



Original Article

A Clinicoepidemiological Study of Acne Vulgaris in A Tertiary Care Center in Assam

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ABSTRACT

Background: Acne vulgaris is a common chronic inflammatory disorder of the pilosebaceous unit, characterized by comedones, papules, pustules, nodules, and scarring. It affects nearly every individual at some point in life and frequently presents during adolescence and early adulthood. Several factors, including follicular hyperproliferation, increased sebum production, Cutibacterium acnes activity, and inflammation, contribute to its pathogenesis. Acne also has a notable psychosocial impact due to its sequelae such as post-inflammatory hyperpigmentation and scarring.

Aim: To evaluate the clinical pattern of acne vulgaris among patients attending a tertiary care hospital in Northeast India.

Materials and Methods: A cross-sectional study was conducted among 158 consecutive patients with acne vulgaris in the Dermatology Department of Silchar Medical College and Hospital. Detailed histories were recorded, including age of onset, gender, duration, lesion characteristics, aggravating factors, menstrual history, post-acne hyperpigmentation, and scarring. Acne severity was graded using a simple four-grade system, and scarring was assessed using the Comprehensive Acne Severity System (CASS). Ethical clearance and informed consent were obtained.

Results: Of the 158 patients, 63.4% were females and 36.6% males. The most affected age group was 21–25 years (40.1%), followed by 16–20 years (30.5%). Duration of acne was <1 year in 44.9% of cases. The face was the most commonly involved site (80.3%), followed by the trunk and neck. Grade 2 acne was the predominant severity type (53.7%), while Grade 4 constituted only 5.06%. Post-inflammatory hyperpigmentation was present in 48.3%, and scarring in 22.1%. Premenstrual flare occurred in 16.7% of females. Seborrheic dermatitis (13.8%) was the most common associated condition.

Conclusion: Acne vulgaris in this population most commonly affects young adults, with a predominance of females and Grade 2 severity. Facial involvement and pigmentation were frequent findings. Understanding these clinical patterns can guide improved management strategies in similar demographic settings.

Keywords: Acne vulgaris, pilosebaceous unit, Cutibacterium acnes, comedones, acne scar, acne conglobata.

INTRODUCTION

Acne vulgaris is a chronic inflammatory disease of the pilosebaceous unit characterized by various lesions such as comedones (hallmark lesions), papules, pustules, nodules, and scarring.¹ Acne is one of the most common skin disorders worldwide and occurs primarily at puberty with a prevalence of almost 95% in India. Lesions clinically seen can be either

non-inflammatory lesions (open and closed comedones) or inflammatory lesions (papules, pustules, and nodules). Complications include varying degrees of scarring and hyperpigmentation.²

The most severe forms of acne vulgaris occur more frequently in males, but the disease tends to be more persistent in females. Severity of the disease varies markedly from one individual to the other depending upon the interplay of various factors involved in the development of acne vulgaris.³⁻⁶

Acne is a multifactorial skin disorder with key factors including follicular epidermal hyperproliferation, excess sebum production, inflammation, and activity of *Propionibacterium acnes* (now referred to as *Cutibacterium acnes*).⁷ On top of the discomfort due to symptoms experienced by patients, acne also has a psychological impact due to its complication like post-acne hyperpigmentation and scarring.⁸

The aim of this study is to evaluate the clinical pattern of acne vulgaris in patients attending a tertiary care hospital.

MATERIALS AND METHODS

The study group included 158 consecutive patients with acne vulgaris attending the Department of Dermatology, Venereology and Leprosy, Silchar Medical College and Hospital. A detailed history was elicited in each patient with particular reference to age of onset, gender, duration of acne, site of lesions, grade of acne and types of lesions, menstrual history, any post-acne hyperpigmentation, and scarring. All possible aggravating factors and co-morbidities, relevant family history will be enquired. General examination and systemic examination were done.

Acne vulgaris was classified into four grades using a simple grading system:⁹

Grade 1: Comedone, occasional papule,

Grade 2: Papules, comedones, few pustules,

Grade 3: Predominant pustules, nodules,

Grade 4: Cysts, abscess and widespread scarring.

