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Original Research Article

A clinico-epidemiological and investigative study of post adolescent acne

Nidhi Sharma[1]*, Garvit Raina[2]

[1]Department of Dermatology, Government Medical College, Jammu, Jammu and Kashmir, India
[2]SMVD Narayana Hospital, Katra, Jammu and Kashmir, India

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***Correspondence:**
Dr. Nidhi Sharma,
E-mail: needee88@gmail.com

ABSTRACT

Background: Although acne is usually recognized as an adolescent skin disorder, the prevalence of adults with acne is increasing. The clinical and epidemiological data of adult acne were evaluated with a view to establishing possible contributing etiological factors and observing whether clinical features differ from adolescent acne.
Methods: A total of 170 patients over the age of 25 years with acne were taken up for the study and a detailed history and clinical examination was done. Hormonal profile was done in all the patients. The data was statistically evaluated and inferences drawn.
Results: Out of 170 patients included in the study 87.6% were women. The mean age of the patients was 33.5 years. Persistent acne was observed in 62.4%, while it was late onset in 37.6%. Most common predominant site of involvement was cheek (78%), followed by chin (62%), and mandibular area (33.2%). Family history of acne was present in 15.3%. Premenstrual flare was seen in 31.2% of female patients, obesity in 25.9%, hirsutism in 41.8% and menstrual abnormalities in 15.1%, but raised laboratory markers of hyperandrogenism were observed in only 4.02%.
Conclusions: The study identified key contributing factors and patterns of post adolescent acne, providing valuable insights for tailored management strategies.

Keywords: Acne, Post adolescent acne, Adult acne, Hyperandrogenism

INTRODUCTION

Acne is a chronic inflammatory disorder of the pilosebaceous units characterised by seborrhoea, open and closed comedones, papules, pustules and in more severe cases nodules and pseudocysts. The pathogenesis is attributed to multiple factors such as increased sebum production, follicular hyperkeratinization, proliferation of propionibacterium acne within the follicle, androgen activity, inflammation and immunological host reaction.[1]

Although acne is widely considered as a disorder of adolescence, prevalence of adults with acne is increasing. Adult acne has been traditionally defined as presence of acne beyond the age of 25 years.[2] There are two types of adult acne; persistent acne and late-onset acne. Adolescent acne persisting beyond the age of 25 years is called persistent adult acne and acne developing for the first time after the age of 25 years is called as late-onset adult acne. While the majority of research focuses on adolescent acne, there is a paucity of data on prevalence and clinical features of post adolescent acne. Understanding the characteristics and contributing factors of acne in adults is crucial for proper evaluation and management of patients with post-adolescent acne. The objectives of this study were to observe the prevalence, clinical features, contributing etiological and aggravating factors of acne in adults, with a view to establishing possible etiological factors and highlight possible differences from adolescent acne.

METHODS

The cross-sectional study was carried over a period of 6 months (January 2023 to July 2023) at Government

Medical College, Jammu. Ethical clearance was not obtained as it was an observational study. Patients over the age of 25 years presenting with acne vulgaris to the outpatient department of dermatology were included in the study after obtaining informed consent. The epidemiological data and clinical features were recorded on a predesigned proforma. A detailed history was taken regarding the onset, duration, extent and site of involvement. Also history of aggravating factors like stress, drug intake, sun exposure, seasonal variation, application of cosmetics, premenstrual flare up and influence of pregnancy on acne was noted. History regarding presence of menstrual irregularities, hirsutism and seborrhea was noted. Clinical assessment of each patient included type of acne lesions, distribution, severity and grading of acne. Acne vulgaris was graded using a simple system taking into account the predominant lesions present; thus classifying acne into four grades - grade 1: comedones, occasional papules, grade 2: papules, comedones, few pustules, grade 3: predominant pustules, nodules, abscesses, and grade 4: mainly cysts, abscesses, widespread scarring.[3]

Presence of seborrhea and features of hyperandrogenism (hirsutism, alopecia) and associated findings like obesity, acanthosis nigricans indicating towards hormonal imbalance were noted and investigations for polycystic ovarian disease and insulin resistance were done when indicated. Relevant investigations including serum luteinizing hormone (LH), follicle-stimulating hormone (FSH), prolactin, testosterone, and dehydroepi-androstenedione were done.

