

HIRSUTISM. PROFILE ON EGYPTIAN FEMALES

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Synopsis

Hirsutism is excessive growth of coarse terminal hair in women on androgen dependent areas of the body. The most common causes of hirsutism are familial, idiopathic or polycystic ovaries. It is relatively common after menopause, especially in women of Mediterranean strains. The exact cause of this increased hair growth is not known. Lately dermatologists found that hirsutism became a noticeable complaint among Egyptian females. In this study we attempted to cover the various possible aspects playing a role in hirsutism in 244 hirsute females of different age groups. Furthermore, sonography on the ovaries was done and the level of free testosterone was estimated. Polycystic ovarian syndrome was evident in 20.5%. Free testosterone was abnormally high in 7%. They were treated with electrolysis using insulated needles. Complete cure could be achieved in 90%. We concluded that blend electrolysis using insulated needles seems to be the best permanent hair removal method with least side effects.

Riassunto

L'irsutismo si manifesta nelle donne con una crescita eccessiva di peli terminali in aree cutanee androgeno-dipendenti. Le cause più comuni di irsutismo sono di origine genetica, idiopatica o per la presenza di ovaie policistiche. È un fenomeno relativamente comune dopo la menopausa, soprattutto nelle donne della razza mediterranea. La causa esatta della crescita di questa peluria è sconosciuta. Recentemente i dermatologi hanno scoperto che l'irsutismo è diventata una patologia notevolmente diffusa fra le donne egiziane. In questo studio noi abbiamo cercato di analizzare le possibili cause dell'irsutismo di 244 donne di differenti gruppi di età; è stata eseguita anche la sonografia sulle ovaie ed è stato valutato il livello di testosterone libero. La sindrome delle ovaie policistiche è risultata evidente nel 20,5% dei casi. Il testosterone libero era abnormemente alto nel 7%. Le donne sono state trattate con elettrolisi usando aghi isolati ed il 90% delle pazienti ha completato il trattamento. Abbiamo quindi concluso che l'elettrolisi, tramite l'uso di aghi isolati, sembra essere il migliore metodo di rimozione della peluria con i minori effetti collaterali.

INTRODUCTION

Hirsutism is excessive growth of coarse terminal hair in women on androgen dependent areas of the body e.g. the upper lip, chin, cheeks, chest, lower abdomen and inner aspects of the thighs. The most common causes of hirsutism are familial, idiopathic and polycystic ovaries. It is relatively common after menopause, especially in women of Mediterranean strains. The exact cause of this increased hair growth is not known (1).

There are various available methods for removal of unwanted hairs either by epilation or depilation. Epilation refers to the removal of hair by extraction from its root. This occurs with plucking by tweezers, waxing and threading. Depilation refers to the removal of hair by means other than action upon the root i.e. upon the hair shaft above the skin surface. Examples include shaving, depilatories and abrasives (2). Every method has its advantages and disadvantages and several precautions should be observed irrespective of which is used.

Waxing is one of the oldest methods of hair removal. It is good and effective method for removing hair of upper lip, legs and arms but it has several drawbacks. It needs the hair to be long enough to be gripped by the wax. Furthermore the wax must not be too hot or it can burn or irritate the skin (3).

Plucking by tweezing is the preferred method for temporary hair removal of scattered hair on the face. However it is painful especially on sensitive areas such as upper lip. Regrowth sufficient to require repeated plucking may occur by 2 to 12 weeks later, depending on the density and speed of hair growth in a given area. However, poor technique or poor skin tolerance can lead to distorted follicles, folliculitis, pigmentation and tinny pitted scars (4).

Threading is used with remarkable effectiveness by many women, especially those of the Middle East and East Indian origin. Side effects are the same as plucking and waxing.

Shaving is easy, quick and effective method but most women consider shaving of the facial hair is too masculine. The distinct disadvantage of shaving is that it must be repeated everyday to avoid

bristly filling. Also the skin may feel irritated if a fresh blade is not used (3).

