Complicated Perianal Sepsis

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Abstract Management of benign anorectal conditions like abscesses and haemorrhoids is usually uneventful. However, complicated perianal complications can result and have sparsely been reported in literature. Hereby, we report a series of seven patients who presented with rare sequelae like necrotising fasciitis, intraperitoneal or retroperitoneal involvement. All patients responded well to surgical management. Accordingly, complicated perianal sepsis warrants a timely and aggressive surgical intervention.

Keywords Perianal sepsis · Anorectal · Necrotising fasciitis

Introduction

Spread to the peritoneal cavity and retroperitoneal space as well as necrotising fasciitis from anorectal abscesses and after treatment of haemorrhoids is rare and carries a substantial morbidity and even mortality [1–3].

Aim

We describe the presentation and management of seven such patients who presented with these complicated perianal problems.

Patients and Methods

We reviewed the records of these patients who were managed in the Department of Surgical Gastroenterology and Liver Transplantation, Sir Ganga Ram Hospital during the years 2010 and 2011 for complicated perianal conditions with associated intraperitoneal, retroperitoneal involvement or necrotising fasciitis. Their demographic variables, associated comorbidities and main presenting symptoms with special emphasis on the history of previous interventions were noted. All patients were subjected to a thorough physical examination after resuscitation. Important points noted on examination were the presence of haemodynamic instability and findings of rectal and abdominal examination. Basic laboratory tests such as a complete blood count, prothrombin time, blood urea nitrogen, serum creatinine, electrolytes and liver function tests including serum albumin were performed. A blood culture was sent in patients who presented with fever or leucocytosis and a broad spectrum antibiotic introduced and later changed according to the culture report. Cross-sectional imaging either a computed tomography scan or magnetic resonance imaging was performed based on the clinical presentation. A decision to operate was taken on the basis of clinical and imaging findings. All patients were subjected to laparotomy or laparoscopy based on history, clinical examination or imaging findings. Appropriate tissue and fluid culture were sent at the time of surgery.

Results

There were six males and one female whose average age was 56 years (range 39–76 years).

Presentation

Six patients had a history of previous surgical procedures performed for benign anal pathology. These included

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Table 1 The clinical profile, diagnosis and management of the seven patients in our series

	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5	Patient 6	Patient 7
Prior intervention	–	Fistulotomy	Fistulotomy	Drainage of gluteal abscess	Rubber band ligation of haemorrhoids 20 days	Fistulotomy	Fistulotomy
Time of presentation from prior intervention	–	3 months	4 months	3 days	–	1.5 months	5 days
Comorbidity	–	Hypothyroid	–	HTN	–	PVD ^e	–
Hemodynamic instability	–	–	–	–	–	–	–
Abdominal symptoms	+	–	–	+	+	+	+
Abdominal signs	–	–	–	Peritonitis	Faecal fistula	Peritonitis	Distension
Type of anorectal abscess	IR, SL	IR	IR	IR (horse shoe shaped)	IR ^f	IR	IR
Per rectal findings	Ischiorectal abscess with supralelevator extension involving the left perianal region	Multiple slough covered perianal ulcers surrounding the anal canal, internal fistulous openings at 5, 7 and 12 o'clock positions, sphincter tone decreased	Scar mark of previous surgery, opening at 3 o'clock position with surrounding induration	Three slough covered ulcers with surrounding erythema, decrease in sphincter tone	Perianal erythema and tenderness at 9 o'clock	Large ulcer posterior to anal canal, involving perianal muscle and soft tissue, sphincter tone decreased	Scar mark of previous surgery, opening at 5 o'clock position with surrounding induration
RP involvement	+	–	+	+	+	–	+
IP involvement	+	–	–	+	–	+ ^b	–
Associated fistula	–	High TS	ES	–	–	–	High TS
Neurotising fasciitis	–	+	–	+	–	+	–
Culture and organism grown	No tissue culture sent	No tissue culture sent	No tissue culture sent	Pus culture negative	No tissue culture sent	No tissue culture sent	Pus culture— <i>Escherichia coli</i>
Antibiotic use	Empirical cephalazone + subcutaneous imipenem later metronidazole	Empirical cephalazone + subcutaneous imipenem later metronidazole	Empirical cefotaxime + metronidazole	Empirical cephalazone + subcutaneous imipenem later Imipenem, metronidazole	Empirical cefotaxime + metronidazole	Empirical cephalazone + subcutaneous imipenem later imipenem, metronidazole	Culture based antibiotic amikacin ×5 days
Duration of use (in days)	14	7	5	14	5	7	5
Final diagnosis	IR and SL abscess, RP, IP collection	IR abscess, high TS fistula, NF	IR abscess, RP collection, ES fistula	IR abscess, RP, IP collection, NF	Perianal cellulitis, RP collection, enterocutaneous fistula ^a	IR abscess, NF, gangrene caecum and ascending colon	IR abscess, RP collection, high TS
Management	Laparotomy, drainage and diversion colostomy	Debridement, seton placement and laparoscopic diversion colostomy	Drainage of collection, laparoscopic diversion ileostomy and seton placement	Drainage of collection, debridement and laparoscopic diversion ileostomy	Drainage, laparoscopic diversion ileostomy	Drainage, debridement, laparotomy and resection and anastomosis with diversion ileostomy	Drainage, laparoscopic diversion ileostomy and seton placement ^c
Morbidity ^d	II, IV	II	I	II, IV	II	II	II

