Clinical Expert Series

Clinical Epidemiology and Management of Hidradenitis Suppurativa

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Hidradenitis suppurativa is a chronic immune-mediated inflammatory skin disease with a prevalence of 0.1–1%, characterized by nodules and abscesses in the axillae, groin, and inframammary areas, sometimes developing into tunnels (or fistulas) and scars. Because hidradenitis suppurativa is more common in women and in those aged 18–40 years, obstetrician–gynecologists (ob-gyns) have the opportunity to diagnose, educate, initiate treatment, and coordinate care with ancillary health care professionals. The recently published North American treatment guidelines, along with management information for patients with hidradenitis suppurativa who are pregnant or breastfeeding, are summarized. By diagnosing and optimizing hidradenitis suppurativa treatment early in the disease course, ob-gyns can reduce morbidity, with the potential to favorably alter disease trajectory.

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Obstetrician–gynecologists (ob-gyns) often serve as the primary medical contact for female patients with hidradenitis suppurativa. The first North American clinical management guidelines from the U.S. and Canadian Hidradenitis Suppurativa Foundations (NAHS guidelines hereafter) have been recently published,1,2 which creates an opportunity to summarize these guidelines and other recent related literature for ob-gyns.

Morbidity and mortality in hidradenitis suppurativa cannot be overstated: pain and malodorous drainage torment patients, and the condition is independently associated with increased mortality after adjusting for other comorbidities.3 Early intervention requires establishing the diagnosis soon after initial symptoms, but evidence suggests that current efforts are insufficient. The average time from symptom onset to diagnosis is 10 years, with 65% of patients having six or more physician visits before diagnosis.4 This delay, coupled with multiple misdiagnoses, fragmented care, and inappropriate treatments contributes to disease progression and morbidity.

Acute lesions are painful inflammatory nodules (solid, raised, round-oval lesions without puncta associated with redness and tenderness) and abscesses (fluctuant, exquisitely tender lesions that can drain purulent fluid), typically in axillary, inframammary, and inguinal areas (Fig. 1). More than half of patients experience disease flares at least weekly.4 Over time, hypertrophic scars or tunneling sinus tracts may develop that drain purulent, malodorous fluid and

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limit range of motion. Almost 15% report disease-related disability. Approximately 5% of patients with hidradenitis suppurativa report that ob-gyns were the physicians who correctly diagnosed their disease, positioning ob-gyns to help shorten diagnostic delay. Diagnosis is based on the clinical criteria of 1) typical inflammatory lesions: abscesses, nodules, and tunnels (openings at the skin surface, sometimes draining malodorous fluid), 2) in intertriginous locations (eg, axilla, inframammary areas, crural folds), with 3) history of recurrence. Disease progression can be staged using the Hurley classification system: stage I connotes the absence of tunnels or scarring, stage II connotes the presence of tunnels or scarring interspersed among areas of normal skin, stage III connotes diffuse tunnels or scarring replacing all, or nearly all, normal skin in an entire anatomic region. Female and male patients with hidradenitis suppurativa have a similar likelihood of axillary involvement, with females more commonly having disease activity in mammary, intermammary, and inguinofemoral regions, and males more commonly having sequelae in perianal, perineal, and buttock regions; it is unknown whether the frequency of misdiagnosis differs for men and women. Principal diseases in the differential diagnosis include inflamed epidermal inclusion cyst (or epidermoid cyst), nodulocystic acne, and furuncle (or carbuncle) (Fig. 2 and Table 1). Furuncles and inflamed epidermal inclusion cysts typically have a punctum, are not predominantly localized in intertriginous areas, and with inflamed cysts there is typically a chronic history of a noninflamed cyst present before onset of inflammation. Nodulocystic acne typically is localized to the face and torso, and acne lesions do not typically form tunnels.

Hidradenitis suppurativa is hypothesized to be an inflammatory, not infectious, disease of the hair follicle. Follicular hyperkeratosis, with subsequent rupture of the hair follicle and spillage of contents into the dermis, provokes intense inflammation associated with upregulation of multiple pro-inflammatory cytokines. Though dysbiosis and colonization with biofilm-forming bacteria occurs, its role in disease pathogenesis is unclear.

