

## Research Article

# Peri-Anal Sepsis in the Neutropenic Patient – Strategy Revisited

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**Abstract**

Mortality rates for neutropenic patients with peri-anal sepsis are high, but there is no consensus in the literature as to the optimal management strategy. At Leicester Royal Infirmary, UK, we have adopted a multidisciplinary approach as standard, with broad-spectrum antibiotics, peri-anal examination with debridement if necessary, and routine defunctioning colostomy. Eleven patients were treated according to this protocol between January 2001 and December 2015, with 9/11 full recovery from the sepsis and the procedure, and 5 subsequently having colostomy reversal. In an area of relatively scant evidence, we conclude that these patients should not be denied a surgical procedure.

**INTRODUCTION**

Peri-anal sepsis is potentially fatal in patients with neutropenia, with mortality rates as high as 57% [1]. Given a quoted prevalence of between 2 and 8% [2,3] it is not uncommon for the general or colorectal specialist surgeon to be involved in the management of these patients. Yet no consensus exists on optimum treatment, with the literature both limited and dated. Whilst some authors advocate non-operative management with broad-spectrum antibiotics, [3] others recommend aggressive surgical intervention [4]. Unlike other conditions in which severe peri-anal sepsis is a feature, there is no clear mandate for colonic defunctioning in this situation.

At Leicester Royal Infirmary, UK, a single hospital with tertiary colorectal and haematology units, neutropenic patients with life-threatening peri-anal sepsis are standardly managed multi-disciplinary with combination broad-spectrum antibiotics, peri-anal examination under general anaesthetic, directed-local debridement and faecal diversion.

**MATERIALS AND METHODS**

A prospective database is maintained in the department of haematology of patients with neutropenic sepsis, from which all patients with concurrent peri-anal sepsis could be identified from the fifteen years between January 2001 and December 2015 in our centre.

The medical notes, relevant histological and radiological results were reviewed of all patients with neutropenic peri-anal sepsis.

Patients are admitted under the care of a haematologist, and the management strategy begins with isolation and fluid resuscitation of the individual, followed by blood cultures and the swift commencement of broad-spectrum antibiotics. Early consultation with a surgeon takes place, in liaison with a colorectal nurse-specialist who counsels the patient regarding stoma formation, with marking of an appropriate abdominal site. Formal peri-anal examination is performed under general anaesthetic with the patient in the lithotomy position, and drainage with debridement is clinically indicated in the presence of in duration or swelling which may be in the presence of florid erythema. Temporary faecal diversion is universally performed with a loop sigmoid colostomy, with a view to reversal once the sepsis has resolved. The full course of antibiotics is completed.

**RESULTS**

Eleven patients were identified who met the inclusion criteria (Table 1). Acute myeloid leukaemia was the haematological diagnosis in 9 of the patients, and 8 of these were undergoing chemotherapy at the time of presentation with neutropenic peri-anal sepsis. One patient with acute myeloid leukaemia and two with Non-Hodgkin lymphoma did not receive chemotherapy at the time of presentation.

When neutropenic sepsis was first identified, all patients were treated with broad-spectrum antibiotics. Ten patients with abscess formation also underwent incision and drainage of the abscess with debridement. One patient with mild peri-anal cellulitis in isolation did not undergo a drainage procedure, but all eleven patients had faecal diversion from the area of sepsis by means of loop sigmoid colostomy.

**Table 1:** Summary of characteristics of six patients with neutropenic sepsis treated for peri-anal sepsis at Leicester Royal Infirmary between January 2001 and December 2015.

