Hidradenitis Suppurativa

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PATHOGENS

- Inflammatory disease around abnormal and dilated hair follicles with secondary involvement of apocrine glands and surrounding structures, often with superinfection.
- Genetic predisposition possible; 40% have a family history of hidradenitis supperativa.
- Immune dysregulation in innate and adaptive immune pathways.
- Pathogenesis believed to start with occlusion and dilation of the pilosebaceous unit → rupture → extrusion of follicular contents into dermis → chemotactic inflammatory response → influx of neutrophils, lymphocytes, histiocytes → abscess formation (thus it is both an inflammatory disease related to immune dysregulation and infectious disease).
  - Infection appears to be a result of inflammatory occlusion of ducts rather than the underlying process for hidradenitis suppurativa.
- Microbiology: culture may yield mixed aerobic/anaerobic bacteria with *S. epidermidis* and *S. aureus* most commonly isolated.
  - Up to 50% of patients are culture negative.

CLINICAL

- Chronic and recurrent process affecting the apocrine gland-bearing areas: axillary, inguinal, perianal, perineal, areolar and inframammary.
- Scarring, contracture, and size of the affected region increase with the number of episodes.
- Risks: androgen imbalance, obesity, smoking, genetic predisposition, lithium treatment, tight clothes, mechanical irritation.
- Exam: tender, deep abscesses with multiple sinus tracts and fistulae draining malodorous secretions in apocrine gland regions [Fig].
  - Fibrosis and extensive scarring in later stages.
  - Lymphadenopathy rare.
  - Abscesses are often deeper and feel rounder than those of simple furuncles.
- Ddx: furuncles and carbuncles, ruptured epidermoid cysts, actinomycosis, cutaneous tuberculosis, cutaneous Crohn's disease, perirectal abscesses and fistulae, cutaneous blastomycosis, cutaneous tuberculosis.
- Dx: based on the clinical findings of 2+ inflamed lesions, a clinical course with new and recurrent lesions, bilateral lesions, and lesions located primarily in areas with apocrine glands.
- Lab: bacterial cultures are negative in >50% of cases and are only useful if obtained from deep material (culture is usually reserved for atypical or refractory cases).
- Staging: several staging systems have been developed. Hurley staging is simple and clinically useful.
  - Stage I: single or multiple abscesses without cicatrization or sinus tracts (can usually be managed with topical therapy).
  - Stage II: one or more widely separated recurrent abscesses with tracts or scars (systemic therapy may be needed).
  - Stage III: multiple interconnected tracts and abscesses throughout an entire area (surgery or laser therapy generally needed).
- Skin biopsy rarely necessary, unless other dermatoses need to be ruled out.
- Associated conditions: acne vulgaris; acne conglobata (severe, burrowing acne with abscess formation), dissecting cellulitis of the scalp and pilonidal cyst (a.k.a. "follicular occlusion tetrad"), SAPHO syndrome, Crohn's disease.

- Complications: sepsis, anemia, contractures, increased risk of non-melanoma skin cancers (squamous cell carcinoma in the area of scarring and fibrosis). Recent suggestion of increased cardiovascular disease risk.

TREATMENT

General recommendations/topical therapies

- See Table MANAGEMENT APPROACH for Hurley Stage-based recommendations.
- Washing w/ antiseptic (e.g., chlorhexidine, hexachlorophene) or antibacterial soaps daily.
- Clindamycin lotion to the affected areas 2x /day (for an extended period, >12 wks, or for chronic maintenance); for Stage 1 disease and possibly maintenance after treatment of higher stage disease.
- Moist warm heat compresses 4-6 x /day.
- Weight loss
- Smoking cessation, essential
- Non-narcotic analgesics for discomfort.
- Intralesional corticosteroid injections.
- Loose-fitting clothing with minimum friction and good airflow
- Laser hair removal
- Management of comorbidities (diabetes, polycystic ovarian syndrome, etc.)
- Manage pain and psychological distress

NOTE: Evidence of the effectiveness of each of the above is limited.

Systemic Antibiotics

- Antibiotics are not curative but may diminish discharge, odor, discomfort and pain (Stage II disease). Examples of considered antibiotics below; may wish to use cultures to guide selection. Antibiotic courses generally need to be a long duration (e.g., 10+ weeks).
  - Amoxicillin/clavulanate 875mg PO twice-daily.
  - Clindamycin 300mg PO three times a day.
  - Doxycycline 100mg PO twice-daily.
  - Cephalexin (Keflex) 250-500mg PO four times a day
  - Cefadroxil 500mg-1g PO q12h.
  - Dicloxacillin 500mg PO four times a day.
  - Metronidazole 500mg PO three times a day - strict anaerobe coverage adequate.
  - Moxifloxacin (Avelox) 400mg PO once-daily.
- Duration of therapy unclear, guided by the clinical response but often 14-21 days+.

Non-Antibiotic Systemic Therapy

- Retinoic acids e.g., isotretinoin (Accutane) 1 mg/kg/d in 2 divided doses PO X 3-4 m or acitretin (Soriatane) 25-50 mg PO once-daily have had mixed results in clinical trials. Is probably not a useful therapy.
- Hormonal therapy with oral contraceptives containing ciproterone acetate and ethinyl estradiol or even finasteride (Proscar) have both proven to be effective in some cases although double-blind RCTs lacking. Should be considered for women.
- Immunomodulatory agents may reduce severity (prednisone, cyclosporine (3 to 6 mg/kg), TNF-alpha inhibitors). Trials of TNF-alpha inhibitors have had mixed results with an RCT of infliximab (5 mg/kg at wk 0, 2, and 6) leading to improvement. Several trials of adalimumab have suggested benefit.
- Adalimumab is the only immunomodulatory agent with FDA indication of moderate to severe hidradenitis suppurativa (start 160mg SC x1 on d1, then 80mg SC on d15, then 40 mg SC qwk starting on d29).