EPIDEMIOLOGY AND COMORBIDITIES

The most comprehensive prevalence estimates in the United States and United Kingdom range from 0.1% to 1%. Most patients are aged 18–40 years. The standardized point prevalence in U.S. women is approximately 2.4-fold higher than in men and 3-fold higher among Black patients than White patients. Increased body mass index (BMI, calculated as weight in kilograms divided by height in meters squared) is positively associated with presence and severity of hidradenitis suppurativa, and smoking tobacco is a risk factor.

As a chronic inflammatory disease, hidradenitis suppurativa exemplifies the link between integumentary and comorbid systemic disease through shared inflammatory pathways. Patients have double the comorbidity burden compared with the general population, and hidradenitis suppurativa has independent associations with several individual comorbid diseases (Table 2). Polycystic ovarian syndrome (PCOS) prevalence among women with hidradenitis suppurativa is 9.0%, approximately twice the independent odds for patients who do not have hidradenitis suppurativa, yet there is no evidence of biochemical hyperandrogenism in women with hidradenitis suppurativa compared with matched controls.

The most frequent, and perhaps most severe, comorbidities in hidradenitis suppurativa are psychiatric. Depression prevalence is estimated to be as high as 43%, yet suicidal ideation or attempt has been reported in 12% of patients, who tragically demonstrate increased rates of completed suicide, particularly among women. The devastating effect of physical pain presumably leads to the greater reported risk for substance use disorder (4% prevalence). Patients with hidradenitis suppurativa were observed to have a 53% greater risk of chronic opioid use compared with controls in adjusted analyses.

MANAGEMENT

Treatment plans must address both acute control of symptoms such as pain and drainage as well as management of chronic problems such as tunneling, disfigurement and progression. In patients with active inflammation, pharmacologic treatment is first line for all levels of disease activity. Excision is typically reserved for disease inadequately responsive to pharmacologic intervention, or for localized disease.

LIFESTYLE MODIFICATIONS

Lifestyle modifications such as smoking cessation, weight loss, or modifications in shaving or antiperspirants are not supported by high-quality evidence and can be considered medical and surgical treatment adjuncts. It is unclear whether changes in smoking status influence hidradenitis suppurativa severity, treatment response, or disease duration (though smoking cessation is encouraged to improve overall health).

Inconsistent and limited evidence supports an association between increasing BMI and worsening...
hidradenitis suppurativa severity. Despite limited evidence and possible confounding variables (Rayner CR. Pathogenesis, clinical features and management of hidradenitis suppurativa [letter]. Ann R Coll Surg Engl 1997;79:309.), screening for and treating obesity (BMI 30 or higher) is encouraged. Though insufficient evidence exists, benefits from avoiding dairy and brewer’s yeast (Saccharomyces cerevisiae) have been described. Case reports and a survey study suggest that tight-fitting clothing or other sources of rubbing contribute to hidradenitis suppurativa flares. Whether personal care practices such as hair removal (eg, shaving) and use of deodorant or antiperspirant exacerbates this condition is unclear because research is limited by recall bias.

Patients with hidradenitis suppurativa often show high interest in complementary and alternative medical therapy, but it should be considered adjunctive owing to limited evidence. An uncontrolled prospective study of zinc gluconate at 90 mg daily in 22 patients was associated with a 36% rate of clinical
remission.43,44 An uncontrolled prospective study of vitamin D supplementation in 14 patients noted that all had evidence of vitamin D deficiency (serum 25-hydroxyvitamin D3 levels less than 30 ng/mL) at baseline, with serum levels negatively correlated with disease severity, and that supplementation tailored to patients’ measured vitamin D level was associated with a 51% reduction in inflammatory nodule count.45 Insufficient evidence exists to generally recommend use of zinc or vitamin D.

PHARMACOLOGIC THERAPY

Topical therapy is appropriate for most patients with hidradenitis suppurativa. Based on expert opinion, the NAHS guidelines support the use of chlorhexidine, benzoyl peroxide, or zinc pyrithione antimicrobial washes; topical retinoid therapy is not recommended.2 Clindamycin 1% solution twice daily is recommended, based on placebo- and active-controlled trials,46,47 and concomitant use of benzoyl peroxide is suggested to reduce development of antibiotic resistance.2 For acute flares, intraleional triamcinolone 10 mg/mL (0.2–2.0 mL) may rapidly reduce pain and inflammation.48,49

The four recommended classes of systemic therapy include antibiotics, hormonal therapy, oral retinoids, and immunosuppressants, though comparative studies are lacking, with detailed dosing and duration information recently reviewed.50 The NAHS guidelines do not include a treatment algorithm flow diagram to tier these classes.

