

Original Article

Managements of an Anorectal Emergency: Experience from a Single Institution

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Key Words

Anorectal pain;
Anorectal abscess;
Hemorrhoidal crisis

Abbreviations

ED: emergent department;
GB injury: glycerin ball injury;
CI: confidence interval

Purpose. Acute anorectal pain is a distressful situation for a patient. To achieve a correct diagnosis and adequate management of acute anorectal pain in the emergency department is a challenge for physicians. The aim of this study is to perform a retrospective analysis of the management of anorectal emergencies at a single medical center.

Methods. The records of patients seen at the emergency department of Chi-Mei Medical Center between December 2010 and July 2012 with a chief complaint of anal, rectal, buttock, or perineal pain were retrospectively reviewed. The diagnosis, management in the emergency department, methods of surgical intervention, days of hospitalization, and follow-up were analyzed.

Results. The proportion of patients with acute anorectal pain seen in the emergency department was 0.18% (425/238,391). The major etiologies of acute anorectal pain were anorectal abscesses (50.35%) and hemorrhoids (41.18%), with a male predominance. Of the patients, 44.24% (188/425) required admission for surgical intervention. Bedside incision and drainage of anorectal abscesses had a 15% failure rate. Of anorectal abscess patients, 54.10% had fistula formation at the initial operation and underwent fistulotomy. The operative time, number of wedge resections, and complication rate of emergency hemorrhoidectomy were similar to that of elective hemorrhoidectomy. Emergency hemorrhoidectomy had a significantly shorter hospital stay compared to elective hemorrhoidectomy.

Conclusions. Anorectal abscesses and hemorrhoids crisis were the two most common etiologies of anorectal emergencies. With a well-experienced colorectal surgeon, emergent surgical intervention allows rapid relief of a patient's symptoms with a short hospital length of stay.

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Anorectal complaints of patients seen in the emergency department (ED) can be associated with great stress or embarrassment for the patient, and often lead to a delay in seeking treatment, with patients commonly attempting self-treatment or ignoring the pain. While most anorectal conditions are not life-

threatening, they may cause significant discomfort. Symptoms commonly include anal/rectal pain or soreness, bleeding, itching, or swelling. Patients often may make an incorrect self-diagnosis of hemorrhoids. Likewise, the physician may also quickly attribute their symptoms to hemorrhoids. To achieve a correct

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diagnosis and effective treatment is complex, and patients are typically managed by a colorectal surgeon.

In this study, we retrospectively reviewed the records of patients with anorectal pain seen at our ED to evaluate the clinical characteristics, management, and outcomes.

Patients and Methods

Between December 2010 and July 2012, 238,391 patients were seen at the ED of Chi-Mei Medical Center. Patients with chief complaint of anal, rectal, buttock, or perineal pain were identified from the computer database. All clinical and demographic data were collected from the medical records. Of the patients seen in the ED, 425 patients with a complaint of anorectal pain were evaluated by our colorectal surgeon. Information concerning the original causes of anorectal pain, vital signs, laboratory data, imaging studies, clinical course, management in the ED, and admission for surgical intervention was collected. Patients were categorized into two primary groups: those who received treatment in the ED without admission, and those who were admitted for surgical intervention. The reasons for admission, methods of surgical intervention, days of hospitalization, and post-operative follow-up were then analyzed. Additionally, during the study period, data of patients who underwent

elective hemorrhoidectomy were collected for comparative analysis.

Statistical analysis

Continuous data were presented as mean and standard deviation, and comparisons between groups were performed using the two-sample t-test. Categorical data were presented as absolute number and percentage, and compared by using the chi-square or Fisher's exact test, as appropriate. Statistical significant was considered when the value of $p < 0.05$. Data analyses were performed using SPSS 17.0 (SPSS Inc., Chicago, IL, USA.).

Results

The records of 425 patients were analyzed in this study. Anorectal emergencies composed 0.18% (425/238,291) of the cases seen in the ED. The major two etiologies of anorectal emergency were anorectal abscesses (214/425, 50.35%) and hemorrhoid disorders (175/425, 41.18%), with a male predominance (Tables 1, 2). Other etiologies of anorectal emergencies included Fournier's gangrene (24/425, 5.65%), glycerin ball injury (5/425, 1.18%), tumor (4/425, 0.94%), and anorectal trauma (3/425, 0.71%). Sixteen patients (16/425, 3.76%) received imaging studies, such as

Table 1. Patient demographic and clinical characteristics (N = 425)

