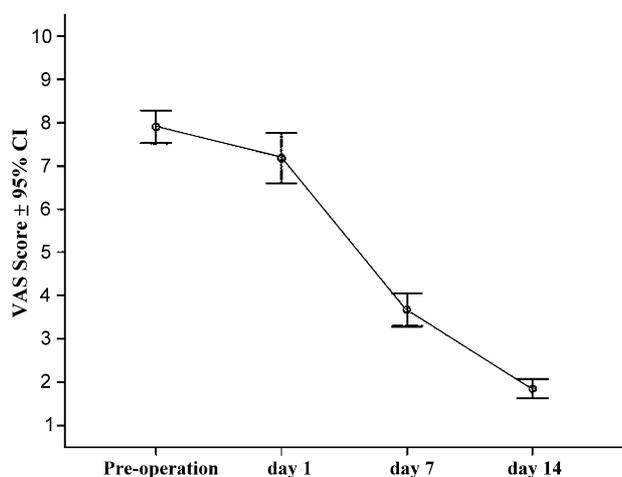
As shown in Table 4, none of the estimations of odds ratios revealed significantly altered risks of early complications. Nonetheless, it is noteworthy that there was around a twofold risk of early complications for the patients with anemia, although this was not significant (95% CI: 0.52-9.23;  $p = 0.29$ ). Table 5 shows the analyses for the odds ratios of late complications. Increased age was identified as a factor with a significantly elevated risk of late complications (OR: 1.07,

**Table 2. Complications (n = 40)**

Variables	Number (%)
Early (< 7 days postoperatively)	
None	29 (72.5%)
Bleeding	2 (5.0%)
Urinary retention	4 (10.0%)
Fever	7 (17.5%)
Late (> 7 days postoperatively)	
None	34 (85.0%)
Fecal impaction	2 (5.0%)
Residual skin tags	1 (2.5%)
Anal stenosis	2 (5.0%)
Anorectal abscess	1 (2.5%)

**Table 3. Pain scores (VAS) and use of analgesics**

Variables	Mean $\pm$ SD, (range)
Pain scores	
Preoperative day 1	7.9 $\pm$ 1.2, (6-10)
Postoperative day 1	7.2 $\pm$ 1.8, (4-10)
Postoperative day 7	3.7 $\pm$ 1.2, (0-6)
Postoperative day 14	1.9 $\pm$ 0.7, (1-4)
Number of meperidine injection (mg/kg body weight)	2.7 $\pm$ 2.1, (0-9)
Days taking ketorolac (10 mg tablets)	9.1 $\pm$ 3.1, (3-14)



**Fig. 2.** The trend of visual analog (VAS) pain scores with 95% CIs following surgery ( $n = 40$ ).

95% CI: 1.01-1.14). Moreover, there was a more than twofold risk of late complications for those patients with anemia, although again this was not significant (95% CI: 0.41-13.98;  $p = 0.33$ ).

## Discussion

The management of patients with an acute hemorrhoidal crisis is controversial. Various therapies have been proposed, ranging from conservative treatment to simple excision and to the radical excision of all prolapsed hemorrhoids.<sup>2,3,8,11</sup> In the past, emergency hemorrhoidectomy for hemorrhoidal crisis was considered unwise because of the risks for pyelophlebitis, perianal sepsis, hemorrhage and the subsequent devel-

**Table 4. Relative risks of demographics and clinical features on the occurrence of early complications in patients with emergency hemorrhoidectomy ( $n = 40$ )**

Variables	Early complications		Odds Ratio (95% CI)	$p$
	No ( $n = 29$ )	Yes ( $n = 11$ )		
Age in years	42.4 ± 14.8	34.6 ± 13.3	0.96 (0.91-1.02)	0.55
Gender				
Female	8	3	Reference	-
Male	21	8	0.98 (0.21-4.67)	0.98
Time between onset of prolapsed hemorrhoids and hospital admission in hours	36.0 ± 25.8	30.3 ± 21.2	0.99 (0.96-1.02)	0.51
Anemia				
No	21	6	Reference	-
Yes	8	5	2.19 (0.52-9.23)	0.29
Operative time in minutes	49.5 ± 19.2	47.7 ± 16.9	1.00 (0.96-1.03)	0.79
Postoperative VAS score in cm (Day 1)	7.2 ± 1.9	7.0 ± 1.6	0.93 (0.63-1.37)	0.71

\*  $p < 0.05$  statistically significant.

