Prevalence of Non-Scarring Alopecia among Female Patients Complaining from Hirsutism

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ABSTRACT:

Background: Hirsutism is a common clinical problem that cause great distress to the patient, and which true incidence is unknown. However, it is more common among Mediterranean women. Hirsutism is excessive terminal hair growth in women in androgen-dependent. Often the cause of it is hyperandrogenism but it can be also idiopathic. In hyperandrogenic states like in cases of PCOS, it can associate with other cutaneous clinical signs of this endocrine disorder like acne and AGA.
Aim of the study: To evaluate the prevalence of non-scaring hair loss (alopecia) among female patients complaining of hirsutism.
Patients and Methods: Cross-sectional study was conducted on more than 90 patients who have hirsutism within reproductive age (married and UN married) and complained of hair loss A special questionnaire design was developed to record all their data. Hair loss was diagnosed and assessed by visual overview examination by the naked eye and trichoscopic examination, by using Dermatoscope Foto finder stationary mode. The photo of the trichoscopic examination was saved and the features of each type of non-scaring alopecia were assessed.
Results: In our study, there are three types of non-scaring hair loss associated with hirsutism (Androgenetic alopecia, telogen effluvium, androgenic alopecia with telogen effluvium). The most common type of hair loss associated with hirsutism is (Androgenetic alopecia with telogen effluvium) 55.6%. The most common trichoscopic features found in (Androgenetic alopecia with telogen effluvium) hair shaft heterogeneity 100%, HF with only one hair 74%, peripilar sign 82%, empty hair follicle 96%, up right re-growing hair 92% and black dots 36%, while these findings present in a lesser ratio in other groups.
Conclusions: Androgenetic alopecia with telogen effluvium most common non-scarring alopecia associated with hirsutism.

Keywords: Hirsutism, Androgenic alopecia, Telogen effluvium. Dermatoscope Foto Finder.

مدى انتشار الثعلبة غير المتندبة بين المريضات اللاتي يعانون من كثرة الشعر

الخلاصة
المدخل: كثرة الشعر هي مشكلة سريرية شائعة تسبب ضائقة كبيرة للمرضى، ونسبة حدوثها الحقيقية غير معروفة، الا أنها أكثر شيوعا بين نساء البحر الابيض المتوسط. كثرة الشعر هو نمو مفرط للشعر عند النساء اللاتي يعتمدن على الاندروجين. غالبا ما يكون السبب مجهول ايضا. في حالات فرط الاندروجين كما في حالات متلازمة تكيس المبايض، يمكن أن يرتبط بعلامات سريرية جلدية أخرى لاضطراب الغدد الصماء مثل حب الشباب و AGA
الهدف من الدراسة: لتقيم مدى انتشار تساقط الشعر غير المؤلم (الثعلبة) بين المريضات اللاتي يعانون من كثرة الشعر.

المرضى وطرق العمل : تم اجراء دراسة مقطعية على أكثر من 90 مريضا يعانون من كثرة الشعر في سن الانجاب (متزوجون ومتزوجون من الامم المتحدة) واشتكوا من تساقط الشعر، تم تصميم استبيان خاص لتسجيل وجمع بيناتهم. تم تشخيص الشعر وتقيمه عن طريق الفحص البصري بالعين المجردة والفحص المشعر باسخدام الوضع الثابت Deratoscope Foto Finder. تم حفظ الصور بالمنظار وتم تقيم سمات كل نوع من أنواع الثعلبة غير المخفية.
النتائج : في دراستنا، هناك ثلاث أنواع من تساقط الشعر غير المخيف المرتبط بالشعرانية (الثعلبة الذكرية، تساقط الشعر الكربي، الثعلبة الاندروجينية مع تساقط الشعر الكربي). النوع الاكثر شيوعا من تساقط الشعر المصاحب هو (الثعلبة الاندروجينية مع تساقط الشعر الكربي) 55.6% ، أكثر سمات تريموسكوب . تغاير جذع الشعر 100% HF بشعره واحدة فقط 74% ، حول الشعر علامه 82% ، بصيلات شعر فارغة 96% ، شعر يعاد نموه 92% ونقاط سوداء 36% ، بينما تظهر هذه النتائج بنسبة أقل في المجموعات الاخرى.
الاستنتاجات : الثعلبة الذكورية مع تساقط الشعر الكربي هو الاكثر شيوعا من الثعلبة غير المتندبة المرتبطة بالشعرانية.

