

Hidradenitis suppurativa: a clinical summary

KEY WORDS

- ▶ Acne inversa
- ▶ Hidradenitis suppurativa
- ▶ Inflammation
- ▶ Purulent exudate
- ▶ Sinus tracts

Hidradenitis suppurativa (HS) is a chronic inflammatory dermatosis typically affecting areas of skin containing pilosebaceous glands. Patients tend to suffer recurrent attacks of painful discharging lesions, which can require multiple courses of antibiotics or surgical drainage and cause significant morbidity, distress and scarring. Studies suggest that this condition is poorly recognised outside of the dermatology setting and as a result diagnosis is often delayed. This article describes the disease process and classical features to enable all practitioners to recognise the disease. Conservative, medical and surgical treatment options are also presented along with the current European guidelines on the management of HS.

Hidradenitis suppurativa (HS) is a chronic inflammatory skin condition which can present to a range of settings from general surgery to general practice to tissue viability but it is often poorly recognised leading to significant delays in diagnosis (Saunte and Boer, 2015). It causes significant morbidity to patients and carries a substantial psychosocial burden (Rilis and Vinding, 2016), so early diagnosis and pragmatic management to treat the disease are crucial. This article describes the classical clinical features to enable healthcare professionals working within wound care to identify and diagnose the condition. It summarises the treatment options both to manage an acute episode and to control the underlying inflammatory process and suggests when a specialist referral may be helpful.

PATHOPHYSIOLOGY

HS also known as acne inversa or Verneuil's disease is a chronic inflammatory skin disease affecting areas of tissue containing folliculopilosebaceous units and apocrine glands (Ingram, 2016). The pathophysiology is not fully understood but is thought to be related to occlusion of the hair follicle by keratin debris which then prevents the drainage of the gland. Monocytes, macrophages, neutrophils and latterly B cells infiltrate the tissues releasing a cascade of pro-inflammatory cytokines. This causes inflammation and distension of the follicle, which can eventually rupture and

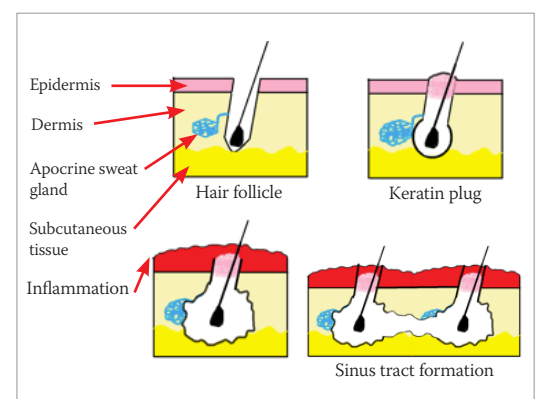


Figure 1. Schematic representation of the pathophysiology of HS. Follicles adjacent to the apocrine glands become occluded leading to inflammation, rupture and sinus formation

form sinuses between adjacent follicles (Figure 1). In advanced disease chronic granulation tissue, fibrosis and scarring develop (Zouboulis et al, 2015).

EPIDEMIOLOGY

HS affects 1–4% of the adult European population, though this may be a conservative estimate as those with a milder condition often self-manage (Revuz et al, 2008; Micheletti, 2014). Patients typically present in the second to fourth decade and 30–40% of patients will be found to have a positive family history often in an autosomal dominant pattern

AMY FERRIS
Medical Registrar,
University Hospital of Wales,
Clinical Research Fellow, Welsh
Wound Innovation Centre

KEITH HARDING
Clinical Professor, Cardiff
University and Medical Director,
Welsh Wound Innovation Centre

(although no specific gene has been identified) (Ingram, 2016). The epidemiology is not fully understood but two case-control observational studies have shown an association between HS and smoking (OR 4.16 and 12.55 $p=0.001$) and also identified an association with obesity; patients with HS and BMI 25–29 (overweight) had OR 2.08, and those with BMI >30 (obese) had an OR 4.42 ($p<0.001$) so while not causative these factors certainly appear to have a strong association with development of HS (Revuz et al, 2008).

