International Journal of Enhanced Research in Medicines & Dental Care (IJERMDC),
ISSN: 2349-1590, Vol. 5 Issue 4, April-2018, Impact Factor: 1.338

Patterns of Acne Vulgaris in Mosul City

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ABSTRACT

Background: Acne vulgaris is a chronic inflammatory disease of pilosebaceous unit and is one of the commonest skin disease in the world, affecting different age groups with peak incidence in adolescence.

Aim: This study was designed to describe the pattern of acne vulgaris on patients who consulted the Dermatology Department in Al-Salam Teaching Hospital and Ibn-Sina teaching hospital in Mosul city.

Methods: A questionnaire was designed and skin was examined to study patients. The study included 166 patients with acne vulgaris, with ages ranging between 11 - 41years and mean of 21.3 years this age is reproductive age group. The examination included the face, chest, and back areas. The skin conditions were registered and the clinical details, from come done to nodules, were recorded. The acne were classified according to the type and severity into three categories, mild, moderate, and sever.

Results: Of the 166 patients with acne vulgaris, 98(59%) were female and 68(41%) were males. Female patients developed acne at an earlier age than males. Age group 15–25 more affected than the other age groups. The duration of acne ranged from 2 months to 20 years. According to the severity of acne,41 patients (25%) had mild acne, 87 (52%) had moderate acne and 38 (23%) had severe acne . The face was the common site of acne in mild and moderate grades, while the face, upper back and the chest were the common sites in the severe type.

Seborrhoea was found in 71% of acne patients and the percentage of oily skin in males was higher than in females acne patients. The percentage of normal skin was 22.5% in acne patients and few patients with acne had dry skin (6.5%).

A family history of acne was present in 70% of acne patients. Of the 65 females with acne who use cosmetics, 19(29%) claimed that their acne becomes worse by using cosmetics especially foundations creams. Emotional factors such as stress and worry were mentioned by 86% of acne patients. Also, exposure to sunlight and excessive heat during summer time were believed to aggravate acne in 77.7% of patients. Many acne patients (68.7%) claimed that excessive sweating was an exacerbating factor for their acne. Premenstrual exacerbation of acne was experienced by 92% of female acne patients.

Conclusion: Acne is a very common chronic skin disease of adolescents and adults. The age at onset of acne in female patients is earlier than in males with a multi-factorial etiology, where stress and worry, diet, seborrhea, family history, premenstrual exacerbation and cosmetics were believed by acne patients to affect their acne condition. Acne mostly affects people with oily skin. Mild and moderate grades of acne are more frequent than the severe grade among acne patients. The face is the common site of acne in mild and moderate grades, while the face, upper back and the chest are the common sites in the severe grade of acne.

Keywords: Acne –long term skin disease,

INTRODUCTION

Acne vulgaris: Acne vulgaris is a chronic inflammatory disease affecting the pilosebaceous follicle and characterized by comedones, papules, pustules, nodules, and scars. Acne is considered the most common dermatologic illness, with greatest prevalence in adolescents. It affects 80% of adolescents, but also may be observed in 54% of adult women and 40% of adult men. Acne vulgaris clears by the age of 23–25 years in 90% of patients, but some 5% of women and 1% of men still need treatment in their thirties or even forties. Acne can cause psychosocial problems such as social embarrassment and isolation[1, 2].

Causes: Many factors combine to cause acne (Figure1.1),characterized by chronic inflammation around pilosebaceous follicles, which include:

a- Sebum: Sebum excretion is increased. However, this alone need not cause acne; patients with acromegaly, or with Parkinson's disease, have high sebum excretion rates but no acne. Furthermore, sebum excretion often remains high long after the acne has gone away[3].

b-. Hormonal Androgens: Hormonal activity, such as menstrual cycles and puberty, may contribute to the formation of acne. During puberty, an increase in androgens cause the follicular glands to grow larger and make more sebum. Use of anabolic steroids may have a similar effect. Several hormones have been linked to acne: the androgens testosterone, dihydrotestosterone (DHT)[4].

