

Postoperative packing of perianal abscesses following incision and drainage

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Abstract

A best evidence topic in general surgery was written according to a structured protocol, to address the question: in adult patients with perianal abscesses, should postoperative wound packing be undertaken considering the rates of pain experienced, wound healing and abscess recurrence? The literature search identified 159 papers on Ovid, Embase and Medline and 48 on PubMed. These were independently screened, and three articles were included in this review as these offered the best information to answer the question. One was a systematic review without meta-analysis, one was a randomised controlled trial and one was a multicentre observational study. Review of these articles led the authors to conclude that routine postoperative packing of perianal abscesses following incision and drainage is costly, associated with increased pain and confers no protection against recurrence of abscesses or formation of fistulae.

Key words: Incision and drainage; Perianal abscesses; Postoperative wound care; Wound packing

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Introduction

A perianal abscess is a collection of pus under the skin surrounding the anus (Gosselink et al, 2015). The cryptoglandular theory, popularised by Eisenhammer (1978), describes the pathogenesis of these abscesses as downward extensions of septic foci into the perianal skin, resulting in abscess formation. Parks et al (1976) elaborated on this theory to describe formation of anorectal fistulae as the chronic sequelae of acute perianal disease. These abscesses are relatively common, with an estimated annual incidence of between 14 000 and 20 000 in the adult population of the UK (Sahnan et al, 2017). Although these abscesses often arise de novo, underlying pathology such as Crohn's disease, immunosuppression, poor glycaemic control, hidradenitis suppurativa, trauma and malignancy have all been implicated as potential risk factors (Sarofim and Ooi, 2022).

Traditional management involves incision using a linear, elliptical or cruciate approach, cavity drainage, derroofing and curettage followed by intraoperative packing of the cavity with a non-adhesive alginate dressing, allowing wound healing by secondary intention (Whiteford, 2007). Surgeons who use this technique cite haemostasis, prevention of wound closure and reduced recurrence as justifications (Dinah and Adhikari, 2006), but there is very little evidence for the use of these internal dressings. Alternative approaches to the acute management of perianal abscesses have been investigated, but none of these techniques have gained popularity. In 1960, Ellis described his results following cavity curettage and primary closure, reporting primary intention healing rates of 77%. A novel approach, described by Isbister in 1987, outlined a technique whereby a de Pezzer catheter was used in lieu of packing, following incision and drainage. In 1991, Isbister and Kyle retrospectively compared the use of the de Pezzer catheter with traditional incision and drainage and reported that the catheter was well tolerated by patients and compared favourably with the traditional technique. Zhu et al (2019) performed the standard approach of incision, drainage and cavity packing in 129 patients with perianal abscesses, while 38 patients were treated with placement of a mushroom catheter following incision and drainage. The authors reported no statistically significant difference in recurrence or fistula development between the groups. Guidelines from the American Society of Colon and Rectal Surgeons (Steele et al, 2011) note that with an adequately sized elliptical incision,

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postoperative wound packing is not usually necessary. No such guidance exists from similar bodies in the UK and consequently there is significant variation in clinical practice among surgeons, with no published guidelines informing current management.

Methods

The question being answered by this search was: In [adult patients with perianal abscesses], should [postoperative wound packing] be undertaken considering the [rates of pain experienced, wound healing and recurrence]?

Search strategy

Electronic searches were performed on Medline (1946 to August 2023) and Embase (1974 to August 2023) using the OVID interface, as well as Medline using the PubMed interface. The search terms were as follows: (perianal OR perianal) AND (abscess OR infection OR pus OR collection) AND (packing OR dressing) AND (pain OR recurrence OR healing OR discomfort OR complication*). These key words were searched in the subject headings, in titles and abstracts. All reference lists of the included papers were also screened to identify any pertinent studies. The results were current as of August 2023.

Search outcome

A total of 159 papers were found using the reported search on Embase (125) and Medline (34) using the Ovid interface, while 49 were found on Medline using the PubMed interface. Three independent investigators screened the articles and selected the best evidence for this review. There were no discrepancies. Case reports, case studies, editorials, duplicates, literature reviews and studies in children were excluded.

The best evidence to answer this clinical question consisted of three studies where the primary outcomes were postoperative pain, abscess recurrence and fistula formation. An example of the screening and eligibility assessment process for the search results obtained from the PubMed interface is outlined in [Figure 1](#).

Results

[Table 1](#) displays the results of this review, showing the most pertinent and highest quality evidence available when assessing the outcomes of postoperative packing of perianal abscesses following incision and drainage. The table was structured in line with guidance (Khan et al, 2011), highlighting the key results, analytical outcomes and study limitations.