Cutaneous examination of acne scars (if present) were done and graded according to Comprehensive Acne Severity System (CASS).¹⁰

The study was conducted after obtaining clearance from the ethical committee as well as informed and written consent from patients. All the findings were recorded, evaluated and compared with other studies. Relevant statistical tests were applied for analysis of the data.

RESULTS

Acne is one of the common disorders of the skin, virtually affecting every individual at least once in their lifetime.¹¹ A total of 158 cases presented with acne vulgaris were included in our study. Among these 63.4% were female and 36.6% were male shown in fig.1

Gender Distribution in Acne Vulgaris Cases

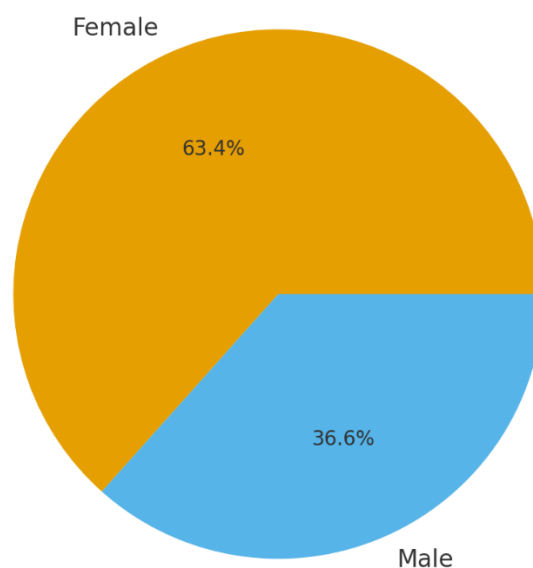


Fig.1 Age distribution of acne vulgaris

The majority of the patients were in the age group of 16-25 years. Among them, the commonest age group affected was 21-25 y (40.1%) followed by 16-20 y (30.5%) represented in table 1. The earlier onset of clinical acne in girls than boys is

noted, presumably related to their earlier onset of puberty.¹² The mean age of the participants was 20.1 years. It was observed that acne vulgaris persisted till later years among females as compared to males. Age and gender distribution has been shown graphically in fig.2.

Age (in years)	Male	Female	Total
<10	1	4	5
10-15	11	12	23
16-20	16	32	48
21-25	21	42	63
26-30	7	4	11
>30	6	2	8
Total	58	100	158