HTN hypertension, IR ischiorectal abscess, SL supralelevator, RP retroperitoneal, IP intraperitoneal, TS trans-sphincteric, ES extra-sphincteric, NF necrotising fasciitis, PVD peripheral vascular disease

^a Enterocutaneous fistula arising from extraperitoneal rectum

^b Bowel gangrene involving caecum and ascending colon

^c Seton placement done 4 months after drainage and diversion

^d Morbidity using Clavien-Dindo grading

^e History of iliac artery stenosing and aortofemoral bypass, vascular patency confirmed

^f Presented with cellulitis initially

procedures performed for an anal fistula in four, perianal abscess drainage in one and rubber band ligation in one patient, respectively. The duration between the initial procedure and time of presentation ranged from 3 days to 4 months. The main presenting symptoms were pain and perianal discharge in six, abdominal pain in four, fever in two, perianal pain without discharge and faecal incontinence in one patient each. Three patients had an associated comorbidity such as hypothyroidism, hypertension and peripheral arterial disease (a history of iliac arterial stenting and aortofemoral bypass). All except two patients were hemodynamically stable at presentation. One of the unstable patients was also on ventilatory support. On examination, five patients had abnormal abdominal findings—signs of peritonitis in three, an enterocutaneous fistula and distended abdomen in one patient each. Anorectal examination revealed a discharging perianal abscess and necrotising fasciitis in three patients each, a reduced sphincter tone in two patients and perianal cellulitis in one patient (details in Table 1).

Preoperative Evaluation

The main laboratory abnormalities were a raised total leucocyte count ($>11,000/\text{mm}^3$) and a low serum albumin ($<3.5 \text{ g } \%$) in six patients each and a slightly raised creatinine and dyselectrolytemia in one patient. None of the patients were immunocompromised. Preoperative imaging in the form of computed tomography (CT) scan and magnetic resonance

imaging (MRI) was performed in five and two patients, respectively. The CT scan (non-contrast in one) findings included a retroperitoneal collection in three patients (Fig. 1). In the other two patients, contrast extravasation from the rectum and prominent bowel loops were the main findings. MRI revealed a high fistula in two patients, one of which was associated with a retroperitoneal collection (Fig. 2).

Surgical Management

Three patients had additional findings at the time of surgery—an associated intraperitoneal collection in two and bowel gangrene in one patient. The surgical management consisted of laparoscopic assisted procedures in five and laparotomy in two patients. A diversion stoma was performed in all—ileostomy in five and colostomy in two (transverse and sigmoid in one each) patients. A seton was initially placed in two patients.

Outcome and Follow-up

Postoperatively, five of the seven patients were managed in the intensive care unit for 2–16 days. Antibiotics were started on an empirical basis and continued until after 48 h of resolution of fever or leucocytosis. Their average hospital stay was 13 days (range 8 to 24 days). None of the patients died after operation while all patients had some postoperative morbidity. All patients were followed up for an average of

Fig. 1 CT angiography of patient 1. **a** Arrow showing perivesical collection. **b** Arrow showing retroperitoneal collection. **c** Arrow showing perirectal collection

Fig. 2 MRI of patient 2. **a** Arrow showing perirectal inflammatory changes. **b** Arrow showing internal fistulous opening. **c** Arrow showing air containing perirectal collection

18.5 (range 10–30) months. One patient died 4 months after the procedure due to an unrelated cause. Five patients have undergone closure of their stoma. One of these who developed a high fistula in ano 1 month after stoma closure was successfully managed with seton placement. One of the patients awaiting stoma closure is on regular perineal exercises for reduced sphincter tone (Fig. 3).

Discussion

Perianal abscesses usually present with symptoms of severe perianal pain, fever and sometimes discharge. The key to their management is adequate and timely drainage. The main concern following drainage of an anorectal abscess is a fistula in ano. Rarely, they can have lethal sequel like necrotising fasciitis or very rarely spread either to the peritoneal or retroperitoneal spaces.

