Incyte Dermatology

Hidradenitis Suppurativa

Understanding the Burden, Pathophysiology, and Management of a Complex Inflammatory Disease

MSL-DIS-US-0045 04/26

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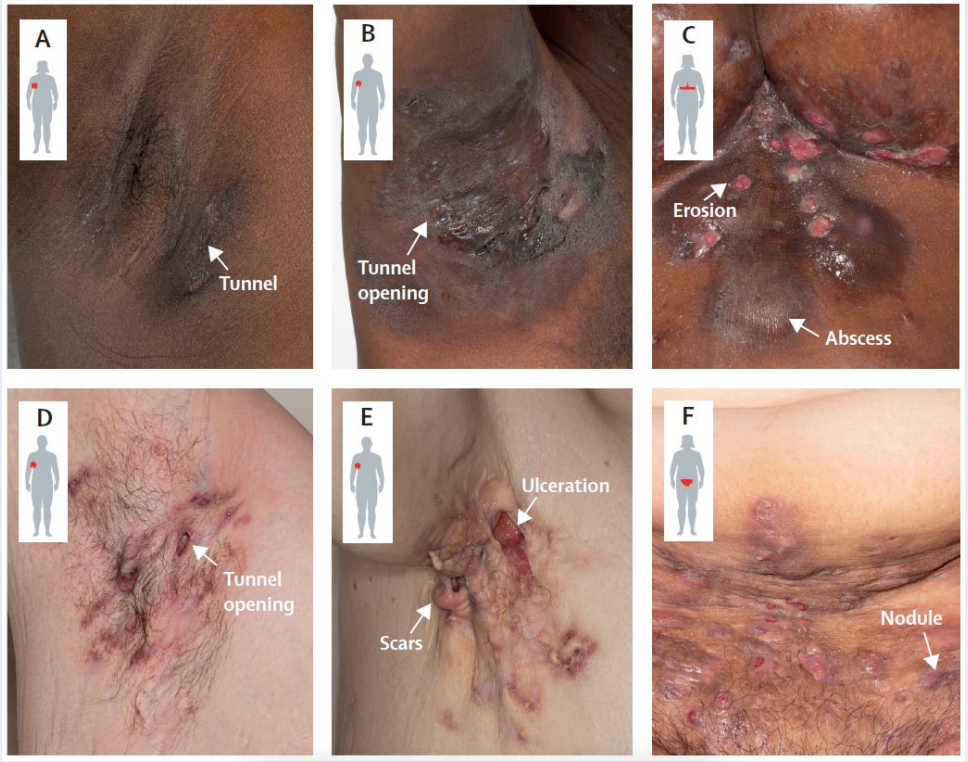
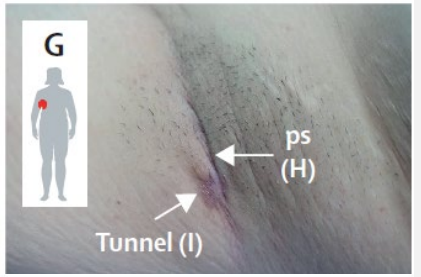
HS Is a Chronic Inflammatory Condition Characterized by Painful Nodules and Abscesses That Can Progress to Draining Tunnels and Irreversible Scarring

HS Skin Lesions in Different Body Areas

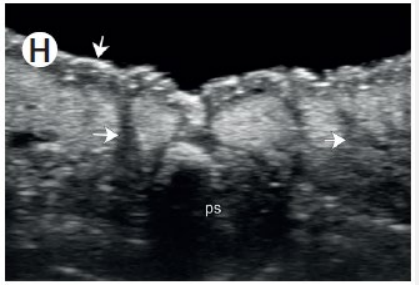


Details on all HS lesion types

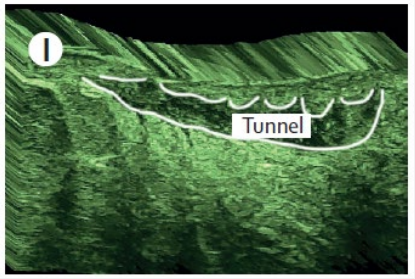
Clinically Mild HS With Ultrasound Showing Progression to Higher Severity



Axillary region scored clinically as mild



Dermal pseudocyst



Dermal tunnel

HS, hidradenitis suppurativa.

Sabat R, et al. *Lancet*. 2025;405:420-438.

Images reproduced from Sabat R, et al. *Lancet*. 2025;405:420-438 (https://creativecommons.org/licenses/by-nc-nd/4.0/).

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HS Can Be Diagnosed Clinically Using 3 Simple Validated Criteria[1,a]

1 Presentation of typical lesions[b]

Nodule[2,3]

Pustules and inflammatory papules[2,3]

Comedones[2,3]

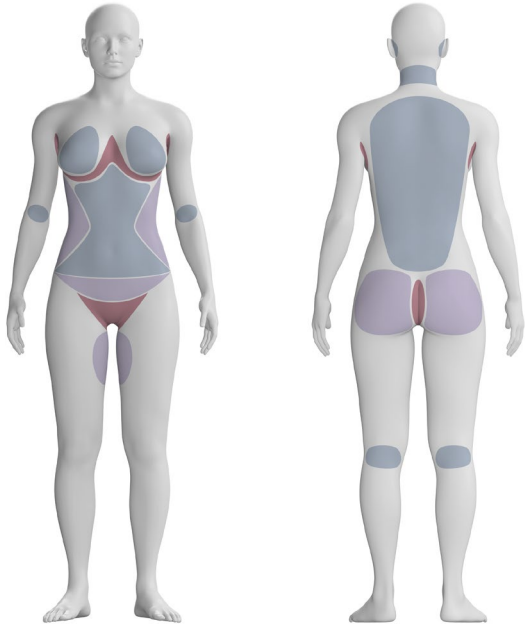
Scarring and damage[2,3]

Draining abscesses[2,4]

Connected tunnels with extensive scarring[2,5]

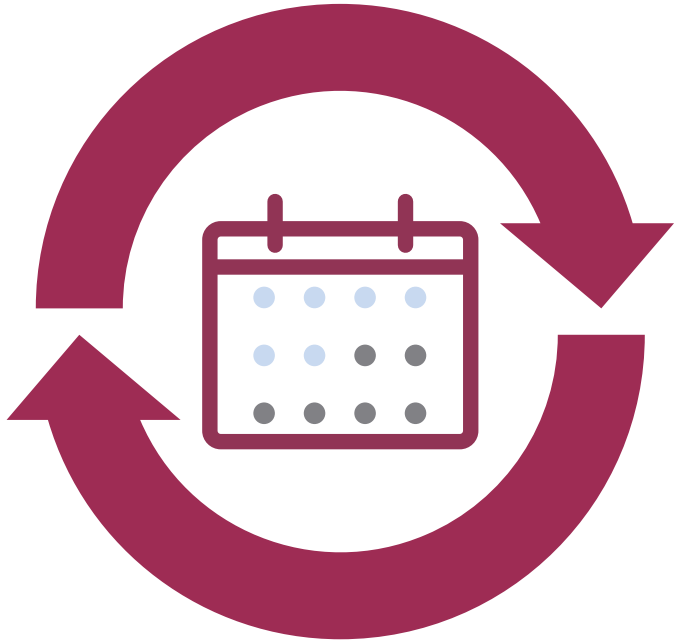
2 Lesions located in flexural body areas

