

Assessment of Impact of Surgical Treatment on Quality of Life of Patients with Hidradenitis Suppurativa

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Abstract

Background: Hidradenitis suppurativa (HS) is a chronic relapsing inflammatory disease involving inflammation of the pilosebaceous unit. Many studies have highlighted the marked impact on quality of life (QoL) caused by HS, where pain, odor, secretion, chronicity and unpredictability create a stigma surrounding the disease. Treatment seeks to control inflammation and improve patient QoL. The present study assessed the impact of wide surgical resection on the QoL of HS patients.

Methods: Patients with HS undergoing surgical treatment were assessed for QoL before and after surgery, using the Dermatology Life Quality Index (DLQI). Epidemiological and clinical characteristics were evaluated along with aspects of the surgical intervention.

Results: A total of 15 patients with HS Hurley III treated with wide surgery were assessed. Two (13.3%) patients presented mild post-operative complications. Mean follow-up time was 22.7 months. Mean DLQI score was 23.08 preoperatively and 3.23 post-operatively.

Conclusion: HS can lead to severe impairment of QoL. Surgical treatment using wide resection proved extremely effective for improving QoL. Surgery-related factors such as post-operative pain, healing time and presence of scars appeared to have no negative impact on patient self-image, functioning or overall QoL.

Keywords: *Hidradenitis suppurativa; Surgery; Quality of life; Treatment*

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1. Introduction

HS is an inflammatory disease involving inflammation of the pilosebaceous unit, ruptures and subsequent local inflammatory reaction [1]. The condition presents clinically as painful nodules, abscesses and fistulas with hematic or purulent secretion discharge, predominantly affecting the axilla, perianal and groin regions [2]. The disease is chronic and relapsing, often leading to permanent tissue damage and local scar retractions.

The physiopathological process remains unclear, although environmental and personal factors are known to play a role, such as smoking, obesity, genetic predisposition, endocrine imbalance and microbiome abnormalities [1]. Diagnosis is reached by clinical examination and delays in identifying the disease are common. Diagnostic delays are deleterious, since active scarring lesions can spread and lead to local tissue damage, chronic pain and emotional anguish, often impacting the QoL of individuals with HS [3-5].

Numerous studies have shown the marked impact of HS on QoL, with patients scoring higher on pain scales compared with individuals with other chronic dermatologic diseases, such as psoriasis, eczema and acne [6]. Similarly to pain, depression has also been associated with worse outcomes in people with HS, where increasing depression severity correlates with more severe Hurley classifications [7]. Pain, odor, secretion discharge, chronicity and unpredictability of the disease are factors contributing to the stigma surrounding the condition and to its impact on QoL [8]. Also, these patients are exposed to greater risk of early cardiovascular events and lower life expectancy [1].

The goal of HS treatment is to control inflammation, thereby preventing the disease from progressing to more advanced stages, and thus promote improvement in patient QoL [5,9]. Many treatment modalities are available, given the refractory nature of the disease [10]. Topical and systemic antibiotics, antiseptics, cortico therapy, retinoids and immunobiological agents' number among the most commonly used approaches, depending on the extent and severity of lesions. Many of the therapeutic regimens are elected based on the clinical experience of each service, given that randomized clinical trials are lacking [11].

In addition to the therapeutic options outlined above, a host of different surgical procedures have been described for management of HS with positive and mixed outcomes. Simple drainage of lesions provides immediate relief but is associated with very high rates of recurrence. Deroofing entails removal of the roof of abscesses, nodules or fistulas and is most effective in early relapsing stages. In cases of larger lesions with tissue damage, local or wide surgical removal may be recommended [12], including the use of CO2 laser for surgical excision [13].

Wide excision involves removal of all the affected tissue, including both active lesions and scar tissue. This technique greatly reduces recurrence at the treated site and may provide patients with long periods of remission. Some studies report wide surgical resection as a local cure for the disease, with low rates of recurrence compared to other available treatment options [12]. Despite the morbidity inherent to the procedure, wide surgical resection allows recovery that is less esthetically impactful and more functional, positively impacting patient QoL [14,15].