We managed seven patients with complicated perianal sepsis. All except one occurred after a previous surgical intervention. Two of these presented with a simultaneous intraperitoneal and retroperitoneal extension of the sepsis, of which one occurred spontaneously and the other after drainage of a gluteal abscess. The latter also had an associated necrotising fasciitis. Three patients had a retroperitoneal collection, of which a previous operation for an anal fistula was done in two and rubber band ligation of haemorrhoids in one patient. Of the remaining two patients who presented with necrotising fasciitis, one was found to have bowel gangrene.

Hanley et al. reported a single case of retroperitoneal involvement in 33 cases of supralelevator abscesses [2]. Zaveri et al. reported a young male without any comorbidity who presented with a retroperitoneal extension of a perianal abscess (in spite of initial drainage) as manifested by continuing sepsis, abdominal distension and pain [1]. He required a lumbar incision for its drainage based on the X-ray finding of gas in the retroperitoneum, but died. In our study, retroperitoneal

Fig. 3 Postoperative photographs of patients 1 and 2 showing well-healed perianal areas

collections resulted from a supralelevator collection and as an extension of a gluteal abscess in one case each and were associated with high trans-sphincteric and extra-sphincteric fistulae in one case each. The first two of these presentations are similar to that described by Hanley et al. and Zaveri et al. A supralelevator collection occurring in conjunction with a high fistula and consequently spreading to the retroperitoneum can explain the latter two presentations.

McCloud et al. reviewed 38 patients who presented with sepsis following treatment of their haemorrhoids [3]. Six of these patients presented with retroperitoneal gas and oedema. The postprocedural warning symptoms of this are fever, perineal pain and urinary retention, which were present in our patients and should always be kept in mind.

A combined intraperitoneal and retroperitoneal extension was seen in two of our patients. The spread to the peritoneal cavity can be due to a small breach in the peritoneum because of inflammation and necrosis and undetected intra-abdominal pathology. This was managed by lavage and faecal diversion.

Necrotising fasciitis is a serious and uncommon sequelae of an anorectal abscess. Moorthy et al. reported eight patients of ischiorectal abscesses with necrotising perineal involvement [4]. The mean age of their patients was 51 years and all were male. Five were diabetics and three had a history of incision and drainage. A colostomy was fashioned in four of their patients either at the time of initial debridement or at a later date, and all these had a documented improvement. The presence of systemic sepsis at presentation, diabetes mellitus, high blood urea and creatinine and low serum albumin was associated with mortality while performance of a colostomy favoured survival. Others have also recommended performance of a colostomy in such situations [5, 6]. In our study, in three patients presented with necrotising fasciitis, two of whom were hemodynamically unstable and one required ventilatory support. All of them had a previous history of intervention—fistulotomy in two and drainage of an abscess in one. None of the patients were immunocompromised, had diabetes mellitus or deranged renal functions, but all had hypoalbuminemia. Two of these patients had a loss of

sphincter tone on rectal examination. One of these patients had associated retroperitoneal and intraperitoneal collections. Two patients were subjected to laparoscopy while the third was found to have gangrene bowel on laparotomy. The latter patient was a known case of peripheral arterial disease and underwent resection and anastomosis with a proximal diversion. All these patients survived despite being older and having risk factors at presentation like hypoalbuminemia and hemodynamic instability, probably due to timely intervention and performance of an ileostomy in all patients from the outset.

Conclusion

Retro- and intraperitoneal spread and necrotising fasciitis are rare sequelae of perianal abscesses or after haemorrhoidectomy. Aggressive management in the form of debridement, drainage of collections along with faecal diversion helps in achieving an acceptable outcome.

References

1. Zaveri JP, Nathani RR, Mathure AB (1987) Ano-rectal abscess with retro-peritoneal spread (a case report). *J Postgrad Med* 33(2):97–98
2. Hanley PH (1979) Anorectal supralelevator abscess-fistula in ano. *Surg Gynecol Obstet* 148(6):899–904
3. Moorthy K, Rao PP, Supe AN (2000) Necrotising perineal infection: a fatal outcome of ischiorectal fossa abscesses. *J R Coll Surg Edinb* 45(5):281–284
4. McCloud JM, Jameson JS, Scott AN (2006) Life-threatening sepsis following treatment for haemorrhoids: a systematic review. *Colorectal Dis* 8(9):748–755
5. Palmer LS, Winter HI, Tolia BM, Reid RE, Laor E (1995) The limited impact of involved surface area and surgical debridement on survival in Fournier's gangrene. *Br J Urol* Aug 76(2):208–212
6. Kovalcik PJ, Jones J (1983) Necrotizing perineal infections. *Am Surg* 49(3):163–166