Original Article

A Clinicodemographic Study of Indian Patients with Hidradenitis Suppurativa and its Association with Metabolic Syndrome

Dipankar De, Narayanan Baskaran, Vishal Thakur, Vinod H. Hanumanthu, Shirin Bakshi, Sudhir Bhandari[1], Deeksha Katoch[2], Sanjeev Handa

Departments of Dermatology, Venereology and Leprology, and [2]Ophthalmology, Postgraduate Institute of Medical Education and Research, Chandigarh, [1]Department of Oral Health Sciences, Postgraduate Institute of Medical Education and Research, Chandigarh, India

Abstract

Background: Hidradenitis suppurativa (HS) is a chronic inflammatory disorder affecting pilosebaceous units causing painful nodules, abscesses, and scarring. Despite global studies linking HS to metabolic syndrome, insights specific to Indian patients are limited. **Materials and Methods:** This study aimed to describe the clinicodemographic characteristics and study frequency of metabolic syndrome in Indian HS patients. In this cross-sectional study, 100 HS patients were evaluated for clinical characteristics, comorbidities, pain and suppuration scores, quality of life, and ophthalmological and dental abnormalities. Metabolic parameters, including anthropometry and blood markers, were performed in all cases and 100 age- and gender-matched controls. **Results:** The mean age was 29.47 years, with a male predominance of 57%. HS predominantly affected a combination of two or more sites (60%), with nodules as primary lesions (95%). Quality of life was significantly impaired, with 49% experiencing moderate impact as per Dermatology Life Quality Index. Metabolic derangements, represented by an increased body mass index, waist circumference, blood pressure, fasting blood sugar, and fasting insulin, were significantly more frequent in HS cases compared to controls ($P < 0.001$). The frequency of metabolic syndrome in HS patients was 42%, significantly higher than controls (8%, $P < 0.001$) with a relative risk of 5.25 (95% CI 2.68–10.58). Dental and ophthalmological abnormalities were observed in 35% and 21.7% of screened patients, respectively. **Limitations:** Cross-sectional nature, no prospective assessment to determine evolution with time, and limited patient number are the limitations of the study. **Conclusion:** A substantial association with metabolic syndrome and considerable impact on quality of life is seen in Indian HS patients, emphasizing the need for metabolic screening and holistic management strategies.

Keywords: *Clinical parameters, demography, hidradenitis suppurativa, India, metabolic parameters, metabolic syndrome, quality of life*

Introduction

Hidradenitis suppurativa (HS) is a chronic, recurrent, inflammatory disorder affecting the pilosebaceous units.[1] The disorder is characterized by the development of recurrent painful nodules, abscesses, discharging fistulae, and eventually bridging fibrous scars. They have a predilection for the apocrine gland-rich flexural areas like the axilla, perineum, and inframammary areas.[1-3] The pathogenesis of HS is multifactorial as genetics and other factors like smoking, obesity, metabolic syndrome, mechanical stress, and hormonal factors contribute to inflammation centered on hair follicle.[1,3] The prevalence of HS varies from 0.1 to 4% in different studies, and women are more commonly affected.[4-8] The period prevalence in Asia is reported to be 0.06%.[9] Being a chronic inflammatory disorder, HS is associated with a significant negative impact on the quality of life.[10,11] The association of HS with metabolic syndrome has been reported in case-control studies.[12-16] Despite epidemiological studies on HS, there is a paucity of literature on Indian patients describing clinicodemographic characteristics, risk factors, and associations of HS. In this study, we describe the clinical characteristics of Indian HS patients, associated risk factors and inflammatory diseases, quality of life, and frequency of metabolic syndrome.

Patients and Methods

This was a single-center cross-sectional study on HS patients attending the outpatient department of our tertiary

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Address for correspondence:
Dr. Dipankar De, Department of Dermatology, Venereology, and Leprology, Postgraduate Institute of Medical Education and Research, Chandigarh, India. E-mail: dr_dipankar_de@yahoo.in

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care center in North India between February 2020 and December 2022. The primary objective of the study was to describe the clinical and demographic characteristics of Indian patients with HS. The secondary objectives were to study the frequency of metabolic syndrome in HS and the magnitude of impairment of quality of life. Ethical clearance was obtained from the Institutional Ethics Committee (INT/IEC/2019/000285), and informed written consent was obtained from participants before enrolment in the study.