الكلمات المفتاحية : الشعرانية ، الثعلبة الاندروجينية، تساقط الشعر الكربي، صور تلسكوب الجلدي .

INTRODUCTION:

Hirsutism is excessive growth of terminal hair in a typical male pattern in a female. It is typically a sign of excessive androgen levels. Hirsutism has been reported in 5% to 15% of women and is often associated with decreased quality of life and significant psychological stress.[1-5]risk factors or etiology includes (family history, obesity, and 8% idiopathic).[6]

The most important causes of hirsutism are:

1- The ovarian causes for hyperandrogenism includes polycystic ovarian syndrome (PCOS) and Ovarian tumors.
2- Adrenal causes includes ovarian tumors, Cushing s syndrome, Androgen producing tumors, and congenital adrenal hyperplasia
3- Less common causes includes Hyper androgenic, insulin resistant, acanthosis nigricans syndrome (HAIRAN), Hyperprolactinemia by increasing adrenal dihydroepiandrosterone sulfate (DHEA-S) production, and Androgenic drugs: minoxidil, danazol, testosterone, and dehydroepiandrosterone (DHEA).

Hair loss or alopecia: is a very common presenting symptom and more than one-third of women having clinically significant hair loss during their lifetime. The effect of hair loss on patients' emotions is often greatly underestimated by physicians.[8]

Causes of hair loss:

1-NON- SCARRING ALOPECIA: Is hair loss with chances for regrowth, including:

a. Androgenetic alopecia (AGA): Is thinning in the central and frontal scalp area but usually without frontal–temporal recession [9]This pattern reflects the distribution of androgen-sensitive follicles in most people.[10]

b. Telogen effluvium (TE): Characterized by excessive shedding of telogen club hair diffusely from the scalp. It generally begins 8–12 weeks after a triggering event, such as pregnancy, major illness or complicated surgery, and resolves within 3–6 months.[11]

c. Alopecia areata (AA): Is characterized by a localized area of complete hair loss .[12, 13]

d. Traction alopecia (caused by pulling hair): Secondary to grooming styles. It often occurs in persons who wear tight braids.[14]

e. Trichotillomania (compulsive hair-plucking): The foremost common cause of childhood alopecia.[15]

2- SCARRING ALOPECIA: discoid lupus, lichen planopilaris, and folliculitis decalvans.[16]

Aim of the study:

To evaluate the prevalence of non-scaring hair loss (alopecia) among female patients complaining of hirsutism.

Objectives:

1. To find out the prevalence of non-scaring alopecia in hirsute women.
2. To find out types of non-scaring alopecia among the studied sample.
3. To find out the relationship between the severity of hirsutism and the severity of hair loss.
4. To find out the association between some socio-demographic data and hair loss in hirsutism patients.

METHODS:

- Study design: a cross-sectional study was conducted on 90 patients who complain of hirsutism.
- Duration: the study was started on 1st February 2021 to 1st March 2022.
- Setting: the study included hirsutism patients who are attended Erbil dermatology center in the Erbil city Kurdistan Region- Iraq.
  In this study 90 female patients within the reproductive age group (married and unmarried) complaining of hirsutism who attended Erbil dermatology teaching center during the time period mentioned above.

Inclusions criteria:

This study included all females in their reproductive age group (married and unmarried) with hirsutism.

Exclusions criteria:

1. Patient receiving treatment for hirsutism.
2. Patient receiving treatment for hair loss.
3. Post-menopausal women.
4. Female under reproductive age group.
5. Pregnant women.

