

Hidradenitis suppurativa, holistic approach and surgical reconstruction

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Abstract

We present a young adult male patient with chronic Hidradenitis Suppurativa (HS) stage II-III, mostly involving buttocks, thighs and perineum. The patient has been followed initially by a dermatologist for 2 years with trials of Biologic treatments. The ongoing purulent discharges made him quite dysfunctional. Patient was offered a definitive and extensive surgical option. Considering this conditions' devastating social, psychological effects, such patients should be managed with a multidisciplinary team, elaborated education and counseling. Initial line of treatment plans should be considered as preparatory to the definitive surgical excisional therapy. Patient's acceptance to the entire package that goes with the definitive surgery is fundamental for a successful and lasting outcome. Complete surgical resection of the disease and reconstruction remains to be the only available option for cure in a fully established HS.

Introduction

Hidradenitis suppurativa (HS), also known as Acne inversa is a chronic relapsing inflammatory suppurative and cicatrice skin disorder of the folliculo-piloseaceous units, described originally by Velpeau in 1832 [1].

(HS) requires the patient to seek medical attention due to painful, malodorous discharging skin "lesions". Usually patient obtains the symptomatic treatment by general practitioner, family physician or emergency unit doctor. This condition gets worsened with inadequate diagnosis, suboptimal treatment, poor compliance or simply due to the natural course of the disease. Clinical picture advances through multiple abscesses, suppuration, complex sinus formation and eventual extensive tissue destruction.

The disease is characterized by chronic inflammation, recurrent abscesses, nodules and fistula formation over apocrine glands bearing areas, e.g. axillae, breast, groin, peri-anal, buttocks and perineal region [2]. The prevalence of HS is around 1% of the general population, its more common in females and usually presents after puberty [3]. Traditionally, treatment of HS posed significant challenges, as it requires a combination of medical and surgical approaches [4]. The usual treatment received by patients is incision and drainage of the abscesses along with prescription of repeated antibiotic courses. This means topical antibiotic or oral Clindamycin in mild cases and tetracycline for more wide spread lesions. Also, the combination of oral Clindamycin with Rifampicin is frequently practiced by many. For a given patient

both medical and surgical management plans commonly go side by side in a general hospital. However, outcome of these routine measurement is mostly not satisfactory to the patient and their caregivers. By the time patient's condition is properly identified by a specialist, its already been there for many years.

Usually patients suffering from HS are not promptly diagnosed. At times this take up to 7 years or so ; this is probably due to the fact these patients are usually seen and followed by General practitioners or Emergency Department Physicians [5]. This dilemma multiplies to many folds when a patient fails to respond to the second line of management I.e. "Biologics". Similarly, patients get frustrated by surgical interventions on "as needed" basis including; Incision, drainage and de-roofing of the lesions for example. Standard management of extensive Hurley's Stage II and III, is three dimensional wide local excisions of all hair bearing areas with clinically free margins and reconstruction of the defects with regional tissues, skin grafting [6]. The rate of recurrence is much lower in the group who underwent wide excision than the other commonly performed procedures by specialties other than plastic and reconstructive surgery [7].

Case Presentation

Our case is a 38 years old male patient with extensive HS through his gluteal region, folds, perineum, groin and extending into the posterior thighs. He was mostly at Hurley's Stage II-III (Figure 1a) The patient was not known to have any chronic or associated medical issues, but a heavy smoker (2 packs a day for over 10 years).

The patient was pleasant and appreciative. Due to the nature of the disease and areas involved patient remained single and he worked as a policeman with frequent sick leaves. BMI was within normal limits. He was followed by general surgery and dermatologist with poor response to Biologics. The clinical picture of this patient was

quite dismal and distressing, especially after repeated trials of first line medical therapies with recurrences. Then, the failure of second line of management scheme i.e. Biologics, made the scenario more challenging.



Figure 1: (a) 38 years old male with chronic and extensive HS affecting buttocks, perineum, groin and thigh areas. a) lateral view;

Thorough evaluation of all involved areas with HS disease was done. We suggested, wide local excision and skin graft reconstruction. However, convincing a patient with HS for a major surgery, required multiple imploring sessions. As per our multidisciplinary approach for his management he was reviewed and counselled by Psychiatrist, Nutritionist, Anesthesiologist apart from the Dermatologist and our Plastic surgery team. Cessation or at least significant reduction of cigarette smoking prior to surgery and post-operative period was discussed. Upon the elective admission, placement of central intravenous access was considered, and dietitian was involved for total parenteral nutrition in the early postoperative period.

