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ORIGINAL ARTICLE

A survey of treatment preferences of UK surgeons in the treatment of pilonidal sinus disease

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Abstract

Aim: Pilonidal sinus is a common surgical condition which impacts a young and economically active population. There are limited data to guide treatment in this condition. The aim of this work was to assess current practice.

Method: A survey was developed as part of the PITSTOP study. It included questions on volume of practice, treatment preferences and training. The survey was delivered to consultant surgeons with a UK practice through social media, specialty surgical societies and through PITSTOP sites. Descriptive statistics were reported.

Results: Of the 200 people who received a link to the questionnaire, 109 completed it (response rate 54.5%). Respondents treated a median of 15 patients per year, with 20% of these having recurrent disease. Estimates of recurrence were higher than reported in the literature and higher than in a survey 10 years ago. Nearly 50% of surgeons advocate nonsurgical treatment in some patients despite limited evidence. Two thirds practised interventions not favoured by guidelines, including excision and leave open and midline closure techniques. Invasive procedures tended to be favoured when minimally invasive procedures may be appropriate. Surgical training programmes were the key training setting for commonly offered procedures, with few other training opportunities reported. For some procedures, no formal training had been given.

Conclusion: This survey highlights issues with quality in pilonidal surgery in the UK, with persistence of potentially outdated techniques, no consistent treatment escalation plan, a suggestion of under- or overtreatment of disease and a high perception of failure. This may relate to the current system of training and lack of evidence-based guidance.

KEYWORDS
pilonidal sinus, survey, variation

INTRODUCTION

Pilonidal sinus disease is common and represents a significant burden to primary and secondary care in the NHS. In 2012, Hospital Episode Statistics (HES) data reported 13 239 hospital admissions for the condition [1]. While the prevalence means that many surgeons have experience in dealing with the disease, management appears to be varied. This is because there are multiple surgical interventions described for treatment and it is not completely clear which give the

Members of the PITSTOP Management Group are given in Appendix 1.

best outcome [2]. Choice of procedure often depends on individual surgeon preference, which in turn probably depends on their experience, training and engagement with new developments in the field. Evidence regarding the treatment of pilonidal sinus disease is sparse, and guidelines are lacking, creating space for wide variation in treatment pathways for similar disease presentations.

There is a need for improved management of pilonidal sinus disease, recognized by the National Institute for Health Research (NIHR), which put out a call for research into the disease around 2018. The NIHR required an assessment of the different treatment options currently being used, identification of treatment outcomes valued by patients and patient intervention preferences. Identification of topics for further research was also required. To answer these questions the PITSTOP (Pilonidal Trial. Studying the Treatment Options) study was designed [3]. This study included various work streams utilizing mixed methods research. One objective was to describe the combination of interventions currently in use in the UK. To do this a survey was designed and delivered to UK surgeons to understand their preferences in the treatment of pilonidal sinus disease.

What does this paper add to the literature?

This paper reports a survey of current practice in the treatment of pilonidal sinus disease in the UK. It highlights significant variation, with a tendency towards major procedures. Surgeons highlight a lack of training opportunities to learn new techniques.

METHOD

Survey design and development

A survey was developed as part of the NIHR-funded study on pilonidal sinus disease (the PITSTOP study). The survey was compiled by members of the PITSTOP study group. Although some of the questions in this survey were based on a previous survey published in 2010 [4] further elements were designed by the study collaborators and followed the CHERRIES statement checklist of recommendations [5]. The survey included questions on the following: the mean number of primary elective procedures performed annually, factors affecting choice of procedure, treatment choice for recurrent disease presentation and the factors affecting treatment choice for recurrent disease treatment. There were also case vignettes to test whether certain patient characteristics affected management (see Figure 1 and Table 2). The survey was piloted within the PITSTOP study group to determine clinical sensibility.

Delivery of questionnaire and recruitment

The questionnaire was hosted online using the REDCap [6] platform hosted at the University of Sheffield. A link to the survey was shared through the study social media accounts and through email networks and societies such as the Association of Coloproctology of Great Britain and Ireland. Consultant surgeons with a UK practice were eligible to participate. The landing page of the survey had details on the research team, including contact details. It explained the purpose of the survey and that completion implied consent. It also explained that responses were anonymous. A shortened url was created and used to track click-throughs from emails. This count permitted calculation of a denominator for potential respondents.

