

HIDRADENITIS SUPPURATIVA

Definition

Hidradenitis suppurativa is a chronic, inflammatory, recurrent, debilitating, follicular skin disease that usually presents after puberty with painful, deep-seated, inflamed lesions in the apocrine gland-bearing skin of the body, most commonly the axillary, inguinal and anogenital regions. (Second International Conference on Hidradenitis Suppurativa, March 5, 2009, San Francisco CA USA)

It has a profoundly negative impact on the quality of life.

Diagnostic criteria for hidradenitis:

1. Typical lesions:
 - a. Painful dermal nodules (blind boils)
 - b. Abscesses, and fistulae in the skin
 - c. Hypertrophic fistular scars
2. Typical localization:
 - a. Axillae and groin, under breasts, on buttocks and perineum
3. Relapse with chronic recurrent lesions for more than six months

All three criteria needed for diagnosis.

TREATMENT PRINCIPLES

Therapy and prognosis – Planning treatment follows severity grading. The first two stages respond to medical treatment whereas the third stage requires biologics and surgery. All patients will need thorough education and constant reassurance and support.

Treatment

- Define the frequency of the flares and the intensity of the pain when deciding upon treatment
- A permanent cure is achieved only with wide, thorough, surgical excision
- Combine medical and surgical treatment

Goals of treatment of hidradenitis:

1. To reduce the extent and progression of the disease to bring it to a milder stage
2. To heal existing lesions and prevent new ones from forming
3. To allow regression of scars and sinuses in cases of extensive hidradenitis suppurativa

Hurley's criteria for Hidradenitis Suppurativa Staging

Hurley's criteria for Hidradenitis Suppurativa Staging – used to assess severity

Treatment principles – choose treatment to fit disease severity staging

Stage I: Abscess formation, single or multiple without sinus tracts and cicatrization/scarring

Stage II: Recurrent abscesses with sinus tracts and scarring. Single or multiple widely separated lesions

Stage III: Diffuse or almost diffuse involvement or multiple interconnected tracts and abscess

75% stay in Stage I
24% progress to Stage II
1% progress to Stage III

General Hidradenitis Suppurativa Treatment

Education and support

Improve environment:

- Reduce friction in the area, heat, sweating and obesity
- Use antiseptic washes
- Lose weight
- Consider anti-androgen treatment
- Stop smoking

Treatment – Hurley's Stage I

Abscess formation, single or multiple without sinus tracts and cicatrization/scarring.

This is the most limited form of disease and it is amenable to medical therapy.

The majority of patients with Stage I have a few flares a year. However, they can be well controlled.

Medical treatment for Stage I hidradenitis suppurativa

Topical antibiotics

Clindamycin 1% lotion bid

Intralesional

Triamcinolone acetonide 10mg/mL, 0.5 to 1 mL injected with a 30g needle into individual, painful, early papules / small nodules to suppress inflammation. Inject right into the center of the lesion.

Systemic: Antibiotics (for 7-10 days) – wide choice

1. First choices
 - a. Minocycline / doxycycline 100 mg 1-2 times a day
 - b. Amoxicillin / clavulanic acid 850mg-1gm three capsules initially then 1 tid for 5-7 days for acute onset
 - c. Clindamycin 300 mg 2-3 times a day
2. Second choices
 - a. Clindamycin 300 mg po bid with / without Rifampin 300 mg po bid – brief course
 - b. Bactrim DS 1 bid
3. Third choice
Consider adding prednisone 20-30 mg qam with food for 5-7 days

Note – Consider using these medications up to 4-12 weeks
as in Hurley stage II with clindamycin along with the rifampin

Adjunct preventive therapy

Zinc gluconate 50mg po bid, ibuprofen 200-400 mg, 3 times a day

Anti-androgens

Yasmin or Ocella (generic) - consider extended regimen (daily x 84 – 126 days)

Yasmin or Ocella (generic) - plus spironolactone 25-150 mg / day

Surgical Treatment – not usually needed for Hurley's Stage I

General Care

Avoid irritants

Loose clothing

Stop smoking

Weight loss

Maintenance

Continue above as needed

Treatment – Hurley Stage II

Recurrent abscesses with sinus tract formation and scarring, either single or multiple widely separated lesions

The aim is clear these patients or at least reduce them to stage I disease. Sinus tracts and persistent cysts require combined medical and surgical therapy.