HS-Affected Areas and Lesions[6]



Common prediction sites · Sites associated with friction · Ectopic sites[c]

3 Lesions are chronic and recurrent



Occurring within 6 months of each other

[a] Based on a combination of "yes" to the question "Have you had outbreaks of boils (lesions) during the last 6 months?" and a minimum of 2 boils (lesions). [b] Defined as deep-seated painful nodules or blind boils in early lesions, abscesses, draining sinus, bridged scars, and "tombstone" double-ended pseudocomedones in secondary lesions. [c] Ectopic lesions may occur in atypical regions. These are locations where apocrine glands are minimal or absent.[7]

HS, hidradenitis suppurativa.

1. Vinding GR, et al. *Br J Dermatol*. 2014;170:884-889. 2. Frew JW, et al. *JAMA Dermatol.* 2021;157:449-455. 3. Mendes-Bastos P, et al. *Front Med.* 2024;11:1403455. 4. Scheinfeld, N. *Dermatol Online J*. 2014;20:22737. 5. Mendes-Bastos P, et al. *Br J Dermatol.* 2023;188:591-600. 6. van Straalen KR, et al. *J Allergy Clin Immunol.* 2022;149:1150-1161. 7. Gutierrez N, Cohen PR. *Cureus.* 2021;13:e12966.

Images reproduced from Mendes-Bastos P, et al. *Front Med.* 2024;11:1403455 and Mendes-Bastos P, et al. *Br J Dermatol.* 2023;188:591-600 (https://creativecommons.org/licenses/by/4.0/), as well as Scheinfeld, N. *Dermatol Online J*. 2014;20:22373 (https://creativecommons.org/licenses/by-nc-nd/4.0/).

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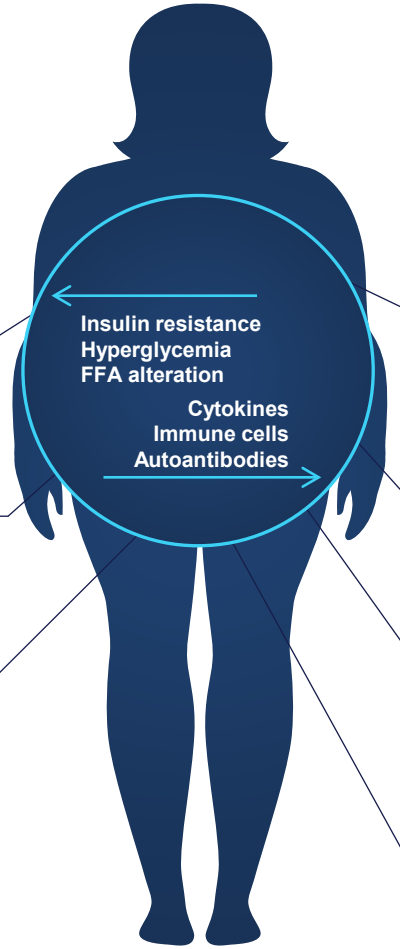
HS Is Associated With Several Comorbid Disorders

Annual screening of associated comorbidities is recommended

Metabolic syndrome
Prevalence: Up to 50%
Screening methods: Waist circumference, blood pressure, fasting blood triglyceride, fasting blood glucose, and blood HDL

Non-alcoholic fatty liver disease
Prevalence: ~55%
Screening method: Liver ultrasound

Type 2 diabetes
Prevalence: Up to 25%
Screening methods: HbA1c or fasting blood glucose



Depression
Prevalence: Up to 30%
Screening method: PHQ-9

Sexual dysfunction
Prevalence: Up to 60%
Screening method: Questionnaire: IIEF (for men) and FSFI (for women)

Inflammatory arthritis
Prevalence: Up to 5.2%
Screening methods: Ask for symptoms or PEST

Inflammatory bowel disease
Prevalence: Up to 2% (Crohn's disease) and up to 1.3% (ulcerative colitis)
Screening methods: Ask for symptoms or fecal calprotectin

FFA, free fatty acid; FSFI, Female Sexual Function Index; HbA1c, hemoglobin A1c; HDL, high density lipoprotein; HS, hidradenitis suppurativa; IIEF, International Index of Erectile Function; PEST, Psoriasis Epidemiology Screening Tool; PHQ-9, Patient Health Questionnaire – nine item.

Sabat R, et al. *Lancet*. 2025;405:420-438.

Image reproduced from Sabat R, et al. *Lancet*. 2025;405:420-438 (https://creativecommons.org/licenses/by-nc-nd/4.0/).

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The Pathophysiology of HS Is Complex With a Heterogenous Inflammatory Profile That Involves Multiple Cytokines and Cell Types

