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Guideline

Dutch national guideline on the management of intergluteal pilonidal sinus disease

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Introduction

Pilonidal sinus disease (PSD) is caused by penetration of hairs into the intergluteal cleft, resulting in subcutaneous abscesses or chronically inflamed sinuses. This condition predominantly affects young males, and manifests with symptoms including pain, bleeding, purulent discharge, and embarrassment[1]. PSD frequently causes chronic problems that affect the patient's daily activity.

Although preventive measures and good hygiene can occasionally lead to the resolution of symptomatic disease, surgical intervention is often necessary. Surgery is undertaken in around 9000 patients per year in the Netherlands[2]. Surgical procedures range from minimally invasive techniques (MITs) to more extensive excision with secondary wound healing (ESW) or flap reconstruction. It remains unclear whether the severity of disease (classification) should determine the timing and choice of treatment. Currently, no classification system is used uniformly[3]. Additionally, the optimal management of chronic hypergranulating wounds and strategies to prevent frequent recurrence remain uncertain.

International guidelines[4–6] have been published previously; this is the first official guideline for PSD management in the Netherlands. This guideline aims to reduce the significant variation in surgical treatments for PSD, and to improve understanding of its aetiology, diagnosis, classification, and prevention strategies. The guideline is published online, and is freely available from the Dutch Guideline Database (https://www.richtlijnendatabase.nl)[2]. OpenAI was used in assisting with the translation process.

Methods

Details of the methods used to develop this guideline can be found in the *supplementary material*.

Results of literature review and analysis

A summary of the guidance developed from this review is presented below. The *supplementary material* includes a detailed discussion of the literature underpinning the recommendations presented.

Guideline recommendations

Recommendations were developed in relation to the following clinical questions.

Clinical Question 1: How should the diverse presentation of PSD be classified?

- Consider using the Dutch classification system (*Table 1* and *Figs 1–5*).

Grade: – (none; refer to supplementary material)

Several classification systems for PSD have been described in the global scientific medical literature[3]. Currently, no classification

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Table 1 Proposed staging for pilonidal sinus disease

Stage	Definition
Simple pilonidal sinus	
Type Ia	One or more pits in midline of natal cleft without symptoms
Type Ib	One or more pits in midline of natal cleft with symptoms
Type II	Acute pilonidal abscess
Complex pilonidal sinus	
Type III	Type Ib plus one or more sinus openings lateral to natal cleft. These sinus openings usually contain granulation tissue, blood, and/or pus. They are usually unilateral but can also present bilaterally Consider the possibility of hidradenitis suppurativa if there are multiple lateral sinus openings
Recurrent pilonidal sinus	
Type IV	Recurrence of pilonidal sinus after previous surgical treatment (excluding abscess drainage)
Chronic non-healing wound	
Type V	Chronic (usually hypergranulating) non-healing wound in midline of natal cleft after previous surgery

Fig. 1 Type I: one or more pits in midline of natal cleft without (Ia) or with (Ib) symptoms (simple pilonidal sinus)

Fig. 2 Type II: acute pilonidal abscess

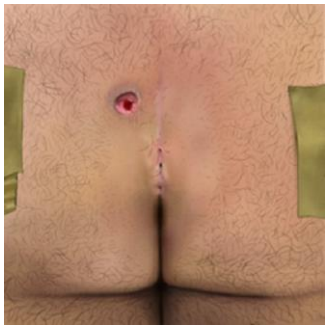

Fig. 3 Type III: type Ib plus one or more sinus openings lateral to natal cleft (complex pilonidal sinus)

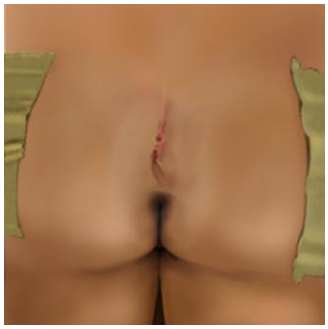

Fig. 4 Type IV: recurrent pilonidal sinus following previous surgical treatment (excluding abscess drainage)

Fig. 5 Type V: chronic (usually hypergranulating) non-healing wound in midline of natal cleft following previous surgery

system is used in daily practice in the Netherlands[7]. The working group believes that there is a need for a classification system in Dutch practice. Therefore, use of a classification that is applicable to Dutch practice is recommended until a comprehensive classification system has been developed and validated (*Table 1* and *Figs 1–5*).