The primary objective of the present study was to assess the impact of surgical intervention on the quality of life of operated HS patients. Secondary objectives were to evaluate recurrence, healing time and post-operative complications.

2. Material and Methods

All patients with HS who underwent surgical resection between January 2018 and July 2020 were prospectively included.

Data were collected for patient age, sex, lesion site operated, Hurley Classification, disease duration, current clinical treatment, associated comorbidities, smoking status, type of reconstruction employed after lesion removal, total healing time, post-operative complications and disease-free time following surgery.

Patient quality of life (QoL) was also assessed before and after surgery by applying the Dermatology Life Quality Index (DLQI) questionnaire pre- and post-operatively. The post-operative questionnaire was applied at the first return visit after complete healing of the surgical wound. The DLQI measures the impact of dermatosis on QoL, scoring emotions and feelings, daily activities, leisure, work and school, personal relationships and treatment [16].

Patients' previous treatment regimen was maintained throughout the perioperative period and all patients were operated on by the same surgical team.

3. Surgical Technique

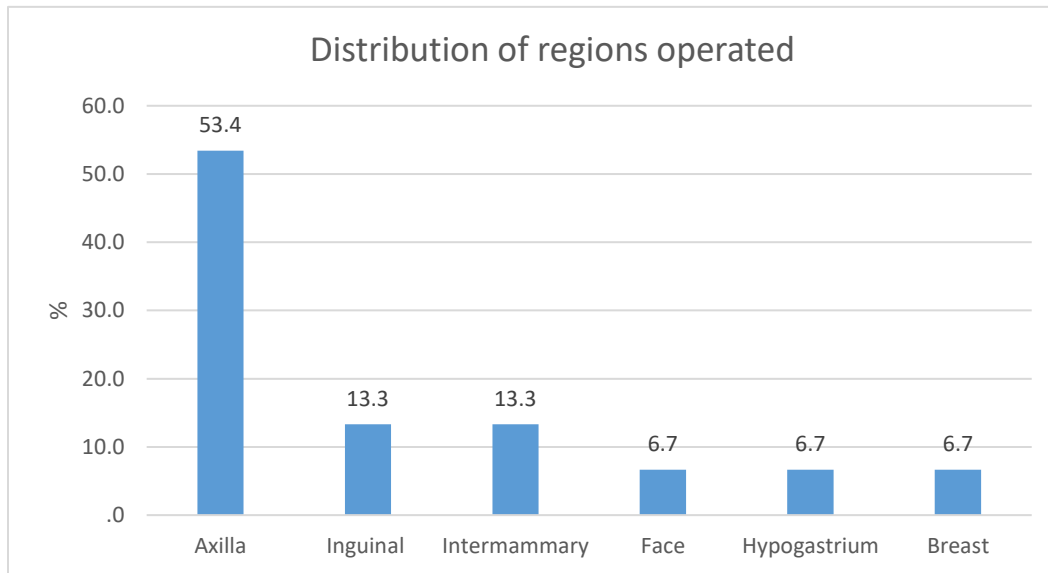
The surgical procedures were performed on an outpatient basis using tumescent local anesthesia. The procedures first involved inspection, palpation, and marking of nodules, fibrous cords, and fistulas, followed by block surgical excision of lesions across the entire region until healthy, disease-free adipose tissue was reached. Surgical defects were reconstructed by direct closure whenever possible, with areas where wound edges could not be approximated left for second-intention healing. No grafts or flaps were employed.

4. Statistical Analysis

All variables were first analyzed descriptively. For the quantitative analysis, variables were expressed as minimum and maximum values, means, standard deviation and median, whereas qualitative variables were expressed as absolute and relative frequencies. Pre- and post-operative periods were compared using Wilcoxon's non-parametric test [17]. Statistical analyses were performed using the software SPSS 17.0 for Windows. The significance level adopted for the tests was 5%.

5. Results

A total of 15 patients aged 17-52 (mean 27; median 22) years were assessed. Regarding gender, 12 (80%) patients were female and 3 (20%) male. All patients were classified as Hurley III. The distribution of surgical site in the group studied is depicted in GRAPH 1.