c-. Poral occlusion: Both genetic and environmental factors (e.g. some cosmetics) cause the epithelium to overgrow the follicular surface. Follicles thenretain sebum that has an increased concentration of bacteria and free fatty acids. Rupture of these follicles is associated with intense inflammation and tissue damage, mediated by oxygen free radical sand enzymes such as elastase, released by white cells[5].

d-. Bacterial Propionibacterium acnes(P acne): It colonizes the pilosebaceous ducts, breaks down triglycerides releasing free fatty acids, produces substances chemotactic for inflammatory cells and induces the ductal epithelium to secrete pro-inflammatory cytokines. Staphylococcialso have been implicated in the acne genesis process[6] .

e-. Genetic: The condition is familial in about half of those with acne.[7]

f- Diet: The relationship between diet and acne is unclear as there is no good quality evidence. However, a high glycemic load diet is associated with worsening acne. There is also a positive association between the consumption of milk and a greater rate and severity of acne. Other associations such as chocolate and salt are not supported by the evidence. Chocolate does contain a varying amount of sugar that can lead to a high glycemic load and it can be made with or without milk. One trial found a relationship between acne and obesity[8,9].

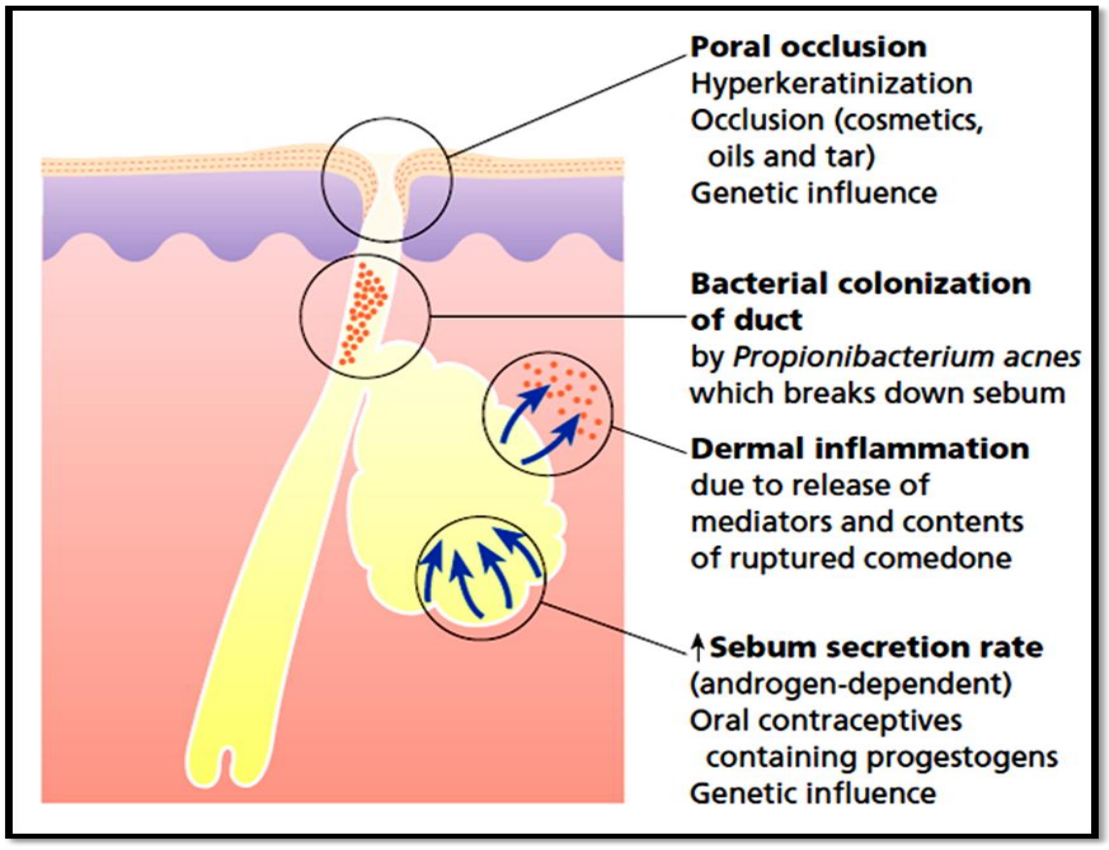


Figure 1.1. Factors causing acne[10]