Patient selection and data collection

A total of 100 patients with HS diagnosed clinically based on the San Fransisco modification of the Dessau criteria[17] were included. In addition, 100 age- and gender-matched patients with dermatological disorders other than those associated with follicular occlusion visiting the outpatient department were included as controls. After obtaining informed written consent, a detailed history including age, gender, age at disease onset, duration and extent of disease, smoking status, family history, associated diseases, risk factors, past treatment, and aggravating/initiating factors were recorded for all cases. Comorbidities self-reported by the patients or elicited in history were recorded. The maximal pain score and maximal suppuration score were assessed on a numerical scale from 0 to 10 by the patients for the preceding month. The number of painful days per month and the number of days with suppuration were evaluated by the patient in categories: none, less than 15 days, greater than or equal to 15 days, or constant. The impact of HS on the quality of life was assessed using Dermatology Life Quality Index (DLQI).

The patients were examined, and the anatomic zones that had active lesions and their sequelae were recorded. The locations were classified as typical (armpit, breast, inguinofemoral, perianal, and perineal involvement) and atypical [ears, chest, and other atypical locations (e.g. abdomen, legs)]. The type of lesions (nodules, abscesses, sinus, fistulas, hypertrophic scars, folliculitis, polyporous comedones, or others) was recorded. The severity of HS was assessed based on the Hurley grades for HS[18] and the modified Sartorius HS severity score.[19] The presence of associated follicular diseases, such as dissecting cellulitis of scalp, acne conglobata, or pilonidal sinus, was also recorded.

Anthropometry measurements including height, body weight, waist circumference, and blood pressure were noted in all cases and controls. Fasting blood glucose, fasting lipid profile, and fasting insulin levels were measured in all cases and controls. Metabolic syndrome was assessed. It was defined as per the criteria of the modified National Cholesterol Education Program's Adult Treatment Panel III (NCEP-ATP III)[20] fulfilling at least three of the following:

- central obesity (waist circumference, modified for Asians: men >90 cm, women >80 cm);
- dyslipidemia (triglyceride levels ≥150 mg/dL) or drug treatment for elevated levels;
- dyslipidemia (HDL-C levels <40 mg/dL in males; <50 mg/dL in females) or drug treatment for elevated levels;
- a blood pressure of 130/85 mm Hg or higher or drug treatment for hypertension;
- a fasting plasma glucose level of 100 mg/dL or higher and/or drug treatment for diabetes mellitus.

Although some reports of ocular abnormalities have been described in patients with HS, the data on relationship of ocular and oral conditions in patients with HS are scarce. To examine for ocular and oral abnormalities, patients of HS were evaluated for ophthalmological and dental abnormalities by experts in the respective fields.

Data were entered in Microsoft Excel, and statistical analysis was performed using SPSS software. A *P* value of less than 0.05 was considered statistically significant.

Results

Baseline demographics and history

A total of 100 patients of HS were recruited. The mean age of patients and controls was 29.47 ± 10.75 years and 29.78 ± 10.78 years, respectively; and 57% of the cases and controls were males. The associations included all components of follicular occlusion tetrad (5%), isolated acne conglobata (6%), pilonidal sinus (3%), dissecting cellulitis (1%), and steatocystoma (1%). The most common site of onset was axilla (72%), followed by groin (10%) and inframammary areas (6%). Comorbidities reported by patients or elicited on history were present in 13% of patients. These included diabetes mellitus, hypertension, cardiac disorders (coronary artery disease), and inflammatory bowel disease. Clinical signs of hyperandrogenism in the form of hirsutism, patterned hair loss, and hormonal acne were observed in seven female patients (16.3%) with HS.

Clinical examination

Most patients had an involvement in a combination of more than one typical site (n = 60, 60%). Among patients with single-site involvement (n = 40, 40%), the most common site involved was axilla in 31 patients. Atypical sites were involved in 17% of cases. The most common lesion morphology seen was nodules (95%), followed by scars (78%), fistulous tracts (31%), abscesses (21%), and polyporous comedones (30%). More than half of patients had Hurley grade 1 severity (54%), followed by grade 2 in 30% and grade 3 in 16% patients.

