HIDRADENITIS SUPPURATIVA

Definition – Hidradenitis suppurativa is a chronic follicular occlusive disease, characterized by recurrent painful, deep-seated nodules and abscesses located primarily in the intertriginous areas of the axillae, groins, perianal, perineal and inframammary regions. The Second International HS Research Symposium (San Francisco March 2009) adopted the following consensus definition. “HS is a chronic, inflammatory, recurrent, debilitating, skin follicular disease that usually presents after puberty with painful deep seated, inflamed lesions in the apocrine gland-bearing areas of the body, most commonly the axilla, inguinal and anogenital region”. HS is frequently misdiagnosed as “boils”. This results in delayed diagnosis, fragmented care, and progression to a chronic, disabling condition that has a profoundly negative impact on quality of life.

The prevalence of hidradenitis suppurativa (HS) is 1 to 4%. Women are more commonly affected than men. Some studies have described a predilection in patients of afro-carib descent, but this has not been confirmed in all. 25% of patients present between the ages of 15 and 20 and 53% are aged 21 to 30. Female to male ratio is 3.3:1. Prepubertal cases are rare, but occasional onset in neonates and infants has been described. Women are affected under the breasts (22%) and in the groin (93%).

HS has been erroneously linked to the apocrine sweat glands. The first pathogenic change is in the follicular portion of the folliculopilosebaceous unit (FPSU).

HS is characterized by recurrent inflamed deep seated acneform nodules that result in abscesses and chronic draining sinus tract formation leading to scarring, disfigurement and life-altering disability. The lesions occur in areas of the skin that contain folliculopilosebaceous units.

Diagnosis relies on the following diagnostic criteria:

1. Typical lesions: either deep-seated painful nodules (blind boils) in early primary lesions or abscesses, draining sinuses, bridged scars and “tombstone” open comedones in secondary and late-stage lesions.

2. Typical topography: axillae, groin, genitals, perineal and perianal region, buttocks, or infra- and inter-mammary fol

3. Chronicity and recurrences.

These three criteria must be met to establish the diagnosis.

Multiple skin abscesses occur, with draining subcutaneous sinus tracts. Scarring and deformity are present in many individuals. Although biopsy is not absolutely required for diagnosis of HS, you may send tissue to pathology indicating that the clinical picture is consistent with HS. The characteristic findings include follicular hyperkeratosis, active folliculitis or abscess, fragments of epithelialized sinus tract, fibrosis, foreign body granuloma formation, intact apocrine and eccrine structures showing stasis and surrounded with inflammation, fibrosis, fat necrosis, inflammation of the subcutis, loss of 80% of sebaceous gland volume, and a psoriasiform acanthosis of the inter-follicular epidermis.

The basic problem seems to be a structural defect. People with HS appear to have genetically ‘weak-walled follicles’ that rupture easily. New histologic findings show that the connective tissue
support tissue around the follicular tube is weak to non-existent at the point where the sebaceous glands attach to the follicle (the sebofollicular junction).

This defect leads to the following sequence of events:

1. The problem starts with endogenous and exogenous androgens acting on the follicle duct lining cells so that the cells build up and occlude the ducts. It is hypothesized that dietary factors that elevate insulin and insulin-like growth factor-1 sensitize the FPSU’s androgen receptors, creating the increase in end organ responsiveness that leads to follicular occlusion and an accompanying seborrhea. Exogenous androgens, androgenic progestins and drugs like lithium can also make things worse. Smoking is strongly associated with HS. It promotes follicular plugging in HS as it does in acne and is also responsible for poor healing. High glycemic load diets plus the casein and whey in milk and milk products increase androgen sensitivity, increasing follicular plugging.

2. The follicular duct content expands as keratinocytes accumulate and the wall of the follicle eventually ruptures due to the weakness in the follicle support. A number of genetic defects may play a role here.

3. Follicular rupture results in the release of numerous inflammatory stimuli and antigens, including keratin fragments, bacteria and yeast that trigger ever more numerous elements of the innate and adaptive immune systems, leading to the development of an acute inflammatory response in the surrounding tissue. Extensive research has been done on the acute and chronic phase cellular and cytokine reactants in an effort to focus treatment appropriately for more effective therapy.

4. Attempted healing creates chronic inflammation and results in chronic tissue destruction through a foreign body-like reaction and subsequent resolution by scarring.

5. Mechanical factors are important because any friction or shearing force, from tight clothing to pinching the area can make it worse. Obesity does not cause HS but the resulting sweating, maceration and friction can make the situation worse.

6. When the pores rupture, follicular stem cells can be released into the subcutis where they appear to trigger the formation of cysts and epithelialized sinuses. Chronic cases appear to be due to the production of an invasive proliferative gelatinous mass (IPGM) consisting of a gel in which are embedded both inflammatory cells and, it is postulated, the stem cell-derived precursors of the epithelialized elements described above. Continuous growth of these hormonally stimulated remnants beneath the surface creates and perpetuates the communicating sinuses and inflammatory mass and provides increasing volumes of invading material. The inflammation in the dermis and subcutis will not settle until this material is eliminated.

In summary - genetically weak-walled follicles, distended under the influence of hormones and subject to friction and pressure, rupture, release materials that stimulate the innate and adaptive immune systems that create the painful inflammatory subcutaneous nodules.

Etiology
The development of HS depends upon a combination of factors.

Genetic factors
A 35-40% positive family history may reflect inadequate family reporting and/or variable penetrance and expressivity. An autosomal dominant inheritance pattern has been noted, but no consistent specific genetic defect has been found. Von der Werth suggests that HS is most likely a heterogeneous disease, probably with several genes involved.

Infection
Bacteria have long been considered in the pathogenesis of HS. It is generally agreed that bacteria do not have a major direct role in the etiology of HS but, as secondary invaders, may share in the pathogenesis of the chronic relapsing lesions causing some of the destructive processes that are seen. While local cellulitis is not uncommon as a cause of part of the inflammatory activity, septicemia and systemic illness in this disorder are exceptionally rare.

Hormonal factors
A strong relationship exists between sex hormones and HS. The female preponderance suggests a greater sensitivity of females to androgens. There are no elevations in serum androgens in the vast majority of HS patients. End organ sensitivity, presently not measurable, is likely responsible. Increased access to the androgen receptor is mediated by insulin and insulin-like growth factor-1 (IGF-1), both chronically raised by dietary factors.
In women, HS onsets around menarche, flares premenstrually and following exposure to androgenic progestins like medroxyprogesterone acetate or levonorgestrel, but improves with pregnancy. While it usually fades after menopause, the drop in estrogen has been responsible for post-menopausal onset in a minority of cases.
Anti-androgen therapy helps HS patients of both sexes. Finasteride, a selective inhibitor of the type II isomer of 5α-reductase, reduces levels of 5α-DHT. It was used to improve six of seven adults with HS and three children, one with premature adrenarche and one with polycystic ovarian syndrome.

Immune factors
The disease does not usually produce acute systemic inflammatory effects. There is no fever, rare lymphadenopathy, rare septicemia, occasional local cellulitis, cultures are usually sterile and, if the offending material beneath the surface is removed, the disease heals without further difficulty and without antibiotics. This is strongly suggestive of inflammation mediated on the local level by the innate immune system. Consider a simple ingrown hair. Flick out the ingrown hair and the inflammation fades.
The immune systems accelerate the disorder. Pathologic examination of excised early lesions demonstrates a wide variety of immune responses involving the innate and acquired (adaptive) immune systems. A vast catalogue of T-lymphocytes and cytokines are assembled. Unfortunately, cooling the inflammation does not cure the disease.

Mechanical Factors
Weakness in the support structure of the follicular portion of the FPSU likely predisposes to follicular rupture caused by local trauma. Patients worsen their lesions by pinching them. Obesity contributes to these increases in pressure and shear forces, but more important is the relationship of obesity to dietary habits that raise plasma glucose and insulin levels. This sensitizes the androgen
receptors, increases the plugging of pores, causes insulin resistance and enhances obesity. HS affects thin people but overweight patients may have more severe disease.

Smoking
Smoking is strongly associated with HS. Smokers are generally more severely affected than non-smokers. Nicotine promotes follicular plugging and interferes with healing, a major problem in a disorder that characteristically heals poorly.

