

# Auditing the Routine Microbiological Examination of Pus Swabs From Uncomplicated Perianal Abscesses: Clinical Necessity or Old Habit?

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## Abstract

**Background:** Obtaining pus swabs from perianal abscesses after incision and drainage for subsequent microbiological analysis is traditionally performed by general surgeons. Our aim is to assess the current practice in our institution, emphasizing on whether pus swabs were sent or not, as well as to identify any associations between the revealed microbiology and the occurrence of immediate post-operative complications and re-admission rates with fistula-in-ano up to 12 months post the emergency drainage. Finally, we aimed to identify if the any members of the surgical team reviewed at any stage post-operatively the results of the microbiological examination of the obtained pus swabs and if that resulted in changes of the patient management.

**Methods:** We reviewed the operative findings and perioperative antimicrobial management of all patients within our institution that required surgical treatment of perianal abscesses over a 6-week period and re-assessed them after 12 months from the performed drainage, with respect to re-admission and identification of occurred fistula-in-ano.

**Results:** A total of 24 patients met our inclusion criteria. Pus swabs were sent in 66.7% of cases and only a third of the requested microbiology reports were reviewed by a part of the surgical team. All patients were discharged prior to the release of the microbiology results with no subsequent change in the management plan. We did not find any consistent association between the microbiology results and re-admission with perianal abscess, with or without fistula-in-ano.

**Conclusions:** We do not recommend routine use of pus swabs when draining perianal abscesses unless clinical concerns arise, including recurrent perianal sepsis, immuno-compromised status or extensive

soft tissue necrosis, especially when these features are associated with systemic sepsis.

**Keywords:** Proctology; Abscess; Fistula; Pus swab; Microbiology; Perianal; Anorectum

## Introduction

Perianal sepsis is one of the most common general surgery emergencies and in the majority of cases a surgical incision and drainage is the mainstay of treatment [1]. It is widely accepted that unless the operating surgeon has substantial experience in coloproctology, even in cases where the perianal abscess is obviously complicated by the presence of perianal fistula, the emergency treatment is the adequate drainage of the abscess and re-assessment of the patient in the outpatient clinic for further imaging or additional interventions to treat the perianal fistula [2, 3].

During the emergency drainage of the perianal abscess, it is a common practice to obtain pus swabs from the explored cavity for subsequent microbiology analysis. Traditionally, the presence of gut-derived microbiota in the examined sample was believed to be associated with a higher likelihood of developing fistula-in-ano [4, 5]. However, there is mounting evidence in the literature questioning the above-mentioned association [6, 7]. Moreover, in common practice the majority of the patients are discharged 24 - 48 h after the procedure, with an institutional variance regarding the use of course of antibiotics [8]. Therefore, it is unlikely that the surgical team is able to review the microbiology results from the analysis of the pus swabs taken intra-operatively and determine an antibiotic treatment course based on antibiograms, as the cultures are usually available after the patient has been discharged.

The purpose of our study is to assess the current practice regarding routine use of pus swabs from uncomplicated perianal abscesses in our institution drained on emergency basis, emphasizing on whether pus swabs were sent or not, as well as the investigate any associations between the revealed microbiology and the occurrence of immediate post-operative complications and re-admission rates with fistula-in-ano up to 12 months post the emergency drainage. Finally, we aimed to

Manuscript submitted March 18, 2020, accepted April 3, 2020  
Published online June 18, 2020

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doi: <https://doi.org/10.14740/gr1279>

**Table 1.** Detailed Summary of the Microbiology Results From the Obtained Pus Swabs

No. of patients	Microbiology result	Antibiotic sensitivity
N = 5	No growth occurred after incubation	Non-applicable
N = 6	Mixed anaerobes	Sensitive to metronidazole
N = 2	Mixed skin organisms	No antibiogram performed
N = 1	Mixed anaerobes and <i>Streptococcus anginosus</i> (heavy growth)	Sensitive to flucloxacillin and metronidazole
N = 1	Mixed anaerobes, <i>E. coli</i> (heavy growth), <i>Streptococcus anginosus</i> (heavy growth)	Sensitive to penicillin and metronidazole
N = 1	<i>Staphylococcus aureus</i> (heavy growth)	Sensitive to flucloxacillin

identify if the any members of the surgical team reviewed at any stage post-operatively the results of the microbiological examination of the obtained pus swabs and if that resulted in changes of the patient management.