Sex	Age (years)	Haematological diagnosis	Chemotherapy	Peri-anal condition – Surgical drainage	Type of stoma	Recovery from sepsis	Reversal of stoma
F	25	Acute myeloid Leukaemia	Yes	Peri-anal abscess – Yes	Loop sigmoid colostomy	Yes	24 Months
F	31	Acute myeloid Leukaemia	Yes	Peri-anal abscess – Yes	Loop sigmoid colostomy	Yes	No
M	39	Acute myeloid Leukaemia	Yes	Peri-anal abscess - Yes	Loop sigmoid colostomy	Yes	28 Months
F	41	Acute myeloid Leukaemia	Yes	Cellulitis only - No	Loop sigmoid colostomy	Yes	6 months
M	41	Diffuse large B cell lymphoma	No	Peri-anal abscess - Yes	Loop sigmoid colostomy	Yes	No
M	47	Non-Hodgkin Lymphoma	No	Peri-anal abscess - Yes	Loop sigmoid colostomy	No	No
M	55	Acute myeloid Leukaemia	No	Ischiorectal abscess - Yes	Loop sigmoid colostomy	Yes	22 Months
M	58	Acute myeloid Leukaemia	Yes	Peri-anal abscess - Yes	Loop sigmoid colostomy	Yes	No
M	60	Acute myeloid Leukaemia	Yes	Ischiorectal abscess - Yes	Loop sigmoid colostomy	Yes	17 Months
M	69	Acute myeloid Leukaemia	Yes	Peri-anal abscess - Yes	Loop sigmoid colostomy	Yes	No
M	68	Acute myeloid Leukaemia	Yes	Peri-anal abscess - Yes	Loop sigmoid colostomy	No	No

Nine patients (9/11 – 81.8%) recovered from neutropenic peri-anal sepsis in this series. Two patients died within 30 days of defunctioning stoma formation (on day 12 and day 25 post operatively-both secondary to progressive sepsis). Five patients underwent colostomy reversal (range 6 to 28 months). The remaining four patients were not deemed fit for colostomy reversal and eventually succumbed to their primary haematological disease (Survival range from 15 weeks to 52 weeks post defunctioning stoma formation).

## DISCUSSION

The immune dysfunction caused by the conditions themselves in addition to the treatment regimes; render patients with haematological neoplasia susceptible to peri-anal sepsis. Neutropenia predisposes to bacterial infection, and as its duration can be variable this can subsequently impair both healing and speed of recovery [1,5]. Micro vessel thrombosis as a result of neoplastic infiltration may also encourage an ischaemic environment in which sepsis can readily flourish [6].

Immunocompromised patients who develop peri-anal sepsis do not present in the same way as the healthy individual;

neutropenic patients often do not exhibit the classic signs of abscess formation. Instead, the general signs of sepsis (fever, tachycardia) are accompanied by local pain and erythema, rather than by true fluctuant swelling [4]. It is therefore imperative that immune compromised patients with signs of systemic sepsis and local peri-anal pain be commenced on broad-spectrum antibiotics early, in conjunction with urgent surgical consultation.

It is probably outdated in the face of modern treatment for haematological neoplasms to advocate that management should be solely medical because aggressive surgical treatment of peri-anal sepsis does not ultimately alter the prognosis of the underlying malignant condition [6]. It has been shown that operating on this group of patients does not carry an excessive morbidity or mortality, and in agreement with our data, other series have shown that where patients with neutropenic peri-anal sepsis are treated operatively, they do make a full surgical recovery, suggesting that a peri-anal procedure should not be denied [1,2,5].

The optimal surgical strategy has been the subject of some debate, with some authors favouring a local procedure in isolation,

while others recommend faecal diversion in selected cases [7]. Defunctioning following local debridement is commonplace in other instances of severe peri-anal sepsis, such as in Crohn's disease, with the rationale being to prevent further soiling and infection of the wound during healing [8]. Four patients in our series did not have their colostomies reversed; they died as a result of their haematological condition before reversal could be considered (range from 15 weeks to 52 weeks).

## CONCLUSION

There is a paucity of published evidence to direct the management of these patients, and ours' is an admittedly small series. In the absence of a large evidence-base, it has been the standard practice in our centre consisting of tertiary colorectal and haematology services, to adopt an aggressive antimicrobial and surgical strategy, with formal local peri-anal examination under anaesthetic (usually with debridement) with defunctioning loop colostomy. This strategy has resulted in universal surgical and peri-anal recovery and survival from the neutropenic sepsis, with stoma reversal possible where the haematological malignancy is survived.

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