Diet
The androgen receptors that control growth are normally closed to circulating androgens. Elevated insulin (from the combination of high glycemic carbohydrate load and dairy whey) and IGF-1 (induced by casein in milk) open these receptors and expose them to circulating androgens. Androgens from any source can then access previously inaccessible androgen receptors. Stimulation of follicular androgen receptors results in ductal keratinocyte overproduction, failure of terminal differentiation of the keratinocytes and retention hyperkeratosis (result – plugged / blocked pores that can easily rupture). Androgen sources include the adrenals, ovaries and testes, 5α-reduced molecular precursors of DHT in dairy products, the androgenic progestins in birth control pills, the levonorgestrel-containing IUD, intramuscular medroxyprogesterone acetate (MPA) injections and contraceptive implants.

Drugs
Hidradenitis suppurativa can be triggered or flared by lithium and by androgenic progestins in BCPs and IUDs.

Systemic Associations of HS
Obesity and metabolic syndrome.
The diet responsible for metabolic syndrome has the same metabolic drivers causing androgen-driven overgrowth of individual keratinocytes (causing plugged / blocked pores as above). A number of recent studies show increased prevalence of metabolic syndrome and insulin resistance in HS patients, particularly younger patients. These HS patients may have diabetes, lipid abnormalities (with increase in gall stones), cardiovascular diseases and hypertension. HS is also associated with polycystic ovarian syndrome.

Autoimmune diseases.
HS is associated with inflammatory bowel disease, arthritis and spondyloarthropathy

Follicular occlusive diseases.
Follicular occlusive triad (acne, pilonidal sinuses, dissecting cellulitis scalp)
SAPHO (Synovitis, Acne, Pustulosis, Hyperostosis, Osteitis) and its relatives

Quality of life
HS has a profoundly negative impact on patients' physical, social, and economic lives. Many patients become socially isolated or reclusive due to the pain, malodorous discharge, intimate sites of eruptions, inappropriate medical care due to incorrect diagnosis, the
numerous lesions, long and continuous duration, and pelvic area involvement. Medical, dietary, emotional and peer support are vital for these patients.

**Differential diagnosis** – Multiple conditions are to be considered in the differential diagnosis of hidradenitis suppurativa.

**Infections**
- Bacterial - Carbuncles, furuncles, abscesses, ischiorectal/perirectal, Bartholin’s duct abscess
- Mycobacteria – TB
- STI – granuloma inguinale, lymphogranuloma venereum, syphilis
- Deep fungi – blastomyces, nocardia

**Tumors**
- Cysts – epidermoid, Bartholin’s, pilonidal

**Miscellaneous**
- Crohn’s, anal or vulvovaginal fistulae

**Clinical features** – The early/primary lesions are single, painful, deep-seated nodules 0.5-2cm, round, showing no tendency to “pointing” that may progress to drainage and resolution. Lesions persist as a “silent” nodule that can recur, form an abscess and drain, and often will recur even if surgically drained. With time these progress to form chronic, recurrent and extending lesions at same site, coalescing with fibrosis and sinus formation. Lesions persist for months with pain and drainage with foul odor. These can result in tertiary lesions with hypertrophic fibrous scarring with “bridged scars” forming rope-like bands mixed with active, painful, inflammatory nodules and sinus tracts forming thick plaques over an area. Thick scarred areas can result in decreased mobility and lymphedema. When severe, there is social withdrawal, depression and major social dysfunction.

Lesion course – most form a persistent variably painful abscess, then rupture and drain purulent material. They may then resolve or recur. A chronic sinus may form that can drain a seropurulent and/or bloody discharge, or it may ulcerate, burrow and rupture into nearby lesions. Mean age of onset is 22 years old and it lasts on average 19 years but can remit or partially remit with pregnancy and breast-feeding. This all can be variable. Each new painful lesion lasts 10-30 days. There may be one or two outbreaks a year, or per month, with varying severity. Flaring with menses is common, underlining the need for hormonal control.

**MANAGEMENT PRINCIPLES**

**Therapy and prognosis** – Planning treatment generally follows severity grading. The first two stages respond to medical treatment and early minor surgical procedures whereas the third stage requires continuation of all preventive measures and hormonal control plus biologics and surgery. All patients will need thorough education and constant reassurance and support.

**Prevention** – This is Job #1 – Stop New Lesions
- The importance of preventing new or additional lesions must be stressed.
- Hormone control, environmental control, dietary regulation, complete nicotine avoidance - all must be aggressively pursued while Job #2 is completed in parallel.
Treatment – This is Job #2 – Active Therapy
Define and document the location and frequency of the flares and the intensity of the pain at baseline and at regular intervals once a treatment program is established. A permanent cure is achieved only with thorough surgical removal of the subcutaneous material that is driving the inflammation. Cooperative medical and surgical treatment is essential.

Goals of management of hidradenitis:
1. To prevent development of new lesions
2. To reduce the extent and progression of the disease and bring it to a milder stage
3. To heal existing lesions while preventing new ones from forming
4. To prevent progression 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 the severity of the single worst area of involvement.

Treatment principles – choose treatment to fit the lesions present at various degrees of severity staging

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

55-70% stay in Stage I
28% progress to Stage II
4-7% progress to Stage III

General Hidradenitis Suppurativa Treatment
While there is no single effective treatment or cure for HS, the activity of the disease can be brought to zero with a combination of preventive lifestyle changes and permanent removal of the subcutaneous inflammatory material using surgical procedures ranging from mini-unroofing of individual inflammatory units, through full un-roofing, up to wide surgical excision for very severe HS (Hurley's III). Prevention requires metabolic, medical and surgical strategies and lifelong gentle atraumatic care.
Education, diet and support

Improve environment:
- Reduce all trauma, friction in the area, heat, sweating and obesity
- Loose clothing, boxer-type underwear
- Tampon use if appropriate / avoid pads
- Antiseptic washes are optional
- Consider anti-androgen treatment
- Stop smoking and all other nicotine
- Hair removal laser for local lesion reduction

Zero dairy diet with low glycemic load diet,

**because the same diet that causes HS is a major contributor to obesity.**

At all stages – especially if weight is an issue – consider use of metformin (500mg to start up to 500mg tid) to improve sensitivity to insulin in patients on high glycemic load diets. Lowering chronic hyperglycemia reduces insulinemia and so decreases the impact on androgen receptors, with a positive outcome.

**Treatment - Hurley’s Stage I**

“Abscess formation, single or multiple without sinus tracts and cicatrisation/scarring.”

This is the most limited form of disease and is generally responsive to combined lifestyle modification and 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 10 mg/mL, 0.5 to 1 mL injected with a 30g needle into individual, painful, early papules / small nodules to suppress inflammation. Inject through normal skin at the edge of the nodule right into the center of the lesion. Avoid over-filling and bursting.

Systemic Antibiotics (for 7-10 days) - wide choice
- Doxycycline 100 mg po bid or clindamycin 300 mg po bid, or amoxicillin / clavulanic acid 500mg -1g po q 8h

Adjunct preventive therapy
- Zinc picolinate 30 mg with copper gluconate 2mg po bid
- Vitamin C 500 mg tid with food
- Vitamin D3 2000 – 5000 IU daily with fatty food

Anti-androgens
- Drospirenone in Yasmin and Yaz Oral Contraceptives
  – consider extended regimen (Yasmin daily x 84 – 126 days)
- Yasmin or Yaz plus spironolactone
- Spironolactone alone 50 – 100 – 200 mg/d
Finasteride 5 mg/d (Use of finasteride 5 mg per day in women and young girls as an antiandrogen for both therapy and long-term prevention) with obsessive non-androgenic (drospirenone or copper IUD) contraception

Surgical Treatment – mini-unroofing eliminates single follicular unit explosions
- standard unroofing / deroofing for larger lesions
- excisional surgery not usually needed for Hurley Stage I

General Care
- Avoid irritants
- Loose clothing
- Stop all nicotine
- Weight loss
- Hair removal laser for lesion reduction

Maintenance
- Continue above as needed

Treatment - Hurley’s Stage II
“Recurrent abscesses with sinus tract formation and scarring, either single or multiple widely separated lesions”

The aim is to clear these patients or at least reduce them to stage I disease. Sinus tracts and scarring will require combined medical and surgical therapy. For those with little scarring and much inflammation use antibiotics such as rifampin and/or clindamycin for 3 months to clear active cellulitis and then decrease to maintenance on doxy- or minocycline, full dose zinc with copper.