## Materials and Methods

We conducted a retrospective study including patients who underwent examination under anesthesia of the rectum and incision and drainage of perianal abscesses, with intra-operative rigid sigmoidoscopy, during a 6-week period in our hospital. The patients were identified using the daily summaries with the emergency general admissions, produced by the on-call team of each day. Our exclusion criteria set comprised of the presence of previous admissions with perianal sepsis, immunosuppressive/immunoregulating medications, known inflammatory bowel disease and known immunosuppressive or haematological disorder apart from those affecting solely the red blood cells production and function. We also excluded cases where intra-operative rigid sigmoidoscopy was not recorded to have been performed intra-operatively and cases where the team had obtained pre-operatively peripheral blood cultures, implying the presence of clinically profound sepsis.

Our hospital's electronic system containing all the examinations, paraclinical investigations, and clinical letters and discharge summaries for registered patients enables the clinical staff to assess if any of the laboratory tests ordered at any time have been reviewed by anybody who has access to the patient's electronic record. Therefore, using this system we could verify not only if microbiology analysis was requested after the incision and drainage of the abscesses, but also if the result was at any time reviewed by a member of the surgical team. Also, through our electronic records we were able to identify any further emergency/planned re-admissions, as well as letters generated from the outpatients' clinic that were related to the emergency drainage and immediate or delayed relevant complications, focusing on the detection of perianal fistulating disease.

## Results

A total of 24 patients were included in our study sample, 10 men and 14 women, with an average age of 39.4 years (16 - 84

years old). Pus swabs for microbiology analysis were sent in 16/24 (66.7%) of cases. In 2/24 cases, clinical examination and rigid sigmoidoscopy revealed the presence of fistula-in-ano; on both occasions a drainage seton was inserted. A summary of the microbiological results obtained from the pus swabs which were sent to culture, as well as the produced antibiograms, can be found in Table 1. Of note, the microbiology results until the time point of 12 months post the emergency abscess drainage had been reviewed in only 5/16 (31.25%) of cases where pus swabs were sent for cultures.

Immediate post-operative complications did not occur in any case and all patients were discharged within a maximum of 2 days post the abscess drainage. Using the electronic patient record system from our hospital, we identified any records for further clinical attendances (re-operations, outpatients' consultation and planned admissions); our search yielded that four patients came back for re-operation with recurrent perianal abscess, three with apparent accompanying fistula-in-ano and one with isolated recurrent perianal abscess and absence of apparent perianal fistula. It should be noted that two of the three patients re-admitted with perianal abscess and fistula-in-ano were found to have perianal fistula during the initial operation and had seton inserted apart from the abscess drainage. No consistent association between the microbiology results and the re-admission with recurrent perianal abscess was demonstrated.

## Discussion

Our study revealed that sending pus swabs from uncomplicated peri-anal abscesses drained on emergency basis is not performed routinely but is still occurring in the majority of cases. However, our records demonstrated that all of the patients were discharged prior to the release of the microbiological examination and antibiograms. Moreover, the microbiology results were reviewed by a clinician in only one-third of cases. The latter is of particular importance as it suggests the lack of clinical significance in following paraclinical results that will not change the patient's post-operative management (i.e. amendment of oral antibiotics when required, expedited post-operative follow-up appointment etc.). We believe that unless there are specific clinical concerns, such as recurrent admissions with perianal sepsis, immuno-compromised status or extensive soft tissue necrosis, especially when resulting in

systemic compromise, routine obtainment of pus swabs should not be obtained as firstly the majority of patients will be discharged prior to the release of the results and therefore they make no impact on the clinical management of the patient and secondly there is no consistent association between the microbiology results and the re-admission rate with recurrent perianal abscess.

### Acknowledgments

None to declare.

### Financial Disclosure

None to declare.

### Conflict of Interest

None to declare.

### Informed Consent

Not applicable.

### Author Contributions

LL, AME, and PL contributed to the literature research and writing of manuscript. LK, AA, and LA contributed to the editing and reviewing of the manuscript. CS was the study mentor and contributed to critical revision of the manuscript.

### Data Availability

The authors declare that data supporting the findings of this study are available within the article.

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