The medications for HS previously received by the patients as documented at the time of the study were heterogeneous,

with more than half having received antibiotics (55%), followed by combination treatment (10%) and retinoids (5%). About one-fourth (23%) patients were treatment naïve.

Quality of life impairment

The mean maximum pain score and suppuration score in the preceding month according to patients were 5.87 ± 1.79 and 5.76 ± 1.67, respectively.

Almost half the patients had a moderate impact on the quality of life based on DLQI scores (49%). A significant proportion (20%) also reported a significant impact on quality of life.

No significant correlation was observed between the total disease duration and the QoL (P = 0.700). However, there was significant correlation between the DLQI categories and the disease severity as the majority of patients with no (75%) and small impact (74.1%) had Hurley grade 1 disease severity and more than half of patients with very large impact (55%) had grade 3 disease severity ($P < 0.001$).

The demographic, clinical characteristics, and quality of life scores in HS cases are summarized in Table 1.

Metabolic and anthropometric parameters

The metabolic and anthropometric parameters of body weight, body mass index (BMI), and waist circumference were significantly higher in cases compared to controls ($P < 0.001$). Among cases, 42% (n = 42) fulfilled the NCEP-ATP III criteria for metabolic syndrome, as opposed to 8% (n = 8) of controls ($P < 0.001$). Among the individual parameters, a waist circumference above the normal cutoff was significantly more common in cases (n = 73, 73%) as compared to controls (n = 18, 18%) ($P < 0.001$). Elevated fasting blood sugar was significantly more common in cases (n = 32, 32%) when compared to controls (n = 4, 4%), with a P value of < 0.001. Similar trends were noted for elevated blood pressure, seen significantly more frequently in cases (n = 28, 28%) than in controls (n = 9, 9%) ($P < 0.001$). The frequency of other components of metabolic syndrome, that is, elevated triglycerides and low HDL-C levels, was similar between the two groups. The frequency of deranged metabolic parameters of metabolic syndrome among cases and controls is depicted in Figure 1. The comparison of metabolic parameters between cases and controls is mentioned in Table 2.

The mean BMI of the cases was 27.37 ± 4.19, and that in controls was 23.34 ± 3.26 ($P < 0.001$). The fasting insulin values and the HOMA-IR were also significantly higher in cases than in controls ($P < 0.001$).

Relative risk of metabolic syndrome (5.25, 95% CI 2.68-10.58, p=<0.001), waist circumference above standard cutoff (4.06, 95% CI 2.68-6.33, p=<0.001),

Table 1: Demographic and clinical characteristics of hidradenitis suppurativa cases

Variable	Cases (n=100) n (%)
Age in years (Mean±SD)	29.47±10.75
Gender	
• Male	57 (57%)
• Female	43 (43%)
Total duration in years (Mean±SD)	4.36±4.44
Age of disease onset in years (Mean±SD)	25.27±9.64
Smoking	17 (17%)
Alcohol consumption	26 (26%)
History of acne	67 (67%)
Comorbidities	
• Diabetes mellitus	2 (2%)
• Hypertension	1 (1%)
• Cardiac disease	2 (2%)
• Inflammatory bowel disease	4 (4%)
• Thyroid disorders	1 (1%)
• Others	3 (3%)
Associations	
• Follicular occlusion tetrad	5 (5%)
• Acne conglobata	6 (6%)
• Pilonidal sinus	3 (3%)
• Dissecting cellulitis	1 (1%)
• Steatocystoma	1 (1%)
• Acanthosis nigricans	5 (5%)
Family history of HS	3 (3%)
Treatment history	
• Antibiotics	55 (55%)
• Retinoids	5 (5%)
• Biologicals	1 (1%)
• Combination	10 (10%)
• Surgery	1 (1%)
• Others	5 (5%)
• None	23 (23%)
Site of onset	
• Axilla	72 (72%)
• Groin	10 (10%)
• Perineum	2 (2%)
• Inframammary	6 (%)
• Others	10 (10%)
Sites involved	
• Axilla only	31 (31%)
• Groin only	7 (7%)
• Inframammary only	2 (2%)
• Combination of 2 sites	42 (42%)
• Combination of 3 sites and above	18 (18%)
Atypical sites involved	17 (17%)

Contd...