Pilot testing

Pilot testing including an assessment of face validity was conducted with the wider PITSTOP steering group. Feedback was sought on the clarity of questions and whether responses were appropriate.

Ethics statement

Ethical approval was obtained from Cambridge South Research Ethics Committee (REC reference 18/EE/0370).

Analysis

Analysis was performed using R, with descriptive statistics only [7]. Data are presented as median with interquartile range (IQR), or number with a percentage to one decimal place as appropriate.

RESULTS

The link was followed by 200 surgeons and completed by 113 participants. Of these, 109 routinely cared for patients with pilonidal sinus disease. These 109 were entered into the final analysis, giving a final response rate of 54.5%.

Respondent practice overview

Respondents reported a median caseload of 15 patients per year (IQR 10–20) and indicated that recurrent disease accounted for 20% of the overall workload (IQR 10%–30%). Of those estimating their recurrence rates ($n = 97$), 19 (19.5%) were unaware of their recurrence rate, 14 (14.4%) estimated their rate to be <5%, 36 (37.1%) were in the 6%–15% range and 28 (28.8%) in the 16%–30% range.

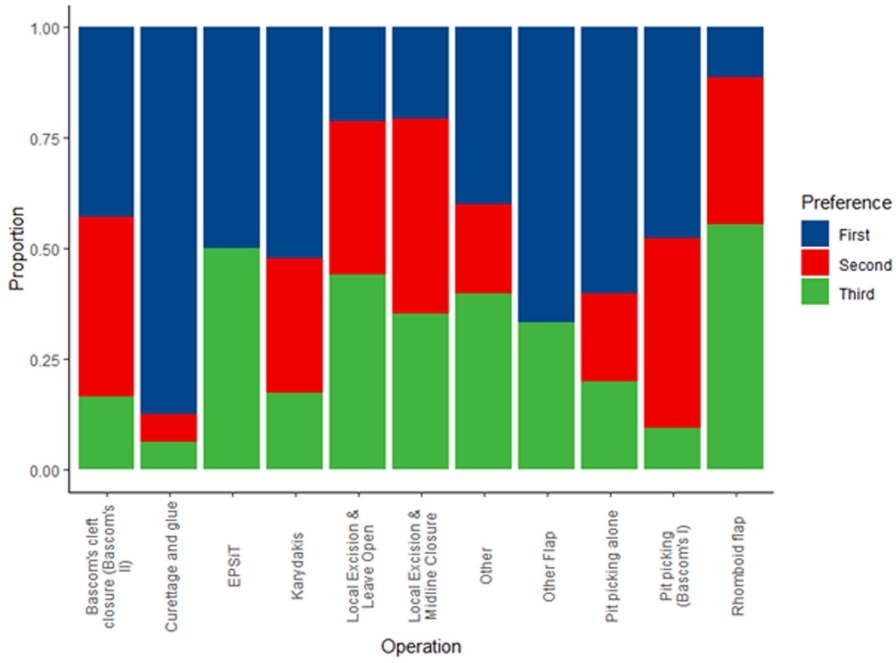

FIGURE 1 Procedure preferences of responding surgeons.

With regards to hair management, depilation was recommended by 54 (49.5%), laser hair removal by 32 (29.4%), salt baths by 14 (12.8%), shaving by 52 (47.7%) and waxing by 32 (29.4%).

Operative strategies employed

A wide range of treatment strategies were employed by responding surgeons, as summarized in Table 1. Excision of disease with the wound left open was the most frequently used strategy (71 responses, 65.1%), followed by Karydakis flap (62 responses, 58.1%). Curettage with phenol injection (one response, 0.9%) and endoscopic pilonidal sinus treatment (EPSiT; two responses, 1.8%) were the least frequently performed interventions.

Participants were asked to provide a first, second and third choice preference for their interventions. Karydakis was the first preference treatment for 24/96 respondents (25.0%), followed by Bascom's II for 18 (18.7%) and curettage and glue for 15 (15.5%). For second preference treatments, local excision with the wound left open was most popular (21/85, 24.7%), followed by local excision with midline closure (15, 17.6%) and the Karydakis procedure (14, 16.4%). The most popular third preference treatment was local excision with the wound left open (27/32, 37.5%), followed by local excision with midline closure (12, 16.6%) and Bascom's II (7, 6.9%) (see Figure 1).