Patients	Total	Admitted (n = 188)	Not admitted (n = 237)	<i>p</i>
Gender				0.0084
Male	322	154	168	
Female	103	34	69	
Age (mean ± SD)	46.97 ± 1.54	48.29 ± 15.85	45.83 ± 16.44	0.1201
Diagnosis				< 0.0001
Anorectal abscess	214	122	92	
Hemorrhoid	175	32	143	
Fournier's gangrene	24	24	0	
Glycerin ball injury	5	5	0	
Tumor	4	3	1	
Truma	3	2	1	
Imaging study	16	14	2	0.0004
Hospital stay, days		5.32 ± 1.22	-	
Total	425	188 (44.24%)	237 (55.76%)	

computed tomography (CT), for an uncertain or equivocal diagnosis. Of the 425 patients, 44.24% (188/425) required admission for surgical invention, and an anorectal abscess was the major reason for admission. The mean length of hospital stay was 5.32 ± 1.22 days (Table 1).

Of the 214 anorectal abscess patients, more than half (122/214, 57.01%) required admission for surgery. Of 92 anorectal abscess patients who were not admitted, 40 patients underwent bedside incision and drainage under local anesthesia. The others were discharged with oral antibiotics for the treatment of immature abscesses. However, 10 of these patients returned to the ED because their symptoms did not resolve. Six patients underwent bedside incision and drainage, which failed. Bedside incision and drainage of an anorectal abscess had a 15% (6/40) failure rate (Table 2). Most cases of acute exacerbation of hemorrhoids could be managed conservatively with analgesics, stool softeners, and topical agents. Thirty-two 32 patients were diagnosed with a hemorrhoidal crisis and underwent emergent hemorrhoidectomy.

In the admission group (Table 3), the majority of patients had a diagnosis of an anorectal abscess (122/188, 64.89%). Glycerin ball injury was predominant in the elderly population. Not surprisingly, patients with Fournier's gangrene had the longest hospital

stay of around 3 weeks. Anorectal abscesses included 77 perianal abscesses (63.11%), 34 ischiorectal abscesses (27.87%), and 11 deep post-anal abscesses (9.02%) (Table 4). The different subtype of anorectal abscesses had a significant difference in choice of operative method and recurrence ($p < 0.0001$ and $p < 0.0014$, respectively). At the initial surgery, 54.1% (66/122) of patients had fistula formation. In the perianal abscess subgroup, 71.43% of patients received a fistulotomy at the initial surgery. For ischiorectal abscesses, identification of fistula formation was difficult and majority of patients received only incision and drainage of a peri-proctal abscess. During outpatient follow-up, patients with ischiorectal abscesses had a higher probability of abscess recurrence. Among the different subtypes of anorectal abscess, the choice of operative method also had a role in recurrence ($p < 0.0357$). For patients with perianal and ischiorectal abscesses, the median duration of recurrence post-operatively were 6.00 months and 7.00 months, respectively. Deep post-anal abscesses had a shorter duration to fistula formation compared to the other two types of abscesses. As seen in Table 5, the rate of recurrence for patients receiving incision and drainage (23.21%) was greater than that of patients who received a fistulotomy (3.03%) ($p = 0.0009$). The average length of hospital stay for patients with an ano-

Table 2. Demographic and clinical characteristics of patients with an anorectal emergency who were not admitted (n = 237)

	Anorectal abscess (n = 92)	Hemorrhoid (n = 143)	Fournier's gangrene (n = 0)	GB injury (n = 0)	Tumor (n = 1)	Trauma (n = 1)
Male gender (%)	75 (81.52%)	92 (64.34%)	0	0	0	1 (100%)
Age (years, mean \pm SD)	42.38 ± 2.95	47.68 ± 2.85	0	0	73	72
Incision and drainage at bedside	40	--	--	--	--	--
Medical treatment	52	87	--	--	--	--
Imaging study	1	1	0	0	0	0
Unexpected return to emergency department	10	7	0	0	1	0

Table 3. Demographic and clinical characteristics of patients with an anorectal emergency who were admitted (n = 188)

	Anorectal abscess (n = 122)	Hemorrhoid (n = 32)	Fournier's gangrene (n = 24)	Glycerin ball injury (n = 5)	Tumor (n = 3)	Trauma (n = 2)
Male gender (%)	108 (88.52%)	24 (75%)	14 (58.33%)	3 (60%)	3 (100%)	2 (100%)
Age (years, mean \pm SD)	45.49 ± 2.42	44.31 ± 4.42	59.68 ± 6.44	80.4 ± 24.65	58 ± 41.34	56.5 ± 387.5
Hospital stay (days, mean \pm SD)	2.96 ± 0.42	1.59 ± 0.24	21.96 ± 5.86	2.8 ± 1.84	11 ± 25.93	1.5 ± 6.35
Imaging study	6	0	7	0	1	0