GRAPH 1. Distribution of surgical site in patients operated.

Disease duration ranged from 6 months to 9 years (mean 4.27; median 3.50 years). Frequencies of clinical therapies and comorbidities of patients are presented in TABLE 1.

TABLE 1. Absolute and relative frequencies of clinical treatments and comorbidities of patients studied.

Variable		n	%
Treatment	Metformin	11	73.3
	Dapsone	2	13.3
	Anti TNF	1	6.7
	Sulfadiazine	1	6.7
	Prednisone	1	6.7
Comorbidities	Obesity	7	46.7
	Tabacco use	4	26.7
	SLE	2	13.3
	Asthma	1	6.7
	SAH	1	6.7
	Hypothyroidism	1	6.7
	DM	1	6.7
	Renal transplant	1	6.7

The 15 patients underwent surgery between January 2018 and July 2020. Regarding reconstruction, 12 (80%) had primary closure associated or otherwise with second-intention healing, while 3 (20%) had second intention only. Two (13.3%) patients

presented post-operative complications. One patient had dehiscence of the operative wound and the other developed amicrobial pustulosis of the folds. Healing time ranged from 13 to 60 days (mean 28.92; median 20 days).

Mean follow-up time was 22.7 months (minimum 20 days and maximum 43.60 months). Three (20%) patients experienced a relapse. Disease-free period ranged from 7.4 to 18.3 months. The individuals with disease recurrence were staged as Hurley 1. Patients were assessed pre- and post-operatively based on the DLQI score. The comparison of these 2 timepoints is presented in TABLE 2. Two patients failed to complete the questionnaire and were therefore excluded from this analysis. There was a significant decline in DLQI scores between pre- and post-operative assessments (Wilcoxon’s non-parametric test, $p=0.001$), with a mean pre-operative score of 23.08 and post-operative score of 3.23. Mean and standard deviation values for DLQI scores before and after surgery are depicted in FIG. 1.

TABLE 2. Descriptive values of DLQI score pre- and post-operatively.

Timepoint	n	Mean	SD	Minimum	Maximum	P25	Median	P75	p*
Pre	13	23.08	3.09	15.00	26.00	21.50	24.00	25.50	0.001
Post	13	3.23	2.49	0.00	9.00	1.00	3.00	5.00	

(*) descriptive level of probability of Wilcoxon non-parametric test

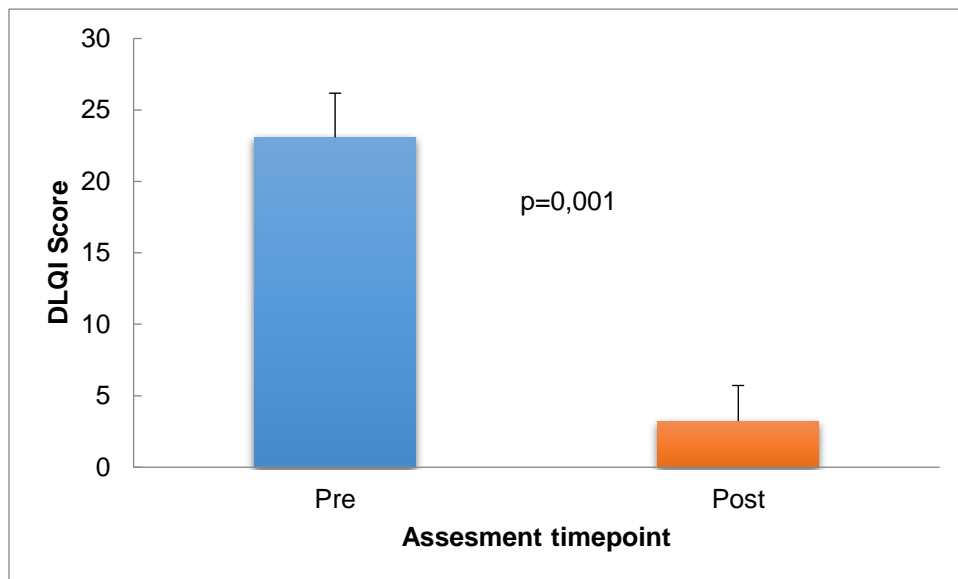


FIG. 1. Mean and standard deviation of DLQI scores pre- and post-operatively.