Antibiotics are usually used for at least three months with a decreased dose for maintenance. Systemic antibiotics include tetracycline, as above, or for more extensive disease, clindamycin 300 mg twice a day often combined with rifampin 300 mg twice a day for three months. As alternates to clindamycin use doxycycline or minocycline 100 mg twice a day with rifampin. (See below for prescribing details) Dapsone 100 mg per

day can be used. (See below for prescribing details) Long-term maintenance with a tetracycline (as below) is often recommended. The same adjunctive therapy with zinc gluconate and anti-androgens can be used as above.

A. Medical Treatment for Stage II

Topical antibiotics

Clindamycin 1% lotion twice a day

Systemic Antibiotics

1. First choice

Clindamycin 300 mg po bid (or doxycycline or minocycline 100 mg bid) with / without Rifampin 300 mg po bid for 8-12 weeks or longer

2. Second choice

Dapsone 50-150 mg daily po with the appropriate blood work (Hgb,G-6PD, Retic count)

Trimethoprim/sulfamethoxazole (Bactrim DS) 100/800 1 bid

Add prednisone 20-30 mg qam with food for 5-7 days, as in Hurley stage I or 3-4 mornings weekly

Maintenance – Tetracycline 250-500 mg tid-qid, doxycycline or minocycline 100mg bid

Adjunct and preventive therapy

Zinc gluconate 50 mg po bid or 30 mg po tid

Anti-androgens

Yasmin or Ocella (generic) - consider extended regimen (daily x 84 – 126 days)

Yasmin or Ocella (generic) - plus spironolactone 25-150 mg / day

Intralesional triamcinolone as in Stage I

B. Surgical Treatment – Incision and drainage (I and D) should be avoided. Do this ONLY for a tense abscess that is too painful to bear. Acute painful lesions sometimes develop into severely painful abscesses that need to be drained for pain relief only. This is a temporary expedient and not a curative procedure and needs concurrent antibiotics in full dose. Amoxicillin and clavulanic acid 3g in a single dose, then one gram po tid for 5-7 days is recommended. The lesion must then be unroofed and allowed to granulate in and epithelialize. Packing the wound for a few days may be needed to prevent premature superficial closure while the wound fills in from below.

If there are persistent chronic sinus tracts or cysts then surgical unroofing is necessary. This requires obsessive exposure and surgical unroofing of all sinus tracts, with healing by secondary intention.

C. and D. General Care and Maintenance – as for Stage I

Treatment – Hurley’s Stage III

Diffuse or almost diffuse involvement or multiple interconnected tracts and abscesses.

This stage is a surgical disease and supportive concurrent medical treatment is both prophylactic and essential. This requires a staged medical – surgical team approach

A. Medical Treatment

Pre-Op -These patients will need the anti-inflammatory effects of medical treatment to prepare them for surgical treatment.

Corticosteroids 0.5 – 0.7 mg/kg/d methylprednisolone or prednisone (oral)

Cyclosporine 4 mg/kg/d po

Methotrexate 15 mg oral or subcutaneously weekly

Clindamycin 300 mg po bid with Rifampicin 300 mg po bid

TNF α inhibitors – used with the help of a physician experienced in the use of these drugs

Remicade 5 mg/kg I.V q6 weeks

Note – Medical treatment with these stage is only palliative, temporary, **and not curative**

B. Surgical Treatment

Wide surgical unroofing and debriding of all cysts and sinuses and fistulous tissue by a knowledgeable surgeon. Healing can be by secondary intent or it may be accelerated with mesh grafting. Primary closure is avoided in active disease. Very rarely are skin flaps/grfts required.

Pre-operative Clinic: Reminders for Hidradenitis Patients

1. Consider a [Nutrition consult](#)- screening tool per nutrition:
albumin and prealbumin with preop labs
2. Encourage tobacco cessation; discuss impact on wound healing, need for avoidance of nicotine replacement products post-operatively.
3. Give instructions for GoLYTELY prep
4. Correct anemia prior to OR.
5. If not on OC's, try to schedule surgery in luteal phase to avoid menses in post-operative time frame.
6. Counseling re extent of excision, possibility of recurrence, prolonged hospitalization (at bedrest) and healing time.
7. Counseling re clear liquid long term diet in hospital with hyperalimentation and rectal tube (Flexi-Seal).
8. Administer DLQI, [Beck depression inventory](#), [sexual health and function](#) questionnaire, etc. if not recently done.
9. Psychological needs to be addressed prior to OR
10. Consider epidural for post op pain control.
11. Discuss possible transfusion (need adequate Hct for adequate healing)
12. Arrange PIC line to be placed shortly after surgery

Consents for procedures

Consent for radical vulvectomy with possible skin flap for initial procedure.

Consent for skin grafts for second procedure.

Consent for removal of wound V.A.C. system and skin care for third procedure.