Clinical presentation

{A}. Common type: Acne is a chronic disease of the pilosebaceous follicle that causes polymorph cutaneous lesions, among them seborrhea which is often frequent and distressing feature. In addition, open comedones (black heads), because of the plugging by keratin and sebum of the pilosebaceous orifice, or closed comedones (white heads), caused by overgrowth of the follicle openings by surrounding epithelium, are always seen. Inflammatory papules, cysts,

pustules, and abscesses which, after regression, may leave scars. It is characterized by periods of exacerbation alternated with periods of stability[11,12].

{B} Variants

1. Infantile: This rare type of acne is present at or appears soon after birth. It is more common in males and may last up to 3 years. Its morphology is like that of common acne[13]

2. Fulminans: Acne fulminans is a rare variant in which conglobate acne is accompanied by fever, joint pains and a high erythrocyte sedimentation rate .[14]

3.Exogenous: Tars, chlorinated hydrocarbons, oil sand oily cosmetics can cause or exacerbate acne. Moisturizer, foundation, lipstick, anti-aging cream, and sunscreen may all contain ingredients that have the potential to cause or aggravate acne.[15]

4. Excoriated: This is most common in young girls. Obsessional picking or rubbing leaves discrete denuded areas.[16]

5. Tropical: This occurs mainly on the trunk and maybe conglobate. Sweat causes follicular occlusion by causing the perifollicular epidermis to swell[17].

6. Drug-induced: Suspicion should be raised when acne, dominated by papulopustules rather than comedones, appears suddenly in a non-teenager and coincides with the prescription of a drug known to cause acneiform lesions, including contraceptives with high androgenic activity, corticosteroids, anabolic steroids, lithium, phenytoin, or isoniazid(18).

7. Polycystic ovarian syndrome (PCOS): Consider this in obese females with oligomenorrhoea or secondaryamenorrhoea or infertility. Glucose intolerance, dyslipidemia and hypertension may be other features[19].

Diagnosis: Diagnosis is based on medical history and physical examination. The presence of comedones is an essential diagnostic feature; the absence of comedones indicates that a disorder other than acne vulgaris should be considered, such as rosacea, perioral dermatitis and sebaceoushyperplasia. The patient's face, back and chest areas should all be checked at each consultation as severity may differ between areas. Categorizing acne by grade or severity can aid diagnosis, management and prescription.[20]

A detailed history can help to identify patients with specific causes, such as drug-induced acne, acne mechanical and occupational acne.Female patients with irregular menses should have a hormone screen to look for PCOS[21].

Treatment: Acne treatment should be initiated as soon as possible, early treatment may prevent or minimize bacterial proliferation and spotformation. The management should be tailored to the etiology, type and severity[22].The goal of treatments is to target the four pathogenic factors of acne. The benefits of fixed-dosed or combined therapies include complementary mechanisms of action, reduced risk of antibiotic resistance, and improved treatment outcomes, thereby improving ease of application and patient adherence by simplifying daily regimens.[23]

Administrative agreement: Official administrative agreement was obtained from Directorate of Health of Nineveh governorate in Mosul before conducting this study.

Study setting and duration of the study: The study was held in Nineveh Governorate that is located in north western Iraq. It was conducted between January and June 2014, on patients who consulted the Dermatology Department in Al-Salam Teaching Hospital (the main general hospital in the left side of the Mosul city) and in Ibn-Sina - Teaching Hospital(the main general hospital in the right side of the Mosul city), on 1 day / week alternately.

Study design: This study was case – series study.

Study population and case definition: Patients of any age and of both sexes, who attended dermatology clinic in both Ibn-Sina and Al-Salam hospitals, were recruited. Where their number ranged 80 – 100 patients / day in each clinic.The diagnosis was established on clinical basis under supervision of dermatologist. The examination included the face, chest, and back areas. The skin conditions were registered and the clinical details, from comedone to nodules, were recorded. The acne were classified according to the type and severity into three categories:-[24]

- ✓ Mild: < 20 comedone; < 15 papules
- ✓ Moderate : 20 – 100comedone; 15 –50 papules/pustules
- ✓ Severe :> 100 comedone; > 50 papules/pustules; > 5 nodules .