General care and intralesional treatment is the same as for stage I. Antibiotics for at least three months are usual, with a decreased dose for maintenance. Systemic antibiotics include doxycycline, 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. (See below for prescribing details) Dapsone 100 mg per day can be used. (See below for prescribing details ). The same adjunctive therapy with full dietary restriction, zinc picolinate with copper, anti-androgens and no nicotine must be maintained.

A. Medical Treatment for Stage II
All preventive measures are continued indefinitely.
Topical antibiotics
- Clindamycin 1% lotion twice a day
Systemic Antibiotics
- Amoxicillin and clavulanic acid 3g loading dose on Day 1 then 1g po q8h for 5-7 days for acute painful lesions
- Clindamycin 300 mg po bid with / without rifampin 300 mg po bid
- Sulfamethoxasole- trimethoprim (Bactrim DS) 1 tab bid
Dapsone 50 mg po and then 100 mg po with the appropriate blood work (See below for prescribing details).

Combination of rifampin-moxifloxacin-metronidazole for 6 weeks followed by rifampin-moxifloxacin (metronidazole 500mg tid, rifampin 10 mg/kg/d, moxifloxacin 400 mg/d) (see references for details)

Maintenance – Doxycycline or minocycline 100 mg bid

Acitretin – a retinoid can be helpful but must be avoided in women of childbearing age (see references)

**Adjunct preventive therapy**

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<tr>
<th>Supplement</th>
<th>Dosage</th>
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<tr>
<td>Zinc picolinate</td>
<td>30 mg with copper 2 mg po bid</td>
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<tr>
<td>Vitamin C</td>
<td>500 mg tid with food</td>
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<tr>
<td>Vitamin D3</td>
<td>2000-5000 IU with fatty meal</td>
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**Anti-androgens**

- Drospirenone in Yasmin and Yaz Oral Contraceptives
  - consider extended regimen (Yasmin daily x 84 – 126 days)
- Yasmin or Yaz plus spironolactone
- Spironolactone alone 50 – 100 – 200 mg/d
- Finasteride 5 mg/d (Use of finasteride 5 mg per day in women and young girls as an antiandrogen for both therapy and long-term prevention) with obsessive non-androgenic (drospirenone or copper IUD) contraception

Intralesional triamcinolone as in Stage I

**B. Surgical Treatment**

If there are persistent chronic sinus tracts or cysts then obsessive wide surgical unroofing is necessary. Incision and drainage (I and D) should be avoided except for a tense abscess that is too painful to bear. Acute painful lesions and abscesses may need to be drained for pain relief only but are better managed by unroofing with thorough removal of debris. This must include sinuses, cyst wall remnants, scars that may harbor sequestered cysts and sinuses and careful elimination of all communicating sinuses and all of the invasive proliferative gelatinous mass (IPGM).

**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 but full 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.

1. If cellulitis is present, antibiotics are essential, especially in cases being considered for ‘biologic’ therapy.
   A study of IV ertapenem 1 gm daily for 6 weeks followed by various combinations of moxifloxacin, rifampin and metronidazole significantly improved severe HS. Clindamycin 300 mg po bid with Rifampin 300 mg po bid is more commonly used.

2. Once cellulitis is controlled
   Corticosteroids 0.5 – 0.7 mg/kg/d methylprednisolone or prednisone (oral) is classic. TNF-α and IL inhibitors are the newcomers
   - Infliximab 5 mg/kg IV by infusion Q6 weeks – use with the help of a knowledgeable health care provider
   - Adalimumab was approved in late 2015 by FDA for management of the signs and symptoms of moderate and severe HS. The dose is 80 mg on Day 1 and Day 8 then 40 mg weekly.
   - Ustekinumab and Anakinra have also been tried with mixed results

These ‘biologics’ are valuable to decrease swelling, inflammation, pain and discharge pre-operatively, simplifying unroofing and excisional surgery and minimizing the need for extensive or excessive tissue removal. They do not affect either the epithelialized sinus tracts or the invasive proliferative gelatinous mass that is so resistant to therapy. Biologics are not a cure; improvement is rarely permanent.

Note – Medical treatment at this stage is only palliative and temporary. **Patients must avoid nicotine after surgery in order to prevent new lesions and follow the dietary recommendations. Anti-androgens may still be needed.**

B. Surgical Treatment
Wide surgical unroofing and debriding of all cysts and sinuses and scarred tissue can be accomplished by a knowledgeable surgeon. Healing can be by secondary intention or it may be accelerated with mesh grafting. Primary closure is avoided in active disease. At times, flaps and grafts are required.

Local Unroofing Surgery
   Unroofing is simple surgery, an old technique that has been ignored for years. Recently revived, it deserves wide use. It is practical for lesions from the early hot nodules of Stage I to the advancing, branching lesions of Hurley Stage III. Removing early lesions and taking the tops off the deep epithelialized subcutaneous sinus tracts of HS/AI is invaluable. It requires nothing more than sturdy scissors, blades held parallel to the skin surface. Alternatively, laser and electrosurgery have been used. It is far more effective than prolonged antibiotics and anti-inflammatory therapy.
   Unroofing is not technically difficult, can be performed in the office setting under local anesthesia, and so is easily adapted to the Emergency Room.
This is the technique that we recommend to replace “I&D” of fluctuant masses and other manifestations of HS/AI. Every opportunity to perform I&D should be converted into an opportunity to unroof the lesion. It provides superior drainage and pain control, eliminates the risk of inadequate ‘wound toilet’ that leaves behind the invasive proliferative gelatinous mass (IPGM) and fragments of the exploded FPSU. These are the sources of recurrences.

I&D is a temporary ‘solution’; unroofing is almost always permanent. It requires very simple post-operative dressings and post-operative pain is remarkably easy to manage.

Lidocaine 1-2% anesthesia with epinephrine is used. Controlled volumes are injected peripherally, avoiding leakage through sinuses. Time for vasoconstriction reduces pain and blood loss. Tumescent anesthetic technique is highly effective in dealing with entire involved anatomical units, and may spare some the need for general anesthetics.

A single inflamed follicular unit requires only urgent mini-unroofing (not I&D). A biopsy punch of appropriate diameter (5-8mm) is centered over the involved FPSU and a twisting incision removes the central damaged material. This is then debrided with digital pressure, curettage with gauze wrapped around a cotton applicator, and then ferric chloride hemostasis is applied with a cotton-tipped applicator.

Fluctuant masses are best initially incised and drained to reduce pressure. The central linear incision is extended to the edge of the loose tissue over the fluctuant area and the incision is extended through 360 degrees at the edge of the ‘roof’, beveling the edges with scissors. The base of the wound is then scrubbed with coarse gauze. Curettage with a spoon or bone curette may be needed to remove the IPGM. Excision of fat at the base of the wound is unnecessary and counterproductive. All depths and margins are explored digitally, visually, and with scissors tips. Any linear fibrous tissue is suspect as a possible sinus track and is best removed. Communicating sinuses once detected are unroofed. They can be surprisingly extensive and must be totally unroofed. Remove all tissue that is involved with active disease, devitalized or, if left behind, would interfere with healing. The wound base and small bleeder is dried and sealed with ferric chloride solution. Electrodesiccation or electrocautery are rarely needed. Scars are normally soft, contract to a much smaller area than that unroofed, and are quite acceptable to the patients.

Post-operatively, the wound is dressed with a thick coat of simple petrolatum. Running water only, no anti-bacterial soaps and no washcloths are used. Thick layers of petrolatum on cotton or soft gauze are re-applied once or twice daily or as needed. Patients (and wound care staff) must avoid debriding the wound. Healing by secondary intention and epithelialization will proceed only if the fresh epidermis is allowed to cover the wound and is not debrided away.

HS is not an infection; the inflammation is caused by the material removed by this procedure, so antibiotics are rarely necessary and are best avoided to minimize overgrowth of yeast and resistant bacteria.

Unroofing also eliminates the risk and costs of hospital or ambulatory surgical center care, laser, general anesthesia, graft donor sites, dehiscence, infection, the burying of residual inflammatory foci, post-operative antibiotics, time lost from work, and the need for travel to major centers. When performed correctly it stops forever the progression of the lesion treated.