Table 4. Management of anorectal abscess subtypes (n = 122)

	Perianal abscess	Ischiorectal abscess	Deep post-anal abscess	<i>p</i>
Number of patients	77 (63.11%)	34 (27.87%)	11 (9.02%)	
Computed tomography prior to operation	2 (2.60%)	1 (2.94%)	3 (27.27%)	0.0113 ^a
Operative method				< 0.0001 ^a
Incision and drainage	22 (28.57%)	31 (91.18%)	3 (27.27%)	
Fistulotomy	55 (71.43%)	3 (8.82%)	8 (72.73%)	
Recurrence of anorectal abscess				0.0014 ^a
Yes	4 (5.19 %)	10 (29.41%)	1 (9.09%)	
Recurrence by operative method				
Incision and drainage	2 (2/22, 9.09%)	10 (10/31, 32.26%)	1 (1/3, 33.33%)	0.0357 ^a
Fistulotomy	2 (2/55, 3.64%)	0 (0/3, 0%)	0 (0/8, 0%)	
Duration to postoperative recurrence [months; median, (Q1, Q3)]	6.00 (2.5, 8.5)	7.00 (2.00, 9.00)	2.50 (2.50, 2.50)	0.7270 ^b

^a Fisher's exact test was applied.

^b Kruskal-Wallis test was applied.

Table 5. Relation between recurrence and operative method

	Operative method	Recurrence		<i>p</i>
		Yes	No	
	Incision and drainage	13 (23.21%)	43 (76.79%)	0.0009
	Fistulotomy	2 (3.03%)	64 (96.97%)	

rectal abscess was 2.96 ± 0.42 days. In the current study, 64.75% (79/122) of patients with an anorectal abscess ultimately developed a fistula.

Compared to patients receiving elective hemorrhoidectomy, a male predominance was noted in the emergent group ($p = 0.0022$). There was no significant difference in age, operative time, number of wedge resections, number of outpatient follow-up visits, and postoperative complications between patients who had emergent and elective hemorrhoidectomy (Table 6). The average length of hospital stay in emergency hemorrhoidectomy group (1.59 ± 0.67 days) was significantly shorter than that of the elective group (2.08 ± 1.11 days) ($p = 0.0009$).

Discussion

Diseases of the rectum and anus are common, and the prevalence in the general population is probably much higher than that seen in clinical practice since

most patients with symptoms referable to the anorectum do not seek medical attention. In this retrospective analysis, anorectal emergencies composed 0.18% of cases seen in the ED. Anorectal abscesses and acute exacerbation of hemorrhoids were the two major reasons for patients with anorectal pain being seen in the ED, with a male predominance. Other causes of anorectal emergency included Fournier's gangrene, glycerin ball injury, tumor, and trauma.

Anorectal abscesses are usually the result of cryptoglandular infections, and are the most common proctological disorder requiring immediate surgery seen in the ED. They are a frequent reason for surgery in hospitals.¹ Our findings are similar to those of previous studies. The examination and diagnosis of certain anorectal disorders can be challenging, and physical examination of the anorectum is often inadequately performed by physicians. Anorectal conditions are commonly misdiagnosed on initial evaluation. Assistance with patient positioning, good lighting, and analgesia are often necessary to achieve an adequate examination. Bedside incision and drainage of anorectal abscesses is a feasible method to rapidly relieve symptoms, but the failure rate in the current study was about 15%. In our series, more than half of anorectal abscesses required admission for surgical intervention. According to the cryptoglandular hypothesis suggested by Parks and Eisenhamer,² the anal glands situated in the intersphincteric space are the source

Table 6. Demographic and clinical characteristics of patients who received emergent versus elective hemorrhoidectomy

	Emergency hemorrhoidectomy (n = 32)	Elective hemorrhoidectomy (n = 237)	<i>P</i>
Male gender (%)	24 (75%)	108 (45.57%)	0.0022
Age (years, mean ± SD)	44.31 ± 12.26	47.79 ± 13.29	0.1618
Hospital stay (days, mean ± SD)	1.59 ± 0.67	2.08 ± 1.11	0.0009
Wedge resection (mean ± SD)	2.06 ± 0.98	2.35 ± 0.89	0.0965
Operative time (minutes, mean ± SD)	40.94 ± 15.83	42.36 ± 14.34	0.6027
Outpatient follow-up (visits, mean ± SD)	1.44 ± 0.33	1.72 ± 0.14	0.1812
Complications*	1 (3.13%)	11 (4.64%)	> 0.9999