Rosacea and other conditions with papules and pustules over face other than acne were excluded on the basis of clinical examination. Stress was evaluated through a questionnaire answered by the patient. A subjective assessment of its association with aggravation of the acne was made by the patient. acanthosis nigricans was noted. All the data was properly coded and entered in Microsoft excel and analyzed using statistical package for the social sciences (SPSS) software. Appropriate tests of significance were applied.

RESULTS

A total of 170 patients were included in the study. Women comprised of 87.6% of the patients. The mean age of the patients was 33.5 years with a range of 26-53 years. Maximum patients were in the age group of 25-30 years. The age distribution of the study population is summarized in Table 1.

The duration of acne varied from minimum of 2 weeks to 20 years. In 106 (62.4%) patients, there was persistence of disease since adolescence (persistent acne). In 64 (37.6%) patients, the onset of disease was after adolescence (late onset acne). Family history of acne in first degree relative was present in 26 (15.3%) patients.

Distribution

Facial involvement was seen in majority of the patients (95.3%), however 8 (4.7%) patients had only truncal involvement. On the face, cheek was the most common site involved (78%) followed by chin (62%), mandibular area (33.2%), forehead (28.7%) and nose (14.3%). In patients with late onset acne, distribution was mainly around chin, jawline and neck.

Table 1: Age distribution of the patients.

Age group (years)	Number of patients n=170 (%)	Females n=149 (%)	Males n=21 (%)
25-30	88 (51.8)	75 (50.3)	13 (61.9)
31-35	53 (31.2)	45 (30.2)	8 (38.1)
36-40	17 (10)	17 (11.4)	0
41-45	8 (4.7)	8 (5.4)	0
46-50	3 (1.8)	3 (2)	0
>50	1 (0.05)	1 (0.7)	0

Grade

Majority of the patients were having acne grade II (57.1%) followed by grade III (24.1%), grade IV (13.5%) and grade I (5.2%). The comparison of grading in persistent and late onset acne is depicted in Figure 1.

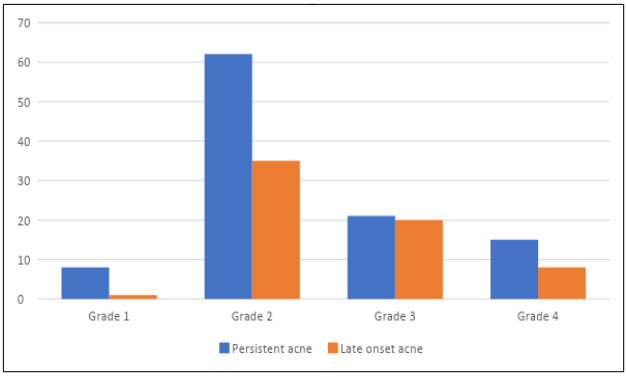

Figure 1: Comparison of grading in persistent and late onset acne.

Aggravating factors

Onset of acne after drug intake was seen in 6 patients (B-complex supplements in 3 patients, ayurvedic medications in 2 patients and antipsychotic medications in one patient). Seasonal variation was noted in 25.9% patients, with majority of them reporting exacerbation during summer season. Premenstrual flare was seen in 31.2% of female patients. Aggravation due to stress was seen in 21 (12.3%) patients. Regular use of cosmetics was present in 89 (52.3%) patients with aggravation of acne due to cosmetics in 26 (15.3%) patients. History of application of steroid containing creams was seen in 71 (41.8%) patients.