**Table 5. Relative risks of demographics and clinical features on the occurrence of late complications in patients with emergency hemorrhoidectomy ( $n = 40$ )**

Variables	Late Complication		Odds Ratio (95% CI)	$p$
	No ( $n = 34$ )	Yes ( $n = 6$ )		
Age in years	38.2 ± 12.4	52.0 ± 21.8	1.07 (1.01-1.14)	< 0.05*
Gender				
Female	10	1	Reference	-
Male	24	5	0.48 (0.05-4.65)	0.53
Time between onset of prolapsed hemorrhoids and hospital admission in hours	33.6 ± 23.2	39.0 ± 33.0	1.01 (0.98-1.04)	0.62
Anemia				
No	24	3	Reference	-
Yes	10	3	2.40 (0.41-13.98)	0.33
Operative time in minutes	49.1 ± 17.6	48.3 ± 24.2	1.00 (0.95-1.05)	0.92

\* $p < 0.05$  statistically significant.

opment of anal stricture. However, the severe complications of pyelophlebitis and sepsis are extremely rare. With proper and meticulous surgical technique, the complications of secondary hemorrhage and anal stricture are minimal.<sup>1,6-13</sup> Although conservative treatment has the advantage of leading to less morbidity, it tends to prolong suffering. Moreover, gangrenous ulceration or sloughing can occur and the patient may require surgery after several days of conservative treatment.<sup>15</sup>

In our study, there were many more men than women and this predominance was shown in other reports (Table 6). The reason may need further investigation.

The rate of complications in our study was similar to that of previous studies (Table 6). Most investigators have also found that there is no significantly higher incidence of complications, such as bleeding and anal stenosis needing further surgical intervention, after emergency hemorrhoidectomy than after elective operation.<sup>7,8,12,13</sup> Therefore emergency hemorrhoidectomy for acute hemorrhoidal crisis is a safe and suitable treatment.

Table 6 shows that a low incidence of stenosis was associated with a higher rate of recurrence. This is presumably because there is a higher risk of stenosis when the resection is more radical and, on the other hand, a higher chance of recurrence when the resection is insufficient. In Taiwan, most patients wish their hemorrhoids to be removed completely to avoid expe-

riencing the symptoms again. Only one man (2.5%) required anoplasty in this series. Therefore, we suggest that proper operative technique and adequate resection, such as our additional transverse excisions in the intervening area of internal hemorrhoids, should help prevent any recurrence of symptoms.

Our analysis showed that increased age was associated with a significantly elevated risk for the occurrence of late complications, including fecal impaction, abscess formation and anal stenosis. Although the number in our study was small, the outcome is still meaningful. Thus, we should pay additional attention to older patients when they have emergency hemorrhoidectomy for hemorrhoidal crisis; more frequent follow-up in an outpatient department is advisable.

Although not statistically significant, we found that the risk of early and late complications was about double in the patients with anemia. It is understandable that patients with anemia may experience the symptoms of hemorrhoids for a longer time. The longer existence of hemorrhoids results in persistent inflammation and fibrosis of the rectal mucosa. Anemia may also reduce the blood flow to the anoderm, resulting in ischemic changes. All of these factors will influence the surgical results.

The high rate of fever noted in our patients was surprising. This was also reported 30 years ago by Tinckler et al. and Mazier.<sup>6,7</sup> No recent study has

**Table 6. Complication rate of emergency hemorrhoidectomy: comparisons with the literature**

First author and reference number	Operative technique	No.	M:F	Complication rate (%)				
				Bleeding	Urine retention	Fever	Anal stenosis	Recurrent hemorrhoids
Tinckler <sup>6</sup>	Open hemorrhoidectomy	39	33:6			50.0	7.7	
Mazier <sup>7</sup>	Ferguson's type and four-quadrant hemorrhoidectomy	400	281:119	2.5		19.25	1.2	0.5
Hansen <sup>8</sup>	Milligan-Morgan type	25	18:7	8	0	0	4.0	8.0
Nieves <sup>1</sup>	Milligan-Morgan type	85	52:33	1.2	20.0	0	0	
Barrios <sup>9</sup>	Ferguson's type plus amputative hemorrhoidectomy	65	41:24	3.0	23.0		7.7	0
Wang <sup>10</sup>	Anoderm flap repair	56	51:5	0	14.2		5.3	0
Hald <sup>11</sup>	Limited hemorrhoidectomy	20	16:4	0			0	25.0
Eu <sup>12</sup>	Milligan-Morgan type	204	116:88	4.9			5.9	6.9
Ceulemans <sup>13</sup>	Milligan-Morgan type	104	54:50	3.9	10.6		6.7	1.8
Allan <sup>14</sup>	Milligan-Morgan type	25	16:9	8.0			4	4
Our results	Semiclosed hemorrhoidectomy	40	29:11	5.0	10.0	17.5	5.0	0

No. = number; M:F, male:female.

found this, perhaps because it has been ignored by the authors. All fevers in our patients were low grade, occurred the night of hemorrhoidectomy and subsided the following day. As Lal and Levitan have pointed out, hemorrhoidectomy may be followed by transitory bacteremia and low-grade fever as a result of the relatively constant release of bacteria into the bloodstream from a feeding focus.<sup>16</sup> LeFrock et al.<sup>17</sup> also reported an 8.5% rate of bacteremia following proctoscopy of patients with no evidence of lower intestinal disease. Our patients all had thrombosis or gangrene of prolapsed hemorrhoids; thus the local inflammation was more severe than with common prolapsed hemorrhoids. This may account for the high rate of transient low-grade fever in our patients.