The NAHS guidelines make five specific recommendations for systemic antibiotics: 1) tetracyclines; 2) clindamycin combined with rifampin51–54; 3) moxifloxacin, metronidazole, and rifampin in combination; 4) dapsone; and 5) IV ertapenem, with tetracyclines and clindamycin plus rifampin receiving top-line recommendations (Table 3). Efficacy of clindamycin monotherapy (150 mg four times daily) has also been described55 as an alternative to combination therapy. Chronic therapy with clindamycin and rifampin in combination is not recommended in the NAHS guidelines, presumably because of the paucity of long-term safety data, though a critical appraisal of the literature suggests that long-term treatment may not substantially increase risks over short-term treatment.56 Because hidradenitis suppurativa is an inflammatory disease, it is unclear whether antibiotics’ efficacy is due to anti-inflammatory effects or disruption of host–microbiome interactions that fuel inflammation. Recurrence of disease activity frequently follows therapy interruption or

<table>
<thead>
<tr>
<th>Disease</th>
<th>Presentation</th>
<th>Differentiating From Hidradenitis Suppurativa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflamed epidermal inclusion cyst</td>
<td>Epidermal cyst, often with a visible punctum or plug, can become inflamed if ruptured</td>
<td>Typically solitary (multiple 2–10-mm asymptomatic cysts on labia majora can occur) Not localized to intertriginous areas Chronic, can express malodorous, “cheesy” keratinous debris</td>
</tr>
<tr>
<td>Nodulocystic acne</td>
<td>Comedones and inflamed nodules and cysts</td>
<td>Involves head, neck, and torso, with only occasional intertriginous involvement</td>
</tr>
<tr>
<td>Furuncles or carbuncles</td>
<td>Inflamed, tender, fluctuant abscesses</td>
<td>May have superficial and visible pustule Can be associated with circumferential erythema, lymphangitis, and fever No history of periodic waxing and waning Arises in any location</td>
</tr>
<tr>
<td>Endometriosis</td>
<td>Red-brown-violaceous nodule</td>
<td>Flares with menses (some patients with hidradenitis suppurativa also have menstrual flares) Not purulent Not localized to intertriginous areas</td>
</tr>
<tr>
<td>Bartholin gland cyst</td>
<td>Cyst, sometimes inflamed or infected, localized to posterior introitus</td>
<td>Not localized to intertriginous areas</td>
</tr>
<tr>
<td>Lymphadenopathy</td>
<td>Skin-colored nodules</td>
<td>No epidermal component Localized to areas with lymph nodes</td>
</tr>
<tr>
<td>Cutaneous Crohn’s disease</td>
<td>Anal canal fissures, sometimes associated with ulcers or fistulas</td>
<td>Lesions typically localized only to perianal or anal area Other symptoms of Crohn’s disease (e.g., diarrhea, abdominal pain) typically present</td>
</tr>
</tbody>
</table>
discontinuation. Bacterial culture should not be routinely performed (unless secondary soft tissue infection is suspected) and does not typically guide antibiotic selection.1

Hormonal effect in hidradenitis suppurativa is suggested by typical disease onset around or after puberty, exacerbation during pregnancy for some patients (Fig. 3), association with PCOS, and worsening with menstrual cycles.12,57,58 The mechanism by which hormones affect the disease is unclear (there is no evidence for significant differences between hidradenitis suppurativa and control patients in mean basal levels of estrogen and other sex hormones),59 yet clinical evidence suggests that combination oral contraceptives, spironolactone, and finasteride can be effective (Table 3). Both ethinyl estradiol with norgestrel and ethinyl estradiol with cyproterone acetate resulted in similar improvement, with 50% (12/24) of patients improving or clearing completely.60 Progestin-only contraceptives should be used cautiously; a case series suggests these may sometimes trigger hidradenitis suppurativa.61 Spironolactone or finasteride should be considered as monotherapy in women with mild-to-moderate symptoms or as adjunctive agents for more severe disease. Patients reporting hidradenitis suppurativa flares around menses or with features of PCOS may more likely benefit.62,63 Metformin, 500 mg 2–3 times daily, was associated with significant improvement in a 24-week uncontrolled, prospective study. Most patients (22/25) were women with features of PCOS.64

Oral retinoids are typically either ineffective in hidradenitis suppurativa, or have efficacy limited mostly to milder cases.65–67 Expert opinion suggests acitretin is superior to isotretinoin, but comparative evidence is lacking. Oral retinoids should be prescribed by those familiar with side effects, including teratogenicity, and laboratory monitoring, and mostly considered if nodulocystic acne is concomitant.