Each patient after obtaining their verbal consent for participation in the study, they interviewed face to face for their socio-demographic data and history of their conditions. A special questionnaire design developed to record all their data

Severity of hirsutism was assessed by the ferriman-Gallwey scale. Hair loss diagnosed and assessed by visual overview examination by the naked eye and trichoscopic examination, by using Dermatoscope Foto finder stationary mode. The photo of the trichoscopic examination was saved and the features of each type of non-scaring-alopecia were assessed. During trichoscopic examination of each patient 2 trichoscopic pictures were taken from frontal occipital and two parietal areas. The trichoscopic feature was regarded as positive when it was available in two pictures.

Ethical Consideration:

*** Consent Form:** (as shown in Appendix II)

Statistical analysis:

The data collected during the study were summarized in sheets of Microsoft Excel 2007. The statistical analysis was performed by using IBM-SPSS 26. The normality of these data tested by Shapiro-Wilk analysis, and the parametric tests were decided to be chosen. Frequencies and means in addition to standard deviations were calculated. Freeman-Halton exact test was used for nominal data. The numerical data were compared by one-way ANOVA for the mean differences among the multiple groups (more than 2 groups) under the study, with a post hoc test to find the honestly significant difference among the significant results of

one-ay ANOVA and Freeman-Halton tests. P-value ≤ 0.05 considered as a significant

RESULTS:

Table (1) demonstrates the comparison of age and anthropometric measures among study groups and reveals that the mean age and mean age of menarche in the androgenic alopecia group is the lowest but with the insignificant difference among the study groups. Both weight and height show no significant differences. The means duration of hirsutism is 3.7±0.8, 3.3±1.6 years, and 3.7±0.9 years among the study groups respectively with statistically insignificant differences. The shorter duration of hair loss present in Telogen effluvium was 2.7±1.5, followed by Androgenetic alopecia group 2.8±1.3 and Androgenetic alopecia with telogen effluvium 3.1±1.2; the difference is statistically non-significant. The number of pregnancies among the study groups is statistically non-significant.

Table (1): The comparison of age, hormonal and anthropometric measures among study groups.

--------	**Androgenetic alopecia n=30**	**Telogen effluvium n=10**	**Androgenetic alopecia with telogen effluvium n=50**	**p-value***
	Mean ±Sd	Mean ±Sd	Mean ±Sd	
Age	26.367±7.513	27.500±8.236	27.640±7.711	0.458
Age of menarche	12.517±1.022	12.600±0.699	12.680±1.039	0.504
Height	159.100±6.875	159.900±5.587	158.800±6.806	0.219
Weight	67.667±13.404	70.600±11.355	71.540±13.949	0.559
Duration of hirsutism	3.667±0.802	3.300±1.159	3.680±0.868	0.620
Duration of hair loss	2.833±1.341	2.700±1.494	3.080±1.209	0.338
No. of pregnancy	0.933±1.701	1.400±1.647	1.540±2.022	0.488

*One-way ANOVA

Table (2) demonstrates the comparison of socio-demographic characteristics among the study groups and depicts that 83.3% of Androgenetic alopecia, 90.0% of Telogen effluvium, and 84.0% of Androgenetic alopecia with telogen effluvium are living in urban but statistically not differ from those living in rural. Marital status, educational levels, and occupations show no significant difference among the study groups.

Table (2) the comparison of socio-demographic characteristics among the study groups

		Androgenic alopecia n=30	Telogen effluvium n=10	Androgenic alopecia with telogen effluvium n=50	p-value *
		No. (%)	No. (%)	No. (%)	
Residency	Rural	5(16.7%)	1(10.0%)	8(16.0%)	1.000
	Urban	25(83.3%)	9(90.0%)	42(84.0%)	
Marital Status	Single	20(66.7%)	5(50.0%)	23(46.0%)	0.437
	Married	10(33.3%)	5(50.0%)	25(50.0%)	
	Divorced	0(0.0%)	0(0.0%)	2(4.0%)	
	Widow	0(0.0%)	0(0.0%)	0(0.0%)	
Educational Level	Illiterate	4(13.3%)	3(30.0%)	6(12.0%)	0.261
	Primary	4(13.3%)	1(10.0%)	13(26.0%)	
	Secondary	5(16.7%)	0(0.0%)	4(8.0%)	
	High school	5(16.7%)	2(20.0%)	8(16.0%)	
	University	12(40.0%)	4(40.0%)	19(38.0%)	
Occupation	Student	10(33.3%)	2(20.0%)	10(20.0%)	0.121
	Housewife	12(40.0%)	6(60.0%)	36(72.0%)	
	Government employer	6(20.0%)	1(10.0%)	4(8.0%)	
	Private employer	2(6.7%)	1(10.0%)	0(0.0%)	
	Retired	0(0.0%)	0(0.0%)	0(0.0%)	