DIAGNOSIS

Hidradenitis is a clinical diagnosis and no confirmatory tests are available. Swabs taken of the purulent exudate are of limited usefulness as they are often sterile, and for those which do identify a micro-organism, it is impossible to identify whether this is commensal to the tissues or pathogenic so unlikely to change management (Zouboulis et al, 2015). There is no role for biopsies in the diagnosis of HS, however, this should always be considered

in any wound in which the diagnosis is unclear or malignancy is a concern.

Diagnosis requires recurrent painful or suppurating lesions in the characteristic distribution of the axillae, groins, inframammary area, or perineum (although any skin populated by apocrine glands can be affected) that have flared up at least twice in a six month period (Zouboulis et al, 2015). Characteristic lesions are painful or tender erythematous papules, nodules or abscesses that may require incision and drainage or may spontaneously discharge. Double-ended, open comedones, sinus tracts and rope-like scars are also typical (Figure 2).

The severity of the disease can be characterised on a number of scales, the most commonly used being the Hurley staging system (Figure 3). While this scale doesn't differentiate between active and inert lesions it is the most frequently used in clinical practice and is helpful to guide treatment options.

TREATMENTS

There are a range of topical and systemic therapies available for treatment of HS in addition to lifestyle advice and psychosocial modifications but often the disease will recur and treatment will need to be escalated and may need specialist dermatological input (Collier et al, 2013). Figure 4 summarises the medical treatment flow chart for patients with recurrent disease.

LIFESTYLE AND PSYCHOSOCIAL INTERVENTIONS

HS is associated with obesity so weight-reduction advice and support should be offered to any patient with a BMI greater than 25 (Collier et al, 2013). Similarly, smoking is associated with worsening disease as well as having a negative impact on overall health and wellbeing, so smoking cessation advice and referral on to an appropriate local service should be provided to all patients (Sartorius and Emtestam, 2009). Patients are empirically advised of the importance of careful hygiene, regular washing, often with an antiseptic agent (such as chlorhexidine) and avoidance of shaving, depilatory creams and deodorants in the affected areas but little evidence is available to support these recommendations (Zouboulis et al, 2015; Saunte and Jemec, 2017).

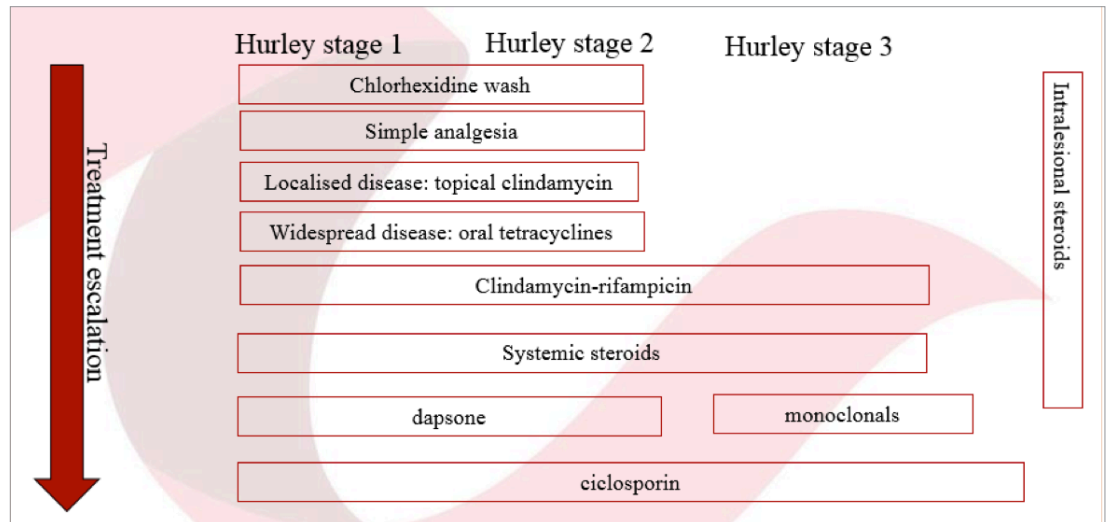


Figure 2. Images of classical features of nodules, sinuses, double-ended comedones and rope like scars in the axillae of patients with HS