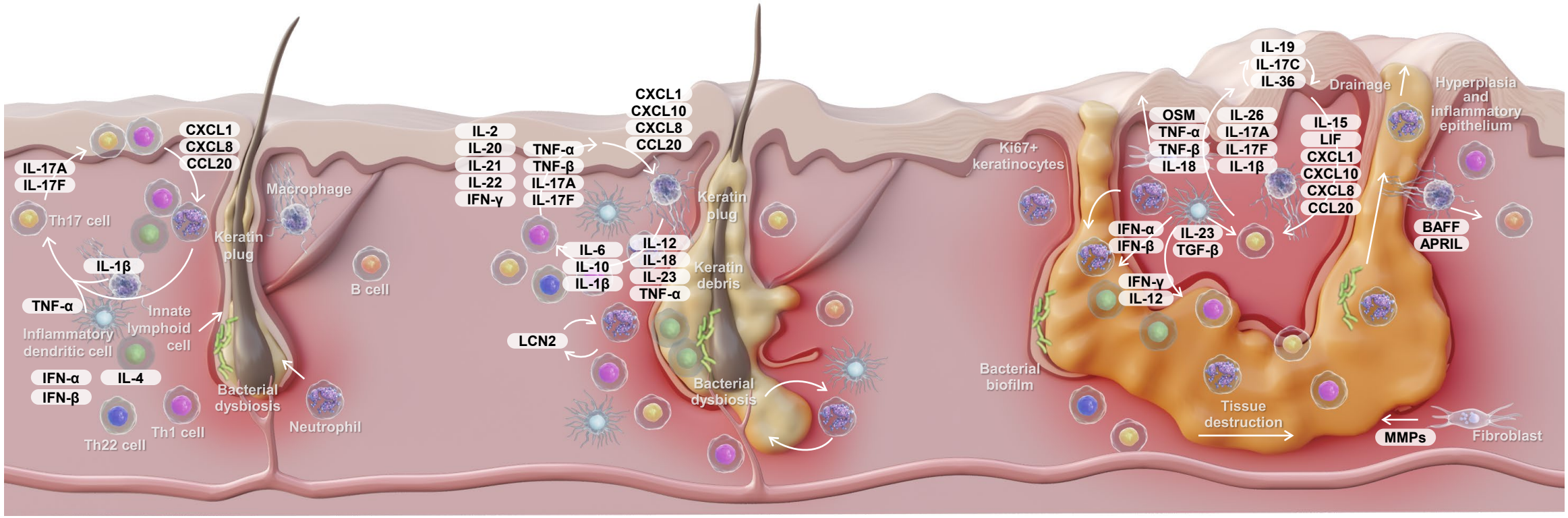
Early HS

Acneiform lesions and folliculitis[1-5]

Advanced HS

Formation of nodules and abscesses[1-9]

Deep dermal tunnels[1-14]



APRIL, A proliferation-inducing ligand; BAFF, B-cell activating factor; CCL, C-C motif chemokine ligand; CXCL, C-X-C motif chemokine ligand; HS, hidradenitis suppurativa; IFN, interferon; IL, interleukin; JAK, Janus kinase; LCN2, lipocalin-2; LIF, leukemia inhibitory factor; MMP, matrix metalloproteinase; OSM, oncostatin M; STAT, signal transducer and activator of transcription; TGF-β, transforming growth factor beta; TNF, tumor necrosis factor.

1. Krueger JG, et al. *Br J Dermatol*. 2024;190:149-162. 2. Maronese CA, et al. *Expert Rev Clin Immunol*. 2024;20:525-545. 3. van Straalen KR, et al. *J Allergy Clin Immunol*. 2022;149:1150-1161. 4. Vossen ARJV, et al. *Front Immunol*. 2018;9:2965. 5. Wolk K, et al. *Br J Dermatol*. 2020;183:999-1010. 6. Del Duca E, et al. *Int J Mol Sci*. 2020;21:8436;doi:10.3390/ijms21228436. 7. Sabat R, et al. *Nat Rev Dis Primers*. 2020;6:18. 8. Freudenberg JM, et al. *PLoS ONE*. 2023;18:e0284047. 9. Carmona-Rivera C, et al. *J Invest Dermatol*. 2022;142:924-935. 10. Cao Y, et al. *J Investigative Dermatol*. 2021;141:2730-2740. 11. Byrd AZ, et al. *Sci Transl Med*. 2019;11:eaav5908. 12. van Straalen KR, et al. *J Clin Invest*. 2024;134:e169225. 13. Kashyap MP, et al. *Proc Natl Acad Sci USA*. 2024;1221:e2409274121. 14. Luo H, et al. *J Dermatol*. 2025;52:481-492.

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Many Cytokines Involved in HS are Mediated by JAK1 Signaling

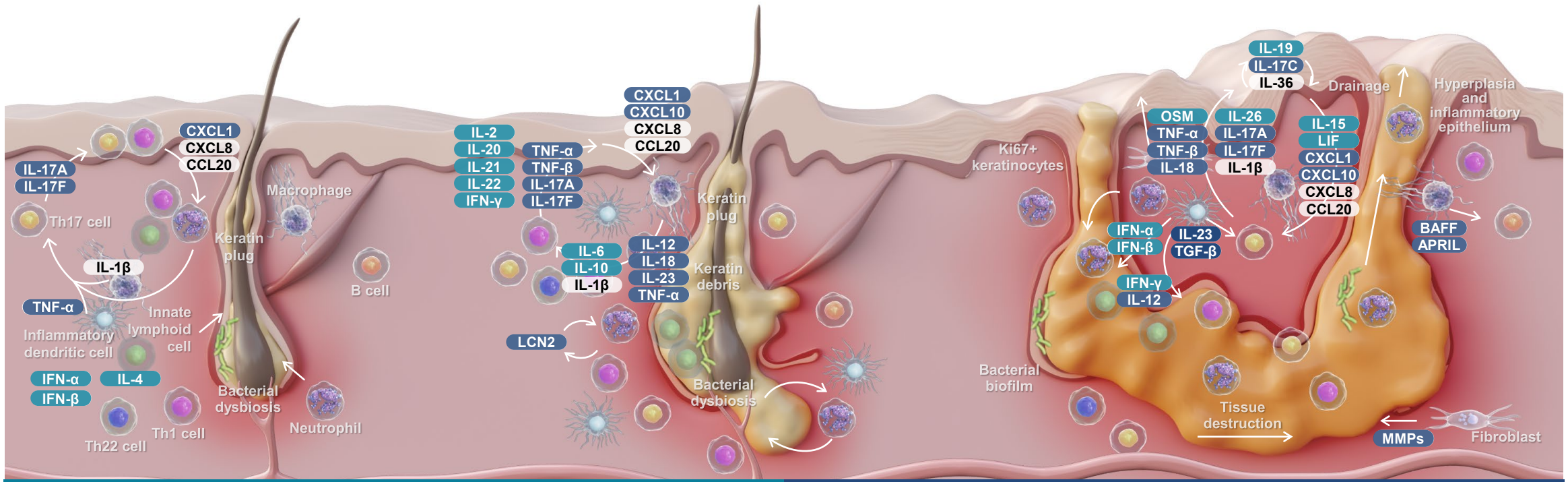
Early HS

Acneiform lesions and folliculitis[1-5]

Advanced HS

Formation of nodules and abscesses[1-9]

Deep dermal tunnels[1-14]



Directly mediated through JAK1: IFN-α, IFN-β, IFN-γ, IL-2, IL-4, IL-6, IL-10, IL-15, IL-19, IL-20, IL-21, IL-22, IL-26, LIF, OSM[15-18]

Indirectly mediated through JAK1: TNF-α,TNF-β, IL-12/IL-23, IL-17,[a] IL-18, LCN2, TGF-β, CXCL1, CXCL10, BAFF, APRIL, select MMPs[2-8,10,19,20]

[a] The role of JAK1 in relation to IL-17 in HS remains to be fully elucidated.

APRIL, a proliferation-inducing ligand; BAFF, B-cell activating factor; CCL, C-C motif chemokine ligand; CXCL, C-X-C motif chemokine ligand; HS, hidradenitis suppurativa; IL, interleukin; IFN, interferon; JAK, Janus kinase; LCN2, lipocalin-2; LIF, leukemia inhibitory factor; MMP, matrix metalloproteinase; OSM, oncostatin M; STAT, signal transducer and activator of transcription; TGF-β, transforming growth factor beta; TNF, tumor necrosis factor.