*Freeman-Halton Exact test

Table (3) shows the comparison of past history among the study groups and reveals that history of infertility presents in 100.0% of Androgenic alopecia, 80.0% of Telogen effluvium, and 90.0% of Androgenic alopecia with telogen effluvium with a statistically insignificant difference (p=0.170). Past medical history shows an insignificant difference. Past surgical history is found in 80.0%, 40.0%, and 62.0% of the study groups respectively, and prevails a significant difference (p=0.035) with a real difference by post hoc test found only between Androgenetic alopecia and Telogen effluvium (p=0.041). Drug history, Family history of PCOS/Hirsutism, Family history of DM, Family history of thyroid disease, and Family history of infertility; all show insignificant differences among the study groups.

Table (3): The comparison of past history among the study groups.

Past history		Androgenic alopecia n=30	Telogen effluvium n=10	Androgenic alopecia & telogen effluvium n=50	p-value *
		No. (%)	No. (%)	No. (%)	
History of infertility	Yes	30(100.0%)	8(80.0%)	45(90.0%)	0.170
	No	0(0.0%)	2(20.0%)	5(10.0%)	
PMHx	No	24(80.0%)	9(90.0%)	36(72.0%)	0.788
	DM	0(0.0%)	0(0.0%)	1(2.0%)	
	HT	0(0.0%)	0(0.0%)	2(4.0%)	
	PCOS	3(10.0%)	1(10.0%)	6(12.0%)	
	Thyroid disease	3(10.0%)	0(0.0%)	2(4.0%)	
	Other	0(0.0%)	0(0.0%)	3(6.0%)	
PSHx	Yes	24(80.0%)	4(40.0%)	31(62.0%)	**0.035**
	No	6(20.0%)	6(60.0%)	1938.0%)	
Drug history	None	23(76.7%)	8(80.0%)	38(76.0%)	0.992
	Antihypertensive	0(0.0%)	0(0.0%)	2(4.0%)	
	Oral ant diabetic	1(3.3%)	0(0.0%)	1(2.0%)	
	Aspirin	0(0.0%)	0(0.0%)	2(4.0%)	
	OCP	1(3.3%)	1(10.0%)	1(2.0%)	
	Hormone therapy	3(10.0%)	1(10.0%)	4(8.0%)	
	Other	2(6.7%)	0(0.0%)	2(4.0%)	
Family history of PCOS/Hirsutism	Yes	23(76.7%)	8(80.0%)	33(66.0%)	0.683
	No	7(23.3%)	2(20.0%)	17(34.0%)	
Family history of DM	Yes	15(50.0%)	6(60.0%)	28(56.0%)	0.783
	No	15(50.0%)	4(40.0%)	22(44.0%)	
Family history of thyroid disease	Yes	7(23.3%)	3 (30.0%)	13(26.0%)	0.475
	No	23(76.7%)	7(70.0%)	37(74.0%)	
Family history of infertility	Yes	12(40.0%)	4(40.0%)	11(22.0%)	0.277
	No	18(60.0%)	6(60.0%)	39(78.0%)	

*Freeman-Halton Exact test

Table (4) demonstrates the comparison of clinical characteristics among the study groups and reveals that 66.7% of Androgenic alopecia, 50.0% of Telogen effluvium, and

70.0% of Androgenic alopecia with telogen effluvium have acne. The menstrual disturbance was found in 56.7% of Androgenic alopecia, 70.0% of Telogen effluvium, and 52.0% of Androgenic alopecia with telogen effluvium. The highest frequency of history of PCOS was found in Telogen effluvium and the lowest in Androgenic alopecia. The weight gain among the study groups is almost the same. All parameters show insignificant statistical differences.