Figure 3. Features of classical Hurley's staging system for HS

Figure 4. Flow diagram of treatment options for active HS



Patients often find the psychosocial impact of the disease challenging to cope with and studies suggest that patients with HS have similarly poor quality of life scores to those with heart disease, diabetes and asthma (Rilis and Vinding, 2016). Hidradenitis can be a painful and debilitating condition, affecting sleep and concentration. Regular medical appointments or recurrent emergency admissions for incision and drainage of acute abscesses can affect patients' ability to continue working and cause financial difficulties. Patients can feel embarrassed by the appearance of the lesions, scars, associated odour or clothing staining from discharge and this can put significant strain on personal relationships and self-confidence. It is important that clinicians are mindful of these problems and give patients the opportunity to discuss any concerns or challenges they are experiencing as well as signposting them to appropriate information and support. The Hidradenitis Suppurativa Trust provide information as well as access to a range of support services for affected patients (<https://www.hstrust.org/>).

MEDICAL AND SURGICAL INTERVENTIONS

Topical clindamycin 0.1% lotion is advised for patients presenting with Hurley's stage 1 or 2 based on a small, randomised, double-blind, placebo-controlled trial that demonstrated a reduction in superficial lesions at 2 and 3 months (Clemmensen, 1983). This trial did not, however, find any improvement in more severe disease with deeper lesions such as nodules or abscesses; similarly, oral tetracyclines were not found

to be any more effective than topical clindamycin at reducing abscesses or nodules over a 4-month period (Jemec, 1998). Despite this, there is a place for oral tetracyclines in the treatment of HS in Hurley's stage 1 if the lesions are too widespread for topical clindamycin therapy (Zouboulis et al 2015). Topical and systemic antibiotics need to be used responsibly to avoid contributing to the global problem of antibiotic resistance (World Health Organization, 2019) and for these antibiotics, in particular, there is a significant risk of antibiotic-associated diarrhoea and colitis. It is important to counsel patients of the potential side effects of the antibiotics they are prescribed, and in the patient group of young females it is especially important to warn of the risk of photosensitivity with tetracyclines as well as the risk of skeletal and teeth abnormalities in the foetus if inadvertently administered during pregnancy making effective contraception crucial (British National Formula [BNF], 2019a).

Second line systemic therapy for any stage of active HS is 10 weeks of combined oral clindamycin and rifampicin based on case series evidence showing improvement in disease severity scores and quality of life scores after treatment. In practice however this treatment is limited by its side effect profile; 6.9% and 29% of patients respectively stopped treatment in these papers due to medication side effects making it unpopular and often impractical for patients (Mendonca and Griffiths, 2006; Gener et al, 2009).

As HS is primarily an inflammatory skin condition anti-inflammatory treatments have also been found to be effective (Saunte and Jemec, 2017). Some

specialists are able to administer intralesional corticosteroids into non-infected inflammatory lesions either as monotherapy or in combination with another treatment (Revuz, 2009). Systemic steroids in the form of oral prednisolone are more widely used though only case series evidence is available to support it (Zouboulis et al, 2015). The European society guidelines advise using 0.5–7mg/Kg of oral prednisolone, reducing with a view to stopping over a few weeks. Long-term use should be avoided and patients should be adequately counselled of the potential side effects including osteoporosis, diabetes and psychosis (BNF, 2019b). However, if treatment is withdrawn too early, rebound flares are not uncommon, so careful titration is crucial (Zouboulis et al, 2015).

A number of steroid-sparing anti-inflammatory therapies are also available. For example, Dapsone (diaminodiphenyl sulfone) has both antibacterial and anti-inflammatory properties and is recommended for a minimum of 3 months if standard first- or second-line therapy fails for use in Hurley's stage 1 or 2 (Zouboulis et al, 2015) accepting the side effect risk of agranulocytosis amongst others (BNF, 2019c). Similarly, the current European guidelines suggest that ciclosporin, a calcineurin inhibitor, can be used based on case report evidence, however, there is a high risk of side effects such as nephrotoxicity, hypertension and malignancy (BNF, 2019d). For this reason, the authors recommend these agents are only commenced by specialists with experience of using and monitoring these drugs and their side effects.