1. Krueger JG, et al. *Br J Dermatol*. 2024;190:149-162. 2. Maronese CA, et al. *Expert Rev Clin Immunol*. 2024;20:525-545. 3. van Straalen KR, et al. *J Allergy Clin Immunol.* 2022;149:1150-1161. 4. Vossen ARJV, et al. *Front Immunol.* 2018;9:2965. 5. Wolk K, et al. *Br J Dermatol.* 2020;183:999-1010. 6. Del Duca E, et al. *Int J Mol Sci.* 2020;21:8436;doi:10.3390/ijms21228436. 7. Sabat R, et al. *Nat Rev Dis Primers.* 2020;6:18. 8. Freudenberg JM, et al. *PLoS ONE.* 2023;18:e0284047. 9. Carmona-Rivera C, et al. *J Invest Dermatol.* 2022;142:924-935. 10. Cao Y, et al. *J Investigative Dermatol.* 2021;141:2730-2740. 11. Byrd AZ, et al. *Sci Transl Med*. 2019;11:eaav5908. 12. van Straalen KR, et al. *J Clin Invest*. 2024;134:e169225. 13. Kashyap MP, et al. Proc Natl Acad Sci USA. 2024;1221:e2409274121. 14. Luo H, et al. J Dermatol. 2025;52:481-492. 15. Gadina M, et al. *J Leukocyte Biol.* 2018;104:499-514. 16. Morris R, et al. *Protein Science.* 1984;27:1984-2009. 17. Hu X, et al. *Nature.* 2021;6:40211. 18. Virtanen A, et al. *Nat Rev Rheumatol*. 2024;20:649-665. 19. Rumberger BE, et al. *Inflamm Res.* 2020;69:967-973. 20. Tanaka Y, et al. *Nat Rev.* 2022;18:133-145.

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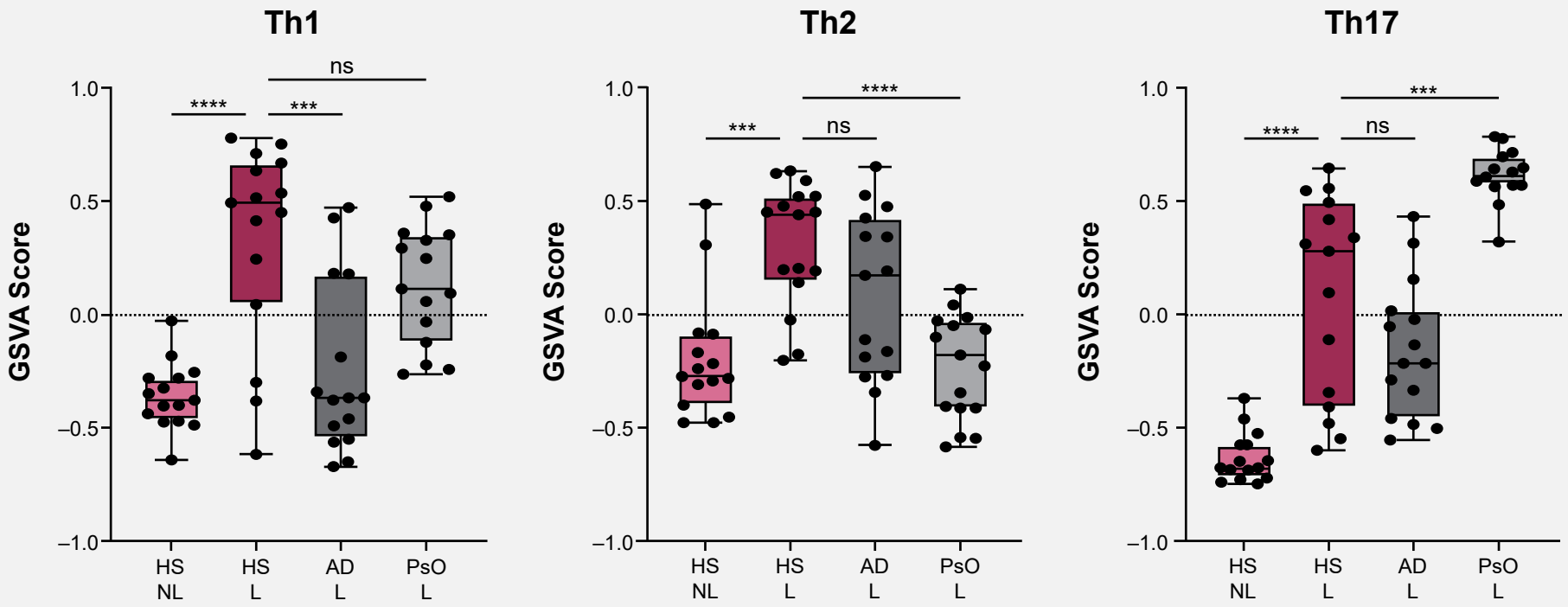
Targeting an Individual Cytokine or Cell Type May Be Insufficient to Impact the Complex Inflammatory Network of HS

A gene set variation analysis to identify inflammatory pathways underlying HS demonstrated:

- Significant upregulation of the innate immune system and multiple adaptive immune pathways in HS lesional skin[a]
- Lack of a dominant Th cytokine axis in HS compared to diseases such as AD (Th2 dominant) and psoriasis (Th1/17 dominant)[b]



*** $P \leq 0.001$, **** $P \leq 0.0001$.

[a] Immune pathways significantly upregulated in HS lesional skin vs non-lesional skin included IFN-α/β, IFN-γ, IL-1, IL-3/IL-5/GM-CSF, IL-6, IL-4, IL-13, IL-12, IL-23, IL-17A/F, and IL-36A/G.

[b] Immune gene signatures using RNA sequencing data. Gene set variation analysis scores of Th1-, Th2-, and Th17-related genes.

AD, atopic dermatitis; GM-CSF, granulocyte/macrophage colony-stimulating factor; GSVA, gene set variation analysis; HS, hidradenitis suppurativa; IFN, interferon; IL, interleukin; L, lesional; NL, non-lesional; ns, non-significant; PsO, psoriasis; Th, T helper cell.

Abdallah HB, et al. *Int J Mol Sci*. 2023;24:17014.