The only practically applicable method for permanent removal of excessive hair growth is electroepilation. However this method is very time consuming, often painful and may result in scarring (5). In this study we attempted to cover the various possible aspects playing a role in hirsutism. We have studied 244 hirsute women of different age groups. The patients were helped to attain a better cosmetic appearance by removing the hairs of the face using electrolysis. Thereafter, any residual pigmentation was also treated.

PATIENTS AND METHODS

This study included 244 hirsute females aging between 13 and 50 years attending the out-patient clinics and department of dermatology of Ain-Shams university hospitals.

All patients were subjected to the following:

1. Detailed history taking with special emphasis on;

- I. Family history of a similar condition.
- II. Date and rate of onset as sudden onsets merit consideration of a more serious androgen problem.
- III. Menstrual history as hyperandrogenaemia often results in oligomenorrhea or menstrual irregularities.
- IV. Infertility
- V. Medications known to induce hair growth e.g. androgenic and estrogenic hormones, phenytoin, minoxidil, cyclosporin, danazol and cortisone.
- VI. Methods of hair removal used before and after onset of hirsutism.
- VII. Breast discharge which is an indication for prolactin testing.

2. Complete physical examination; to determine if the hair is physiological or abnormal, or if there are any other clinical expressions of hyperandrogenism. The following sites were thoroughly examined;

- I. Facial hair, especially noting hair on chin, mustache, angles of the jaw, cheeks and anterior neck. The density, coarseness and color and whether the hair is vellus, intermediate or terminal was noted.

Quantitative grading of hirsutism using a new system was used in our patients taking into consideration any previous method of hair removal.

- II. Body hair in the different parts of the body e.g. "V" central chest and central abdomen.
- III. Body weight and contour.
- IV. Acne and its severity.
3. *Pelvic ultrasonography.*
4. *Serum free testosterone was estimated using the immunoenzymatic assay (ELISA)*

The patients were helped to attain a better cosmetic appearance by removing the thick black hairs of the chin and angles of the jaw.

For electrolysis we used the individual prepackaged presterilised needles. We stored them in an individual envelop with the patient's name on it to avoid transmission of infection. We prefer the more flexible two-piece needles because it demands a more precise insertion. We also prefer the insulated needles as they have the capacity to deliver energy more precisely to the base of the hair follicle and this protects the upper follicle and skin surface from the destructive effects of electrolysis.

We used the blend method which combines galvanic electrolysis and thermolysis. The patients were informed to shave the affected area 2-5 days before electrolysis to ensure that the only growing anagen hair is epilated. Electrolysis was performed without local anesthesia in all the patients. It was performed

in 30 minutes sessions twice weekly. Proper introduction of the fine needle into the pilo-sebaceous orifice was helped by wearing a 2+ magnifying loop. The black terminal and intermediate hairs were removed.

RESULTS

The patients age ranged from 13 to 50 years with a mean of 26 ± 6.53 years. Ninety four were single and one hundred fifty were married (61.5%). Forty patients of them had children (16.3%). One hundred and eight cases (44.3%) had a family history of hirsutism with different degrees of severity. Thirty cases (12.3%) gave a history of menstrual irregularity. The duration varied from 3 months to 20 years. Age of menarche varied from 9 years to 20 years. There was history of medication prior to onset of hirsutism in 38 cases (17%). They include clomid, cortisone, contraceptive pills and cyprotrone acetate (Diane). Ultrasonography revealed polycystic ovaries (PCO) in 50 cases (20.5%) but menstrual irregularities was only evident in 30 cases. Seventeen patients (7%) had elevated free testosterone. (Table I).

The excess hair involved mainly the chin in all the cases (100%), the mustache in 30 cases (12.3%), the angles of jaw in 130 cases (53.2%), anterior neck in 80 cases (32.7%) and the upper arms and "V" of the central chest in 8 cases (3.3%). (Table II).

Table I
RELATIVE CLINICO-PATHOLOGICAL FIGURES (M= MARRIED)

Age	13-50	(mean of 26 ± 6.53)
Marital Status	150 M	(61.5%)
Children	40 + ve	(16.3%)
Family History	108 + ve	(44.3%)
Medications	38 + ve	(17%)
Menstrual irregularities	30 + ve	(12.3%)
Acne	12 + ve	(4.9%)
PCO	50 + ve	(20.5%)
Free Testosterone	17 cases	(7%)

Table II
DISTRIBUTION OF HAIR GROWTH SITES.