For extensive Stage 3 vulvar hidradenitis suppurativa, total vulvectomy with skin grafts may be required. For further information on this, go to the University of Michigan Center for Vulvar Diseases Website and search for hidradenitis suppurativa.
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.
A preparation balanced with copper is preferred
– 30 mg zinc picolinate and copper 2 mg taken once or twice daily.
Side effects are occasional GI upset with nausea and / or diarrhea. Zinc sulfate is avoided for this reason.
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 (only antibiotic proven to do this)
- Blood thinning drugs – increases INR / clotting time
- Heart drugs – digoxin, quinidine
- Beta-blockers – verapamil
- Anti-convulsants – phenobarbital, phenytoin
- Anti-fungal drugs – ketoconazole
  - Bronchodilators – theophylline
- Immunosuppressant drugs – cyclosporine
- Corticosteroids
- Sulfonylurea and other hypoglycemic medications
- Miscellaneous – acetaminophen, dapsone.
- Enalapril can result in an increase in blood pressure.

**Side effects**
- Urine discoloration – orange red
- Permanent staining of soft contact lenses

**Allergic reactions**
- Flu-like syndrome with fever, chills, headache, dizziness & rashes
- Skin rashes – itching, hives, pimply reactions, and blisters,
  rarely erythema multiforme or toxic epidermal necrolysis
- Dizziness, headache and fatigue can occur
- Rarely anemia and hepatitis

**DAPSONE**
This is used as an anti-inflammatory. It reduces PMN/WBCs in tissue

**Dose** – 50 - 100 mg orally per day. Start at 50 mg/day for first 2-4 weeks

**Caution** – Glucose-6 phosphate dehydrogenase must be measured prior to therapy. If this is low dapsone is usually contraindicated because there is a serious risk of blood problems such as hemolytic anemia.

This can be more of a problem for some African Americans and Asians resulting in a more toxic reaction from the dapsone. Dapsone affects red blood cells so that they do not “live as long”. Usually red blood cells last for 120 days but when a patient is on dapsone this can decrease to 80 days causing the hemoglobin, to drop. This can be a problem in patients with heart, liver and kidney disease. A thorough history and physical with attention to the heart, liver and renal function is important.

Patients must be checked to be sure there is no pre-existing anemia.

**Contraindications** to the use of dapsone include prior hypersensitivity and agranulocytosis. Patients with severe allergy (hypersensitivity) to sulfonamides may be allergic to dapsone. If a mild allergy to sulfonamides, this is less likely.

**Relative contraindication** would be significant cardiopulmonary disease, G-6PD deficiency, and severe sulfonamide allergy.

**Monitoring blood tests for patients for dapsone**
1. G-6PD level must be assessed.
2. CBC with differential, liver function tests, BUN, creatinine and urinalysis.
3. Repeat blood work - CBC with differential, WBC and reticulocyte count every week for 4 weeks and then every 2 weeks for 8 weeks and then about every 3-4 months. Check reticulocyte count to assess response to Dapsone hemolysis.
4. Liver function and renal function tests every 4 months for maintenance.

**Drug interactions**
1. Dapsone levels are increased with trimethoprim, probenecid
2. Dapsone levels are 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


**Pre-operative Clinic and Scheduling Needs:**
: Reminders for Hidradenitis Patients

1. Consider **Nutrition consult** - screening tool per nutrition: albumin and prealbumin with preop labs
2. Must have stopped tobacco if previous smoker; discuss impact on wound healing, need for avoidance of nicotine replacement products post-operatively. If recent smoker, and they say they have stopped, send nicotine level to verify.
3. Give instructions for extensive bowel prep, use Golytely prep. The patient must be clear prior to OR.
4. Attempt to 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 bed rest) and healing time.
7. Counseling re: NPO except for chips in hospital with TPN and rectal tube (Bard Dignicare).

8. Obtain GI consult to rule out Crohn disease or ulcerative colitis
   serologic markers for Crohn’s pANCA,
   ASCA, OmpC and CBir1 Flagelin markers (IBD panel)
   If needed, consider consider upper GI evaluation as well as colonoscopy.

9. Psychological needs to be addressed prior to OR. Consider **Pain Psychology consult or psychiatry consult if indicated.** Let sexual counselor know about admission dates so they can visit her.
10. Discuss possible transfusion (need adequate HCT for adequate healing- HCT should be over 30 if flap done).
11. Mandatory arm and leg workouts should be agreed upon prior to surgery.
- 12. Put order in for Low Air Loss bed when booking these cases. **In Pre-admit orders, place an order for this bed—this is ONLY a request for review for specialty bed. Enter ALL of the patient’s pertinent information into the order (who she is, how extensive her surgery will be, how long she will be on bedrest; state why in detail … bed is a low air loss bed that can be placed in Trendelenburg position for the rectal tube decompressions, etc.**.

- **Submit the order. Then PAGE 7156 or consider numbers below - these are the people that help review the order. Reiterate the importance of the bed for the patient’s recovery. Ask that it is delivered to the OR the day of initial surgery—emphasize importance that patient does not need to be moved from bed to bed (she can be placed on the specialty bed immediately out of the OR).**

- **On case request under questions where it prints on schedule…specialty bed needed.**

Here are some screen shots of the Consult to Wound/Ostomy Specialty Bed order. Order must be placed at the time the surgery is booked. This order populates a worklist for the Wound/Ostomy team from which they approve and order the beds for day of surgery.

Having the consult order there sooner rather than later will allow them ask questions/research if needed to determine if and what kind of bed is to be ordered.

Also it is helpful to put in any comments specific to the patient and the bed needed that may not be immediately visible to the Wound/Ostomy nurse when she is looking at the chart.
Here are the contact people for the Wound Ostomy team:

Lori Pelham, BSN RN NSN, Clinical Nursing Director, Pager# 7284, Office # 5-7289
Tamara Felton, BSN RN CWOCN, Supervisor, Pager# 1523, Office # 6-2994
Paula Anton, MS RN CRRN ACNS-BC, Clinical Nurse Specialist, Pager# 31860, Office # 3-8977

Let Pat Wojno know about scheduled surgery. She can also assist in arranging bed for patient. The person in charge of the beds is Mary Serino, Clinical Care Coordinator Expert, UH PACU, Pager 30746.

OR contact person:
Mary Serino RN BSN CPAN
12. Diabetic patients must be under excellent control
   All patients: No recent oral steroid use
   Not currently smoking (have to have stopped for several months)

13. Arrange PICC line on POD 0 or 1 if TPN required (triple lumen). TPN not required for less than 7 day stay.
   --Less than 7 days of parenteral nutrition therapy is unlikely to provide any clinical benefit and may increase infectious and metabolic complications.

15. Consent for 5 procedures, including wound vac changes
   1. Radical vulvectomy, excision of buttock and thighs and wound vac(s) placements
   2. Wound vac removals and replacements
   3. Split thickness skin graft after wound cleaning and wound vac(s) placements
   4. Removal of wound vats
   5. Removal of staples

OR
Will require 2 OR tables for extensive disease (rotate from prone to lithotomy) For prone, need gel pads, pillow and elbow protectors. Tilt bed when moving from prone to lithotomy. Also, finalize wound vac on OR table rather than on S bed.

Can use Bovie pads to hold buttocks apart and tie to bed with one of these knots
Marlinespike - Useful Knots and Hitches for Boaters

**Bowline**  **Anchorbend**  **Sheepshank**
Cheat Hitch  Clove Hitch  Round Turn & 2 Half Hitches

When turning to lithotomy- Used iodoband drape over towel to cover over buttock to prevent contamination with prep
Removed at very end

**Consents for procedures (see above)**
A bowel preparation prior to surgery is important if the anal area is involved and a wound VAC over that area is anticipated. It is a good idea anyways if a major area of the vulva is involved. The patients should be evaluated for malnutrition prior to surgery.

**OR 1**

Intra-operative: Have Available for **OR#1** (Radical Vulvectomy)
Place rectal tube at beginning of case whether or not you start in prone or lithotomy.

**Bard Dignicare rectal tube**  PUT IN RECTAL TUBE
PRIOR TO PREP

**Instructions for Use**

1. **Preparation of catheter and collection bag**
   a. Attach the 60 ml syringe to the inflation port and draw all air from the retention cuff.
   b. After the cuff has been deflated, fill the syringe with 45 ml of water and set aside.
   c. Attach the collection bag to the catheter by inserting the ball valve connector of the catheter into the hub socket on the collection bag and turning clockwise until the connector snaps into place.