6. Discussion

The profile of patients included in the present study matched the epidemiologic characteristics reported for HS, i.e. predominantly young individuals with lesions in intertriginous skin areas. Majority of the study participants were female. All patients were selected for surgical procedures according to the severity of disease, impact on daily activities, and resistance to clinical treatment.

Of the patients investigated, 56.7% had the comorbidity of obesity, a factor widely cited in the literature as an important component, often in the context of underlying metabolic syndrome. The presence of metabolic syndrome and insulin resistance is also frequently reported [18].

This evidence justifies the use of metformin for its anti-inflammatory effect and for treatment of both insulin resistance and metabolic syndrome. In the present casuistic, 73.3% of patients were in use of metformin, a rate higher than that of obesity, explained by the low cost, ease of adherence and satisfactory response of the drug, and its role in helping to treat metabolic syndrome [19]. Other less prevalent diseases were also reported in the current cohort, such as autoimmune diseases, a comorbidity described in the literature [20].

With regard to surgical site, HS occurred mainly in intertriginous skin areas, such as the axillae and inguinal-perineal region. Lesions were less common at sites with terminal hair follicles and apocrine glands, corroborating the findings of other studies [21].

Wide surgical excision performed in the patients showed satisfactory results for both post-operative healing time and incidence of complications and relapse. A review based on the European guidelines for HS showed that excision extent was a more important element in preventing recurrence than the method used for closure of the operative wound [15]. In the present study, 80% of patients received primary closure, while 20% used healing by second intention alone. The incidence of recurrence at the time of writing was 20%, comparable to rates observed at other centers of 19%-74% in studies of wide resection and primary closure, or by second intention [22-24].

Complications were observed in 2 (13.3%) cases, namely, dehiscence and amicrobial pustulosis of folds. However, no serious complications were seen, and both these cases were treated on an outpatient basis. The case with amicrobial pustulosis of folds had systemic lupus erythematosus. Despite the high rate of dehiscence found in surgery for HS compared to other skin surgery, approximation of edges, even if partial, can help reduce the surgical defect and, consequently, decrease post-operative morbidity.

The main deleterious effects on health stemming from HS, as described in the literature and vouched for by the experience of the present service, are those which directly impact patient QoL. Reports of depressive feelings, anxiety, social and family isolation, stigma, impacts on sexual and working life are common in the current service. These factors were assessed by the DLQI, a scale validated for HS, and evident from the results of the pre-operative assessment. Previous studies report an average DLQI score for HS patients of 11.75 ± 8.1126 , compared with 23.08 ± 3.09 in the present investigation. These results might be attributed to the fact the current study involved only Hurley III cases referred for wide resection, a group generally associated with previous therapy failure. Numerous other factors may have played a role, such as the presence of other comorbidities, such as psychiatric problems, as well as diagnostic delays, difficulties accessing specialized services and high-cost therapies, presence of clinically severe or highly active lesions, and limitations in treatments available on the national health system.

Following the surgical procedure, there was a marked decline on the DLQI, with patient scores decreasing to an average of 3.23 (standard deviation \pm 2.49), confirming an excellent response to the procedure. Of those cases experiencing relapses, at the time of writing, all remain clinically classified as Hurley I, with significant improvement in overall well-being. Despite the morbidity intrinsic to the procedure and post-operative recovery, some of the patients with lesions at other sites, albeit less severe, have expressed the desire for surgical excision of these areas, such was the good response and positive perception of the surgical treatment carried out.

HS, particularly more severe forms of the disease, is associated with major an impact on the QoL of this patient group. It is important for health professionals to evaluate HS patients holistically, not only providing basic dermatologic control, but also addressing the impacts of the disease on social, professional and psychic spheres of life. In addition, surgical treatment using wide resection proved extremely effective for improving QoL. Factors connected with the surgery, such as the operation, post-operative pain, healing time and presence of scarring, appeared to have little or no impact on patient self-image, functioning or general QoL.

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