Broad immunomodulators such as methotrexate, azathioprine, and cyclosporine have shown limited efficacy in scarce published data and generally are not recommended.68–72 Prednisone can be effective at a dose of 10 mg daily as an adjunct to other therapies, though the benefits of prolonged use should be balanced against the risks of hyperglycemia, osteoporosis, and immunosuppression.73 Prednisone or prednisolone pulses (0.5–0.7 mg/kg/d tapered over several weeks) can be used as rescue therapy for flares or to bridge between long-term therapies.74

The cornerstone of therapy for moderate-to-severe hidradenitis suppurativa is immunomodulation targeting tumor necrosis factor (TNF). Adalimumab 40 mg weekly is approved by the U.S. Food and Drug Administration for treating moderate-to-severe hidradenitis suppurativa in patients aged 12 and older (dosing is 40 mg every other week for adolescents weighing less than 132 pounds) (Fig. 4).75 Two parallel double-blind placebo controlled phase 3 trials (PIONEER 1 and PIONEER 2) evaluated a primary end point of hidradenitis suppurativa clinical response

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**Table 2. Comorbid Conditions Associated With Hidradenitis Suppurativa**

<table>
<thead>
<tr>
<th>Organ System</th>
<th>Comorbid Disease</th>
<th>Risk Elevation vs Normal Population*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>OR</td>
</tr>
<tr>
<td>Cutaneous</td>
<td>Acne vulgaris and conglobata130</td>
<td>2.14</td>
</tr>
<tr>
<td></td>
<td>Pyoderma gangrenosum131</td>
<td>1.58</td>
</tr>
<tr>
<td>Endocrinologic or</td>
<td>Polycystic ovarian syndrome12</td>
<td>2.22</td>
</tr>
<tr>
<td>metabolic</td>
<td>Diabetes mellitus132</td>
<td>1.21</td>
</tr>
<tr>
<td></td>
<td>Metabolic syndrome133</td>
<td>1.22</td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>Myocardial infarction134</td>
<td>3.05</td>
</tr>
<tr>
<td></td>
<td>Cerebrovascular accident134</td>
<td>1.13,136,9% (HS) vs 6% (control)1,15</td>
</tr>
<tr>
<td>Gastrointestinal</td>
<td>Crohn’s disease135</td>
<td>1.7,137</td>
</tr>
<tr>
<td>Psychiatric</td>
<td>Depression8,14–16,136</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Suicide16</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Substance use disorder18,133 (tobacco,10 alcohol, opioids, cannabis)</td>
<td>1.50</td>
</tr>
<tr>
<td>Pulmonary</td>
<td>Obstructive sleep apnea137</td>
<td>1.45</td>
</tr>
<tr>
<td>Lymphatic</td>
<td>Lymphoma138</td>
<td>2.00–4.31</td>
</tr>
</tbody>
</table>

OR, odds ratio; HR, hazard ratio; HS, hidradenitis suppurativa.

* Risk elevation is significant unless otherwise specified.

† Not significant.
at 12 weeks. Hidradenitis suppurativa clinical responses for adalimumab compared with placebo were 42% and 26%, respectively ($P = 0.003$), in PIO-NEER 1 and 59% and 28%, respectively ($P < 0.001$), in PIONEER 2. Infliximab has been investigated in smaller studies and has shown potential. Low-level evidence suggests efficacy for other TNF inhibitors and inhibitors of interleukin (IL)-12, IL-23, IL-17, and IL-1 as next-line therapies. Biologic therapies are best prescribed by practitioners familiar with their adverse effect profile.

### SURGICAL THERAPY

Incision and drainage can be performed with local anesthesia. New-onset (ie, acute) abscesses are more likely to heal with incision and drainage than lesions that have recurred at a site where a previous lesion had been present (ie, chronic), though substantial short-term pain relief is provided for acute and chronic lesions. Wound packing does not improve outcomes so is best avoided given the associated pain and morbidity. Instead of a blade, using a 4–6-mm punch tool for incision with secondary intention healing allows for drainage in the subsequent days and may prevent short-term recurrences.