2. **Insertion of Device**
   a. Unfold the length of the catheter to lay flat on the bed towards the foot of the bed
   b. Attach the 60 ml syringe filled with 45 ml of water to the inflation port.

Insert the inflation cuff using a four-step process:
1. Squeeze the inflation cuff to ensure all air has been removed and hold the cuff flat in order to fold for insertion
2. Holding the left point of the cuff between the thumb and index finger, fold the top right point of the cuff down and to the left in a 45 degree angle to create a conical shape with a leading edge for easy insertion.
3. Coat the cuff end with lubricating jelly
4. Gently insert the cuff end through the anal sphincter until the cuff is beyond the external orifice and well inside the rectal vault.

Inflate the cuff with 45 ml of water by slowly depressing the syringe plunger. As the cuff inflates, the pilot balloon also inflates. The inflation port needs to remain parallel to the catheter.

Remove syringe from inflation port and gently pull on the silicone catheter to check that the cuff is securely in the rectum.

Position tubing on the inner leg.

Insert bag plug

Bard Dignicare Rectal Tube
Fill bulb with 45 cc fluid water. Deflate the bulb with patient in 15 degrees Trendelenburg qd for 5 mins. every 12 hours. If excessive stool, flush both tubes q 24 hours with water. The patient does not need to be put into Trendelenburg position for tube flushes. The bulb must be inflated before any flushes are done. 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.

After tissue excised:
Cover the edge of the first part of the area excised with mastisol (need at least 4 of them) on edge.
Then cover the excised area with wound VAC foam and wound vac plastic sheeting, leaving a portion of the wound vac approaching the perineum unsealed. Cover this with sterile towels, and then roll to lithotomy position. This way, the buttock can be sealed easily.

When turning to lithotomy- Used iodoband drape over towel to cover over buttock to prevent contamination with prep
Removed at very end

At end of case need to get seal over Foley and Rectal tube

For Foley
Place a 2 pediatric IV dressings facing one another over the initial tegaderm. To prevent further leaks around the Foley and the rectal tube use a Hollister urostomy wafer cushion over the initial wound vac plastic covering, stock number 7806. They keep them with the urology supplies. Cut a slit to the center and use the smaller one for the Foley, and the larger, one around the rectal tube (need to trim this one).

- Use tegaderm back to back to cover start of rectal tube (at 90 degree angle). Can also use Hollister urostomy wafer before the tegaderm is placed.

**Supplies/board instructions**

Consider Traxi panniculus retractor in obese patients

Stryker irrigator with X-Ray bag
Johnston blue stirrups

**Set Coag at 40/40 Blend**

Supplies for aerobic and anaerobic culture of wound bed

Ligasure Cautery Hand (one large one for abdomen andmons pubis and one small or medium one for vulva)

VAC foams (Silver (granu foam) for post-vulvectomy OR 1

VAC machine, canister and dressings OF NOTE: Wound VAC must be on anterior vulvar aspect near mons. Make sure nothing is covering the holes on the wound VAC tube insertion point.

Deflate wound VAC by attaching suction to wall suction for rapid deflation. Then clamp tube and connect to Wound Vac. Unclamp tube. Wound VAC should be set for OR 1 continuous at 125 to 150 (continuous). Consider 2 wound vacks if large area involved. One at superior aspect and one at mons level versus on buttock.
Can also make a right angle with the tegaderm over Foley and Rectal tube.

WOUND VAC:

1) Make sure everything is dry, especially under the buttocks. Apply sticky plastic sheeting using ~1 inch strips around graft site in window pane fashion. This helps protect the skin and create a better seal.
2) Cut foam to fit Vulvectomy site. Silver-impregnated foam for OR 1 and first wound VAC change to improve antibacterial properties. Slits/holes are needed for the Foley and rectal tube.
3) Apply Mastisol (need at least 4) to the skin -- this can even go over the window pane plastic. It’s especially important over the buttocks.
4) Apply Hollister wafer cushions around Foley and rectal tube after foam is covered with initial plastic sheeting for wound VAC. For the rectal tube, cut a slit in the Hollister wafffer to open it, then enlarge the hole a bit. Apply it around the tube and overlap to create a better seal.
5) Use window paning technique around Hollister wafers to get better seal.
6) Have Coloplast Strip available to help seal wound VAC around Foley and rectal tube. The strip should also be placed in the gluteal cleft to allow for a better seal of the VAC sheeting into the buttocks region.
7) Put plastic sheeting/Tegaderms/etc. over foam to get good seals everywhere.
8) When ready to attach wound vac, cut a **quarter-sized** hole in plastic and apply the wound vac connector. At times a Y connector is needed if two wound vacs used on front or back.
9) When starting suction, first deflate foam and remove as much air as possible using surgical suction (wall suction) canisters, and compress foam with hands to get as much air out as possible and get a better seal. Once the foam is essentially completely deflated, connect tubing to wound vac device.
10) Connect wound vac as above.

If any problems with wound VAC, can contact

Elizabeth Zofchak  734.223.2637

Make sure the Foley is draining at the correct angle
Make sure the rectal tube is at the correct angle. Irrigate with 60 cc water through Catheter irrigation port to make sure draining correctly
Take back from OR on Sport specialty bed.

***NEED PICC line placed after OR on floor (triple lumen). Optimal placement at cavoatrial junction. OK if in distal 1/3 of SVC to cavoatrial junction. Once radiologist pages the nurse that placed the PICC, they page the resident to place the order to use the PICC.

**OR 2 (Wound Debridement and Wound Vac Changes).** Ok to take to OR on Sport specialty bed for transfer back to floor to minimize risk of disrupting wound vac seals.

Intra-operative
Have Available for OR #2 (Wound Debridement and Wound Vac Change)
Set Coag at 40/40 Blend

Johnston blue stirrups
Stryker irrigator with X-Ray bag
Vac machine(s), canister(s) and dressings.
Remove and replacerectal tube prior to prep

Bard Dignicare Rectal Tube

Bard Dignicare Rectal Tube
Fill bulb with 45 cc fluid water. Deflate the bulb with patient in 15 degrees Trendelenburg qd for 5 mins. every 12 hours. Flush both tubes q 24 hours with water. The patient should not need to be put into Trendelenburg position for tube flushes. The bulb must be inflated before any flushes are done. 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.
At end of case- Use tegaderm back to back to cover start of rectal tube (at 90 degree angle)

Bowel movements are involved, start in prone position (For prone, need gel pads, pillow and elbow protectors.)
Consider tissue cultures. Debride buttock wound and replace wound vac, including sealing plastic sheeting around area. Make sure rectal tube is at proper angle to allow for drainage. Replace rectal tube at beginning of procedure prior to prep.
Can use Bovie pads to hold buttocks apart and tie to bed with one of these knots

Marlinespike - Useful Knots and Hitches for Boaters

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When turning to lithotomy- Used iodoband drape over towel to cover over buttock to prevent contamination with prep
Removed at very end

Consider Traxi panniculus retractor in obese patients

Once in lithotomy position, debride wound and replace remainder of wound vac.

WOUND VAC:

1) Make sure everything is dry, especially under the buttocks. Apply sticky plastic sheeting using ~1 inch strips around graft site in window pane fashion. This helps protect the skin and create a better seal.
2) Cut foam to fit Vulvectomy site. Silver-impregnated foam for OR 1 and first wound VAC change to improve antibacterial properties. Slits/holes are needed for the Foley and rectal tube.
3) Apply Mastisol (need at least 4) to the skin -- this can even go over the window pane plastic. It’s especially important over the buttocks.
4) Apply Hollister wafer cushions around Foley and rectal tube after foam is covered with initial plastic sheeting for wound VAC. For the rectal tube, cut a slit in the Hollister wafer to open it, then enlarge the hole a bit. Apply it around the tube and overlap to create a better seal.
5) Use window paning technique around Hollister wafers to get better seal.
6) Have Coloplast Strip available to help seal wound VAC around Foley and rectal tube. The strip should also be placed in the gluteal cleft to allow for a better seal of the VAC sheeting into the buttocks region.
7) Put plastic sheeting/Tegaderms/etc. over foam to get good seals everywhere.
8) When ready to attach wound vac, cut a **quarter-sized** hole in plastic and apply the wound vac connector. At times a Y connector is needed if two wound vats used on front or back.