Monoclonal antibody therapy is a form of immunotherapy. In HS, adalimumab and infliximab inhibit TNF- α to switch off the inflammatory cascade thought to be causing tissue damage. It is recommended for the treatment of patients with Hurley stage 2 or 3 who are unresponsive or intolerant to oral antibiotics (Zouboulis et al, 2015). Both agents have been shown to be effective in treating HS, but a retrospective comparative study by Van-Rappard et al (2012) found infliximab was

more effective than adalimumab (54% versus 66% of baseline disease severity score) however adalimumab is generally better tolerated by patients. Adalimumab is administered as a weekly subcutaneous injection and infliximab as an IV infusion, initially alternate days and then bi-monthly and either treatment should only be commenced in the specialist setting after careful consideration of the associated risks such as agranulocytosis or reactivation of latent TB (BNF, 2019e).

SURGICAL THERAPY

A number of surgical options are available for patients in HS for whom medical therapies are ineffective at achieving remission. De-roofing, laser therapy and excision surgery are all available and recommended in the European guidelines (Zouboulis et al, 2015). For practitioners with appropriate training deroofing of lesions can be conducted under local anaesthetic in the clinic setting. This involves laying open of sinus tracts to allow removal of debris and then healing by secondary intention (Saunte and Jemec, 2017). Similarly, carbon dioxide laser therapy can be performed under local anaesthetic to vaporise nodules, abscesses and fistulae down to the subcutaneous tissues to allow healing by secondary intention (Zouboulis et al 2015; Saunte and Jemec, 2017).

Wide local excision is the preferred surgical option for some patients as this removes all tissue containing apocrine glands in the affected areas, reducing the risk of recurrence at that site (Mehdizadeh et al, 2015). This can then either be left to heal by secondary intention, or reconstructed with skin grafts, or flaps and current evidence does not advocate one reconstructive method over another in HS. *Figure 5* shows the result of wide local excision surgery for HS in an axilla allowed to heal by secondary intention. Care must be taken in these patients to encourage shoulder mobilisation in the post-operative period, as scarring and contracture can cause long-term,

Figure 5. Photographs demonstrating healing by secondary intention following wide local excision of HS of the right axilla



reduced range of movement, which can be very debilitating.

DRESSINGS

Dressings play an important role in managing active HS to minimise the risk of infection of open lesions and manage exudate to protect surrounding skin, prevent malodour and staining of clothes. Dressing wounds in sites such as the axillae or the perineum can be particularly challenging due to the contours of the area so a pragmatic approach is needed. Dressings should be trialled to find one which the patient finds comfortable, does not cause adhesive-related dermatitis and can be left in place for a practical duration to allow a frequency of dressing change that does not impact unduly on day-to-day life. Whether dressing active open lesions or post-operative wounds following wide local excision dressings should be selected in accordance with the principles of wound bed preparation to create the optimum environment for healing (Harries and Bosanquet, 2016). In addition to appropriate wound dressings, cleansing, debridement and negative pressure wound therapy can also be beneficial either to encourage healing by secondary intention or following skin grafting and should be considered (Parrado et al, 2017).

CONCLUSION

HS can present to many different professionals in a range of specialties. It is important in the first instance that we recognise HS as the diagnosis for those patients presenting recurrently with lesions. An early appropriate diagnosis can be very helpful to patients to understand what is happening to them, and also enable them to access appropriate information and support such as that available through the Hidradenitis Suppurativa Trust. Improving the general health of the population is everyone's responsibility so weight management and smoking cessation advice can be incorporated into any wound consultation and this is particularly important in those with HS due to the likely association. If antibiotics are being used the authors recommend following guidance provided by the European guidelines by Zouboulis et al (2015) and in recurrent disease avoidance of multiple short courses of oral antibiotics or steroids which fail to achieve adequate remission in favour of the recommended

longer durations with appropriate monitoring by a clinician with experience of managing HS.