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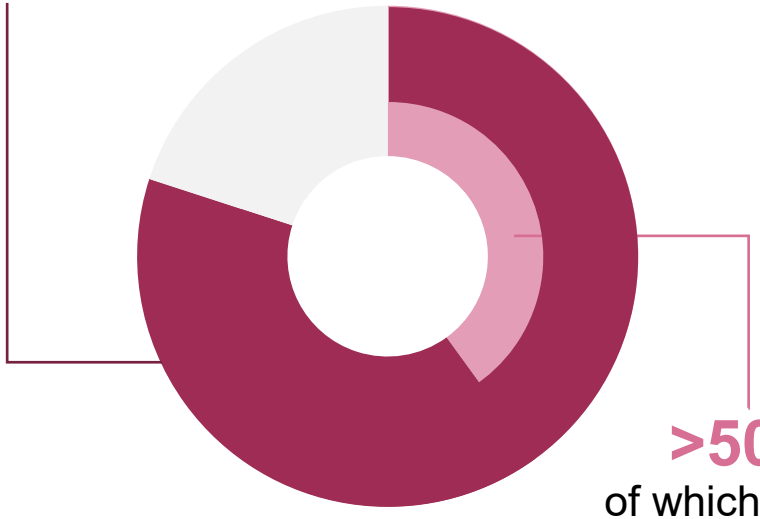
HS Is Associated With Unpredictable and Periodic Flares That Significantly Impact Patients' Lives

Periodic worsening of HS symptoms (flares) can be frequent[1,2]

>80%
of patients experience
≥1 flare monthly



>50%
of which are
at least weekly

How do your patients with HS typically describe flares?[3,a]

"It's very sporadic…However, there are very specific times…I can literally tell you the month, the day, and year that it happened because every single time it's…extraordinarily debilitating. I can't work, I can't do school. I can't function and…every day moving on with my life turns into the worst thing ever."

Female, 25 years old
Hurley stage II

Patients with flares may face difficulties obtaining urgent appointments with dermatologists, and those who resort to emergency care may encounter clinicians with less extensive knowledge of HS and its management[3,4]

[a] Based on a study that employed semistructured interviews among participants recruited prospectively from an academic dermatology specialty clinic at the Emory Clinic in Atlanta, Georgia, USA, with additional patients referred from Grady Memorial Hospital. HS flares were described as intermittent periods of worsening HS symptoms, sometimes associated with new or worsening of existing skin lesions.[3]

HS, hidradenitis suppurativa.

1. Garg A, et al. *J Am Acad Dermatol*. 2020;82:366-376. 2. Sabat R, et al. *Nat Rev Dis Primers*. 2020;6:18. 3. Orenstein LAV, et al. *Br J Dermatol*. 2023;188:41-51. 4. Carswell Q, et al. *Br J Dermatol*. 2024;191:833-834.

Image reproduced from Mendes-Bastos P, et al. *Front Med*. 2024;11:1403455 (https://creativecommons.org/licenses/by-nc-nd/4.0/).

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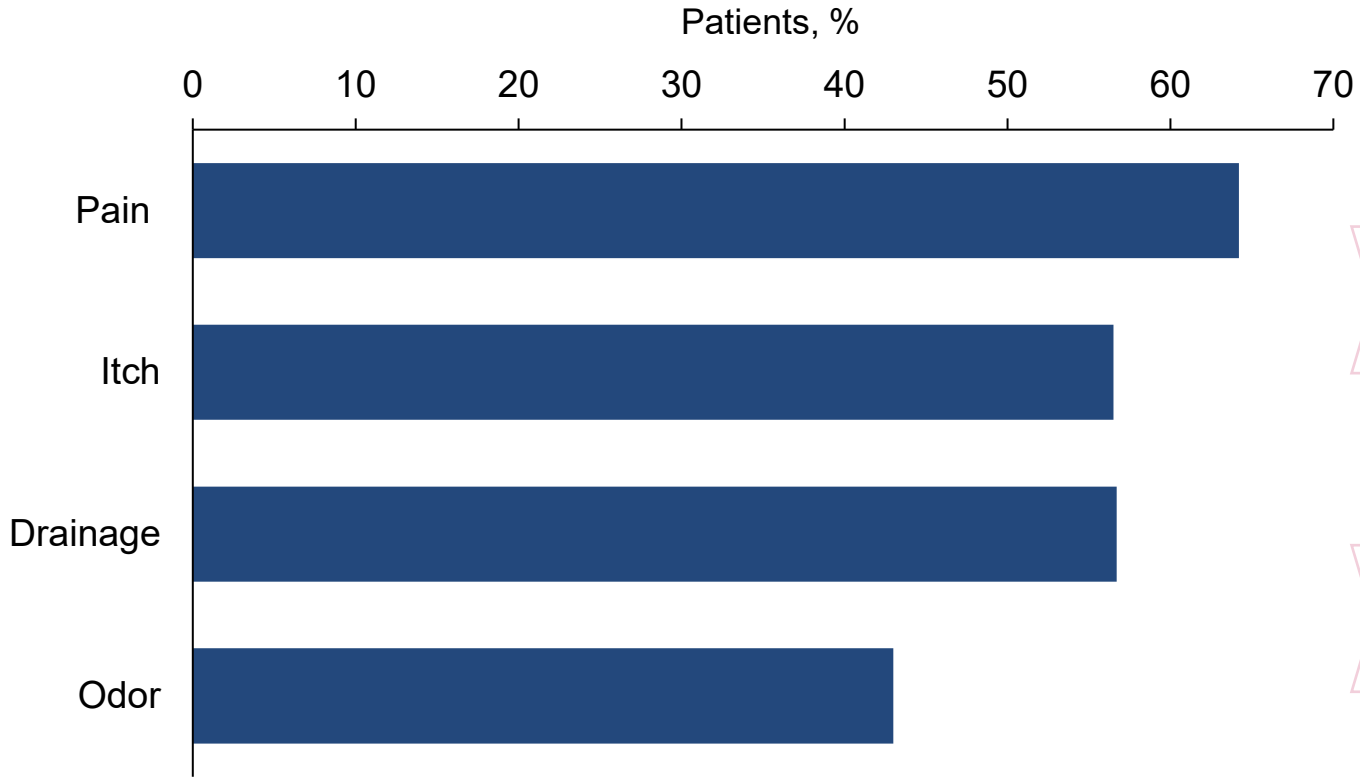
Symptoms Associated with Flares Can Be Debilitating and Affect How Patients Navigate Daily Life[1-3]

Patients Reporting Symptoms as Moderately to Extremely Bothersome[4,a]



Anxiety and depression correlate with greater pain and itch severity, which can impact how patients approach **work, school, exercise, and daily activities**[1,2]

Stigma and embarrassment from malodorous drainage and stains, may lead patients to **adjust their clothing to conceal signs of HS**[3]

[a] Data derived from the Global VOICE study, which was a prospective multinational survey of patients with HS conducted between Oct 2017 and July 2018. A total of 1,299 participants were included, and 38% were from North America.[4]

HS, hidradenitis suppurativa; VOICE, Survey of Impact and Healthcare Needs.

1. Li Y, et al. *Dermatology*. 2023;239:1007-1012. 2. Fernandez JM, et al. *Int J Dermatol*. 2021;60:e56-e59. 3. Swoboda L, et al. *J Wound Care*. 2025;34(Sup7b):S1-S27.
4. Garg A, et al. *J Am Acad Dermatol*. 2020;82:366-376.