9) When starting suction, first deflate foam and remove as much air as possible using surgical suction (wall suction) canisters, and compress foam with hands to get as much air out as possible and get a better seal. Once the foam is essentially completely deflated, connect tubing to wound vac device.
10) Connect wound vac as above.

If any problems with wound VAC, can contact

Elizabeth Zofchak  734.223.2637

Make sure the Foley is draining at the correct angle
Make sure the rectal tube is at the correct angle. Irrigate with 60 cc water through Catheter irrigation port to make sure draining correctly
Take back from OR on Sport specialty bed.

OF NOTE: Wound VAC must be on anterior vulvar aspect near mons. Make sure nothing is covering the holes on the wound VAC tube insertion point. Set at continuous at 150 mm Hg if large area (less if small area).

Make sure everything is dry, especially under the buttocks. Apply sticky plastic sheeting using ~1 inch strips around graft site in window pane fashion. This helps protect the skin and create a better seal.

Deflate wound VAC by attaching suction to wall suction for rapid deflation. Then clamp tube and connect to Wound Vac. Unclamp tube. Wound VAC should be set for OR 1 continuous at 125 to 150 (continuous). Consider 2 wound vats if large area involved. One at superior aspect and one at mons level versus on buttock.
Make openings quarter size. Make sure nothing is covering the holes on the wound VAC tube insertion point. Set at continuous at 125-150 mm Hg (if large area) (125 if small area). At times a Y connector is needed if two wound vats used on front or back.

**OR 3 (Skin Grafts)** (Consider Flap with this surgery if needed. If a flap is done, the edges of the flaps need to be excised to healthy tissue.)

Stop Heparin 12 hours before OR.

Take to OR on specialty bed, then transfer to OR bed.

If flaps (especially muscle flaps with vessels reattached) performed, keep Hct above 30% to ensure wound healing.
Have Available for OR#3 (Split Thickness Skin Graft)
Do not use Duraprep on thighs
**Set Coag at 40/40 Blend**
Consider Traxi panniculus retractor in obese patients

Blue Allen stirrups (ask for CJ’s stirrups)
Stryker irrigator with X-Ray bag
VAC machine, canister and dressings
Deflate wound VAC by attaching suction to wall suction for rapid deflation. Then clamp tube and connect to Wound Vac. Unclamp tube. Wound VAC should be set for OR 1 continuous at 125 to 150 (continuous). Consider 2 wound vacs if large area involved. One at superior aspect and one at mons level versus on buttock.
Make openings quarter size. Make sure nothing is covering the holes on the wound VAC tube insertion point. Set at continuous at 125-150 mm Hg (if large area) (125 if small area). At times a Y connector is needed if two wound vacs used on front or back.
The only foam to be used with the wound VAC on the skin grafts is black foam (NO silver foam)
Consider having Flexinet in the OR for use in holding graft flat and tight against bed.

For skin grafting procedure:
Have available large curette used by plastic surgery for debridement.
Dermatome setting: 12 to 17/1000 inch (15 ideal)
NEED TO CLEAN OUT Dermatome and relubricate it after 4 passes 3 inch guard.
Meshed 1.5/1 or use 3/1 if very large areas-
Need extra carriers.
Have an assistant to gently lift up the skin graft if it piles up on the guard.
Change blade every 3 to 4 passes.
Consider if you will need to prep both thighs; wipe off thighs with water or saline prior to putting on mineral oil prior to doing skin graft.
When doing the skin graft use a 45 degree angle. Can use towel clips, or just push down on the skin.

Intra-operative
Start in prone position if both sides are being done. For prone, need gel pads, pillow and elbow protectors.
Can use Bovie pads to hold buttocks apart and tie to bed with one of these knots
Marlinespike - Useful Knots and Hitches for Boaters

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When turning to lithotomy- Used iodoband drape over towel to cover over buttock to prevent contamination with prep
Removed at very end

Have Coloplast Strip available to help seal wound VAC around Foley and rectal tube. The strip should also be placed in the gluteal cleft to allow for a better seal of the VAC sheeting into the buttocks region.

Foley used 2 IV covers of tegaderm to cover, then coloplast band around Foley
**Bard Dignicare Rectal Tube**

Fill bulb with 45 cc fluid water. Deflate the bulb with patient in 15 degrees Trendelenburg qd for 5 mins. every 12 hours. Flush both tubes q 24 hours with water. The patient should not need to be put into Trendelenburg position for tube flushes. The bulb must be inflated before any flushes are done. 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.

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### At end of case

Use tegaderm back to back to cover start of rectal tube (at 90 degree angle)

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Obtain grafts. After taking the graft, cover the thigh with epinephrine 1:1,000 - to make up, dilute 60 cc bottle of epi in 1000 cc saline. Soak Telfa in the dilute epi solution to place on donor sites.

(If small area can use 1% lidocaine with 1:200,000 epinephrine on raytec )

1) On buttock, need to apply a narrow skin graft in buttock groove vertically a, then cut two additional skin pieces to go on either side of central piece that indents some. Make sure everything is dry, especially under the buttocks.

   Cover over with Adaptic (Curity Non Adhering Dressing 5 x 9).

   Ensure that there is overhang of the Adaptic (Curity Non Adhering Dressing 5 x 9) over the edge of the incision sites so that if things bunch, the skin is still protected.

2) Apply Mastisol (need 4) to the skin -- this can even go over the window pane plastic. It’s especially important over the buttocks.

3) Cut black foam to fit buttock graft site. Slits/holes are needed for the Foley and rectal tube. The foam pieces can be stapled together to keep the shape and location as desired. Need to apply a narrow sponge in buttock vertically over Adaptic (Curity Non Adhering Dressing 5 x 9) covering skin graft, then cut two additional sponges and staple them to the buttock central sponge.

4) Apply Hollister wafer cushions around Foley and rectal tube after initial covering with plastic sheeting. For the rectal tube, cut a slit in the Hollister wafer to open it, then enlarge the hole a bit. Apply it around the tube and overlap to create a better seal.

5) Use window paning technique around Hollister wafers to get better seal.

6) Put plastic sheeting/Tegaderms/etc. over foam

For buttock flaps cover the buttock with towels, then roll to lithotomy position. This way, the buttock can be sealed easily later on. To prevent further leaks around the Foley and the rectal tube use a Hollister urostomy wafer, stock number 7806. They keep them with the urology supplies. Cut a slit to the center and use the inner, smaller part for the Foley, and the larger, outer part around the rectal tube, after plastic sheeting has been applied.

7) When ready to attach wound vac, cut a **quarter-sized** hole in plastic and apply the wound vac connector. At times a Y connector is needed if two wound vacs used on front or back.

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Wound Culture and Sensitivities to be obtained

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At end of case

Use tegaderm back to back to cover start of rectal tube (at 90 degree angle)

Cover the skin graft covered with adaptic, black foam/Tegaderm with a gel pad for pressure, then turn.

Rotate to lithotomy position.
Once in lithotomy position, drape as follows: Green towels wrapped around leg with long axis of towels perpendicular to long axis of leg. Wrap the towels around the leg just proximal to the knee to cover the knees and upper portion of the yellow-fin blue stirrups. Pull leg drapes over legs and attach to green towels, leaving thighs free. Clean Green towels can then be placed over the thighs to keep the donor sites clean. Place ¾ drapes under abdomen and thighs to keep undersurface clean. Drape remainder of patient (abdomen, legs, etc.) in usual fashion using standard laparotomy drape.

Obtain grafts. After taking the graft, cover the thigh with epinephrine (If small area can use 1% lidocaine with 1:200,000 epinephrine on raytec)

Use 4’0’ monocryl on prepuce and labia if desired, however staples are fine too.

For lithotomy, need to apply a narrow skin graft in each lateral aspect of abdomen vertically and staple to the central piece to decrease tension on the sides of the abdomen. Then, cover graft over with Adaptic (Curity Non Adhering Dressing 5 x 9), then cut sponges in similar fashion and cover Adaptic (Curity Non Adhering Dressing 5 x 9) with sponges. Complete wound VAC in lithotomy.