Clinical Question 2: How can PSD be differentiated from hidradenitis suppurativa?

- Unlike hidradenitis suppurativa (HS), PSD does not present with recurrent inflammation of areas such as the armpits and groins.
- Ask patients with PSD about recurrent inflammation of areas such as the armpits and/or groins during the initial visit. A positive response to this may indicate (co-morbid) HS.
- Refer patients with a suspicion of HS to the dermatologist for co-management of HS.

Grade: – (none; refer to supplementary material)

PSD and HS have clinical similarities and can coexist; however, HS typically occurs in the armpits and groin. Moreover, with HS in the intergluteal cleft, there are often multiple fistula openings lateral to the intergluteal cleft. This differs from PSD, which manifests more centrally and usually has only one lateral fistula opening. Differentiating between PSD and HS is crucial, as treatment approaches may differ. Adjuvant medical treatment for HS is typically managed by dermatologists.

Clinical Question 3: What is the optimal treatment for PSD?

- Do not undertake surgical treatment for asymptomatic PSD (type Ia).
- Consider MIT as the first modality for patients with simple symptomatic PSD (type Ib).
- Be cautious with excising and leaving open symptomatic PSD because of prolonged wound healing.
- Primary midline closure should be avoided owing to the high risk of wound infections and recurrences.

This question encompasses the following subquestions:

Clinical Question 3.1: What is the role of minimally invasive treatment in patients with PSD?

Minimally invasive treatment *versus* excision with secondary wound healing

Recurrence, quality of life, and postoperative pain

The evidence is very uncertain about the effect of phenol treatment compared with ESW on recurrence of PSD, quality of life (QoL), and postoperative pain in patients with symptomatic PSD[8].

Grade: Very low

Time to complete wound healing

Phenol treatment may reduce the time to complete wound healing compared with ESW in patients with symptomatic PSD[8].

Grade: Low

Return to daily activities and surgical complications

No evidence was found regarding the effect of MIT on return to daily activities or surgical complications (wound infection, wound dehiscence, seroma, or complications that required reoperation) compared with ESW in patients with symptomatic PSD.

Grade: –

Clinical Question 3.2: What is the role of closure using flap reconstructions in patients with PSD?

- Consider using a flap reconstruction for patients with complex (type III) or recurrent symptomatic (type IV) PSD. Refer the patient to a centre with expertise if there is no local experience with flap reconstruction.
- Discuss the advantages and disadvantages of the available techniques with the patient to achieve shared decision-making.

Flap reconstruction *versus* excision with secondary wound healing

Recurrence and return to daily activities

Flap reconstruction may reduce recurrence and be associated with a shorter time to return to daily activities compared with ESW in patients with symptomatic PSD[9–15].

Grade: Low

Wound healing time

Flap reconstruction probably has a substantially shorter time to complete wound healing compared with ESW in patients with symptomatic PSD[11,13–15].

Grade: Moderate

Quality of life

No evidence was found regarding the effect of flap reconstruction on QoL compared with ESW in patients with symptomatic PSD.

Grade: –

Surgical complications

Wound infection

Flap reconstruction may have little to no effect on wound infection compared with ESW for symptomatic PSD, but the evidence is very uncertain[9–12,14,15].

Grade: Very low

Wound dehiscence

Flap reconstruction entails the possibility of wound dehiscence compared with ESW for symptomatic PSD[9,12,13,15].

Grade: Low

Seroma

Flap reconstruction may have little to no effect on seroma compared with ESW for symptomatic PSD[9,12,13,15].