Considering the postoperative prone position requirement on the bed with extensive areas of skin grafting, considerations for DVT Prophylaxis were taken. Pre-operatively tissue culture microbiology result helped to choose appropriate antibiotics. Patient was kept on liquid diet for few days prior to surgery and bowel preparation was carried out prior to the intervention by colorectal surgeon's opinion. The option of Diversion colostomy was also explored and suggested to the patient to avoid the soiling of operative field. But this was not acceptable by him.

Surgical plan was to have wide local excision of all the affected skin and subcutaneous tissue including fat, down to the deep underlying fascia. Vacuum Assisted Closure device was considered as an adjuvant tool for the entire operative process.

Apart from the surgical management plan, other expected logistic issues were elaborated and discussed in detail for an otherwise, young, conscious and oriented patient; these involved:

- ✓ Keeping patient in a non-ambulatory status for early post-operative period
- ✓ Delaying in regular bowel movement for early post-operative days to avoid soiling or else convince him for Diversion Colostomy

- ✓ Nursing the patient in Prone position and preventing the complications related to it.
- ✓ Optimizing the nutritional status to avoid any compromise healing issues or secondary infection

Surgical Management

The patient was operated under general anesthesia in a prone position on the operating table. Wide three-dimensional local excision of the involved areas on the bilateral buttocks, peri-anal, gluteal fold and posterior thigh was done. A margin of averaging 1 cm was considered to be involved in the resection beyond the clinically apparent diseased tissues (Figure 1b). Entire excised tissue was sent for histopathology. Hemostasis and wound toilet were done as a routine process. The healthy margins were then minimally advanced and secured to the deep fascia, this helps in obliterating dead space (Figure 2). Then VAC device with the Silver granufoam was applied on the base of the all freshly excised wound to have an even, smooth and well vascularized recipient bed for skin grafting. The patient was admitted in surgical step-down unit for first approximate 48 hours, post operatively. Patient was brought back to operating room as delayed skin grafting after 1 week of the first surgery. Split, medium thickness skin grafts were harvested with a dermatome from adjacent areas and Resurfacing to the open wounds was done with aid of VAC therapy. However, for areas in close proximity to anal region, a tie over dressing technique over the skin grafts was used since VAC would not maintain the suction otherwise (Figure 3), This dressing was changed after 1 week and graft take was found to be very good. Upon follow up, patient was found to be doing very well, the previously involved areas were completely healed (Figure 4). Patient's overall health, morale and functional status have significantly changed and improved. Patient expressed, though the 3 weeks of inpatient treatment was a stressful experience, but it was worth considering in view his over-all life dramatic change.



Figure 1: (b) Frontal view, with marking to areas planned for resection.



Figure 3: Following application of skin grafts to the raw areas, tie over kind of dressing (white burn pads sutured to skin grafted wounds with silk ties) was used for areas where VAC would not function or to be applied.



Figure 2: Immediately post-surgical resection down to level of deep fascia. Surrounding tissues been tucked to reduce dead spaces.



Figure 4: 8 months postoperative result, with complete resolution of the disease. The indented areas represent resected regions with skin grafts. Other surrounding hyper and or hypo pigmented areas represent donor sites from where skin grafts were harvested.

Discussion

Holistic approach to HS means a multi-disciplinary management in addition to optimum psych-social preparation and support. Clinically, course of the disease is classified by various assessment tools. These help better inter-specialties communication for the clinical pictures and course of disease, both qualitatively and quantitatively. Hurley Staging system, relatively, more common and easy tool, classifying this entity into stage I through III. This has been used basically for selection of appropriate treatment modality [8]. Refined Hurley's classification, further categorize patients, as IA, IB, IC, IIA, IIB, IIC and III. This specifically designed and incorporate both anti-inflammatory and surgical intervention [9].

The Modified Sartorius score is dynamic and anatomically more precise for measuring the disease process. However, it could be time consuming and unable to interpret the inflammatory variations in real life clinical practice or trials [10,11].

Another tool, The HS-Physician's Global Assessment is available to measure the clinical improvement in response to medical treatment. This classifies the entire disease process in six stages from mild to severe. The stage 1, being Non-inflammatory nodule to stage 6 with multiple abscesses, sinus tracts and draining fistulae [3,12]. In more severe category, clinical improvement, however fails to show a reduction the score accurately [13].