When placing wound vac, to prevent further leaks around the Foley and the rectal tube - use a Hollister urostomy wafer cushions over the initial wound vac plastic covering, stock number 7806. They keep them with the urology supplies. Cut a slit to the center and use the smaller one for the Foley, and the larger, one around the rectal tube (need to trim this one). Once sheeting is over and around the tubes and ostomy wafers, seal further with Coloplast Strip, followed by large sheets of vac sheeting with slits cut in the midline to allow draping around the tubes without kinking.

Foley use 2 IV covers of tegaderm to cover, then coloplast band around Foley

—Set wound vac at 150 mm Hg continuous if large area involved, otherwise 125. Can cover flaps with wound vac too.

Xeroform gauze to cover skin graft sites; Staple at corners. Place ABD over Xeroform, then Kerlex wrap and Ace bandage. (Remove Kerlex and ABD on POD 1 from thighs). Another option for wrapping the leg which worked nicely was to use xeroform gauze covered with ABD, then Kerlex, then cover with Bandnet 10” pack (precut Bandnet wrap). It is brought up over the heel and pulled up to the thigh.

Consider 2 or more wound vacs (vulva and buttocks) if large area involved.

To prep the area for wound vac:

**WOUND VAC:**

1) Make sure everything is dry, especially under the buttocks. Apply sticky plastic sheeting using ~1 inch strips around graft site in window pane fashion. This helps protect the skin and create a better seal.
2) Cut foam to fit Vulvectomy site. Silver-impregnated foam for OR 1 and first wound VAC change to improve antibacterial properties. Slits/holes are needed for the Foley and rectal tube.
3) Apply Mastisol (need at least 4) to the skin -- this can even go over the window pane plastic. It’s especially important over the buttocks.
Apply Hollister wafer cushions around Foley and rectal tube after foam is covered with intial plastic sheeting for wound VAC. For the rectal tube, cut a slit in the Hollister wafer to open it, then enlarge the hole a bit. Apply it around the tube and overlap to create a better seal.

5) Use window paning technique around Hollister wafers to get better seal.
6) Have Coloplast Strip available to help seal wound VAC around Foley and rectal tube. The strip should also be placed in the gluteal cleft to allow for a better seal of the VAC sheeting into the buttocks region.

Foley - use 2 IV covers of tegaderm to cover, then coloplast band around Foley

7) Put plastic sheeting/Tegaderms/etc. over foam to get good seals everywhere.
8) When ready to attach wound vac, cut a quarter-sized hole in plastic and apply the wound vac connector. At times a Y connector is needed if two wound vacs used on front or back.

9) When starting suction, first deflate foam and remove as much air as possible using surgical suction (wall suction) canisters, and compress foam with hands to get as much air out as possible and get a better seal. Once the foam is essentially completely deflated, connect tubing to wound vac device.
10) Connect wound vac as above.

If any problems with wound VAC, can contact

Elizabeth Zofchak 734.223.2637

Make sure the Foley is draining at the correct angle
Make sure the rectal tube is at the correct angle. Irrigate with 60 cc water through Catheter irrigation port to make sure draining correctly

Once wound VAC draping is complete, apply wall suction to connector to remove as much air in the wound as possible and to look for leak sites. Once this is complete, clamp tubing and connect to VAC device, then unclamp and start suction.

10) For graft donor site, the entire site can be covered with Xerofoam. Staple at corners and remove staples on legs at time wound vac removed POD 5 after split thickness skin graft. Cover with ABD. Cover with Flexinet. Remove ABD and Flexinet one day after the grafts from the donor site.

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

Can use heat lamp to thigh after ABD removed. One option is the Holmes Convention Heater with Thermostat, sold at Walgreens (#HFH111TU). If using this technique, after staples on thigh removed at time of wound vac removal, gradually cut off xeroform.

If doing flaps use 3’0’ vicryl buried stitches to reapproximate the skin through the dermis. Then close the skin with 3’0’ Nylon. The Nylon stitches should be removed in 3 weeks.

Remove Wound VAC after 5 days in operating room, and take out staples from vulva and buttock POD 14

For smaller grafts (vulva, but no mons or groins or buttock, the skin graft can be taken and no meshing done. Can use 3-0 chromic suture in an interrupted and in running fashion into the bilateral gluteal cleft
and perianal region. A Reston bolster consisting of Xeroform, moistened cotton batting, and Reston staples can be used as a bolster to prevent motion or shear of the graft.

**OR#4 (POD#5 after skin grafts)**

Remove Wound VAC(s) in operating room. Prior to removal Irrigate wound VACS using a 60 cc syringe and (may need a catheter adapter (Christmas tree adapter) (blue one) Consider removing rectal tube and Foley versus leaving in for a day or two more.

**Wound C and S if needed**

On skin grafts, you may need to place Xeroform gauze (double layer) with Bacitracin touching the graft and areas that may not have taken and cover with Kerlex, followed by ABD, and stretchy underwear. If too wet, leave to air. Change the kerlex and ABD tid.
Cut edges of Xeroform on donor sites as it dries.

**Cotton flushes**

Burn net panties for compression

Have a fan at bedside to dry moist areas where skin grafts are attached. Order this from environmental services. Set on low.

**OR 5 (on POD # 12-14 after skin grafts)**

Remove staples.
If there is excessive granulation tissue overlying healthy-appearing graft, consider scraping the graft down with a straight razor blade or scalpel (#10 or #15 blade). Electrocoagulate bed of granulation tissue with Bovie to obtain hemostasis and further cauterize the tissue.

**Post-operative Considerations**

1. Check wound cultures, check if bacteria resistant to present antibiotic. If sterile culture, consider discontinuing antibiotics.
2. Continue TPN until eating 50% of food
3. Sips and chips

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

**Orders OR 1 Vulvectomy Post-op Orders**

**Immediate Post-op**

- If the specialty bed has not been delivered to the OR, again PAGE 7156 BEFORE the start of the case – again emphasize how important the bed is & that it must be delivered before the conclusion of the case.

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-sips and chips
Hyperal
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 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

VAC Therapy Order: VAC machines, canisters and dressings to be placed at patient’s bedside
Goal: Formation of granulation tissue in wound bed
VAC to be applied to vulva
Pressure setting: 150 mm Hg continuous if large area involved (if small area, 125 mm Hg)
Never leave subatmospheric pressure off or more than 2 hours per 24 hour period
Dressing will be changed POD 7 in the operating room

**Bard Dignicare Rectal Tube**
Fill bulb with 45 cc fluid water. Deflate the bulb with patient in 15 degrees Trendelenburg qd for 5 mins.
every 12 hours. Flush both tubes q 24 hours with water. The patient should not need to be put into Trendelenburg position for tube flushes. The bulb must be inflated before any flushes are done. 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.

At end of case-Use tegaderm back to back to cover start of rectal tube (at 90 degree angle)

If buttock and vulva removed, patient to be rotated from left lateral position to right lateral position every 2 hours. When buttock involved, do not have patient lying on back. If only vulva removed, patient should be on back the entire time.

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:
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
Neurontin
Tylenol
Ancef: 1 gram IV q 8 hours (May need revision when wound culture results available.)
Diflucan 150 mg PO q week
Heparin 5000 units SQ q 8 hours; D/C heparin 12 hours prior to OR 1 week later, and 12 hours prior to removal of wound vac 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
Lomotil- Start on Lomotil up to qid a day before going for skin graft
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 VAC or rectal pouch, any sudden, rapid increase in bright, red blood in the tubing or canister of the VAC.

Make sure they have a specialty bed (“Sport” bed) The Sport bed is a low air loss bed that can be placed in Trendelenburg position for the rectal tube decompressions, etc.

Orders OR 2 Post-op Wound Vac Removal

(Same as above for OR 1 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-sips and chips
Hyperal
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 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-mandatory arm and leg workouts should be agreed upon prior to surgery.
Occupational therapy consult: activities for bedrest
Social work consult: home nursing needs, support

VAC Therapy Order: VAC machines, canisters and dressings to be placed at patient’s bedside
Goal: Formation of granulation tissue in wound bed
VAC to be applied to vulva
Pressure setting: 150 mm Hg continuous if large area involved (if small area, 125 mm Hg)
Never leave subatmospheric pressure off or more than 2 hours per 24 hour period
Dressing will be changed POD 7 in the operating room
Bard Dignicare bowel system to closed drainage.