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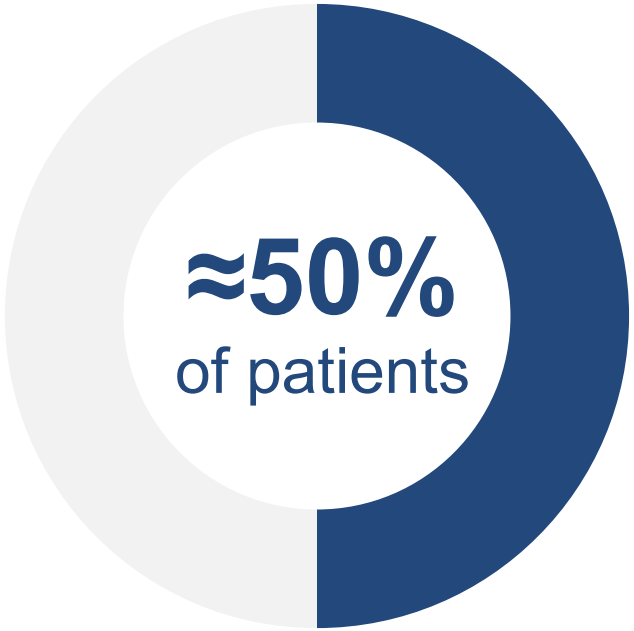
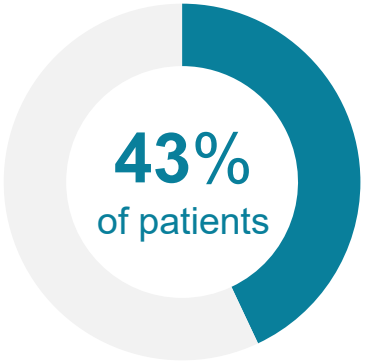
HS Can Progress Over Time, Resulting in Increased Disease Severity, Spreading of Lesions, and Scarring

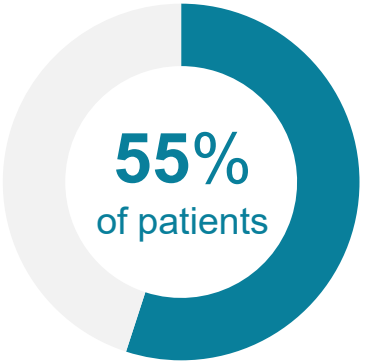
Disease progression[a] after 2 years of follow-up seen in



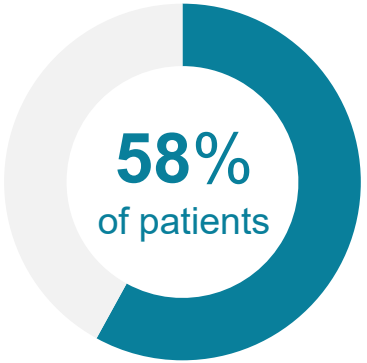
HS disease progression among 208 patients from the HS UNITE registry followed through 4 years



Lesion spread[b]



Scar spread[c]



Disease stage progression[d]

[a] Defined as lesion spread, scar spread, and Hurley shift. [b] Defined as an abscess, inflammatory nodule, or draining tunnel in a new anatomic location. [c] Defined as scarring in a new anatomic location. [d] Defined as a shift to a higher Hurley stage in any anatomic region.
HS, hidradenitis suppurativa.
Kimball AB, et al. *J Am Acad Dermatol*. 2021;85(AB29):27035.

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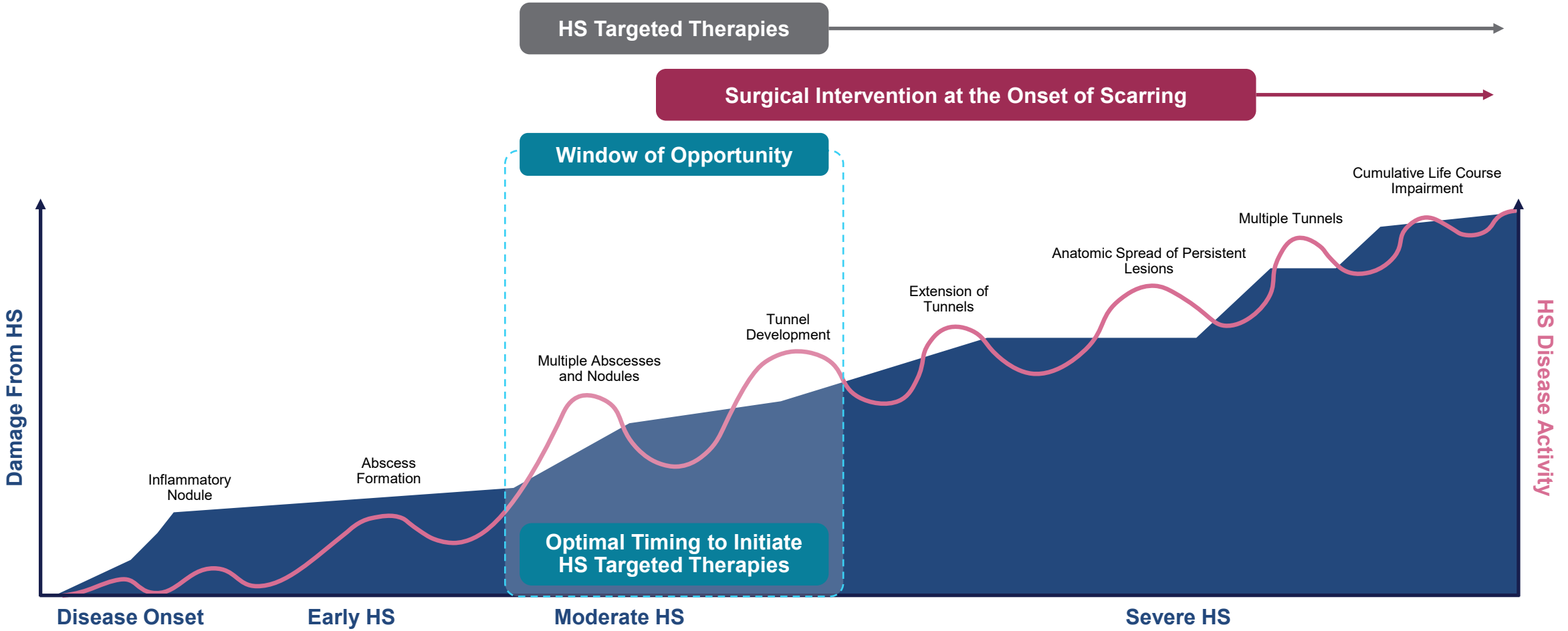
Early Intervention With Targeted Therapies Provides the Opportunity to Address Chronic Inflammation and Potentially Delay Progression



HS, hidradenitis suppurativa.

Martorell A, et al. *Am J Clin Dermatol*. 2026;27:217-226.