TABLE 1 Summary of operations offered ($N = 109$).

Operation	Yes
Excise and leave open	71 (65.1%)
Karydakis	62 (56.8%)
Excise and midline closure	48 (44.0%)
Bascom's type II	47 (43.3%)
Rhomboid flap	30 (27.5%)
Bascom's type I	27 (24.7%)
Curettage and glue	17 (15.5%)
Pit picking alone	10 (9.2%)
Other flap	7 (6.4%)
EPSiT	2 (1.8%)
Curettage and phenol	1 (0.9%)

Abbreviation: EPSiT, endoscopic pilonidal sinus treatment.

Case vignettes

Case vignettes demonstrated heterogeneity across respondents. For Case 1 (recurrent disease) the preference was for rhomboid flap or 'other' procedures (22.6% and 25.5%, respectively). For Case 2 (a woman with primary disease and cosmesis concerns), preferences turned to favour conservative management (21.6%), followed by excision and primary closure (16.0%) and cleaning/curettage of the tracts (14.1%). Case 3 comprised recurrent disease and the requirement for minimal time off work. For this scenario, most respondents opted for conservative management with hair removal (25.4%), followed by curettage of tracts (16.0%). Of note, 15.1% would offer a Karydakis procedure in this setting. Responses are summarized in Table 2.

Training

Surgical training programmes were the key training setting for commonly offered procedures. These included training in wide local excision with the wound left open or closed for 59/71 (83.1%) and 36/48 (75.0%) of those offering the respective procedures. Similar

TABLE 2 Case vignette responses.

Operation	Case 1 ($N = 107$), *n* (%)	Case 2 ($N = 106$), *n* (%)	Case 3 ($N = 106$), *n* (%)
Bascom's cleft lift procedure	12 (11.3%)	7 (6.6%)	12 (11.3%)
Bascom's type I procedure	2 (1.9%)	13 (12.2%)	6 (5.7%)
Cleaning/curettage tracts	7 (6.5%)	15 (14.1%)	17 (16.0%)
Conservative/hair removal	14 (13.2%)	23 (21.6%)	27 (25.4%)
Excision and primary closure	0 (0%)	17 (16.0%)	9 (8.5%)
Karydakis procedure	11 (10.3%)	13 (12.2%)	16 (15.1%)
Lay open ± marsupialization	9 (8.4%)	6 (5.7%)	8 (7.5%)
Other	27 (25.5%)	10 (9.4%)	10 (9.4%)
Rhomboid flap	24 (22.6%)	1 (0.9%)	1 (0.9%)
Z-plasty flap	1 (0.9%)	1 (0.9%)	0 (0%)

Notes: Case 1: 16-year-old male. Six previous surgeries with other surgeons, has recurrent disease and partially open wound/sinus 1 cm long in natal cleft that has been like that for 9 months. Wants to play contact sport. Parents not happy.

Case 2: 19-year-old female, fair skin, dark hair, previous abscess drainage, swelling and discomfort in natal cleft, very worried about cosmesis and what the scar will look like if you operate.

Case 3: 30-year-old male plumber who has had previous surgery, no details available, and now presents with recurrent disease. Single discharging pit around the scar. Cannot afford much time off work.

TABLE 3 Training in different procedures.

	Number offering	No formal training	Course/workshop	Observed colleagues	Training in registrar programme/fellowship	Videos/ text
WLE leave open	71	4 (5.6%)	1 (1.4%)	4 (5.6%)	59 (83.1%)	0 (0%)
WLE with closure	48	4 (8.3%)	1 (2.1%)	6 (12.5%)	36 (75.0%)	1 (2.1%)
Bascom's II	42	2 (4.7%)	4 (9.5%)	9 (21.4%)	9 (21.4%)	2 (4.7%)
Pit picking (Bascom's I)	27	3 (11.1%)	4 (14.8%)	4 (14.8%)	21 (77.7%)	2 (7.4%)
Karydakis	62	2 (3.2%)	4 (6.4%)	13 (20.9%)	49 (79.0%)	7 (11.2%)
Rhomboid flap	30	2 (6.6%)	2 (6.6%)	5 (16.6%)	15 (50.0%)	5 (16.6%)
Other flap	7	1 (14.2%)	0 (0%)	2 (28.5%)	2 (28.5%)	0 (0%)
Curettage and glue	17	0 (0%)	5 (29.4%)	7 (41.1%)	5 (29.4%)	7 (41.2%)
Curettage and phenol	1	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
EPSiT	2	0 (0%)	0 (0%)	1 (50%)	0 (0%)	0 (0%)