Other surgical options include deroofing, excision, or laser therapy. Deroofing involves probing chronic tunnels and sinuses, removing overlying skin, and beveling wound edges with scissor, blade, electrosurgical tools, or ablative lasers to create a broad-based wound that heals by secondary intention (Fig. 5), with detailed explanations and videos recently published. Deroofing may be used for recurrent nodules, abscesses, or interconnected sinuses, and typically leaves a relatively superficial (dermal or subcutaneous) wound.

Excisions may be local (specific lesion) or wide, depending on disease extent, typically limited to superficial subcutis but may extend if deeper involvement is encountered intraoperatively. Healing by secondary intention or immediate or delayed closure using grafts, flaps, or skin substitutes have been described. Smaller, stepwise excisions are less morbid than wider procedures, and may allow for gradual improvement without prolonged school, work, or lifestyle disruptions. More extensive excision provides more dramatic improvement in a single procedure. Excision recurrence rates were similar to deroofings in one series (approximately 25%), whereas, in others, the recurrence rates of wide excision using traditional or carbon dioxide laser excision were less than 5%. Risk factors for recurrence include younger age, multiple surgical sites, and perianal, vulvar, and inframammary sites. Although 93% of

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dose and Frequency</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetracycline</td>
<td>500 mg twice daily</td>
<td>Use for mild–moderate HS for up to 12 wk</td>
</tr>
<tr>
<td>Doxycycline</td>
<td>100 mg twice daily</td>
<td>2nd-line therapy for mild–moderate HS for up to 12 wk</td>
</tr>
<tr>
<td>Clindamycin and rifampin</td>
<td>300 mg and 300 mg twice daily</td>
<td>Monotherapy for mild–moderate disease, adjunctive therapy for moderate–severe disease</td>
</tr>
<tr>
<td>Oral contraceptive pills; prefer combination contraceptive because progestin-only may exacerbate</td>
<td>As directed</td>
<td>Monotherapy or adjunctive for mild–moderate disease</td>
</tr>
<tr>
<td>Spironolactone</td>
<td>75–150 mg daily</td>
<td>Limited to case reports</td>
</tr>
<tr>
<td>Finasteride</td>
<td>1.25–5 mg daily</td>
<td>Monotherapy or adjunctive for mild–moderate disease</td>
</tr>
<tr>
<td>Metliomin</td>
<td>500 mg twice or 3 times daily</td>
<td>Refer to dermatologist for collaborative management</td>
</tr>
<tr>
<td>Isotretinoin, acitretin</td>
<td>Dosing varies</td>
<td>Used as week-long or multiweek-long tapers as rescue therapy for flares</td>
</tr>
<tr>
<td>Prednisone</td>
<td>0.5–1 mg/kg/d</td>
<td>Used for moderate–severe HS</td>
</tr>
<tr>
<td>Adalimumab (adults and adolescents 132 lb or more)</td>
<td>160 mg at wk 0, 80 mg at wk 2, and then 40 mg weekly starting at wk 4</td>
<td>Used for moderate–severe HS</td>
</tr>
<tr>
<td>Adalimumab (adolescents less than 132 lb)</td>
<td>80 mg at wk 0, 40 mg at wk 1, and then 40 mg every other week starting at wk 3</td>
<td>Used for moderate–severe HS</td>
</tr>
<tr>
<td>Infliximab</td>
<td>7.5–10 mg/kg every 4–8 wk</td>
<td>Often a second-line immunomodulator, used for moderate–severe HS</td>
</tr>
</tbody>
</table>

HS, hidradenitis suppurativa.
patients in one survey still reported disease-specific life restrictions postoperatively, 80% were satisfied or very satisfied after surgery.\textsuperscript{90}

Follicular destruction with neodymium:yttrium-aluminum-garnet or alexandrite lasers, or diodes and intense pulsed light reduces disease activity, and is likely particularly important in early disease.\textsuperscript{91–101} Multiple sessions are required, but risks are low with high potential for improvement. Carbon dioxide laser requires specialized equipment and training and may lead to prolonged healing, but outcomes of excision, marsupialization, and vaporization are typically excellent.