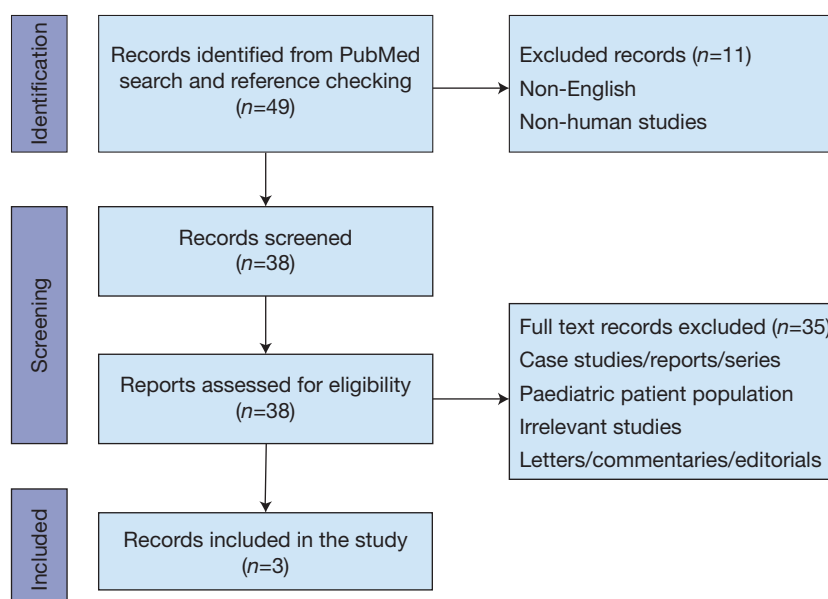


Figure 1. PRISMA flow chart for PubMed search.

Table 1. Study characteristics

Reference, country	Study type and level of evidence	Patient groups	Outcomes	Key results	Comments and study limitations
Newton et al (2022), UK	Multicentre randomised controlled trial (level IB)	Total=433 Packed=213 Not packed=220	Pain scores (mean maximum pain on a 100-point visual analogue scale over the first 10 postoperative days)	Packed=38.2 Not packed=28.2 Mean difference 9.9 ($P<0.0001$) (95% confidence interval 4.84–15.05; $P<0.001$)	Large multicentre randomised control trial, excluded patients with perianal fistula, Fournier's gangrene, and horseshoe abscesses All patients received standard intraoperative wound packing which was removed within the first postoperative 24 hours High risk of bias because of rates of loss of primary outcome data
			Fistula in ano (assessed at 6 months)	Packed=32/213; 15% Not packed=24/220; 11% (odds ratio 0.69, 95% confidence interval 0.39–1.22; $P=0.20$)	
			Abscess recurrence	Packed=7/213; 3% Not packed=13/223; 6% (odds ratio 1.85, 95% confidence interval 0.72–4.73; $P=0.20$)	
Smith et al (2016), UK	Systematic review of two randomised controlled trials (level IA)	Total=64 patients (two studies)	Time to complete wound healing (average, range) (Perera et al, 2015)	Packed=26.80 (22.70–30.70) Not packed=19.50 (13.60–25.40) $P=0.047$	Unable to pool the studies for outcome of time to healing Included two randomised control trials with small patient populations (50 and 14). No meta-analysis undertaken Both studies were at high risk of bias because of the risk of attrition, performance and detection bias Both studies were underpowered to detect differences in the number of postoperative fistulae formed and number of abscess recurrences
			Healing times (median, days, range) (Tonkin et al, 2004)	Packed=24.5 (range 10–150) Not packed=21 (range 8–90) ($P=0.214$) (extracted from original randomised control trial article rather than Cochrane review, $P<0.05$)	
			Wound pain, pain scores Initial (median, range) (Tonkin et al, 2004)	Packed=8 Not packed=4.5 $P=0.296$	
			Postoperative pain (median, interquartile range) (Perera et al, 2015)	Packed=3.00 (6.00) Not packed=2.00 (4.50) $P=0.648$	
			Secondary outcomes: fistula formation (Tonkin et al, 2004; Perera et al, 2015)	No clear evidence of a difference in postoperative fistulae between groups: relative risk 2.31, 95% confidence interval 0.56–9.45	
			Recurrence of abscess (Tonkin et al, 2004; Perera et al, 2015)	No clear evidence of a difference in abscess recurrence groups: relative risk 0.72, 95% confidence interval 0.22–2.37	

Table 1. Study characteristics (continued)

Reference, country	Study type and level of evidence	Patient groups	Outcomes	Key results	Comments and study limitations
Pearce et al (2016), UK	Multicentre observational study (level 2C)	141 patients recruited; operative and demographic details returned for 128 patients Of the 128 patients, 118 underwent postoperative packing and were discharged to a regimen of ongoing packing by community nurses	Mean number of dressing (pack) changes during the first 3 postoperative weeks	13 (range 0–21)	Large multicentre study across 15 centres in the UK Observational study Clinical outcomes not divided into packing and non-packing groups High attrition rates (68/141) 48.2% lost to follow up before the end of the study
			Wound healing (by 8 weeks postoperative)	Healed=46/105; 43.8% Unhealed=36/105; 34.3%	
			Severe pain (visual analogue scale ≥ 75) during pack change on postoperative day 1	23/52; 44%	
			Severe pain (visual analogue scale ≥ 75) during pack change on postoperative day 7	3/44; 7%	
			Return to work/normal function (by week 8)	54/63; 86%	
			Postoperative fistula in ano (at 8 weeks)	23/105; 21.9%	
			Postoperative fistula in ano (at 6 months)	28/105; 26.7%	
			Abscess recurrence (at 6 months postoperative)	8/105; 7.6%	
Quality of life: Health utility scores (EQ-5D)	Mean visual analogue scale scores: Day 1: 50 of 100 Day 7: 75 of 100 Day 21: 85 of 100				

Discussion

The postoperative management of perianal abscesses is an area of ongoing controversy. Despite there being no high-quality evidence for the routine use of postoperative internal dressings (packing), this remains established practice across most surgical centres in the UK (Nelson, 2002).