**Bard Dignicare Rectal Tube**
Fill bulb with 45 cc fluid water. Deflate the bulb with patient in 15 degrees Trendelenburg qd for 5 mins. every 12 hours. Flush both tubes q 24 hours with water. The patient should not need to be put into Trendelenburg position for tube flushes. The bulb must be inflated before any flushes are done. 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.

At end of case- Use tegaderm back to back to cover start of rectal tube (at 90 degree angle)

If buttock and vulva removed, patient to be rotated from left lateral position to right lateral position every 2 hours. When buttock involved, even if just a skin graft, not a flap, do not have patient lying on back. If only vulva removed, patient should be on back the entire time.

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:
- 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
- Neurontin
- Tylenol
- Ancef: 1 gram IV q 8 hours (May need revision when wound culture results available.)
- Diflucan 150 mg PO q week
Heparin 5000 units SQ q 8 hours; D/C heparin 12 hours prior to OR 1 week later, and 12 hours prior to removal of wound vac 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
Lomotil- Start on Lomotil up to qid a day before going for skin graft

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 VAC or rectal pouch, any sudden, rapid increase in bright, red blood in the tubing or canister of the VAC.

Make sure they have a specialty bed (“Sport” bed) – page ostomy nurses day before surgery ideally in order to allow bed to be ordered and delivered to the OR. The Sport bed is a low air loss bed that can be placed in Trendelenburg position for the rectal tube decompressions, etc.

**Orders OR 3  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
Patient to be rotated from left lateral position to right lateral position every 2 hours.

VS: q 1 hour X 2, q 2 hour X 2, then q 4 hours
I/O’s q 4 hours
Diet: sips and chips
Hyperal
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
VAC Therapy Order: VAC machine, canister and dressings to be placed at patient’s bedside
Goal: Formation of granulation tissue in wound bed
VAC to be applied to vulva
Pressure setting: 150 mm Hg continuous if large area involved (if small area 125 mm Hg) 
Never leave subatmospheric pressure off or more than 2 hours per 24 hour period
Dressing will be changed POD 5 under conscious sedation or in operating room

Resident twice a day will, place patient in 15 degrees Trendelenburg and deflate the balloon (withdraw 45 cc from Balloon Inflation Port; wait 5 minutes, then place back 45 cc sterile water). Do not disconnect the syringe from the bulb inflation/deflation port, in order to minimize the risk of introducing too much fluid into the bulb. After this, take out of Trendelenburg.
Rectal tube can be flushed at both tube ports (labeled “IRRIG” and “FLUSH”) with 45 cc each sterile water or saline. The flushes should not be done with the bulb deflations. The patient does not need to be in the Trendelenburg position during tube flushes.
At other times, patient to be rotated from left lateral position to right lateral position every 2 hours. When buttock involved, do not have patient lying on back.

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 grams IV q 8 hours X 48 hours
   Diflucan 150 mg PO q week
   Heparin 5000 units SQ q 8 hours
   Lomotil –i po qid (NOT PRN), can decrease to tid, bid if needed.
   Neurontin 300 at bedtime
   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!)

Fan at bedside to dry moist areas where skin grafts are attached. Order this from environmental services. Set on low.

Start to wean TPN one day prior to removal of WOUND VAC (cut in half for first day, then discontinue the next day). Check glucose 1 hour after TPN off.

Wound care for donor site (If wound vac not applied to donor sites, remove Kerlex and ABD 24 hours after surgery; leave on Xeroform –cut edges as they dry):

   After the outer dressing has been removed from the thigh, can apply a heat lamp (100 W bulb, not closer than 18”) to the donor site for 15 minutes 3 times a day until dry (usually 1-2 days). If it starts burning, turn the lamp off or move it further away.
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 VAC or rectal pouch, any sudden, rapid increase in bright, red blood in the tubing or canister of the VAC.

Stop Heparin 12 hours before ORs
Bring down to OR on specialty bed

**Orders Removal of Wound VAC**

Turn off wound vac 30 minutes before removal planned. Need to order a Christmas tree to put on tube of wound vac. Use 30 cc syringe and inject saline about 30 minutes before removal planned.

Cover graft with Adaptic (Curity Non Adhering Dressing 5 x 9), then ABD then stretchy underwear. The following day, remove the Adaptic (Curity Non Adhering Dressing 5 x 9) from the graft and leave to air to dry. Leave Adaptic (Curity Non Adhering Dressing 5 x 9) on the thigh to dry and cut it as it dries.

**New orders:**

Consider leaving in rectal tube for a few more days, while TPN is being weaned. 

- Start them on clear liquids to full liquid diet while rectal tube in during this time (the first 2 surgeries, keep NPO x chips and occasional sip)
- After rectal tube removal, start them on soft diet

D/C Lomotil when rectal tube out
Advance diet
When rectal tube out- Milk of magnesia 30 cc po q 6 hours, when stools start, prn

Dressing changes to areas that do not take-use saline to take off xeroform if needed. Do daily. Reapply xeroform with bacitracin daily, then cover with Kerlex, then an ABD.

Patient to remain in bed for 4 days. If large flap, will have gradual increase in sitting as follows:

- The standard sitting protocol for these pts:
  1) No weight bearing on buttocks for 3 weeks
  2) Begin sitting protocol 15 mins TID for 2 days
  3) Advance to 30 mins TID for 2 days
  4) Advance to 45 mins TID for 2 days
  5) Advance to 60 mins TID for 2 days
  6) Continue with this advancement until she reached 120 mins TID and then she can sit without restrictions.

- Rotate from left-lateral position to right lateral position every 2 hours if flap in area of any pressure.

After each sitting time period, the buttocks is checked to make sure that the flaps are tolerating the sitting (erythema, venous congestion, stress at suture line, early wound separation).

Number of dressing changes per day: 2

D/C PICC line prior to home
Send home on Stage 1-2 hidradenitis regimen (antibiotics, OCPs, or spironolactone dependent on age). Arrange for visiting nurse.

After the yellow Xeroform gauze has dried, lightly lubricate it daily with Vaseline. Cocoa butter to thighs once the xeroform comes off.

FOR HOME DRESSING CHANGES

DESCRIBE the dressing change process including number of each type of dressing product:

Using Toumy syringe and NS, irrigate all wounds. Apply ___# of xeroform gauze (5 x 9) impregnated with bacitracin to all wounds. Apply a middle layer of 4 inch kerlix (total of ___# of rolls) moistened with NS. Cover with ___# of Abd pads and hold in place with mesh panties.

Products needed to provide dressing changes as ordered for 1 month:
- 180 4 inch kerlix #6715
- 180 abd pads 8 x 10 #6715
- 10 mesh panties #SBXL100
- 10 boxes of 50 xeroform gauze #433605
- 60 blue pads
- 1 tube bacitracin #001116
- 1 box tongue depressors #WOD3005
- 1 toumy syringe #30962

Needs to start back on stage 1 meds when taking po

OR Scheduling

Preop  Psych, dietician, R/o Crohns, Bed order

OR 1 Radical Vulvectomy Wound VAC

OR 2 Day 3  Wound VAC Change

OR 3  Day 7  Skin grafts, possible flaps, Wound VAC change

OR 4  Day 12  Wound VAC off

OR 5  DAY 21 Staple removal  can be done at EAST ANN ARBOR

Notes to print out on OR BOARD

Inform if prone to lithotomy (For prone, need gel pads, pillow and elbow protectors.)

THIS IS SIMILAR TO BURN PACK

Epi 1/1000
Ligasure

Wound VAC 125-150 continuous

Hollister urostomy wafer

DigniCare Rectal tube (Irrigate twice to check in place, once after placement and once at end of procedure)

Stryker irrigator

Xray bag

Mastisol (need 4 or more for buttock and vulva each)

Adaptic (Curity Non Adhering Dressing 5 x 9)

12-17/1000 inch dermatome setting Mesh 1.5 inch/1

Lorerzepam may be needed if patient having problems with position changes

Tilt bed at time of taking patient off OR table...easier to roll

For Paget Disease, Wound Vac or cotton balls will stay on for 5 days. Consider suturing if smaller area so that second OR not required. Smaller areas with wound VAC or cotton balls can be removed at bedside.