Surgical

- Surgery with wide excision is the only curative treatment.
- CO_2 and neodymium: yttrium LASER ablation can also be effective; may be the best option for Stage II and some Stage III disease.
- I & D of individual abscesses only palliative and may lead to increased inflammation.
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MANAGEME

Mild disease (Hurley 1)	Moderate disease (Hurley 2)
Topical chlorhexidine wash QD or benzoyl peroxide wash QD plus 1% topical clindamycin BID	Topical therapy as for mild disease +
If no improvement after 3 months consider treatment options for moderate disease	Doxycycline 100mg BID or minocycline O
	Re-assess after 3 months of therapy. If nc starting TMP/SMX DS BID x 10wks
	Re-assess after 3 months of therapy. If nc starting clindamycin 300mg PO BID + rifa
	Re-assess after 3 months of therapy. If th inhibitor therapy.

Selected Drug Comments

Drug	Recommendation
Amoxicillin/clavulanate	A great choice for treatment of mixed aerobic/anaerobic infections which are very common in hidradenitis suppurativa. Main problems are cost and increased rates of diarrhea with higher doses of clavulanate.
Cefadroxil	Reasonable choice only if methicillin-sensitive *S.aureus* or other Gram-positive organisms are suspected/isolated. No anaerobic coverage.
Cephalexin	Not a great choice based on the likely microbiology of these lesions, but may work in selected cases, especially those involving *S. aureus* (MSSA) and coliforms.
Dicloxacillin	No anaerobic coverage. Reasonable choice only if methicillin-sensitive *S. aureus* is the culprit.
Doxycycline	Sometimes helpful in controlling the secondary infection. Advantages are the reasonable activity against some of the anticipated pathogens, low price and good experience with its chronic use in soft tissue infections. Main problem is that many pathogens are resistant to it. Potential photo-sensitizing drug.
Moxifloxacin	Good activity against most anaerobes, many *S. aureus* (not MRSA) and coliforms. Expensive drug.

OTHER INFORMATION

- Hidradenitis is caused primarily by follicular occlusion with secondary bacterial infection and inflammation.
- Response to antibiotics alone is poor, flora changes unpredictably according to the anatomic area, and inflammation is a major component.
- Extremely disabling process. Early and extensive surgery is often needed for complete cure.

Pathogen Specific Therapy

Pathogen	First-Line Agent	Second-Line Agent
Bacterial flora varies greatly.	Superficial cultures may not reflect actual bacteria	N/A

Basis for recommendation

1. Alikhan A, Sayed C, Alavi A, et al. North American clinical management guidelines for hidradenitis suppurativa: A publication from the United States and Canadian Hidradenitis Suppurativa Foundations: Part I: Diagnosis, evaluation, and the use of complementary and procedural management. *J Am Acad Dermatol*. 2019;81(1):76-90. [PMID:30872156]

   Comment: Newly developed North American HS guidelines. Comprehensive description of non-systemic therapy if Part 1

2. Alikhan A, Sayed C, Alavi A, et al. North American clinical management guidelines for hidradenitis suppurativa: A publication from the United States and Canadian Hidradenitis Suppurativa Foundations: Part II: Topical, intralesional, and systemic medical management. *J Am Acad Dermatol*. 2019;81(1):91-101. [PMID:30872149]

Comment: Newly developed North American HS guidelines. Comprehensive description of non-systemic therapy if Part II

3. Lim SYD, Oon HH. Systematic review of immunomodulatory therapies for hidradenitis suppurativa. *Biologics*. 2019;13:53-78. [PMID:31190730]

Comment: A comprehensive review of clinical trials of immunomodulatory therapies for HS. Adalimumab is the only biologic which has been approved by the United States Food and Drug Administration for HS but other trials of agents reviewed in the paper also show potential benefits.

References

4. Egeberg A, Gislason GH, Hansen PR. Risk of Major Adverse Cardiovascular Events and All-Cause Mortality in Patients With Hidradenitis Suppurativa. *JAMA Dermatol*. 2016;152(4):429-34. [PMID:26885728]

Comment: HS was associated with increased risk of cardiovascular outcomes as well as all-cause mortality. The intense inflammation of HS may be contributory although many of these patients also smoke.

5. Lapins J, Ye W, Nyrén O, et al. Incidence of cancer among patients with hidradenitis suppurativa. *Arch Dermatol*. 2001;137(6):730-4. [PMID:11405761]

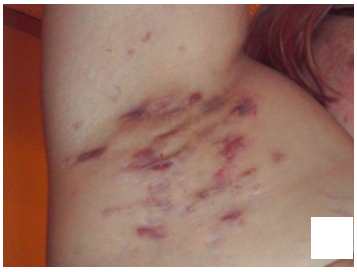
Comment: This retrospective study confirms the increased risk of non-melanoma skin cancer in patients with hidradenitis suppurativa.

6. Jemec GB, Wendelboe P. Topical clindamycin versus systemic tetracycline in the treatment of hidradenitis suppurativa. *J Am Acad Dermatol*. 1998;39(6):971-4. [PMID:9843011]

Comment: Systemic antibiotic therapy with tetracyclines failed to show better therapeutic results when compared with topical clindamycin alone in this double-blind, double-dummy controlled trial involving 46 patients.
Rating: Important

Media

Hidradenitis suppurative



Typical lesions in apocrine gland area with nodular lesions, erythema and sinus-like tracts.

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