Grade: Low

Complications that require reoperation

None of the studies reported on complications that required reoperation, and so this outcome was not graded.

Grade: –

Postoperative pain

There may be less postoperative pain after excision with flap reconstruction compared with ESW, but the evidence is very uncertain[9–14].

Grade: Very low

Several studies have investigated MIT for treating PSD. These studies[16–24] compared MIT with ESW and excision with midline closure (EMC). They found that MIT offers advantages in short-term outcomes such as reduced pain, shorter wound healing time, and quicker return to daily activities probably owing to decreased surgical trauma. The working group suggests that MITs are most suitable for patients with primary and simple PSD (type Ib). However, it is essential to discuss the high risk of recurrence associated with MIT when consenting patients for surgery[25,26].

Studies[9,27,28] comparing various flap reconstruction techniques with ESW have indicated that flap reconstructions result in lower recurrence rates and shorter time to complete wound healing. However, uncertainty remains regarding complications and postoperative pain. The working group suggests that flap reconstructions may be more beneficial for patients with complex or recurrent PSD. The disadvantages of flap reconstructions compared with ESW are limited.

Clinical Question 4: Which type of flap reconstruction should be preferred, when opting for excision with flap reconstruction?

- There is a lack of definitive evidence to favour any single choice of flap, so the technique should be tailored to local experience.
- If there is no experience with flap reconstructions in the local institution, onward referral should be considered.

Recurrence and wound infection

No difference in recurrence/wound infection is seen when Limberg flap, Karydakis flap, and Bascom procedure are compared in patients with symptomatic PSD[29–40].

Grade: Low

Return to daily activities, quality of life, complications that required reoperation, and postoperative pain

There is a lack of evidence about the effect of Limberg flap on return to daily activities, QoL, and complications that required reoperation or led to postoperative pain compared with Karydakis flap/Bascom procedure in patients with symptomatic PSD[29–31,33,36–38,40].

Ersoy;[41]

Grade: Very low

Wound dehiscence and seroma

Limberg flap may not reduce or increase wound dehiscence/seroma compared with Karydakis flap/Bascom procedure in patients with symptomatic PSD[29–31,33,35–39].

Grade: Low

Comparisons between flap reconstructions crossing the midline and those remaining paramedially have revealed no significant differences in recurrence rates or important outcomes such as return to daily activities, QoL, complications, and pain[29–40]. Evidence is limited because of biases and insufficient data. No clear preferences have emerged for either technique, suggesting that surgeons should rely on their experience. Training programmes should incorporate these techniques.

Clinical Question 5: What is the role of laser depilation following surgery for PSD?

- Exercise caution in recommending laser depilation after a first operation for PSD.
- Consider advising laser depilation to patients who have experienced recurrent episodes and have a hairy intergluteal cleft.

It is unclear what effect permanent depilation compared with no permanent depilation has on recurrence in patients who underwent PSD surgery.

Grade: Very low

The effectiveness of permanent laser depilation after surgery for PSD remains uncertain owing to conflicting evidence and low-quality studies. Systematic reviews have suggested a potential benefit in reducing recurrence rates, but the evidence is limited and heterogeneous. Recent studies[42–47] have provided conflicting results, with some indicating lower recurrence rates after laser depilation. However, the studies lack consistency in methodology and patient populations. Moreover, the mechanism of PSD development and the efficacy of laser depilation in preventing recurrence remain unclear. Given the lack of high-quality evidence, further research, particularly in the form of randomized studies, is needed to clarify the effectiveness of laser depilation in reducing PSD recurrence rates. The working group recommends that trials in this area should be undertaken.

Clinical Question 6: How should a non-healing hypergranulating wound after surgery be treated?

- Treat a non-healing hypergranulating wound after surgery for PSD in collaboration with a surgeon and wound care nurse.
- Treat a non-healing hypergranulating wound after surgery for PSD the same as for any other non-healing hypergranulating wound. Consider flap reconstruction when maximal conservative wound treatment fails.