Table (4): The comparison of clinical characteristics among the study groups.

		Androgenic alopecia n=30	**Telogen effluvium n=10**	**Androgenic alopecia with telogen effluvium n=50**	**p-value ***
		No. (%)	No. (%)	No. (%)	
Acne	Yes	20(66.7%)	5(50.0%)	35(70.0%)	0.627
	No	10(33.3%)	5(50.0%)	15(30.0%)	
Menstrual disturbance	Yes	17(56.7%)	7(70.0%)	26(52.0%)	0.691
	No	13(43.3%)	3(30.0%)	24(48.0%)	
History of PCOS	Yes	14(46.7%)	6(60.0%)	25(50.0%)	0.809
	No	16(53.3%)	4(40.0%)	25(50.0%)	
Weight gain	Yes	14(46.7%)	5(50.0%)	24(48.0%)	0.952
	No	16(53.3%)	5(50.0%)	26(52.0%)	

*Freeman-Halton Exact test

Table (5) demonstrates the comparison of hair characteristics among the study groups and displays that the difference among the groups regarding hair shaft heterogeneity is statistically significant (p=0.000); real significance is found between Androgenic alopecia and Telogen effluvium (p=0.001) and between Androgenic alopecia and Androgenic alopecia with telogen effluvium (p=0.017), and between Telogen effluvium and Androgenic alopecia with telogen effluvium (p=0.000). HF with only 1 hair presents in 46.7%, 40.0%, and 74.0% of study groups respectively with a statistically significant difference (p=.0.024); the post hoc test is significant between Androgenic alopecia and Androgenic alopecia with telogen effluvium (p=0.018).

Peripilar sign is present in 63.3% of Androgenic alopecia, 30.0% of Telogen effluvium, and 82.0% of androgenic alopecia with telogen effluvium with a statistically significant difference (p=0.001), the real difference found between Telogen effluvium and androgenic alopecia with telogen effluvium (p=0.002). The empty hair follicle has an increasing frequency among the groups starting from 40.0% in androgenic alopecia to 96.0% in androgenic alopecia with telogen effluvium with (p=0.000) with a significant post hoc test between androgenic alopecia and Androgenic alopecia with telogen effluvium (p=0.000). Up right re-growing hair is found in 73.3% of androgenic alopecia, 80.0% of telogen effluvium, and 92.0% of androgenic alopecia with telogen

effluvium with a significant statistical difference (p=0.023), and the real difference found between androgenic alopecia and Androgenic alopecia with telogen effluvium (p=0.048). No Black dots are found in androgenic alopecia while it presents in 10.0% of telogen effluvium and 36.0% of androgenic alopecia with telogen effluvium, a difference which is statistical significance at (p=0.000) with the real difference found between androgenic alopecia and androgenic alopecia with telogen effluvium (p=0.000). Exclamation marks, Erythema, and Scale show insignificant differences.

Table (5): The comparison of hair characteristics among the study groups.

Hair characteristics		Androgenic alopecia n=30	Telogen effluvium n=10	Androgenic alopecia with telogen effluvium n=50	p-value *
		No. (%)	No. (%)	No. (%)	
Hair shaft heterogeneity	Yes	26(86.7%)	3(30.0%)	50(100.0%)	**0.000**
	No	4(13.3%)	7(70.0%)	0(0.0%)	
HF with only 1 hair	Yes	14(46.7%)	4(40.0%)	37(74.0%)	**0.024**
	No	16(53.3%)	6(60.0%)	13(26.0%)	
Peripilar sign	Yes	19(63.3%)	3(30.0%)	41(82.0%)	**0.001**
	No	11(36.7%)	7(70.0%)	9(18.0%)	
Empty hair follicle	Yes	12(40.0%)	8(80.0%)	48(96.0%)	**0.000**
	No	18(60.0%)	2(20.0%)	2(4.0%)	
Up right re-growing hair	Yes	22(73.3%)	8(80.0%)	46(92.0%)	**0.023**
	No	8(26.7%)	2(20.0%)	4(8.0%)	
Exclamation mark	Yes	0(0.0%)	0(0.0%)	0(0.0%)	1.000
	No	30(100.0%)	10(100.0%)	50(100.0%)	
Black dots	Yes	0(0.0%)	1(10.0%)	18(36.0%)	**0.000**
	No	30(100.0%)	9(90.0%)	32(64.0%)	
Erythema	Yes	26(86.7%)	9(90.0%)	50(100.0%)	0.076
	No	4(13.3%)	1(10.0%)	0(0.0%)	
Scale	Yes	29(96.7%)	9(90.0%)	50(100.0%)	0.212
	No	1(3.3%)	1(10.0%)	0(0.0%)	