The NAHS guidelines recommend continuing medical therapy, including biologics perioperatively because theoretical effects on wound healing from medication is less likely than the risk of perioperative disease flares that complicate recovery (Benjamin L, Cohen PF, SV Kane, Herfarth HH, Palekar N, Faraye FA, et al. 415a–Anti-tumor necrosis factor therapy is not associated with post-operative infection: results from prospective cohort of ulcerative colitis and Crohn’s disease patients undergoing surgery to identify risk factors for postoperative infection I [Puccini] [abstract]. Gastroenterology 2019;156:S-80.).\textsuperscript{102,103}
PAIN MANAGEMENT

Uncontrolled pain is a major cause of morbidity among individuals living with hidradenitis suppurativa. Many pain-management guidelines distinguish between nociceptive and neuropathic pain for treatment selection. Pain has been found to be both nociceptive (a direct consequence of disease activity, described as “throbbing,” “aching,” and “gnawing”) and neuropathic (dysfunction in central or peripheral nervous system, described as “burning,” “stabbing,” “stinging,” or like an electric shock) and both are exacerbated by comorbid anxiety and depression. Owing to this complexity, multimodal therapy is essential.

The NAHS guidelines suggest that pain treatment begins with improved disease control, but current therapies are sometimes inadequate, in which case pharmacologic and nonpharmacologic symptomatic treatments are indicated. Acute hidradenitis suppurativa flares may be treated with topical or systemic analgesics including acetaminophen, nonsteroidal antiinflammatory drugs, and limited courses of immediate release opioids (lowest dose and shortest possible duration, typically less than 2 weeks and fewer than 20 pills). The same pharmacologic classes can be employed for management of chronic nociceptive pain when topical therapies are insufficient (Table 4). A multidisciplinary approach including physical therapy, wound care, and mental or behavioral health often yields the best outcomes for chronic pain. A pain specialist can help explore further options such as anticonvulsants, chronic opioids, implantable devices, and nerve blocks. In our experience, referral is appropriate when a patient: 1) has had at least two failed pharmacologic pain treatments, 2) has medically refractory hidradenitis suppurativa and debilitating pain deemed unlikely to improve despite maximal medical therapy, 3) is already using chronic opioids, or 4) is at high risk for substance use disorder.

DRESSINGS

Hidradenitis suppurativa wounds may be a consequence of disease or surgery, and require meticulous medical and surgical management. Drainage from tunnels and ulcers is an important concern for patients, so absorptive dressings that meet the dynamic needs of the wound or tunnel should be selected. Superabsorbent (eg, gelling polymers and fibers), absorbent (eg, abdominal pads), or calcium alginites and foams, in order of decreasing absorbency, can be used.
adhesive borders reduce irritation and pain during dressing changes. Cost remains a significant barrier (silver-impregnated 4×4-inch foam sheets retail for approximately $10 per sheet). Wound colonization and biofilms may be mitigated with antiseptic washes such as chlorhexidine and its derivatives or silver-based dressings (in exudative wounds). For postsurgical wound management, negative pressure wound therapy (NPWT) with delayed reconstruction for large axillary wounds may be useful.\textsuperscript{115,116}

\textbf{SPECIAL POPULATIONS: PEDIATRICS AND PREGNANT}

\textbf{Pediatrics}

Pediatric hidradenitis suppurativa is especially devastating because it strikes during the most formative years of children’s emotional development. As with adults, pediatric patients bear a higher risk of metabolic syndrome, PCOS and psychiatric comorbidities. The NAHS guidelines recommend evaluating patients with hidradenitis suppurativa younger than 11 years for precocious puberty. Medical and surgical treatment options for pediatric and adult patients are similar. For acute flares antibiotics can be used, but in our practice, we limit treatment duration to 6 months, and avoid tetracyclines in children younger than 9 years. In 2018, adalimumab was approved by the U.S. Food and Drug Administration for adolescents aged 12 years and older with moderate-to-severe symptoms.\textsuperscript{58,117}