Figure adapted from Martorell A, et al. *Am J Clin Dermatol*. 2026;27:217-226 (http://creativecommons.org/licenses/by-nc/4.0/).

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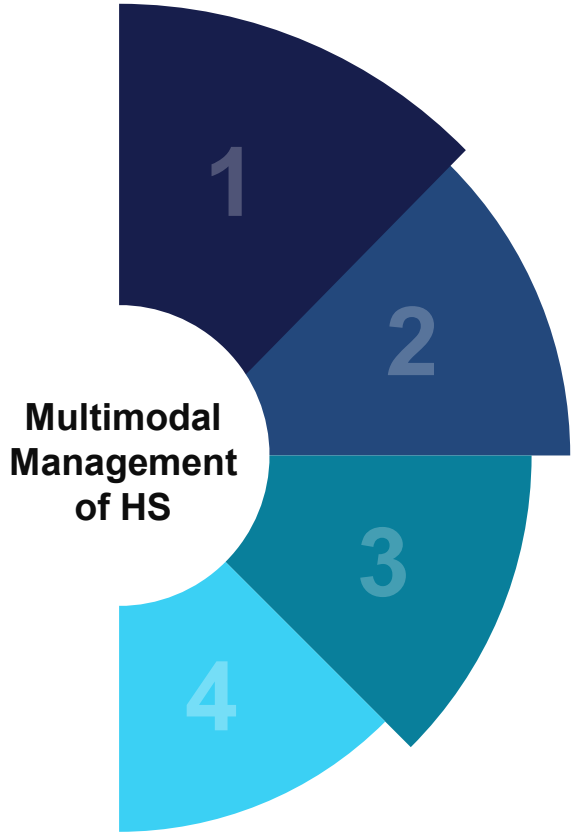
Management of HS Requires a Multimodal Approach[1-3]



1 Medical Management
- Topical and systemic antibiotics
- Hormonal therapies
- Retinoids
- Biologics

2 Procedural Treatment
- Local excision
- Wide surgical excision
- Laser hair removal
- Deroofing

3 Acute Lesions
- Topical therapies
- Intralesional therapies
- Incision and drainage

4 Flare Care Plan

Additional Considerations

Pain Management

Wound Care

Mental Health

Address Comorbid Conditions

HS, hidradenitis suppurativa.

1. Alikhan A, et al. *J Am Acad Dermatol*. 2019;81:91-101. 2. Alikhan A, et al. *J Am Acad Dermatol*. 2019;81:76-90. 3. Snyder CL, et al. *Clin Cosmet Investig Dermatol*. 2023;16:1833-1841.

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Disease Severity Informs Medical Management of HS[1-3]

Inflammatory lesions without irreversible skin destruction	Inflammatory lesions and irreversible skin destruction	Irreversible skin destruction without inflammatory lesions
Mild	**Moderate**	**Severe**	**Late-Stage Disease**
Management approaches supported by literature and expert opinion[a]		
• Local antibiotics • Local antiseptics/keratolytics • Systemic antibiotics • Intralesional steroid injections • Hormonal therapies	• FDA-approved biologics: adalimumab, secukinumab, bimekizumab • Systemic antibiotics (alone or in combination with biologics) • Infliximab • Oral steroids	• None

[a] All management approaches for HS are off-label except for the above-mentioned FDA-approved biologics.
HS, hidradenitis suppurativa.
1. Sabat R, et al. *Lancet*. 2025;405:420-438. 2. Charrow A, et al. *J Am Acad Dermatol*. 2024;91:S27-S30. 3. Alikhan A, et al. *J Am Acad Dermatol*. 2019;81:91-101.

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Hurley Staging Is a Static, Regional Measurement of HS Developed to Identify Candidates for Surgical Therapy[1,2]

Hurley Stage 1	Hurley Stage 2	Hurley Stage 3
Abscess formation, single or multiple, without tunnels or cicatrization[2]	Recurrent abscesses, single or multiple, and widely separated lesions, with tunnel formation and/or scarring[2]	Diffuse or near-diffuse involvement or multiple interconnected tunnels and abscesses across the entire area[2]

Surgical/procedural approaches[3,4]

- Local procedures for persistent nodules and abscesses; intralesional steroids; deroofing/excision; laser hair removal, carbon dioxide laser; incision and drainage
- Local procedures for tunnels; deroofing/excision; carbon dioxide laser
- Radical wide excision

HS, hidradenitis suppurativa.

1. Sabat R, et al. *Lancet*. 2025;405:420-438. 2. Sabat R, et al. *Nat Rev Dis Primers*. 2020;6:18. 3. Seyed Jafari SM, et al. *Front Med (Lausanne)*. 2020;7:68. 4. Alikhan A, et al. *J Am Acad Dermatol*. 2019;81:91-101.

Images reproduced from Mendes-Bastos P, et al. *Front Med*. 2024;11:1403455 (https://creativecommons.org/licenses/by-nc-nd/4.0/).

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How to Identify Moderate HS and Disease Progression to Inform Treatment Decisions

Treatment escalation should be considered in patients who meet any of the following criteria:

Moderate HS

Inadequate control of HS symptoms on conventional therapies

One **active tunnel** (draining or non-draining), or

At least 4 **inflammatory lesions** (inclusive of inflammatory nodules and abscesses) involving at least 2 **anatomic areas**

Disease Progression

One or more **new tunnel** and/or extension of existing tunnels

One or more persistent HS lesion(s) in **new anatomical region**

One or more **persistent HS lesions** in affected region

- Persistence defined as present for at least 12-16 weeks

These criteria inform shared decision making with patients to ensure timely follow-up and initiation of the most appropriate treatment for HS

HS, hidradenitis suppurativa.

Martorell A, et al. *Am J Clin Dermatol*. 2026;27:217-226.

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Treatment Goals and Assessment of Treatment Response

1

Evaluate reduction of disease activity through:[1]

- A decrease in frequency, intensity, and duration of active lesions and flares
- A decrease in symptoms of pain, itch, or drainage
- Improvement in patient-reported outcomes

2

Ask simple questions to assess disease progression:[1,2]

- What degree of improvement (0% to 100%), if any, have you experienced since starting your current treatment?
- What aspect of HS is challenging for you to manage this week or lately?
- How has HS affected your personal relationships and/or your employment?

3

Regular Monitoring[2]

Enable timely treatment adjustments and optimize response while monitoring disease progression

[a] For patients on systemic therapies; patients on maintenance therapy with stable disease may be seen every 6 months, or sooner if flare-ups occur.[2]
HS, hidradenitis suppurativa.