Data collection tool: All patients were interviewed and a questionnaire was designated to include 3 sections (Table 1):

Demographic profile including; sex, age, occupation and socio-educational level and marital status. Information regarding clinical presentation and skin characteristics, including; onset and duration of acne, sites, types and severity of lesions in addition to the type of skin. Information regarding patient's history including, family history, drug history for treatment of acne and self-medications, history for other diseases, cosmetic use, psychological status and menstrual cycle (for female), or any other aggravating factors.

Statistical analysis: Frequency and percentage have been calculated in order to describe the characteristics of the study population.

Aims of the Study: This study was designed to: Describe the pattern of acne, Describe patients' perceptions of factors that have an effect on their acne condition, Determine the patterns of self-medication of acne vulgaris.

Table 1: Data Collection Form

Patient No.	**Age**	**Sex**
Educational status	**Occupation**	**Marital status**
Onset of acne		**Duration of acne**
Site of the lesion **Face** **Upper back** **Chest**	**Type of the lesion** **Comedone Papules/Pustules Nodules**	**Number of the lesions** **Comedone Papules/Pustules Nodules**
Severity **Mild**	**Moderate**	**Severe**
Type of the skin **Dry**	**Normal**	**Greasy**
Family history Yes/No **Social class Low, Medium, High**	**Medical history**	**Psychological status**
	History for other diseases	
Menstrual history	**Cosmetic use**	
Other aggravating factors		

RESULTS

Socio-demographic features of the study population: In this study there were 166 patients with acne vulgaris; of these, 98(59%) were females and 68(41%) were males, with ages ranging between 11-41years and mean of 21.3years. The duration of acne ranged from 2 months to 20 years. Sixty five(39%) of these patients were students, 43(26%) were housewives,40(24%) employed, and 18(11%) were manual skilled. Fifty two(31%) were from low social class, 74 (45%) from medium social class and 40 (24%)from high social class(Table 2).

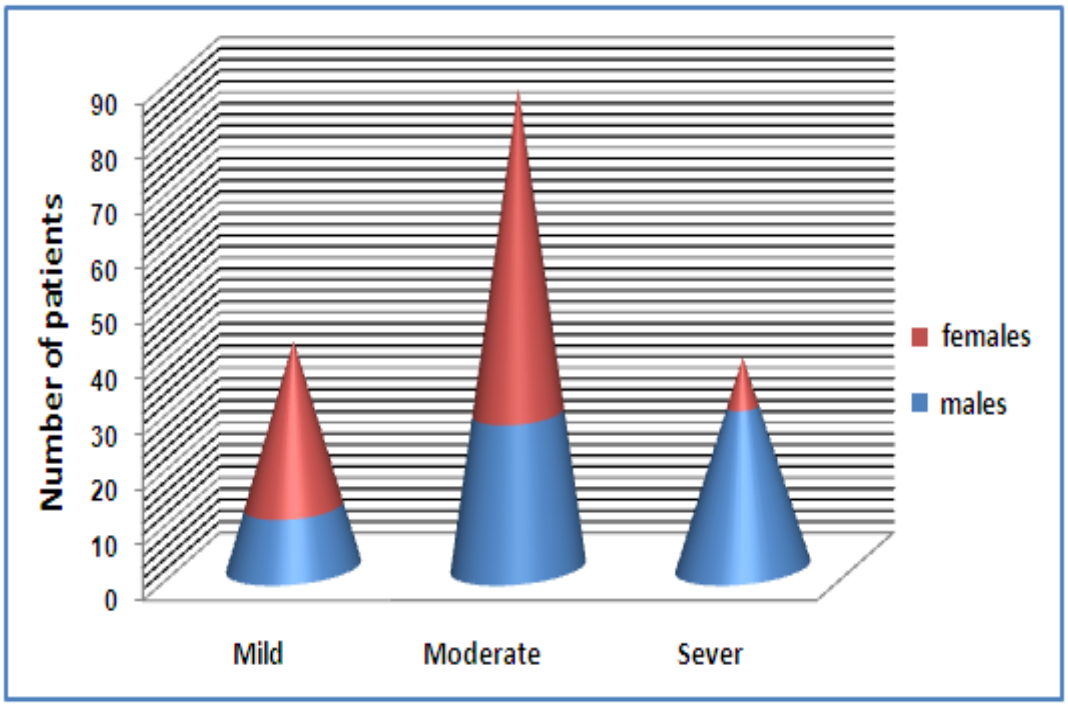
Table 2: Socio-demographic features of enrolled patients (n=166)