*Freeman-Halton Exact test

DISCUSSION:

Hirsutism is excessive terminal hair growth in women in androgen-dependent areas. Often the cause of it is hyperandrogenism but it can be also idiopathic. In hyperandrogenic states like in cases of PCOS, it can associate with other cutaneous clinical signs of this endocrine disorder like acne and AGA. [17]

AGA is a genetically predetermined disorder due to excessive response to androgens which affects up to 50% of males and females. It is characterized by progressive loss of terminal hair of the scalp any time after puberty, in a characteristic distribution in both males and females. In males, hair loss is most prominent in the vertex and frontotemporal regions, while in women the frontal hairline is typically spared with diffuse apical hair loss noted as a wider anterior part of the hair. [18, 19] another common type of hair loss is telogen effluvium, which was first described by Kligman in 1961. Women with telogen effluvium more frequently present to a dermatologist. A wide variety of potential triggers have been implicated in the pathogenesis of telogen effluvium. Diffuse shedding of telogen hair is seen after 3-4 months of triggering event. [20, 21]

The presence of hirsutism due to its negative aesthetic impact on women is more alarming to seek dermatologists help for treatment, in the other hand diagnosis of hirsutism is more straight forward in the clinical setting than AGA and TE (which need further tools such as trichoscopic and biochemical-hormonal assay of the patients), so that as a reflection of our practice we tried to study types of hair loss among hirsute women.

All the parameters evaluated under the present study (socio-demographic and anamnestic background of the patients) showed insignificant differences statistically apart from the types of hair loss and hair characteristics assessed by trichoscopy which include hair shaft heterogeneity, HFU with only 1 hair, peripilar sign, empty hair follicle, up right re-growing hair, Exclamation mark, black dots, erythema, and scaling.

The means duration of hirsutism in our study was 3.7±0.8, 3.3±1.2, and 3.7±0.9 years among AGA, TE, and patients with both AGA and TE respectively with statistically insignificant differences which attract our attention that not all cases of hirsutism might associate with AGA within this time limit. The shorter duration of hair loss present in telogen effluvium is 2.7±1.5 years, followed by androgenic alopecia group 2.8±1.3 years and androgenic alopecia with telogen effluvium 3.1±1.2 years; the difference is statistically non-significant. These findings suggest that problem of acute hair loss in situations like TE is more alarming to the patients to seek doctors help earlier.

In our study, the prevalence of AGA among patients with hirsutism is majority (88.8%) of patients. Another study conducted by Cela *et al.,* [22] found that 21% of women with AGA have hirsutism. These findings suggest that the clinically presence of hirsutism among women is to a higher degree indicates clinical signs of hyperandrogenism than AGA. Referring to this we might recommend the clinician search for the biochemical hormonal profiles of female patients with hirsutism. However, Somani *et al.,* give opposite facts to our suggestion by finding that the cutaneous conditions associated with androgen excess are androgenetic alopecia. [23]

Despite the review accessible to us the literature, no study has been found showing the relationship between Hirsutism and telogen effluvium.