Abbreviations: EPSiT, endoscopic pilonidal sinus treatment; WLE, wide local excision.

numbers were seen for Bascom's I (21/27, 77.7%) and the Karydakis procedure (49/62, 79.0%). For some procedures, no formal training was reported by 5%–10% of respondents. Courses, observation of colleagues and reference material such as text or videos was also variably used. A summary of training experiences is presented in Table 3.

DISCUSSION

This paper reports the results of a survey of UK colorectal surgeons providing pilonidal sinus surgery. It highlights the heterogeneous character of UK practice. We did not ask for the reasons behind the choice of procedure, but it may be that many surgeons fear the perceived high failure rate of less invasive intervention and a lack of evidence-based guidance in treatment choices for pilonidal disease. Also, an inadequate focus on treatment of this common condition during training may perpetuate nonevidence-based and outdated practice [2].

Our survey only included surgeons who practice pilonidal sinus surgery. They reported a reasonable volume of practice with a median of 15 cases per year compared with a national median of four cases per surgeon per year [1]. These data are therefore very likely to reflect data from UK surgeons with real-world experience in managing pilonidal disease.

Of interest is the surgeon's perception of failure of intervention. There is a large disparity in the perception of surgeons and reports from studies, with around a quarter of surgeons perceiving that the operations they carried out failed up to 30% of the time. In contrast, the literature suggests that, with most accepted interventions,

healing should occur in 90%–99% of cases [8, 9]. This is a cause for concern. It may be that the literature is not correct and intervention failure is much higher than published. There are certainly issues with the current literature, including lack of disease stratification, heterogeneity of interventions and poor definitions of outcome [2]. Alternatively, if the literature is correct, this high rate of perceived failure may reflect a general lack of interest in pilonidal surgery, meaning the drive to improve technique and outcome is not a priority. Pilonidal surgery sits within the remit of a colorectal special interest in the UK [10], although the link with colorectal disease is tenuous.

Conversely around 1 in 10 surgeons perceive a failure rate of less than 5%. There is some good evidence that surgeons with a special interest in pilonidal disease can achieve this level of success and therefore this perception may be justified [11]. Such a difference in outcome prompts two questions. Should patients, particularly those with more severe disease, be treated by surgeons with significant expertise in pilonidal sinus disease? Or should training and accurate gathering of treatment success rates be improved?

The question on perception of failure was included in the original survey by Shabbir 10 years ago [4]. Comparison with the results from that survey suggests that the proportion of surgeons perceiving higher failure has more than doubled from the 10% reported then. Either outcomes have truly deteriorated in that time or, much more likely, surgeons now have more realistic expectations. Soon to be published data from the PITSTOP cohort study suggest that this perceived high failure rate is likely to be true.

The survey answers and the case vignettes suggest that a substantial proportion of surgeons would institute a nonsurgical approach (hair management, depilation, laser hair removal, salt baths, shaving, waxing) for certain patients. This is despite limited evidence on the efficacy of these therapies as a primary treatment; they should be reserved, if used at all, as an adjunct to surgery [12]. Indeed, there is evidence that the hairs found in pilonidal disease are mainly from the occiput [13, 14], drawing into question the benefit of local hair removal even as an adjunct.

The current literature indicates that excision and leave open and midline closure techniques are not supported by current best evidence or guidance [15, 16]. The most recent European guidance from the Italian Society for Colorectal Surgery advocates off-midline closure [17], as does guidance from the American Society of Colon and Rectal Surgeons [18]. Recovery from these procedures is too long and failure rates unacceptably high. Despite this, these two interventions remain in common use in the UK. Sixty five per cent of surgeons still use the leave open technique, with healing occurring by secondary intention, and 44% practice a midline closure technique. Surveys from the UK and other countries have also indicated persistent use of these techniques [4, 19, 20]. Again, this indicates the need for education of surgeons so that they are aware of the current evidence base.