Characteristics	Number (166)	Percentage (%)
Sex distribution		
Male	68	41
Female	98	59

Age (years)		
< 15	32	19
15–25	112	68
25–35	16	10
> 35	6	3
Occupation		
Students	65	39
Housewives	43	26
Employed	40	24
Manual skilled	18	11
Social class		
Low	52	31
Medium	74	45
High	40	24
Marital status		
Married	106	64
Single	60	36

3.2. Study sample distribution according to the severity of acne: According to the severity of acne, patients were divided into 3 groups:41 patients (25%) had mild acne, 87(52%) had moderate acne and 38 (23%) had severe acne (Figure 3.1).

Figure 3.1. Severity of acne according to the gender of the study population



3.3. Clinical presentation of acne in the study population: (Table2) showing the age at onset of acne ranged from 11–25 years for both sexes, but female patients developed acne at an earlier age than males, and according to the site of involvement the face was the common site of acne in mild and moderate grades, while the face, upper back and the chest were the common sites in the severe grade of acne.

As regard to the severity and type of skin seborrhoea (oily skin) was found in 71% of acne patients and the percentage of oily skin in males was higher than in females acne patients In addition, all patients with the severe grade of acne were found to have seborrhea. The percentage of normal skin was 22.5% in acne patients and few patients with acne had dry skin (6.5%).

Table 3: Description of clinical presentations, sites of involvement of acne and skin characteristics according to the gender (n=166)

Characteristics	Males (n=68)	Females (n=98)
Age at acne onset (%)		
11–20 years	94.4	96.6
≥ 21 years	5.6	3.4
Site(s) of involvement*		
Face	66	98
Upper back and chest	32	28
Severity of acne		
Mild	11	30
Moderate	28	59
Sever	29	9
Type of skin		
Dry	4	8
Normal	14	22
Oily	50	68

*In some patients more than one site was involved.

3.4. Types of acne lesions: Acne lesions included comedones, papules, pustules and nodules(Figure 3.2).Comedones, papules and pustules were distributed over all these areas, but nodules were seen on the back and the chest more than the face.