	Chin	Mustache	Side angles of jaw	Anterior neck	Arms and Chest
No. of cases	244	30	130	80	8
Percentage	100%	12.3%	53.2%	32.7%	3.3%

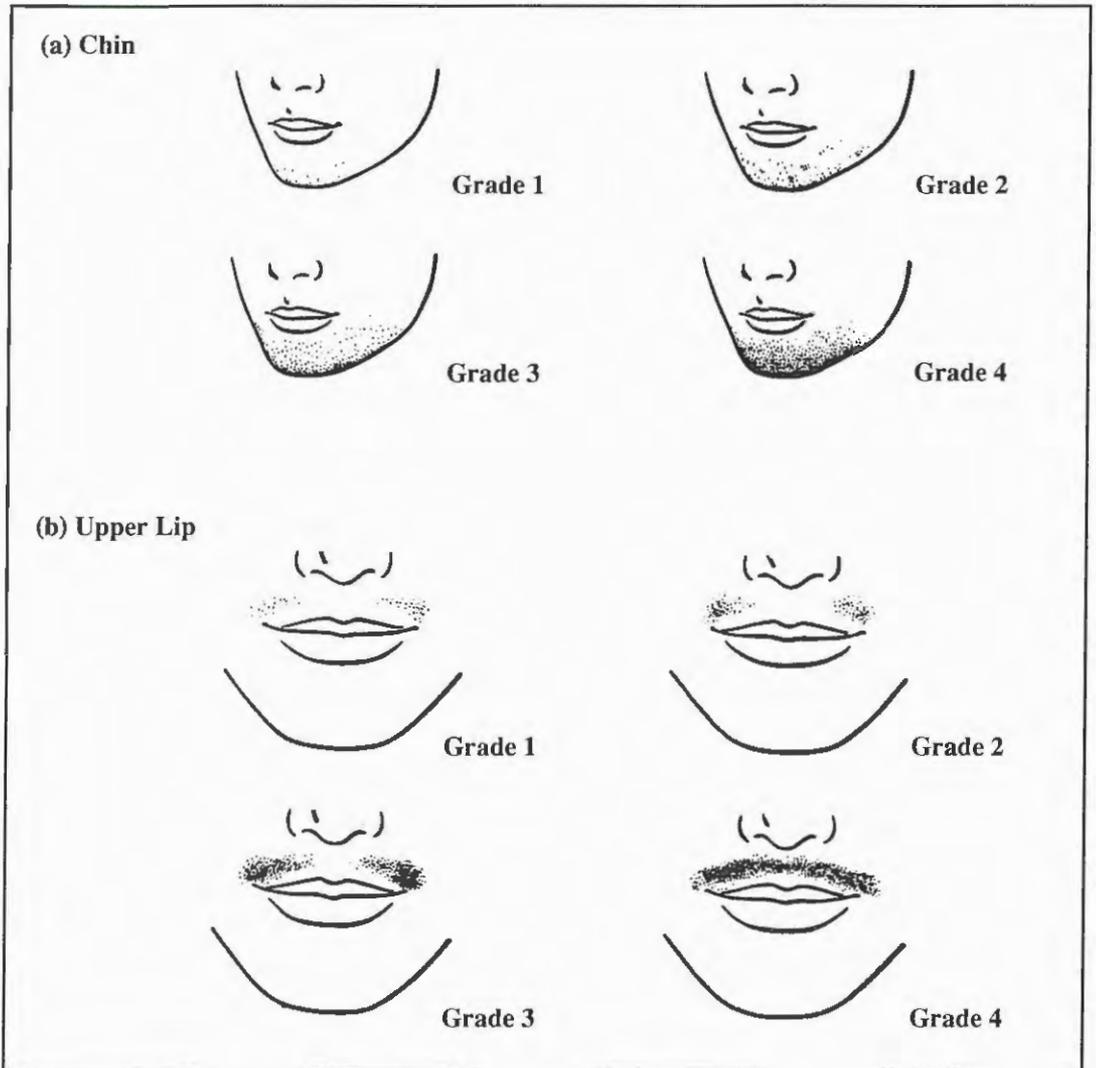


Fig. 1. Grading method of hirsutism Ferriman D.M. and Gallwey J.D. (1961)