A bowel preparation prior to surgery is important if the anal area is involved and a wound V.A.C. over that area is anticipated. The patients should be evaluated for malnutrition prior to surgery.

Intra-operative: Have Available for OR#1 (Radical Vulvectomy) (Consider Flap with this surgery if needed)

V.A.C. machine, canister and dressings NOTE: Wound V.A.C. must be on anterior vulvar aspect near mons. Make sure nothing is covering the holes on the wound V.A.C. tube insertion point. It should be set for OR 1 continuous at 125

Cavilon barrier film skin prep to put under Flexi-Seal and TinCoBen to put under V.A.C.

Flexi-Seal[®] Fecal Management System

Fill bulb with 45 cc fluid (saline or water). The bulb does not need to be periodically deflated. It can be used for 29 days. Periodically milk the catheter to facilitate flow. Change the collection bag before it becomes too full (between 600 and 800 ml). If the catheter becomes blocked with solid particles it can be rinsed with water.

Adaptic sheets to place over wound bed prior to placing V.A.C. foams (black GranuFoam) for post-vulvectomy

Supplies for aerobic and anaerobic culture of wound bed

Consider epidural

Stryker irrigator with X-Ray bag

Allen stirrups

OR 2 (Skin Graft)

Intra-operative: Have Available for OR#2 (Split Thickness Skin Graft)

Allen stirrups

Stryker irrigator with X-Ray bag

V.A.C. machine, canister and dressings

NOTE: Wound V.A.C. must be on anterior vulvar aspect near mons. Make sure nothing is covering the holes on the wound V.A.C. tube insertion point. Set at continuous at 75.

Flexi-Seal[®] Fecal Management System

Fill bulb with 45 cc fluid (saline or water). The bulb does not need to be periodically deflated. It can be used for 29 days. Periodically milk the catheter to facilitate flow.

Change the collection bag before it becomes too full (between 600 and 800 ml). If the catheter becomes blocked with solid particles it can be rinsed with water.

Cavilon barrier film skin prep to put under Flexi-Seal and V.A.C.

(consider Duoderm around anus)

Adaptic sheets to place over wound bed prior to placing V.A.C. foam

White V.A.C. foam (similar to Vers-foam) for post-skin graft to place over wound bed

Xeroform gauze sized to cover skin graft site

Supplies for aerobic and anaerobic culture of wound bed

For skin grafting procedure:

Have available large curette used by plastic surgery for debridement.

12 to 17/1000 inch (14 or 15 ideal)

3 inch guard

Meshed 1.5/1

Need extra carriers

Have an assistant to gently lift up the skin graft as it piles up on the guard

Change blade every 4 passes or so

Consider if you will need to prep both thighs; wipe off thighs with alcohol prior to putting on mineral oil prior to taking skin graft

To skin graft site

After taking graft, cover thigh with 1% lidocaine with 1:200,000 epinephrine on raytec

Xeroform

Place ABD over Xeroform, then Kerlix wrap and tape.

(Remove Kerlix and ABD on POD 1).

Leave Xeroform to dry and trim away dry areas as they come off of the skin.

Remove Wound V.A.C. after 4 days

Post-operative Considerations

1. Check wound cultures, check if bacteria resistant to present antibiotic, or if sterile culture, consider discontinuing antibiotics.
2. Continue hyperalimentation
3. Clear liquid diet
4. Supplement to consider:
 - a. Nestle Fruit Beverage (clear liquid supplement)

Post-Op - They will need ongoing medical treatment for their hidradenitis after surgery.

OR 1 Vulvectomy Post-op Orders

Immediate Post-op

Admit to 8B

Service:

Attending:

Diagnosis: S/P Complete Radical Vulvectomy

Condition: Stable

Allergies:

Activity: Complete bedrest, do not elevate head of bed more than 20 degrees

VS: q 1 hour x 2, q 2 hour x 2, then q 4 hours

I/O's q 4 hours

Diet: clear liquids

Hyperalimentation

Start sliding scale

Dietary supplements to consider: Nestle Fruit Beverage (clear liquid supplement)

IV: D5NS with 20 meq/L KCl at 125 cc/hour, change to D5/0.45 NS with 20 meq/L KCl on POD#1, 80 cc/hr, decrease to KVO when tolerating po well

SCD's on and functioning at all times

Incentive spirometry X 10 q 1 hour while awake

Instruct patient in cough and deep breathing, q 1 hour while awake

Physical therapy consult: supportive care while at bedrest, post-bedrest rehabilitation

Occupational therapy consult: activities for bedrest

Social work consult: home nursing needs, support

V.A.C. Therapy Order:

V.A.C. machine, canister and dressings to be placed at patient's bedside

Goal: Formation of granulation tissue in wound bed, epithelialization of wound

V.A.C. to be applied to vulva

Pressure setting: 125 mm Hg continuous

Never leave sub atmospheric pressure off or more than 2 hours per 24 hour period

Dressing will be changed POD 7 in the operating room

Flexi-Seal bowel system to closed drainage

Foley catheter to gravity drainage, do not remove

Labs: CBCDP, Basic, iCal, Mg, Phos in am POD #1

(Consider labs in PACU depending on EBL/PRBC's/pre-op Hct)

Medications: (Circle medications desired)

PCA: Start/Managed per Anesthesia, encourage epidural per anesthesia

Toradol 30 mg IV X 24 hours, (use 15 mg if > 65 yrs or <50 kg.)

change to PO Ibuprofen when tolerating PO well

Ancef: 1 gram IV q 8 hours (May need revision when culture results available.)

Diflucan 150 mg PO q week

Heparin 5000 units SQ q 12 hours; D/C heparin in pm prior to OR 1 week later,

and prior to removal of wound V.A.C. 5 days after second surgery

FeSO₄ 325 mg PO daily

Tylenol 325-650 mg PO every 4-6 hours PRN mild pain/ headache

(Not to exceed 3000 mg/24 hours)

Benadryl 12.5- 25 mg PO/IV q 6 hours PRN itching

Ambien 5-10 mg PO qhs PRN sleep

Phenergan 12.5-25 mg IV q 6 hours PRN nausea

Zantac 150 mg PO twice daily

OC's: continue if patient on preoperatively, consider other menstrual suppression
Tobacco service consult as indicated (No Nicotine containing products!)

[Encourage tobacco cessation preop]

Review home medications and resume those indicated

Notify H.O. (pager 0005): temp > 100.4, SBP > 180 or < 80, DBP > 95 or < 50, HR > 110
or < 60, UOP < 120 cc/4 hours, dysfunction of V.A.C. or rectal pouch, any sudden, rapid
increase in bright, red blood in the tubing or canister of the V.A.C.

OR 2 Post-op Skin Graft

Admit to 8B

Service:

Attending:

Diagnosis: S/P Vulvar skin graft

Condition: Stable

Allergies:

Activity: Complete bedrest, do not elevate head of bed more than 20 degrees

VS: q 1 hour x 2, q 2 hour x 2, then q 4 hours

I/O's q 4 hours

Diet: Clear liquids.

Dietary supplements to consider Nestle Fruit Beverage (clear liquid supplement)

Hyperalimentation

Start sliding scale

IV: D5NS with 20 meq/L KCl at 125 cc/hour, change to D5/0.45 NS with 20 meq/L

KCl on POD#1, 80 cc/hr, decrease to KVO when tolerating po well

SCD's on and functioning at all times

Incentive spirometry q 1 hour while awake

Instruct patient in cough and deep breathing, q 1 hour while awake

V.A.C. Therapy Order:

V.A.C. machine, canister and dressings to be placed at patient's bedside

Goal: Formation of granulation tissue in wound bed and epithelialization of wound

V.A.C. to be applied to vulva

Pressure setting: 75mm Hg continuous

Never leave sub atmospheric pressure off or more than 2 hours per 24 hour period

Dressing will be changed POD 5 under conscious sedation or in operating room

Flexi-Seal bowel system to closed drainage

Abductor pillows

Foley catheter to gravity drainage, do not remove

Labs: CBCDP, Basic, iCal, Mg, Phos in am

(Consider labs in PACU depending on EBL/PRBC's/pre-op Hct)

Medications: (Circle medications desired)

PCA: Start/Managed per Anesthesia, encourage epidural per anesthesia

Toradol 30 mg IV X 24 hours, (use 15 mg if > 65 yrs or < 50 kg,)

change to PO Ibuprofen when tolerating PO well

Ancef: 1 gram IV q 8 hours X 48 hours

Diflucan 150 mg PO q week

Heparin 5000 units SQ q 12 hours
Lomotil – 1 po qid (NOT PRN), can decrease to tid, bid if needed.
FeSO₄ 325 mg PO daily
Tylenol 325-650 mg PO every 4-6 hours PRN mild pain/ headache.
(Not to exceed 3000 mg/24 hours)
Benadryl 12.5- 25 mg PO/IV q 6 hours PRN itching
Ambien 5-10 mg PO qHS PRN sleep
Phenergan 12.5-25 mg IV q 6 hours PRN nausea
Zantac 150 mg PO twice daily
OC's: continue if patient on preoperatively, consider other menstrual suppression
Tobacco service consult as indicated (No Nicotine containing products!)