Table 1: Age and Sex distribution of acne

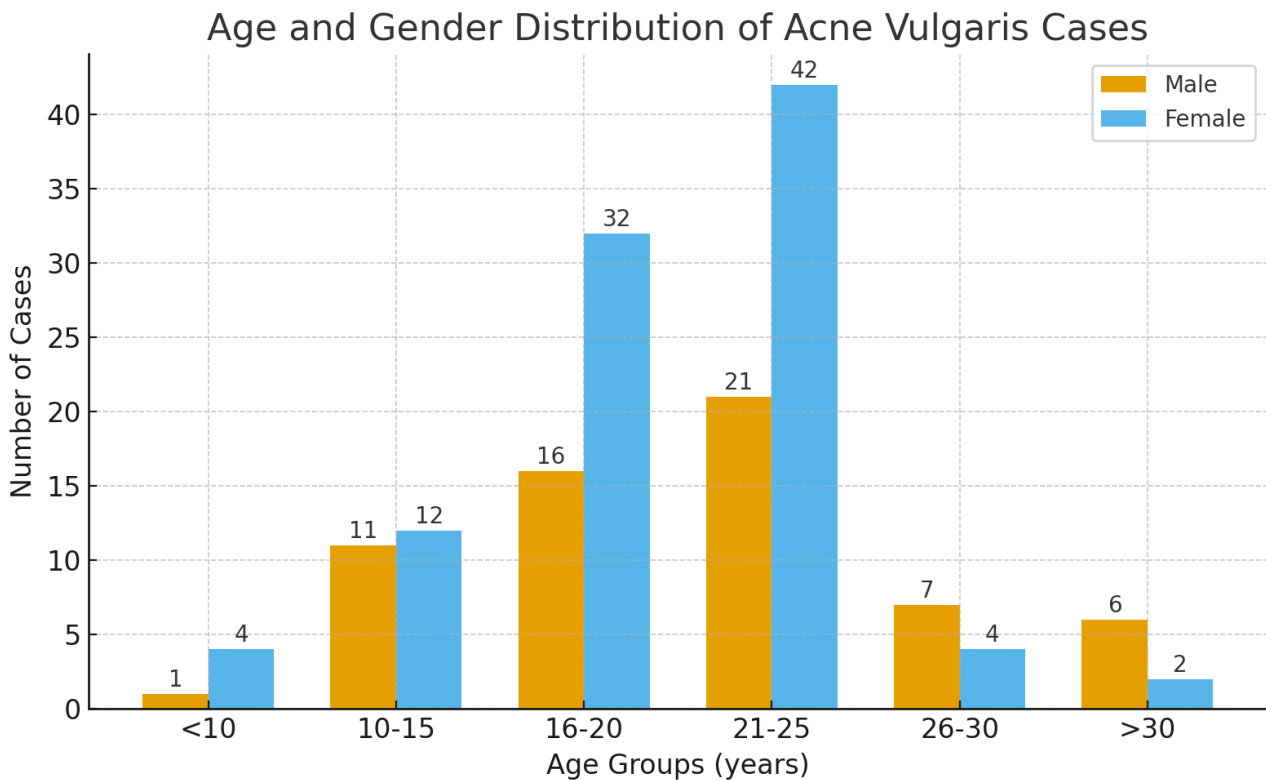


Fig. 2: Age and Gender distribution of cases

In the present study, 71 (44.9%) patients had a duration of acne less than 1 year, 52 (32.9%) patients had a duration between 1-2 y, while only 8 (5.06%) had a duration between 3-4 y and 13 (8.22%) had more than 4 y duration of the lesion shown in table 2. Persistent acne is a continuation or relapse of acne onto adulthood and middle age.¹³

Duration of acne (in years)	No. of cases	Percentage
<1	71	46.8%
1-2	52	32.9%
3-4	8	5.06%
>4	13	8.22%
Total	158	100

Table2: Distribution of acne cases according to duration

Acne usually affects areas with a higher distribution of pilosebaceous glands.⁷ The distribution of acne according to the site of involvement is shown in table 3. The face was the most common anatomical region affected by acne vulgaris in our study.

Anatomical region	Male	Female	Total
Face	47	80	127
Neck	3	6	9
Trunk	5	10	15
Arms	3	4	7
Total	58	100	158

Table3: Distribution of acne cases according to anatomical site

Our study showed a majority of patients had Grade 2 acne. Less number of patients had Grade 4 acne vulgaris. Grades of acne severity are represented in table 4. Male predominance was seen in acne grade 3 and grade 4 in the present study related to the severity of acne. The severity of acne in males than females is due to androgen activity that acts as a potent stimulus to sebaceous secretion.¹² Fig.3 shows distribution of cases according to gender and severity grades.

Acne Grades	Male	Female	Total
1	8	28	36 (22.8%)
2	32	52	84 (53.7%)
3	18	12	30 (18.9%)
4	5	3	8 (5.06)
Total	58	100	158