Postoperative pain is a very subjective sensation, and the tolerance of pain for each patient is different. Although we administered oral analgesics routinely, the pain score of postoperative day 1 was still high. Therefore, sufficient and potent analgesics will be of great benefit to the patients. Our results did not demonstrate significant association between the pain score of postoperative day 1 and the early complications. However, we still consider that the postoperative pain correlates closely with early complications such as urinary retention. Most importantly, fear of pain is frequently the reason why patients delay seeking medical consultation and avoid hemorrhoidectomy, ultimately the symptoms can provoke a hemorrhoidal crisis.

## Conclusions

Emergency semiclosed hemorrhoidectomy with additional transverse excision for treating acute hemorrhoidal crisis was proved to be a suitable method of treatment in this series of 40 patients. Complications were minor and acceptable and the rate was similar to other studies. Even better, no recurrent hemorrhoids occurred in our study. However, we should pay special attention to older patients and the patients with anemia and require them to seek more frequent follow-up in outpatient departments.

## References

1. Nieves PM, Perez J, Suarez JA. Hemorrhoidectomy- How I do it: experience with the St. Mark's Hospital technique for emergency hemorrhoidectomy. *Dis Colon Rectum* 1977;20:197-201.
2. Eisenstat T, Salvati EP, Rubin RJ. The outpatient management of acute hemorrhoidal disease. *Dis Colon Rectum* 1979; 22:315-7.
3. Grace RH, Creed A. Prolapsing thrombosed haemorrhoids: Outcome of conservative management. *Br Med J* 1975;3:354.
4. Lewis AAM, Roger HS, Leighton M. Trial of maximal anal dilatation, cryotherapy and elastic band ligation as alternatives to haemorrhoidectomy in the treatment of prolapsing haemorrhoids. *Br J Surg* 1983;70:54-6.
5. Kang JC, Chung MN, Chao PC, Lee CC, Hsiao CW, Jao SW. Emergency stapled haemorrhoidectomy for haemorrhoidal crisis. *Br J Surg* 2005;92:1014-6.
6. Tinckler LF, Baratham G. Immediate haemorrhoidectomy for prolapsed piles. *Lancet* 1964;14:1145-6.
7. Mazier WP. Emergency hemorrhoidectomy- a worthwhile procedure. *Dis Colon Rectum* 1973;16:200-5.
8. Hansen JB, Jorgensen SJ. Radical emergency operation for prolapsed and strangulated haemorrhoids. *Acta Chir Scand* 1975;141:810-2.
9. Barrios G, Khubchandani M. Urgent hemorrhoidectomy for hemorrhoidal thrombosis. *Dis Colon Rectum* 1979;22:159-61.
10. Wang CH. Urgent hemorrhoidectomy for hemorrhoidal crisis. *Dis Colon Rectum* 1982;25:122-4.
11. Heald RJ, Gudgeon AM. Limited haemorrhoidectomy in the treatment of acute strangulated haemorrhoids. *Br J Surg* 1986;73:1002.
12. Eu KW, Seow-Choen F, Goh HS. Comparison of emergency and elective haemorrhoidectomy. *Br J Surg* 1994;81:308-10.
13. Ceulemans R, Creve U, Van Hee R, Martens C, Wuylts FL. Benefit of emergency haemorrhoidectomy: a comparison with results after elective operations. *Eur J Surg* 2000;166:808-12.
14. Allan A, Samad AJ, Mellon A, Marshall T. Prospective randomized study of urgent haemorrhoidectomy compared with non-operative treatment in the management of prolapsed thrombosed internal haemorrhoids. *Colorectal Dis* 2006;8:41-5.
15. Howard PM, Pingree JH. Immediate radical surgery for haemorrhoidal disease with extensive thrombosis. *Am J Surg* 1968;116:777-8.
16. Lal D, Levitan R. Bacteremia following proctoscopic biopsy of a rectal polyp. *Arch Intern Med* 1972;130:127-8.
17. LeFrock JL, Ellis CA, Turchik JB, Weinstein L. Transient bacteremia associated with sigmoidoscopy. *N Engl J Med* 1973;289:467-9.