If initial medical therapies are failing to control flares of the disease early referral to secondary care colleagues to consider more specialist medical treatments such as immunosuppression, antibody therapy or surgical options to try to minimise the number of acute flares and associated scarring is likely to be beneficial to patients. **WUK**

REFERENCES

- British National Formulary (2019a) *Tetracyclines*. Available at: <https://bnf.nice.org.uk/drug/tetracycline.html> (accessed 31.01.2019)
- British National Formulary (2019b) *Prednisolone*. Available at: <https://bnf.nice.org.uk/drug/prednisolone.html> (accessed 31.01.2019)
- British National Formulary (2019c) *Dapsone*. Available at: <https://bnf.nice.org.uk/drug/dapsone.html#indicationsAndDoses> (31.01.2019)
- British National Formulary (2019d) *Ciclosporin*. Available at: <https://bnf.nice.org.uk/drug/ciclosporin.html#indicationsAndDoses> (accessed 31.01.2019)
- British National Formulary (2019e) *Adalimumab*. Available at: <https://bnf.nice.org.uk/drug/adalimumab.html#indicationsAndDoses> (accessed 31.01.2019)
- Collier F, Smith RC, Morton CA (2013) Diagnosis and management of hidradenitis suppurativa: Clinical review. *BMJ* 346: f2121
- Gener G, Canoui-Poitrine F, Revuz JE (2009) Combination therapy with clindamycin and rifampicin for hidradenitis suppurativa: a series of 116 consecutive patients. *Dermatology* 219: 148–154
- Harries R, Bosanquet D, H.K. 2016. Wound bed preparation: TIME for an update. *Int Wound J* 13(S3):8–14
- Ingram J (2016) Hidradenitis suppurativa: an update. *Clinical Medicine* 16(1): 70–73
- Jemec GB, Wendelboe P (1998) Topical clindamycin versus systemic tetracycline in the treatment of hidradenitis suppurativa. *J Am Acad Dermatol* 39(6):971–74
- Mehdizadeh A, Hazen PG, Bechara FG et al (2015) Recurrence of hidradenitis suppurativa after surgical management: A systematic review and meta-analysis. *J Am Acad Dermatol* 73(5 Suppl 1): S70–7
- Mendonca CO, Griffith CE (2006) Clindamycin and rifampicin combination therapy for hidradenitis suppurativa. *BJ Dermatol* 154(5): 977–8
- Micheletti RG (2014) Hidradenitis Suppurativa: Current Views on Epidemiology, Pathogenesis and Pathophysiology. *Semin Cutan Med Surg* 33(3S): S48–50
- Parrado R, Cadena M, Vergara A (2017) The role of negative pressure wound therapy in the management of hidradenitis suppurativa: a case report and literature review. *Int Wound J* 14(1):35–9
- Revuz J (2009) *Hidradenitis Suppurativa*. Available at: <https://bit.ly/2tEdp6j> (accessed 31.01.2019)
- Revuz J E, Canoui-Poitrine F, Wolkenstein P et al (2008) Prevalence and factors associated with hidradenitis suppurativa: results from two case-control trials. *J Am Academy Dermatol* 59(4):596–601
- Rilis PT, Vinding GR, Ring HC, Jemec GB (2016) Disutility in patients with hidradenitis suppurativa: a cross-sectional study using EuroQoL-5D. *Acta Derma Venereol* 96(2): 222–6
- Sartorius K, Emtestam L, Jemec GB, Lapins L (2009) Objective scoring of hidradenitis suppurativa reflecting the role of tobacco smoking and obesity. *Br J Dermatol* 161(4): 831–9
- Saunte DML, Jemec GBE (2017) Hidradenitis suppurativa: Advances in diagnosis and treatment. *JAMA* 318(20): 2019–32
- Saunte DM, Boer J, Stratigos A et al (2015) Diagnostic delay in hidradenitis suppurativa is a global problem. *Br J Dermatol* 173(6): 1546–9
- World Health Organization (2019) *Antibiotic Resistance*. Available at: <https://bit.ly/2F9pXub> (accessed 31.01.2019)
- Zouboulis CC, Desai N, Emtestam L et al (2015) European S1 guideline for the treatment of hidradenitis suppurativa/acne inversa. *J Eur Acad Dermatol Venereol* 29(4): 619–44