Table 4: Distribution of cases according to grades of severity

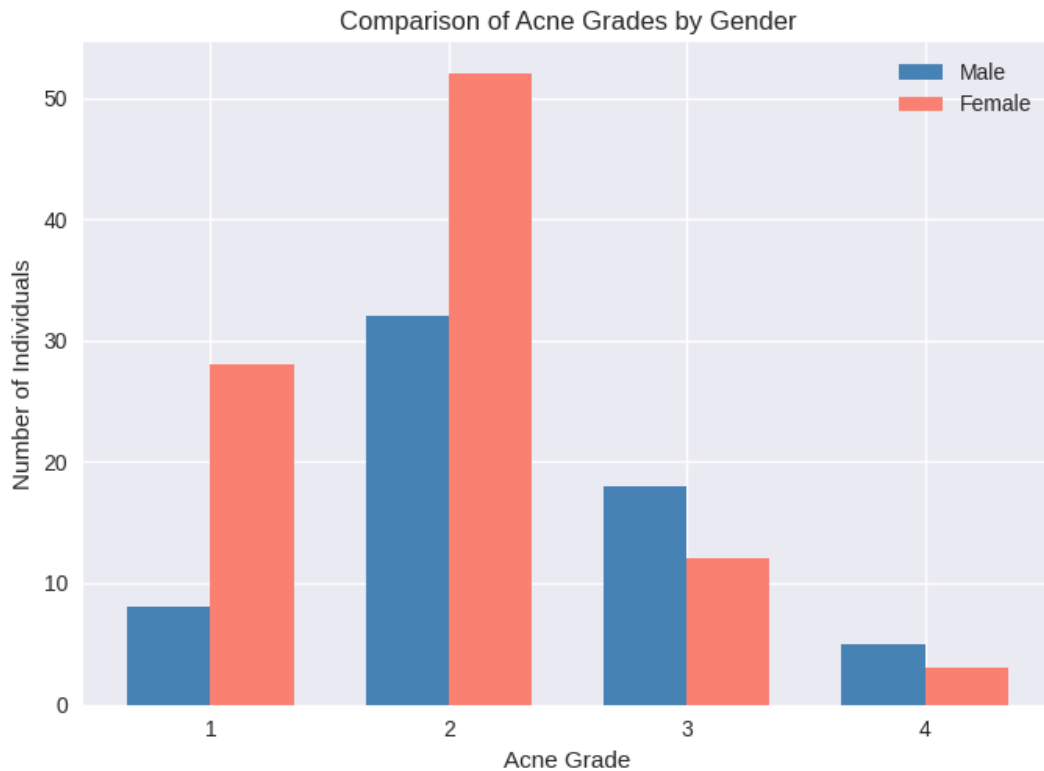


Fig. 3 Distribution of cases according to severity grading

Acne is a pleomorphic disease.¹ The most common type of lesions was comedones (both closed and open) followed by papules and pustules.

A usual and frequent complication of acne is post-acne hyperpigmentation.¹ Our study showed post-inflammatory hyperpigmentation in 95 (48.3%) patients. Post-acne scarring is also well-recognized sequelae of acne vulgaris, however, actual extent and incidence of residual scars remains unknown.¹⁴ In the present study, scarring was seen in 43 (22.1%) patients.

Premenstrual worsening of acne occurs in approximately 70% of female patients possibly related to hydration of the pilosebaceous unit or due to blockade of the sebaceous duct orifice.¹⁵ Premenstrual flare was noted in 31 (16.7%) patients in the present study. The commonly associated disease observed with acne was seborrheic dermatitis with 28 (13.8%) affected patients in our study.

The limitation of our study was that the clinical markers of androgenicity, if any, were not explored in detail. Our study attempted to bring out the clinical pattern of acne vulgaris patients in a tertiary care hospital in the Northeastern population which can help the clinicians to understand the extent of this skin disorder as well as help in better management of acne vulgaris patients.

Fig.4-8 shows acne of different grades in different sites



Fig.4 Grade 1 Acne Vulgaris showing predominantly closed comedones



Fig.5 Grade 3 Acne Vulgaris showing open comedones, papules and pustules



Fig.6 Acne Conglobata



Fig.7 Acne healing with post inflammatory hyperpigmentation



Fig.7 Acne healing with multiple scars



Fig.8 Truncal acne

DISCUSSION

The demographic distribution of acne vulgaris in our study, with a female predominance (63.4%), is comparable to the findings of Juchitra Deuri et al. (2022)¹⁶, who reported 61.6% females and 38.4% males among 203 patients. Similarly, Saxena et al. (2018)¹⁸ also observed a higher proportion of females (59%) compared to males (41%). In contrast, Khanna et al. (2021)¹⁷ reported a male predominance (52.4%), highlighting variability in gender distribution across different populations.