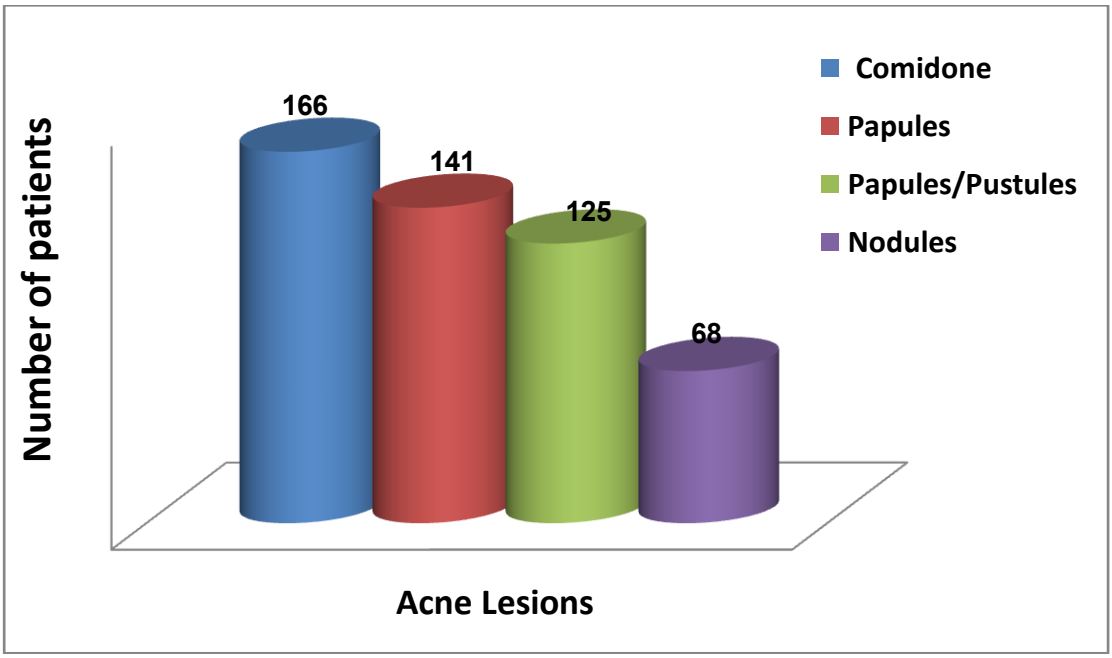


Figure 3.2. Types of Acne Lesions

3.5. Type of self-medications used by the study population: Self-medications were reported in 79% of participants; The medications included commercial anti-acnecreams (23%),benzoyl peroxide (19%), clindamycin gel(16%), erythromycin gel(4%), oral doxycycline (3%) and combinations (21%). Topical corticosteroids were used by 14%. The intended purpose being relief of symptoms (59%), cosmetic appeal (41%) or both (Table 4).

Table4: Type of self-medications used by the study population

Type of drug	Number	Percentage (%)
Topical agents		
Commercial anti-acne creams	38	23
Benzoyl peroxide	32	19
Clindamycin gel	27	16
Topical corticosteroids	23	14
Erythromycin gel	7	4
Oral drugs		
Doxycycline capsule	5	

3.6. Aggravating factors that exacerbate acne: Of the 65 females with acne who used cosmetics, 19(29%) claimed that their acne becomes worse by using cosmetics especially foundations creams, while 46(71%) noticed no effect.

A family history of acne was present in 70% of acne patients. In addition, many factors were mentioned by acne patients as aggravating their acne condition. Emotional factors such as stress and worry were mentioned by 86% of acne patients. Also, exposure to sunlight and excessive heat during summer time were believed to aggravate acne in 77.7% of patients. Many acne patients (68.7%) claimed that excessive sweating was an exacerbating factor for their acne.Premenstrual exacerbation of acne was experienced by 92% of female acne patients, while the reminders had noticed no effect of menstruation on their acne (Table 5).

Table 5: Aggravating factors that exacerbate acne

Aggravating factor	Number	Percentage (%)
Cosmetics(females)	65	39
Acne worse	19	29
No effect	46	71
Family history	116	70
Stress and worry	143	86
Exposure to sunlight	129	77.7
Excessive sweating	114	68.7
Premenstrual exacerbation	153	92

CONCLUSIONS

- Acne is a very common chronic skin disease of adolescents and adults.
- The age at onset of acne in female patients is earlier than in males with a multi-factorial etiology, where stress and worry, diet, seborrhea, premenstrual exacerbation and cosmetics were believed by acne patients to affect their acne condition.
- Age group 21–25 are more affected than the other age groups.
- Mild and moderate grades of acne are more frequent than the severe grade among acne patients.
- The face is the common site of acne in mild and moderate grades, while the face, upper back and the chest are the common sites in the severe grade of acne.
- Acne mostly affects people with oily skin.

RECOMMENDATIONS

- The patients' knowledge of their disease is an essential part in its management, and leads to better control and compliance. Therefore, health education program about acne is needed to improve the understanding of the condition.
- It is important for dermatologists to be cautious about psychological morbidity in young people, and should be aware of the importance of basic psychosomatic treatment in conjunction with medical treatment in the management of acne.
- Other study can be done to assess the role of diet in acne.
- Another study can be done to assess the psychological impact of acne.

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