Table 1: Contd...

Variable	Cases (*n*=100) *n* (%)
Morphology of lesions	
• Nodules	95 (95%)
• Abscess	22 (22%)
• Fistulous tracts	31 (31%)
• Scars	78 (78%)
• Folliculitis	11 (11%)
• Comedones	30 (30%)
Modified Sartorius score (Mean±SD)	26.72±17.77
Hurley's grade	
• Grade 1	54 (54%)
• Grade 2	30 (30%)
• Grade 3	16 (16%)
DLQI category representing degree of impairment in quality of life	
• No (DLQI score=0-1)	4 (4%)
• Small (DLQI score=2-5)	27 (27%)
• Moderate (DLQI score=6-10)	49 (49%)
• Very large (DLQI score=11-20)	20 (20%)
• Extreme (DLQI score=21-30)	0 (0%)
Maximum pain score (Mean±SD)	5.87±1.79
Maximum suppuration score (Mean±SD)	5.76±1.67
Painful days	
None	24 (24%)
<15 days	58 (58%)
>15 days	11 (11%)
Constant	7 (7%)
Number of days with suppuration	
None	19 (19%)
<15 days	49 (49%)
>15 days	19 (19%)
Constant	13 (13%)

DLQI- Dermatology Life Quality Index, HS- Hidradenitis suppurativa, SD- Standard Deviation

increased fasting blood glucose (8.08, 95% CI 3.14-21.39, p= <0.001), and increased blood pressure (3.11, 95% CI 1.59-6.22, p=<0.001) were significantly higher in cases of HS [Table 3].

Correlation of parameters with the severity of HS

There was no significant association between variables like age, gender, history of smoking and alcohol consumption, and duration of the disease with the severity of HS and risk of metabolic syndrome in HS patients. There was also no statistically significant correlation between the Hurley severity grade of HS and the association with metabolic syndrome or its components. Similar observation was made for the association between the modified Sartorius score and the risk of metabolic syndrome in cases.

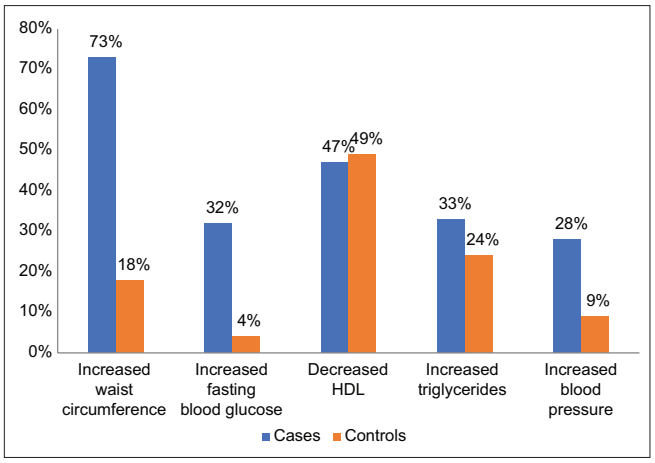

Figure 1: Frequency of components of metabolic syndrome among cases and controls

There was a statistically significant association noted between the maximum pain score and maximum suppuration score and severity of HS based on Hurley grades ($P < 0.001$). The number of painful days and the number of days with suppuration were also significantly more in patients with more severe HS ($P < 0.001$). A very large impact on quality of life based on DLQI was seen in 11 patients with Hurley grade 3 disease, 6 patients with grade 2 disease, and only 3 patients with grade 1 disease ($P < 0.001$).

The correlation of various parameters with HS severity is summarized in Table 4.