Of the other techniques, asymmetrical closure (Karydakis and Bascom's cleft closure) remains popular, with more surgeons favouring this approach compared with 10 years ago [20]. This is in keeping with a survey from Australia and New Zealand [21]. In contrast, minimally invasive techniques (Bascom's I, pit picking, glue, EPSiT) remain less popular treatment options. Even in the case vignettes, where patient characteristics clearly indicate a more conservative surgical approach (patient concerns about cosmesis and early return to work), invasive excisional approaches are preferred by a substantial proportion of respondents. Again, this heterogeneity in response to case vignettes is replicated in other similar studies [21]. The preference for interventions that favour more aggressive management suggests a focus on cure rather than symptomatic improvement. This may not be what patients want. Patients are reported to prefer a less invasive procedure despite a potentially higher failure rate [3].

The role of training in different interventions is relevant to all the survey findings. Many clinicians receive their pilonidal sinus training during their surgical apprenticeship, learning the techniques used by their trainers. This may explain why the widespread use of major interventions that are out of step with guidance is being perpetuated. It may also explain why more recently developed minimally invasive techniques are not as commonly favoured. The UK general surgical syllabus also lags behind developments in techniques for treating pilonidal disease, concentrating on excisional procedures, and not requiring competence to the level of independence in flap techniques [4, 18, 19, 21]. This lack of focus during training may also explain why, even with accepted asymmetric techniques, the perceived failure rate is still high as procedures may not be performed optimally. The PITSTOP study is aimed at defining current real world UK practice, identifying what patients want from intervention and improving future research. By highlighting current practice and combining this with a patient-centric approach, we hope it will provide insight for surgeons and optimize their practice. Production of robust evidence-based guidelines and more formal training programmes for pilonidal disease should perhaps be developed by surgical societies such as the Association of Coloproctology of Great Britain and Ireland as a way of raising awareness of the importance of effective treatment of pilonidal sinus disease, incorporating the views of patients who receive treatment, disseminating good practice and improving standards.

The survey was not without limitations. It used a fixed range of options from which to select, and did not allow for qualification of answers, potentially leading to an artificial choice. However, available responses were drawn from commonly used procedures and the selection of vignettes allowed for some direct comparison of choices. Qualitative work exploring these decisions might also be helpful for understanding the underlying thought processes. The survey may have attracted experts or enthusiasts in pilonidal surgery, supported by the higher than average numbers of cases performed by respondents. However, the heterogeneity presented in responses does not suggest consistency or an overriding treatment strategy. Indeed, the frequent selection of major procedures would suggest that this is not the case. The survey had a response rate of 54.5%. This is comparable or superior to other surveys in this field [4, 19, 20, 22] and should represent external validity.

CONCLUSION

The perceived high failure rate for pilonidal sinus surgery and the ongoing use of certain surgical techniques in the UK is a concern given the suggestion from the literature that better outcomes for patients can be achieved. Much of the evidence in this field is of low quality, and guidelines are sparse, perpetuating the status quo. Nevertheless, experience from individual enthusiasts suggests that better outcomes can be achieved if surgery is modernized and optimized. Some ways of doing this include rigorous guidelines involving the best quality evidence available, more robust criteria for research and updating the syllabus for training alongside improved training delivery, including after the completion of specialty training.

AUTHOR CONTRIBUTIONS

Matthew J Lee: Conceptualization; Investigation; Methodology; Writing - review & editing; Writing - original draft; Formal analysis; Funding acquisition. **Emily B Strong:** Investigation; Writing - original draft; Writing - review & editing; Methodology; Data curation; Formal analysis. **Jon Lund:** Conceptualization; Investigation; Writing - original draft; Writing - review & editing; Methodology; Formal analysis; Funding acquisition. **Dan Hind:** Funding acquisition; Conceptualization; Writing - original draft; Methodology; Formal analysis; Writing - review & editing; Data curation; Supervision. **Steven R Brown:** Formal analysis; Conceptualization; Methodology; Writing - original draft; Writing - review & editing; Investigation; Funding acquisition.

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CONFLICT OF INTEREST STATEMENT

None to declare.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ETHICAL APPROVAL

Ethical approval was obtained from Cambridge South Research Ethics Committee (REC reference 18/EE/0370).

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APPENDIX 1

PITSTOP management group

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