* One patient in the emergency hemorrhoidectomy group presented with postoperative hemorrhage; 10 patients presented with postoperative hemorrhage and one patient presented with anal stenosis in the elective hemorrhoidectomy group.

of the infection that cause most abscesses. Obstruction of the ducts of these glands results in stasis and suppuration, which may lead to the development of an intersphincteric abscess. This abscess usually extends downward into the intersphincteric plane to emerge at the border of the anal canal, as a low intersphincteric (perianal) abscess, or extend laterally through the external sphincter muscle to enter the ischiorectal space, giving rise to a trans-sphincteric (ischioirectal) abscess. In our study, perianal abscesses were the most common type. About 70% of these patients simultaneously presented with fistula tract formation and underwent fistulotomy. The fistula recurrence rate was lower, at about 3.64%. Similar to a previous study, in patients with an anorectal abscess an attempt was made to locate the internal opening of the anal fistula, and a one-stage operation with a primary fistulectomy was performed and another admission was not required.³

An ischioirectal abscess, also known as a buttock abscess, was the second common type of anorectal abscess, and initial identification of a fistula tract is difficult. Therefore, the majority of these patients only undergo incision and drainage of the periproctal abscess at the initial operation. However, up to 30% of patients who received incision and drainage developed recurrence of the abscess around 7 months later. All of these patients presented with a horse-shoe, trans-sphincteric fistula tract with an internal opening at the 6 o'clock position of the anus. For this reason we have modified our surgical method for ischioirectal abscesses. In the past, the incision was made at the 3 or 9 o'clock position of the anus, which

was typically the fluctuant site of the abscess. However, the wound from the fistulotomy was usually long and very painful. Now, we make the incision at the medial dorsal border of the abscess (around the 5 to 7 o'clock position of the anus) and extend the incision to the abscess cavity for drainage. This short fistulotomy wound increases the ability to identify the internal opening at the 6 o'clock position of the anal canal.

Deep post-anal space abscesses and associated horse-shoe shaped fistula are unique presentations of anorectal sepsis.⁴ Infected anal glands connected to a crypt located near the posterior midline are the usual origin of the infection. The pathway of the infection extends through the lower portion of the internal sphincter and longitudinal muscles of the rectum to enter the deep post-anal space by passing between the deep and superficial components of the external sphincter muscles. However, some patient may present with an alternative pathway between the profunda portion of the external sphincter and the puborectalis muscles. At the onset, the abscess is confined to the deep post-anal space. The collection of pus in the deep post-anal space will elevate the levator muscles, and on digital rectal examination may be mistaken for a supra-levator abscess. When the abscess enlarges, the pus will migrate to either one or both ischioirectal spaces by passing between the levator ani and the superficial external sphincter muscle. The pus may extend simultaneously in a horse-shoe manner to involve both ischioirectal spaces. In some of our patients, at surgery the primary opening in the crypt was large enough to permit the post-anal abscess to spon-

taneously drain into the rectum, resulting in limited extension of pus in the ischioanal spaces. Hanley et al.⁵ reported that the primary opening is usually located in a crypt near the posterior midline, and not infrequently pus may be seen draining through the opening. A probe can be inserted into the primary opening and directed toward the coccyx and into the deep post-anal abscess cavity. A fistulotomy involving that portion of the fistulous tract from the primary opening to the deep post-anal abscess is performed by making an incision over the probe from the primary opening in the midline toward the tip of coccyx. This incision separates the superficial external sphincter muscle into halves, decompressing the pus-filled deep post-anal space. It also severs the subcutaneous external sphincter muscle and the lower portion of the internal sphincter distal to the fistulous tract, resulting in a fistulotomy from the primary opening to the abscess cavity, thus accomplishing the time-tested method of treating all anal fistulas. Para-anal incisions can be performed to drain the anterior portion of the abscess when necessary. According to their result, wounds healed in 5 to 12 weeks and the postoperative courses were uneventful. The operative defects of the posterior anal canal were minimal, and incontinence was not a problem.