Dental and ophthalmological involvement in HS patients

A total of 60 patients were screened for dental and ophthalmological involvement. Ophthalmological abnormalities were present in 13 patients (21.7%), which included refractory error in 4 patients, chalazion in 3 patients, Meibomian gland dysfunction in 2 patients, and arcus senilis, pterygium, and pinguecula in 1 patient each. Dental abnormalities were present in 21 patients (35%), which majorly included calculus and caries in 12 and 10 patients, respectively. Periodontitis and dental malocclusion were present in 2 cases each.

Discussion

This study aimed to describe the clinical and demographic characteristics, quality of life in HS, and its association with metabolic syndrome. The mean age of HS cases in our study was 30 years, and males were slightly more in number as opposed to females. The age distribution matches with the published literature, according to which the most common age group affected is the third decade.[5,6,21] Women are more commonly affected among Caucasians[22,23]; however, males and females are almost equally affected according to studies in Asia and Africa.[21,24,25] The disease usually runs a chronic course, as seen in our study, where the mean

Table 2: Comparison of metabolic parameters between cases and controls

Parameters	Group		*P*
	Cases (*n*=100)	Controls (*n*=100)	
Weight (kg)***	78.77±17.60	67.01±10.92	<0.001[1]
Height (cm)	167.93±10.90	169.19±6.24	0.310[1]
BMI (kg/m²)***	27.37±4.19	23.34±3.26	<0.001[2]
Waist Circumference (cm)***	93.80±12.41	83.65±7.41	<0.001[1]
Waist Circumference above standard cut-off (*n*, %)***	73 (73.0%)	18 (18.0%)	<0.001[3]
Fasting Blood Sugar (mg/dL)(Mean±SD)***	98.18±21.31	84.53±11.16	<0.001[1]
Elevated fasting blood sugar (*n*, %)***	32 (32.3%)	4 (4.0%)	<0.001[3]
HDL (mg/dL) (Mean±SD)***	43.98±7.19	40.80±8.65	0.005[2]
Low HDLc (*n*,%)	47 (47.0%)	49 (49.0%)	0.777[3]
TG (mg/dL) (Mean±SD)***	136.76±52.32	120.76±53.62	0.004[1]
Elevated TG (*n*, %)	33 (33.0%)	24 (24.0%)	0.159[3]
Systolic BP (mmHg) (Mean±SD)***	125.22±14.85	116.92±9.09	<0.001[1]
Diastolic BP (mmHg) (Mean±SD)***	78.92±8.96	76.20±5.90	0.047[1]
Increased BP (*n*, %)***	28 (28.0%)	9 (9.0%)	<0.001[3]
Metabolic syndrome (*n*, %)***	42 (42.0%)	8 (8.0%)	<0.001[3]
Obesity Class (WHO classification) ***			<0.001[3]
Normal (18.5-24.9)	19 (19.0%)	52 (52.0%)	
Pre-obese (25.0-29.9)	58 (58.0%)	44 (44.0%)	
Obese Class 1 (30.0-34.9)	16 (16.0%)	4 (4.0%)	
Obese Class 2 (35.0-39.9)	7 (7.0%)	0 (0.0%)	
Fating insulin level (µu/ml)***	13.78±8.57	8.21±7.52	<0.001[1]
HOMA-IR***	3.39±2.30	1.54±1.02	<0.001[1]

***Significant at *P*<0.05, 1: Wilcoxon-Mann-Whitney U Test, 2: *t*-test, 3: Chi-squared test. HOMA-IR=[fasting insulin (µU/ml) × fasting plasma glucose (mg/dl)]/405. BMI- Body Mass Index, BP- Blood Pressure, HDL- High Density Lipoprotein, HOMA-IR- Homeostasis Model Assessment- Insulin Resistance, SD- Standard Deviation, TG- Triglyceride

Table 3: Relative risk for different parameters of metabolic syndrome among cases and controls

Predictor/risk factor	Outcome	Relative risk (95% CI)	*P*
Group: Case	Waist circumference above standard cutoff	4.06 (2.68-6.33)	<0.001
Group: Control		0.25 (0.16-0.37)	
Group: Case	Elevated fasting blood glucose	8.08 (3.14-21.39)	<0.001
Group: Control		0.12 (0.05-0.32)	
Group: Case	Elevated triglycerides	1.38 (0.88-2.15)	0.159
Group: Control		0.88 (0.73-1.05)	
Group: Case	Decreased HDL-C	0.96 (0.72-1.28)	0.777
Group: Control		1.04 (0.8-1.36)	
Group: Case	High blood pressure	3.11 (1.59-6.22)	<0.001
Group: Control		0.32 (0.16-0.63)	
Group: Case	Metabolic syndrome	5.25 (2.68-10.58)	<0.001
Group: Control		0.19 (0.09-0.37)	