Another assessment system, termed as The HS severity index. This system, score severe disease for patients having more than 13 points, whereas moderate with score between 8-12 and mild as a score 0 to 7. This basically incorporates categorical objective and the subjective parameters. The element of consideration is area involved, number of skin lesions, pain evaluation and drainage (number of dressing changes require in defined working hours [14,15].

Use of topical and systematic antibiotics is always part of first line management. However, role of second line of intervention i.e. Biologics is a relatively newer practice. The most recent and well powered phase III randomized, placebo-controlled trial for the evaluation of the efficacy and safety of Adalimumab in treatment of moderate to severe H.S (Pioneer I&II), showed that HS Clinical Response (Hi SCR) rate at week 12 was significantly higher for patient were on Biologics than compared to the Placeboes [16,17]. Kimbal et al. conducted another double-blind placebo-controlled randomized trial inclusive of 154 patients with moderate to severe HS. These patients were intolerant or unresponsive to oral antibiotics. These patients were also given second line of management i.e. Biologics. They showed good response in an HS-PGA scores [12]. Having reviewed so, all medical management modalities could optimize the patient of mild Hurley's disease and prepare the patient of severe Hurley's disease for excisional surgery.

Though the efficacy of biologics in these studies show to control acute suppurative phase in around 50% of the patients yet rest of the patients were remained symptomatic. Monoclonal antibody therapy has variable effect and response rate depending on pathogenic heterogeneity [18]. Elevated levels of TNF-a, IL-17, IL-1 and C5c has been identified in the involved tissue of the HS patients [19]. Likewise, other chronic inflammatory disorders,

there is a need to identify novel HS-specific therapeutic targets by which appropriate monoclonal antibodies can be developed. TNF-a is a non-specific inflammatory cytokine, has inferior choice and response to other therapies [20]. This explains somewhat the limitation of Biologics and their role when used empirically. Currently, few more biologics with various immunological targets are being investigated for HS. These are IL-12, IL-17, IL-23, IL-36, CD-40, Janus Kinase family member complement, LTA4 and CXCR ½. [21].

There are no studies, as such specifically direct on the safety of combining Biologics and surgery in HS patients. Information collected from other immune-mediated diseases, likewise psoriasis, psoriatic arthritis, rheumatoid arthritis and inflammatory bowel disease, do not correlate any higher rate of complications with consecutive biologics and then surgery. There is a major consensus in the HS alliance working group, advocating against discontinuation of biologics therapy in patients going for surgery [22].

In a retrospective study, initiation of biologics after wide excision was associated with reduced rate and increased disease-free interval [23]. Adjuvant therapies with anti-inflammatory medications (topical or systemic antibiotics and/or tumor necrosis factor inhibitors) before surgery may help in terms of limiting tissue's changes and hence to a less invasive surgery, in addition reduction in the risk of complications in Hurley stages 2 and 3 [24].

Chronic patient of HA is quite tenuous sentimentally. Apart from pharmacotherapy, life style modification and special emphasis on pain management must be given. Depending upon the extensive nature of the disease (severe Hurley's-II and III) diversion colostomy is also recommended in the literature [26,27].

Conclusion

1. HS, though it is a skin and subcutaneous tissue disease yet it causes significant morbidity in addition to functional and psycho-social setbacks to the affected individuals. Holistic approach to HS means a multi-disciplinary management in addition to optimum psych- social preparation and support. An analogy of a third or fourth-degree burn involving genitalia or other sensitive areas can be used. Management of HA seems to be under estimated even in this current era of sub-specialized management schemes. Simultaneous input of various involved disciplines even a cigarette cessation counselor (in smokers), all need to work as an orchestra to define the management plan. Sort cuts would lead to failure or complicated outcome of any reconstructive surgery, if considered in the first place. Patient education and psychotherapy is required all the time during the course of management.
2. Till to-date reviewing literature for all the practical management options; Surgical excision is the only curative treatment. Early intervention by operative resection can confine this prostrating disease [27]. Disease neglect by patient and family reluctant attitude could occasionally lead to fatal outcome, i.e. Marjolijn's ulcer [28].
3. In the best-case scenario, first and second line of management schemes seem help to control inflammatory phase and tissue supuration. The systemic biologic agents are useful to decrease the inflammatory component of HS lesions; surgical

treatment is necessary to remove the unstructured tissue that forms as a consequence of the disease progression [22,25].

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