In our experience, a high index of suspicion is required when patients present with severe anorectal pain and leukocytosis, but a normal appearance of the anus. Digital rectal examination may reveal no tender point in the perianal region, but a protruding tender mass at posterior rectal wall. Imaging studies are required for an uncertain diagnosis of deep post-anal abscess, and to determine their full extent. Of the patients requiring CT scans in our series, most were in the deep post-anal abscess group.

In our series, 18.29% (32/175) of acute hemorrhoidal disorders were diagnosed as a hemorrhoidal crisis. A hemorrhoidal crisis is characterized by acute pain, bleeding, inflammation, a foul-smelling discharge, and circumferentially irreducible hemorrhoids. It occurs because 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 ex-

ternal hemorrhoids. The resulting pain, swelling, and disability are dramatic and very painful.⁶ Treatments range from observation to the outpatient management in which limited to excision of the symptomatic quadrants is performed, or inpatient surgery, which can include multiple quadrant hemorrhoidectomy. Medical therapy may be prolonged with loss of patient productivity, and eventually surgical treatment may be required. Emergency hemorrhoidectomy has been traditionally avoided secondary to fears of increased rates of abscess formation, sepsis, hemorrhage, anal stenosis, and incontinence.^{7,8} However, non-operative treatment may also fail, and result in gangrene and sloughing, which mandate surgical intervention.^{9,10} Larger case-controlled studies have compared emergency hemorrhoidectomy for acute hemorrhoidal crisis with elective hemorrhoidectomy. In comparison to elective hemorrhoidectomy performed for symptomatic prolapsed hemorrhoids, emergency hemorrhoidectomy was found to result in similar rates of postoperative bleeding, anal stenosis, incontinence, and hemorrhoid recurrence.⁸ With proper and meticulous surgical technique, the complications of secondary hemorrhage and anal stricture are minimal.¹¹⁻¹⁵ Therefore, emergency hemorrhoidectomy for acute hemorrhoidal crisis has since been accepted by surgeons as a safe and effective procedure that allows for the rapid return of patients to a productive life. In our series, there was no significant difference in the operative time, number of wedge resections, and postoperative complications between the emergency and elective hemorrhoidectomy group. The average length of hospital stay in emergency hemorrhoidectomy group was significantly shorter than that of elective hemorrhoidectomy group. This may reflect the fact that emergency hemorrhoidectomy relieve patients' symptoms rapidly. The finding that of the current study showing that emergency hemorrhoidectomy for an acute hemorrhoidal crisis is safe and suitable are similar to those of a prior published study.¹⁶

Conclusion

Anorectal abscesses and hemorrhoids are the two

major causes of an anorectal emergency. Under the care of a well-experienced colorectal surgeon, emergent surgical intervention of an anorectal abscess or hemorrhoidal crisis can rapidly relieve a patient's symptoms with a short hospital stay.

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原 著

肛門急症之處理：我們的經驗和目前的做法—— 一個來自單一機構的回顧性臨床研究

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目的 急性肛門直腸疼痛是個令人苦惱、坐立難安的情形。在急診室裡，正確的診斷及處置急性肛門直腸痛是個充滿挑戰及棘手的問題。本篇研究的目的，是利用回顧性分析本院的經驗。

方法 從 2010 年 12 月至 2012 年 07 月，回顧性收集在本院急診室主訴為肛門痛、屁股痛或會陰痛的患者。關於病患的病史，臨床表現，診斷，影像學，手術治療方式，住院天數和術後追蹤進行分析。

結果 在急診室裡，急性肛門直腸疼痛病患的比例為 0.18% (425/238,391)。在急性肛門直腸疼痛患者中，肛門直腸膿瘍 (50.35%) 和痔瘡 (41.18%) 為兩大主要病因且以男性為居多。上述急性肛門直腸疼痛患者中，44.24% (188/425) 需要住院接受手術治療。在急診室病床邊施行肛門直腸周圍膿瘍切開引流術有 15% 的失敗率。在住院接受手術的肛門直腸膿瘍患者中，54.10% 的病患在手術時就可以發現有瘻管形成，而接受瘻管切開術。緊急痔瘡切除手術相較於常規痔瘡手術，在手術時間，痔瘡楔形切除的數目，術後的併發症上，兩者是相似的，但卻有較短的住院天數。

結論 肛門直腸膿瘍和痔瘡危機是肛門直腸急症的兩個主要病因。由經驗豐富的大腸直腸外科醫師執行緊急手術，可以在短暫的住院時間中，快速的解除病人不適的疼痛症狀。

關鍵詞 肛門直腸疼痛、肛門直腸膿瘍、痔瘡危機。