CI- Confidence interval, HDL- High Density Lipoprotein

duration was about 4.5 years before the patients presenting to us. Smoking has been reported as a risk factor for the development of HS.[1-3] Active smoking was seen in only 17% of our cases, which is like a few previous studies.[21] Association with other disorders that share the pathogenesis of follicular occlusion has been reported in HS.[1] However, in our cohort, the association of HS with individual disorders of follicular occlusion and the follicular occlusion tetrad was low. Inflammatory bowel disease shares possible epidemiological and pathogenic connections with HS, and an increased prevalence of HS in IBD patients has been reported.[26] In our cohort, 4% patients of HS had concomitant IBD.

The most common site of onset was axilla (72%), followed by groin (10%). The common sites involved were the axilla, groin, and inframammary areas, and a combination of two or more involved sites was seen in 60%. Atypical sites were involved in only 17% of cases. The sites of predilection are in accordance with the previous literature, highlighting the role of pilosebaceous units and apocrine glands in disease pathogenesis.[1-3] Nodules or "blind boils" were the most common presentations, seen in 95%. These are primary lesions in HS, which then progress to abscesses, fistulous tracts, and bridged scars. Comedones, which represent follicular occlusion, were seen in 30% of cases. There were more cases in Hurley grade 1 in our study (54%), which contrasts with most studies from tertiary care centers, where cases are usually more severe.[21,24]

HS has been shown to have significant effects on the quality of life as constant pain and suppuration lead to discomfort, embarrassment, and difficulty in performing daily activities.[1,10,11] About half of our patients (49%) had a moderate impact on their quality of life, and 20% had a very large impact. A similar moderate to large effect on quality of life has been reported in previous studies.

Table 4: Correlation of parameters with disease severity

Parameters	Hurley's Grade			*P*
	Grade 1 (*n*=54)	Grade 2 (*n*=30)	Grade 3 (*n*=16)	
Weight (kg)	77.92±14.99	79.35±22.47	80.56±16.35	0.764[1]
BMI (kg/m²)	27.09±4.23	27.39±4.19	28.28±4.21	0.613[4]
Waist circumference (cm)	92.95±12.49	93.23±12.87	97.69±11.21	0.394[4]
Waist circumference above standard cutoff	38 (70.4%)	21 (70.0%)	14 (87.5%)	0.362[2]
Elevated fasting blood sugar	15 (28.3%)	10 (33.3%)	7 (43.8%)	0.506[2]
Low HDLc	22 (40.7%)	17 (56.7%)	8 (50.0%)	0.362[2]
Elevated TG	17 (31.5%)	11 (36.7%)	5 (31.2%)	0.878[2]
High BP	13 (24.1%)	10 (33.3%)	5 (31.2%)	0.631[2]
Metabolic syndrome	22 (40.7%)	12 (40.0%)	8 (50.0%)	0.777[2]
Modified Sartorius score***	16.82±8.63	28.80±10.74	56.19±17.60	<0.001[1]
DLQI***	6.15±2.95	8.30±3.89	11.75±2.86	<0.001[1]
DLQI category***				<0.001[3]
No	3 (5.6%)	1 (3.3%)	0 (0.0%)	
Small	20 (37.0%)	7 (23.3%)	0 (0.0%)	
Moderate	28 (51.9%)	16 (53.3%)	5 (31.2%)	
Very Large	3 (5.6%)	6 (20.0%)	11 (68.8%)	
Extreme	0 (0.0%)	0 (0.0%)	0 (0.0%)	
Maximum pain score***	5.13±1.51	6.43±1.74	7.31±1.58	<0.001[1]
Maximum suppuration score***	5.02±1.56	6.13±1.20	7.56±1.15	<0.001[1]
Painful days***				<0.001[3]
None	21 (38.9%)	3 (10.0%)	0 (0.0%)	
<15 Days	29 (53.7%)	20 (66.7%)	9 (56.2%)	
>15 Days	4 (7.4%)	4 (13.3%)	3 (18.8%)	
Constant	0 (0.0%)	3 (10.0%)	4 (25.0%)	
No. of days with suppuration***				<0.001[3]
None	17 (31.5%)	2 (6.7%)	0 (0.0%)	
<15 Days	34 (63.0%)	14 (46.7%)	1 (6.2%)	
>15 Days	3 (5.6%)	11 (36.7%)	5 (31.2%)	
Constant	0 (0.0%)	3 (10.0%)	10 (62.5%)	