1. Dagenet CB, et al. *J Am Acad Dermatol*. 2024;91:S22-S26. 2. Iska N, et al. *Dermatol Clin*. 2025;43:203-219.

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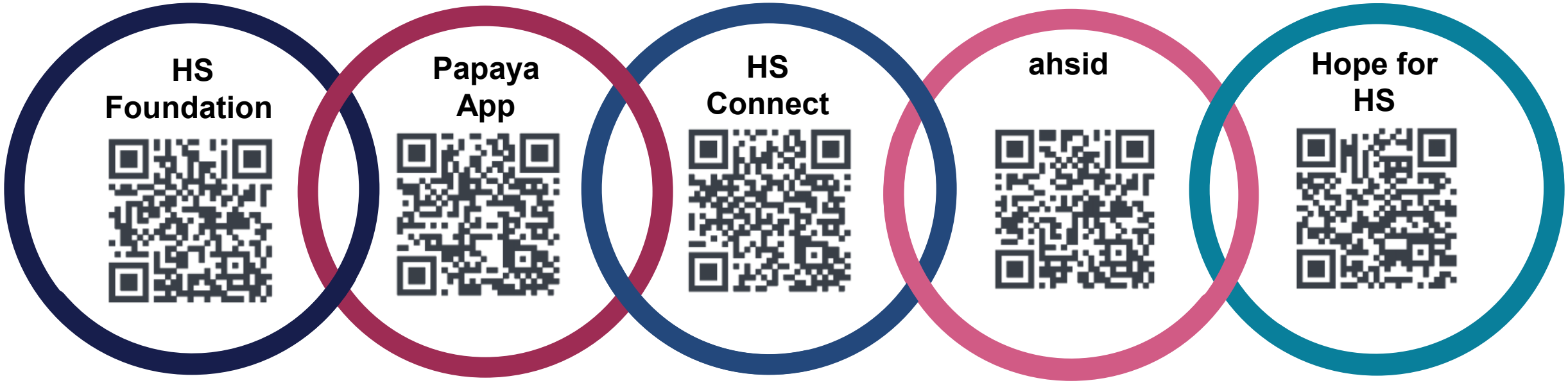
Trusted Communities and Resources to Support HS Care[1-5,a]

Education: Trusted HS information to set expectations and reduce misinformation

Support: Communities that promote connection and amplify the patient voice

Engagement: Tools that can help patients track symptoms and share patterns with clinicians



[a] This is not a complete list of organizations and should not be considered an endorsement of any particular organization.
ahsid, Association of Hidradenitis Suppurativa and Inflammatory Diseases; HS, hidradenitis suppurativa.

1. HS Foundation. Accessed Apr 2026. https://www.hs-foundation.org/ 2. Papaya App. Accessed Apr 2026. https://hspapaya.com/ 3. HS Connect. Accessed Apr 2026. https://hsconnect.org/ 4. ahsid. Accessed Apr 2026. https://www.theahsid.org/ 5. Hope for HS. Accessed Apr 2026. https://hopeforhs.org/

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Summary

1. **HS is a chronic inflammatory disease** characterized by painful nodules and abscesses that can progress to draining tunnels and irreversible scarring, with pathophysiology involving JAK-STAT signaling[1-5]

2. **HS is associated with unpredictable flares** that can frequently and significantly impact patients' lives[1,6]

3. **Early intervention with effective treatment** provides the opportunity to address chronic inflammation and potentially delay disease progression[7]

4. **Setting treatment goals and regularly monitoring disease activity** after treatment initiation are important to enable timely modification of the treatment plan as necessary[8]

HS, hidradenitis suppurativa; JAK, Janus kinase; STAT, signal transducer and activator of transcription.

1. Sabat R, et al. *Nat Rev Dis Primers*. 2020;6:18. 2. Nguyen TV, et al. *J Eur Acad Dermatol Venereol*. 2021;35:50-61. 3. van Straalen KR, et al. *J Allergy Clin Immunol.* 2022;149:1150-1161.
4. Krueger JG, et al. *Br J Dermatol*. 2024;190:149-162. 5. Maronese CA, et al. *Expert Rev Clin Immunol*. 2024;20:525-545. 6. Garg A, et al. *J Am Acad Dermatol*. 2020;82:366-376.
7. Sabat R, et al. *Lancet*. 2025;405:420-438. 8. Iska N, et al. *Dermatol Clin*. 2025;43:203-219.

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Appendix

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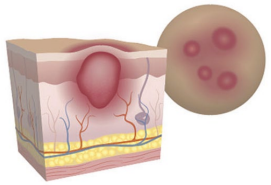
HS Lesion Types

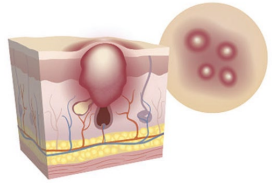
Papule[1]

Solid, palpable lesion ≤1 cm



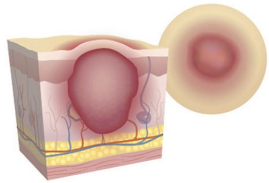
Pustule[1]

Superficial circumscribed lesion that contains opaque fluid (pus) ≤1 cm



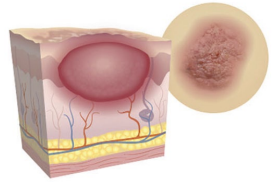
Nodule[1]

Solid, spherical, palpable lesion ≥1 cm



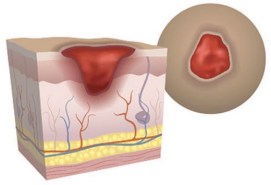
Plaque[1]

Variably shaped, nonspherical, palpable lesion >1 cm



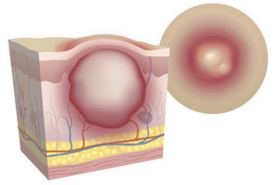
Ulcer[1,2]

Full-thickness loss of epidermis plus portion of dermis[a]



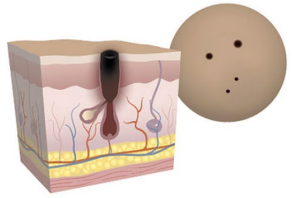
Abscess[1]

Tender, fluctuant or compressible, palpable lesion with erythema



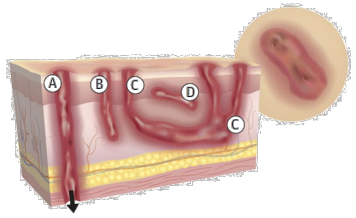
Comedo[1,2]

Dilated hair infundibulum with oxidized keratinous debris[b]



Tunnel[1]

Linear tract that may open onto the skin surface[c]



[a] May extend into subcutaneous tissue.[2] [b] Definition for open ("blackhead") comedo. Closed ("whitehead") comedo defined as expansion of hair infundibulum by keratinous debris, usually no connection to skin surface.[2] [c] A depicts a connection to hollow organ, B depicts a blind ending, C depicts multiple skin-to-skin openings, and D depicts no opening to surface.[1]
HS, hidradenitis suppurativa.

1. Frew JW, et al. *JAMA Dermatol*. 2021;157:449-455. 2. Nast A, et al. *Br J Dermatol*. 2016;174:1351-1358.

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