Clinical features suggestive of hormonal imbalance/ hyperandrogenism like hirsutism, oligomenorrhea, etc. were seen in many patients (Table 2). However, laboratory evidence of hyperandrogenism in the form of raised testosterone levels was seen in only 6 out of 149 female patients (4.02%). Serum DHEAS and PRL were not deranged in any patient. Serum LH was found to be raised in 2 patients. Serum FSH was decreased in one patient, the ratio of LH: FSH was >2:1 in 2 patients, favouring polycystic ovarian syndrome. Ultrasonography report of 17 female patients favoured a diagnosis of polycystic ovarian disease (PCOD). Only one patient had raised fasting insulin levels, indicating insulin resistance.

Table 2: Clinical features of hormonal imbalance/ hyperandrogenism.

Clinical features of hormonal imbalance/hyperandrogenism	Number of patients, n=170 (%)
Hirsutism	71 (41.8)
Oligomenorrhea	26 (15.1)
Seborrhea	31 (18.2)
Alopecia	17 (10)
Obesity	44 (25.9)
Acanthosis nigricans	13 (7.6)
Infertility	2 (1.2)

DISCUSSION

In our study the most common age group was between 25 to 40 years and there was a steady decline in acne after 40 years. Similar findings were reported by two other studies but on the contrary another study reported no substantial decrease post 40 years.[2,4,5] In our study, post adolescent acne was observed to be more common in women (87.6%). This is in concordance with the studies done by Goulden et al and Khunger et al, where 76% and 82.1% of the women were affected respectively.[2,6] This may represent an increased awareness in women seeking treatment as compared to men. However, a community-based survey of more than 700 adults older than 25 years also reported clinical facial acne in 12% of women and 3% of men.[2] Hormonal factors, increased use of cosmetics and exposure to hot and humid conditions while cooking may play a role in increased prevalence of adult acne in women.

Our study noted persistent acne in 62.4% of the patients. In comparison Goulden et al reported persistent acne in 82% and Khunger et al reported in 73.2% cases of persistent acne in their patients.[2,6] In our study the most common site of involvement was cheeks (78%) followed by chin (62%) and mandibular area (33.2%). Similar distribution was observed by Khunger et al where cheeks was the most common site of involvement.[6] This is in contrast to study by Capitanio et al who have reported lower face and mandibular area as more common sites of involvement in post adolescent acne.[7] In our study, premenstrual flare was seen in 31.2% of female patients. Similar results were observed by Swathi et al and Stoll et al.[8,9]

In the study by Goulden et al, 37% of women had at least one feature of hyperandrogenism as hirsutism (24.2%), alopecia (7.2%) or menstrual disturbance (17.7%).[2] In our study, although clinical features suggestive of hyperandrogenism such as premenstrual flare (31.2%), hirsutism (41.8%), menstrual irregularities (15.1%) and alopecia (10%) were present, only 6 (4.02%) women had raised laboratory markers of hyperandrogenism. Our results are in contrast to few studies which showed increased prevalence of hormonal imbalances.[2,10] These contrasting findings suggest that end-organ hypersensitivity and not androgen levels may be the central factor in development of adult acne in women.[11] Increased sensitivity of the sebaceous gland to androgens or increased local metabolism of androgen hormones in the skin to potent androgen metabolites may offer alternative mechanisms for the pathogenesis of this disorder.[12] More so, studies are there to support the concept that target tissue androgens might play a major role in pathogenesis of female acne.[13] It is possible that a certain number of follicles are acne-prone and these follicles have different levels of susceptibility to the circulating hormones.

Our study identified role of certain factors like stress (12.3%), cosmetics (15.3%), topical steroid abuse (41.8%) which are consistent with previous studies by Addor et al and Khunger et al.[2,14]

CONCLUSION

The findings of this study shed light on the distinctive features of post-adolescent acne, emphasizing its prevalence in adults and its multifactorial etiology. The interplay of hormonal and non-hormonal factors like stress, family history, seasonal variations, cosmetic use and drug; in the development of acne beyond adolescence warrants further investigation. These insights can guide tailored management strategies involving hormonal regulation, stress management and lifestyle modification for better patient management and treatment outcome.

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