***Significant at *P*<0.05, 1: Kruskal Wallis Test, 2: Chi-Squared Test, 3: Fisher's Exact Test, 4: One-Way ANOVA. BMI- Body Mass Index, BP- Blood Pressure, DLQI- Dermatology Life Quality Index, HDL- High Density Lipoprotein, TG- Triglyceride

A review by Montero-Vilchez *et al*.[11] on the quality of life in HS patients showed that DLQI was the most common tool used and the mean value in HS patients was 10.70. Severity of disease according to Hurley grade and number of days with pain and suppuration showed a significant correlation with the impairment of quality of life, assessed by DLQI, in our study. This also mirrors findings in the above review, which showed that higher intensity of symptoms was associated with poorer quality of life.[11]

The association of HS with metabolic syndrome has been well established in previous case-control studies.[12-16] The obesity class was significantly higher in patients with HS as compared to controls. The relative risk of metabolic syndrome in our study was 5.25, which is comparable to previous studies, which have reported a risk ratio of 1.82 to 5.74.[12-15] The prevalence of metabolic syndrome in our HS patients was 42%, which is comparable to previous studies.[12-15] The prevalence, however, is much higher than 16.67% reported in an Indian study by Mendiratta and colleagues.[16] The relative risk of hyperglycemia was significantly higher in our study (8.08) as compared to previous studies, and the relative risk of central obesity (4.06) and hypertension (3.11) was similar.[12-15] Interestingly, there was no significantly increased risk of dyslipidemia in our patients, which is in contrast to previous case-control studies.[12-15] Although the exact reason cannot be ascertained, the above finding may be due to the increased prevalence of hypertriglyceridemia and low HDL-C in our general population. The mean fasting insulin levels and HOMA-IR values were significantly higher among HS cases, which has been previously reported in a study by Vilanova *et al*.[27]

HS has been found to be associated with interstitial keratitis[28,29] and other ophthalmic manifestations including xerophthalmia, conjunctivitis, inflammation of glands of Moll, and Mooren's type ulceration.[30,31] However, no such associations were noticed in our study apart from Meibomian gland dysfunction and chalazion that could probably represent associated inflammation of these glands in HS. The other ocular and dental findings in our study are most probably chance associations.

This study fills the lacunae in the descriptive demography of HS in the Indian scenario. To the best of our knowledge, this is the first case-control study describing the risk of metabolic syndrome among Indian HS patients. The findings reinforce importance of screening for metabolic parameters in patients with HS. This screening should include anthropometry measures like weight, BMI, and waist circumference; measuring blood pressure; and laboratory parameters like fasting blood glucose, triglycerides, and HDL-C. This study also recommends performing fasting insulin levels and calculating HOMA-IR to determine insulin resistance in patients with HS. The association of HS with metabolic syndrome underlines the major role of lifestyle modifications including dietary modifications, smoking abstinence, and increased physical activity in holistic management of HS.

Limitations

The cross-sectional nature, lack of prospective follow-up to describe the further course of disease, and the lack of assessment of the effectiveness of management strategies are the main limitations of the study.

Conclusion

In summary, this study enhances the understanding of HS in Indian context, revealing its clinical complexities, profound impact on quality of life, and notable association with metabolic syndrome parameters. These findings emphasize the need for holistic management strategies and underscore the importance of screening tests and early intervention in improving overall patient outcomes.

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Conflicts of interest

There are no conflicts of interest.

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