Wound care for donor site:

Remove Kerlex and ABD 24 hours after surgery
Leave on Xeroform – cut edges as they dry

Notify H.O. (pager 0005): temp > 100.4, SBP > 180 or < 80, DBP > 95 or < 50, HR > 110
or < 60, UOP < 120 cc/4 hours, dysfunction of V.A.C. or rectal pouch,
any sudden, rapid increase in bright, red blood in the tubing or canister of the
V.A.C..

OR #3 Removal of Wound V.A.C.

New orders:

D/C Lomotil

Milk of magnesia 30 cc po q 6 hours, when stools start, prn

D/C PIC line prior to home

Send home on Stage 1-2 hidradenitis regimen

(antibiotics, OCPs, or spironolactone dependent on age).

Prognosis – the majority of patients are in stage I and can be controlled well. Stage II can be more difficult. Stage III is very difficult and requires a multi-disciplinary treatment approach. Average duration of disease is 20 years. Squamous cell carcinoma may occur in patients with HS. It tends to be seen in patients who have suffered from HS for ten years or more, with advanced stage III with chronic non-healing areas.

Specific Drug Information for Medications Used in the Treatment of Hidradenitis Suppurativa

CLINDAMYCIN

In hidradenitis, clindamycin is used as an anti-inflammatory medication.

– helps settle down the redness, swelling, etc.

It is also a very effective medication for bacterial infections.

Side effects

Bowel inflammation can occur due to an overgrowth in the bowel of bacteria (*C. difficile*) that release a toxin. This can occur in a few patients. If there is any problem with diarrhea, stop the medication. Other side effects include upset stomach, vomiting, and skin rashes. Clindamycin can be taken with the rifampin or used separately.

Dose – 150 - 300 mg po twice a day - to be taken with food. Use for 3-6 months.

Interactions – can interact with birth control pills

AMOXICILLIN / CLAVULANATE

Used as an anti-inflammatory

Dose – For acute nodules and incised abscessed lesions - amoxicillin and clavulanic acid 3g loading then 1g po q 8h for 5-7 days (taken with food).

For indolent nodules, 500 mg po tid for 1-2 weeks.

Side effects – allergy, GI upset, nausea, diarrhea, yeast, rashes

Contraindications – hypersensitivity

Indications – For acute nodular flares.

ZINC GLUCONATE

Zinc gluconate is anti-inflammatory and helps in wound healing.

Dose is 50 mg po bid or 30 mg po tid . This is suppressive rather than curative.

Side effects are occasional GI upset with nausea and / or diarrhea.

Zinc in high doses can affect iron in the body with resulting anemia and drop in white count.

Do not increase the dose of zinc.

RIFAMPIN

Rifampin 150 and 300 mg tablets – this is an antibacterial agent that is used for bacterial infections, both common ones and mycobacteria including tuberculosis. This medication is used in hidradenitis suppurativa as an anti-inflammatory and is usually combined with other medications.

Dose - 150 – 300 mg po twice a day. Take on an empty stomach. It is occasionally given as 600 mg in one dose. It can be given with other medication such as clindamycin taken in two doses daily or may be given as a single dose with a large glass of water at 4 AM to prevent any interaction with the other medicines.

Monitoring blood tests for Rifampin - baseline CBC, renal and liver function tests should be taken. Caution should be taken if there is pre-existing liver disease or liver function abnormalities. Repeat blood tests at 2-4 week intervals as needed.

Drug interactions – many may occur

Birth control pills – decreases effect of BCP

Blood thinning drugs – increases INR / clotting time

Heart drugs – digoxin, quinidine

Beta blockers – verapamil

Anti-convulsants –phenobarbital, phenytoin

Anti-fungal drugs – ketoconazole

Drug interactions

1. Dapsone levels are increased with trimethoprim, probenecid
2. Dapsone levels decreased with rifampin
3. Dapsone, if combined with hydroxychloroquine and sulfonamides, yields more red blood cell toxicity

Cross Reactions

Other sulfonamide type drugs - patients with severe allergic reactions to sulfonamide medications may be allergic to Dapsone. This is very rare.

Adverse Effects

1. Hemolytic anemia, methemoglobinemia – symptoms headache, lethargy
2. Hepatotoxicity – mono-like syndrome
3. Peripheral neuropathy
4. Allergy – rashes etc.
5. GI upset

<http://www.hs-foundation.org/>

Suggested Reading

Further information, including medication dosages, can be obtained at:

http://www.med.umich.edu/obgyn/cvd/ref_phys.htm

Click on Hidradenitis Suppurativa

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