\textbf{Pregnancy}

Information on hidradenitis suppurativa and pregnancy is limited. Two European patient survey studies found an improvement during pregnancy in 20–30.2\% and worsening in 8–16.7\%.\textsuperscript{58,117} and 62\%
Hidradenitis suppurativa treatment during pregnancy is challenging, and co-management with dermatology is recommended. Topical agents such as benzoyl peroxide wash and clindamycin lotion, gel, or solution are safe. Acetaminophen is the analgesic of choice, and oral antibiotic options include clindamycin, rifampin, metronidazole, and some penicillin derivatives such as amoxicillin with clavulanate. For severe disease, a course of intravenous etanercept may also be considered. Other systemic therapies to consider include metformin and zinc gluconate. In our practice, for the appropriately selected patient with active disease uncontrolled with other therapies, benefits of TNF antagonist therapy (such as adalimumab or infliximab) are considered to outweigh risks, particularly during the 1st and 2nd trimesters, with a recalibration of the risk-benefit analysis necessary during 3rd trimester because of increased placental transfer of monoclonal antibodies during this time. Neonates born to mothers who are continually treated with biologic agents should avoid live vaccinations (eg, rotavirus) for 6 months. Certolizumab is a pegylated TNF antagonist that does not cross the placental barrier, but there is a paucity of data regarding its use in hidradenitis suppurativa, and insurance coverage may be a barrier.

Although few safety data exist for procedures for hidradenitis suppurativa during pregnancy, intraleisional triamcinolone and laser-based follicular destruction are likely safe. Excision with local anesthesia after the first trimester is also reasonable for recalcitrant areas. Treatment with cryoinsufflation has been reported during pregnancy, but vaginal reactions may occur.

Although expert consensus does not exist regarding how anogenital disease should affect delivery methods, author experience and survey data suggest it sometimes leads to recommendation for cesarean delivery, at times with specific use of high transverse or midline vertical incision to avoid involved areas (Fig. 3). These decisions should rely on open communication and shared decision-making between ob-gyns and patients.

Hidradenitis suppurativa may interfere with breast feeding. Of 134 infants born to affected mothers, about a quarter were bottle-fed, and maternal breast hidradenitis suppurativa was significantly associated with not breastfeeding. Painful axillary lesions making it difficult to lift the infant also interfere with breastfeeding, so proactive management during pregnancy and early counseling is important for supporting mothers planning to breastfeed. Cephalexin, amoxicillin with clavulanate, and etanercept are also compatible, though may cause infant diarrhea. Metformin has minimal excretion in breast milk without significant effect on infants. Adalimumab and infliximab appear to be safe during lactation though more data are needed.

CONCLUSIONS

Successful management of hidradenitis suppurativa is challenging and at times requires comprehensive care from a coordinated team of health care professionals, including dermatologists, general or plastic surgeons, experts in pain management and wound care, and gastroenterologists or rheumatologists. Patients most often seek care with primary care physicians, including ob-gyns, and only one in five Americans with hidradenitis suppurativa have an established relationship with a dermatologist. Ob-gyns are uniquely poised to be front-line physicians for diagnosing and treating women with hidradenitis suppurativa, including partnering with dermatologists to significantly improve their care.

REFERENCES


flared during pregnancy in a U.S.-based retrospective chart review. More than 10% of these patients continued smoking cigarettes and marijuana, highlighting the importance of cessation counseling. Gestational diabetes, gestational hypertension, and preeclampsia were more common in this cohort compared with the general U.S. population, so screening is warranted; no statistically significant differences were found for miscarriage, stillbirth, cesarean delivery, and perinatal mortality. Hidradenitis suppurativa may interfere with breast feeding. Of 134 infants born to affected mothers, about a quarter were bottle-fed, and maternal breast hidradenitis suppurativa was significantly associated with not breastfeeding. Painful axillary lesions making it difficult to lift the infant also interfere with breastfeeding, so proactive management during pregnancy and early counseling is important for supporting mothers planning to breastfeed. Cephalexin, amoxicillin with clavulanate, and etanercept are also compatible, though may cause infant diarrhea. Metformin has minimal excretion in breast milk without significant effect on infants. Adalimumab and infliximab appear to be safe during lactation though more data are needed.

CONCLUSIONS

Successful management of hidradenitis suppurativa is challenging and at times requires comprehensive care from a coordinated team of health care professionals, including dermatologists, general or plastic surgeons, experts in pain management and wound care, and gastroenterologists or rheumatologists. Patients most often seek care with primary care physicians, including ob-gyns, and only one in five Americans with hidradenitis suppurativa have an established relationship with a dermatologist. Ob-gyns are uniquely poised to be front-line physicians for diagnosing and treating women with hidradenitis suppurativa, including partnering with dermatologists to significantly improve their care.

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After completing this learning experience, the involved learner should be able to:
- Discuss the pathophysiology of hidradenitis suppurativa
- List other diagnoses that should be considered for patients presenting with symptoms of hidradenitis suppurativa
- Implement an effective management strategy for patients with this condition

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