In 2022, Newton et al conducted the PPAC2 randomised clinical trial. This was a multicentre, randomised control trial using a two-group parallel design study across fifty centres in the UK. The study compared postoperative pain, fistula formation and abscess recurrence in two groups: patients who underwent postoperative packing and those who did not. The PPAC2 trial demonstrated that there was significantly less pain in patients with postoperative perianal abscess wound cavities managed without internal wound packing without increasing the adverse events of perianal fistula and abscess recurrence. The secondary outcomes of their study focused on patient-reported outcomes (global satisfaction with care), quality of life and return to work rates. Similar to the results of the multicentre observational study of outcomes after drainage of acute perianal abscess conducted by Pearce et al (2016), Newton et al (2022) reported higher global satisfaction rates with care in the non-packing group and a greater proportion of participants able to return to work by postoperative day 21. Newton et al (2022) reported significantly lower mean maximum pain scores over the first 10 days postoperatively in the non-packing group, as well as lower pain scores both during and after dressing changes.

Pearce et al (2016) conducted a multicentre observational study of outcomes after drainage of acute perianal abscesses across 15 centres in the UK. Their study was unique in that it reported on patient-related outcomes as well as the resource use and costs associated

with ongoing postoperative dressing changes. A range of community-based resources was used for the ongoing wound care of the patients in their study, namely walk-in centres, practice nurse and dressings clinics, as well as home visits by district nurses. The mean number of dressing changes in the first 3 weeks was 13 (range 0–21). Pearce et al (2016) extrapolated this data and estimated an annual cost to the NHS of €6453 360 in England alone, highlighting the fact that the ongoing management of wounds accounts for significant inpatient and community resource utilisation.

In 2016, a Cochrane systematic review was conducted of studies investigating the outcomes of use of internal dressings for perianal abscesses (Smith et al, 2016). The review identified two small randomised controlled trials, which were also independently identified during the current authors' literature search. The reviewers regarded the evidence from both studies as very low quality as a result of attrition, performance and detection bias, such that they were unable to conduct a meta-analysis. The two randomised controlled trials, Tonkin et al (2004) and Perera et al (2015), included a relatively small number of patients: 14 and 43 participants respectively. The pilot study by Tonkin et al (2004) compared two groups of patients presenting with perianal abscesses treated by incision and drainage of the abscess cavity, with and without packing. Their results indicated that perianal abscess could be managed safely without packing, although they were unable to demonstrate any significant difference in healing times or pain scores. Perera's et al (2015) pilot study demonstrated that perianal abscesses can be effectively treated with incision and drainage alone. Patients in their non-packing arm had a faster healing time and reported less pain at 2 weeks postoperatively compared to the packing group, while packing of the abscess offered no increased protection with regards to abscess recurrence.

Given the paucity of high-quality evidence, decisions to pack perianal abscesses following incision and drainage are highly variable and currently based on local practices. The consistent reporting of high levels of postoperative pain during dressing changes in the studies discussed in this review supports the need to prove whether this intervention is of clinical benefit. Large, appropriately powered, robust, multicentre randomised controlled trials would be the most appropriate study design to address the paucity of evidence and the need for ongoing research.

It is evident from the articles detailed in this review that postoperative packing of perianal abscesses following initial incision and drainage is costly, painful and does not decrease the risk of abscess recurrence. Significant savings could be accrued in terms of community nursing resources by obviating the need for ongoing postoperative wound care. If current practice is updated to reflect these recommendations, the financial implications could be significant.

Conclusions

The discontinuation of routine postoperative packing following incision and drainage of perianal abscesses deviates little from current clinical practice. If this recommendation was implemented into national surgical guidelines, there is the potential to generate significant savings in terms of inpatient and community wound care resources, as well as reducing the discomfort associated with frequent dressing changes. This review demonstrated that perianal abscesses can be safely managed by adequate incision and drainage alone. The authors conclude that ongoing packing of perianal abscess cavities should not be done as it is costly, associated with increased postoperative pain and does not reduce the risk of abscess recurrence or fistula in ano.

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Key points

- Perianal abscesses are a common anorectal pathology often managed by incision and drainage.
- There is currently no consensus on the management of the abscess cavity following incision and drainage with clinical practice varying widely across surgical centres.
- Routine postoperative packing of abscess cavities is costly, associated with increased pain during dressing changes and does not reduce the risk of abscess recurrence or formation of fistula in ano.

Conflicts of interest

The authors declare that there are no conflicts of interest.

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