Time to wound healing, time to return to daily activities, and recurrence rate

No studies were found that could answer the question of what the beneficial and harmful effects of surgical debridement are compared with non-surgical debridement on time to wound healing, time to return to daily activities, and recurrence rate.

Grade: –

No conclusive evidence was found regarding the superiority of surgical *versus* non-surgical debridement for non-healing hypergranulating wounds after PSD surgery. Studies[48–54] comparing various postoperative wound treatments including vacuum therapy have shown mixed results, with some indicating potential benefits such as faster healing and reduced recurrence rates. However, the evidence remains inconclusive. In wound assessment, use of the TIME acronym (Tissue, Infection, Moisture, Edges) can be helpful. Flap reconstruction may be considered for non-responsive wounds after conservative treatment, based on clinical experience.

Clinical Question 7: What primary and secondary prevention advice can be given to the patient considering the pathogenesis of, and risk factors for, PSD?

Primary prevention

Consider providing the following primary prevention advice to patients with asymptomatic PSD, symptomatic PSD without treatment preference, and/or a family history of PSD:

- Remove loose hairs after haircuts and body hair removal.
- Avoid shaving the intergluteal cleft.
- Keep the intergluteal cleft clean.
- Reduce weight in patients living with obesity.
- Quit smoking.
- Avoid prolonged sitting.

Secondary prevention

Consider providing the following secondary prevention advice to patients who are undergoing and those who have had a surgical procedure (excluding incision and drainage of an abscess) for symptomatic PSD:

Preoperative

- Quit smoking.
- Reduce weight in patients living with obesity.

Postoperative

- Remove loose hairs after haircuts and body hair removal.
- Avoid shaving the intergluteal cleft.
- Keep the intergluteal cleft clean.
- Quit smoking.
- Avoid prolonged sitting.

Grade: None (refer to supplementary material)

PSD is widely accepted as an acquired condition primarily caused by friction. The pathogenesis of PSD involves loose hairs penetrating the skin of the intergluteal cleft owing to friction and skin vulnerability, with short, stiff hairs oriented within the sinus[55–65]. Possible predisposing factors for PSD include male sex, excessive hair growth, family history, obesity, prolonged sitting, poor hygiene, and smoking[56,57,62,63,66–75]. These same factors predispose individuals to recurrence after surgical treatment. To prevent recurrence, measures recommended include avoidance of prolonged sitting, reducing obesity, maintaining good hygiene, and keeping the wound area dry after surgery. It is also advised to ensure that loose hairs do not accumulate in the intergluteal cleft, as they can contribute to recurrence. Additionally, surgical techniques aimed at flattening the intergluteal cleft may help prevent recurrence.

Discussion

Traditional excisional techniques were the mainstay of PSD treatment for several decades. In recent years, there has been a shift towards MIT in the Netherlands and a small rise in flap reconstructions[7,76]. The aim of this guideline was to provide evidence-based management advice to clinicians, to avoid unwarranted variation in the treatment of PSD and improve patient outcomes. The systematic analysis of the current scientific evidence suggested benefits of MIT over more extensive excisions for patients with a simple symptomatic PSD, and flap reconstruction for patients with complex or recurrent symptomatic PSD.

Because of the lack of high-quality comparative studies, the overall quality of the evidence was low, which may affect clinical decision-making and patient care. Given the popularity and favourable results with MIT and flap reconstruction compared with ESW and EMC, it would be difficult to undertake randomized clinical trials owing to the lack of equipoise. Thus, it seems unlikely that higher levels of evidence will be available in future. Pragmatically, new studies should instead focus on evaluating the long-term outcomes of MIT, and on implementing and optimizing flap reconstructions for complex or recurrent PSD.

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Disclosure

The authors declare no conflict of interest.

Supplementary material

Supplementary material is available at *BJS* online.

Data availability

The data supporting the findings of this guideline are available in the document.

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