Hair shaft heterogeneity in our study was found in 86.7% of AGA, 30.0% of TE and 100.0% of the AGA with TE, this difference was statistically significant at (p=0.000), and the real significance was estimated and found between AGA and TE (p=0.001) and between AGA and AGA with TE (p=0.017), and between TE and AGA with TE (p=0.000). As previous literature mentioned that hair shaft heterogeneity is the main sign of AGA [24] and can be found in 100% of cases, in other hands on our study, we found that

this sign can be also seen in cases of TE but to lesser extent. This indicates that hair shaft heterogeneity is not a specific to AGA only. Also, it has been reported previously that it is difficult to differentiate AGA from chronic TE, which mainly depends on the terminal: villous hair ratio, but the presence of intermediate hairs is not counted in this ratio which might indicate a newly evolving sign of AGA in TE cases [25-28]

In our study, the HFU with only 1 hair was found in 46.7%, 40.0%, and 74.0% of study groups (AGA, TE and AGA with TE) respectively with a statistically significant difference (p=0.024); the post hoc test found significant between Androgenic alopecia and Androgenic alopecia with telogen effluvium (p=0.018). These findings indicate that the HFU with one hair can be almost equally present in both AGA and TE and it is not a specific sign for any of them.

Peripilar sign was found 63.3% of Androgenic alopecia, 30.0% of Telogen effluvium, and in 82.0% of Androgenic alopecia with telogen effluvium with a statistically significant difference (p=0.001), the real difference found between Telogen effluvium and Androgenic alopecia with telogen effluvium (p=0.002). The presence of peripilar sign in AGA was correspondent with other studies with some variation. [29-31] the peripilar sign is mostly been described as a trichoscopic sign in AGA. [29, 30] while in our study we found that it can be seen also in cases of TE but to lesser extents (30%).

Assessment of up-right re-growing hair was done in the work and found in 73.3% of Androgenic alopecia, 80.0% of telogen effluvium, and 92.0% of Androgenic alopecia with telogen effluvium with a significant statistical difference (p=0.023), and the real difference found between Androgenic alopecia and Androgenic alopecia with telogen effluvium (p=0.048). Up-right re-growing hair is mostly been associated with TE cases in previous reports. [32] where it indicates that it can be found in about 96.5% of the cases, and it has been labeled as a specific trichoscopic feature but our observation was not confirming this as this feature also could be found in AGA cases.

Black dots in the present study weren't found in Androgenic alopecia while it presents in 10% of telogen effluvium and 36% of Androgenic alopecia with telogen effluvium. Park et al, the study found that the black dot was found in 1.3% of Androgenic but not telogen effluvium with insignificant statistical difference which is inconsistent with our findings. [33]

CONCLUSION:

We conclude from our study that there are three types of non-scaring hair loss associated with hirsutism (Androgenetic alopecia, telogen effluvium, androgenic alopecia with telogen effluvium). The most common type of hair loss associated with hirsutism is (Androgenetic alopecia with telogen effluvium) 55.6%. The most common trichoscopic features found in (Androgenetic alopecia with telogen effluvium) are hair shaft heterogeneity 100%, HF with only one hair 74%, peripilar sign 82%, empty hair follicle 96%, up right re-growing hair 92%, and black dots 36%, while these findings present in the lesser ratio in other groups.

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Appendix I
Questionnaire Form
Prevalence of non-scarring alopecia among female patients complaining of hirsutism

Case no: Name:
Age:
Occupation: Address: Phone no:
Marital state: level of education
Duration of hirsutism: degree of hirsutism:
The ferriman-gallwey scale:

Upper lip	1	2	3	4
Chin				
Chest				
Abdomen				
Pelvis				
Upper arms				

Hair loss duration: age of menarche: Ht: Wt:
History of infertility: no of pregnancy:
Drug history:
Past medical history: past surgical history:
Family history of hirsuitism or pcos:
Associated symptoms:
Acne: yes no
Menstrual disturbance: yes no
History of the polycystic ovarian syndrome: yes no
Wight gain: yes no
Type of hair loss : androgenic alopecia telogen effluvium alopecia areata

Appendix II
Consent Form
Prevalence of non-scarring alopecia among female patients complaining of hirsutism
Department of Dermatology

I confirm that I have read and understand the information about the project as provided in the participant information sheet dated / / 2021.

I confirm that I have had the opportunity to ask questions and the researcher has answered any questions about the study to my satisfaction.

I understand that my participation is voluntary and that I am free to withdraw from the project at any time, without having to give a reason and without any consequences.

I understand that I can withdraw my data from the study at any time.