Age distribution in our study showed the majority of patients in the 21–25 year age group (40.1%), followed by 16–20 years (30.5%). This closely parallels Deuri et al. (2022)¹⁶, where 37.9% belonged to 21–25 years and 31.5% to 16–20 years. Saxena et al. (2018)¹⁸, however, reported an earlier onset, with 55.9% of patients developing acne between 10–15 years. Khanna et al. (2021)¹⁷ found the highest prevalence in the 16–20 year group (54%), while Reddy et al. (2023)¹⁹ reported 86% of patients in the 18–24 year group, suggesting that acne peaks in late adolescence to early adulthood across most studies, though onset may vary.

With respect to severity, our study showed Grade 2 acne as the most common (53.7%), with fewer cases of Grade 4. This finding is consistent with Deuri et al. (2022)¹⁶, who also reported Grade 2 as the predominant type, and Saxena et al. (2018)¹⁸, where 66% had Grade 2 acne. Male predominance in Grades 3 and 4 was noted both in our study and in Deuri et al. (2022)¹⁶, supporting the observation that males are more likely to present with severe acne. Reddy et al. (2023)¹⁹, using GAGS scoring, reported 91.3% mild acne and only 8.7% moderate acne, further confirming that severe acne is relatively uncommon.

Post-inflammatory hyperpigmentation (PIH) was observed in 48.3% of our patients, which is identical to the findings of Deuri et al. (2022)¹⁶ and comparable to Saxena et al. (2018)¹⁸, who reported PIH in 43.4% of patients. Scarring was seen in 22.1% of our patients, similar to Deuri et al. (22.7%) and Saxena et al. (2018), who documented a wide spectrum of scars, with atrophic scars being the most common (80.2%).

Premenstrual flare was noted in 16.7% of our female patients, which is lower than the 62.6% reported by Khanna et al. (2021)¹⁷ and 37.2% reported by Saxena et al. (2018)¹⁸. This variation may reflect differences in study populations, reporting patterns, or hormonal influences.

Anatomical distribution in our study showed facial involvement in 80.3% of patients, which is consistent with Khanna et al. (2021)¹⁷, who reported facial involvement in 80.25% of females, and Saxena et al. (2018)¹⁸, where all patients had facial lesions. Back, chest, and arms were more commonly involved in males in Khanna et al. (2021)¹⁷, whereas Saxena et al. (2018)¹⁸ also documented significant truncal involvement.

Associated conditions in our study included seborrheic dermatitis (13.8%), which mirrors the findings of Deuri et al. (2022)¹⁶ (13.8%). Saxena et al. (2018)¹⁸ reported seborrhoea as the most common association (60.8%), followed by folliculitis and acanthosis nigricans, while Khanna et al. (2021)¹⁷ emphasized lifestyle factors such as high glycemic diet, cosmetic use, and stress as aggravating factors.

Taken together, these comparisons demonstrate broad consistency across studies in terms of female predominance, peak age group in late adolescence to early adulthood, predominance of Grade 2 acne, and facial involvement as the most common site. Variations are noted in the prevalence of premenstrual flare, associated conditions, and lifestyle factors, which may reflect differences in study design, population characteristics, and regional influences.

CONCLUSION

The research of acne vulgaris patients revealed a female predominance. The age group over 20 is particularly affected. The face was the most prevalent site of involvement, followed by the trunk and other locations. Acne severity of grade 2 was more common. The most prevalent related feature was seborrheic dermatitis. Thus, this study identified the clinical pattern of acne vulgaris in a tertiary care hospital in Assam. Acne is far more common in the community than in the current study, most likely due to most teenagers and young adults not seeking health care services for the treatment of acne vulgaris.

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