Grading of hirsutism

The patients were graded according to a new objective method taking into consideration the previous method of hair removal. The patients weren't wearing any cosmetic cover-up. As regards the chin we used a ring 1/2 cm in diameter put it on the chin 1 cm lateral to the mid lon each

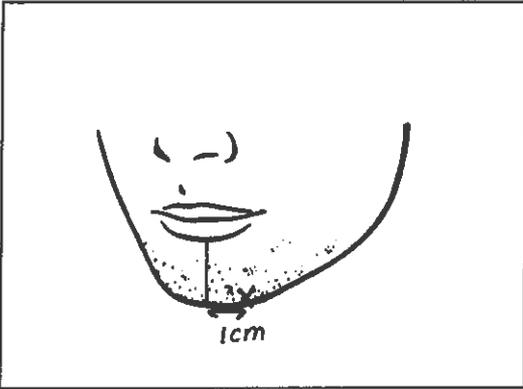


Fig. 2. Grading method of hirsutism on the chin.

side (Fig.2). The number of the thick and intermediate hairs were counted. According to the mean number of hairs 4 grades of hirsutism were postulated.

- * 0 - 5 hairs grade 1,
- * 6 - 10 grade 2,
- * 11 - 20 grade 3,
- * Above 20 grade 4

The same method was applied to the side angles of the jaw using the same ring. We applied it in the middle of a straight line drawn from the ear tragus to the symphysis menti on each side as shown in the figure (Fig.3).

The patients were graded according to our modified grading system. (Table III).

As regards the temporary hair removal method used before, 83 cases (33.7%) were using the plucking method by tweezers, 20 cases (12.3%) by waxing and 15 cases (5.9%) by threading. While 7 cases (2.4%) were using depilatories either shaving or chemical depilatories. Ninety cases were removing hair with tweezers and threading while 39 didn't remove hair with any

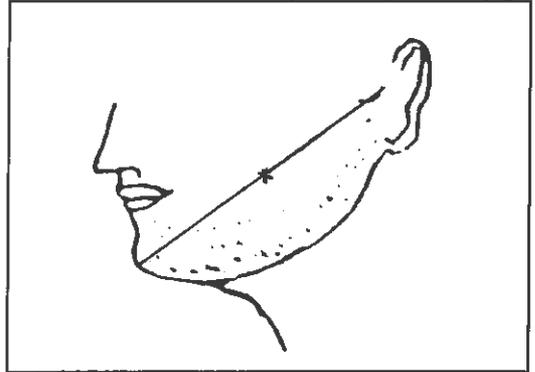


Fig. 3. Grading method of hirsutism on the side angles of the jaw.

method before. (Table IV).

Electrolysis was performed to all the patients as a permanent hair removal method. We didn't give the patients any concomitant hormonal therapy during the period of treatment.

DISCUSSION

Hair grows on every portion of the skin except the palms, soles and a few other small areas. Everyone is born with a fixed number of hairs on his or her body which is genetically determined. Most these hairs are vellus hairs. Excess hair does not mean an increase in the number of hairs (2). Hirsutism is the transformation of fine vellus hair to thickened terminal hair under androgenic stimulus in women.

Elevated androgens often produce oily skin and acne. In this series 4.9% were having acne, however none of them had severe unusual acne but they had mild papulopustular acne. Also, free testosterone was above normal in only 7% of cases which means that the idiopathic hirsutism is still the major cause of hirsutism. However, we believe that the hormonal analysis must be estimated in every case of hirsutism regardless any obvious causes present as it may indicate a serious underlying medical problem such as tumors of ovaries or adrenals, PCO or cushing disease.

The commonest areas involved are the chin, central chest, abdomen and the pubic thigh areas (2). This agrees with our results because 96% of our cases

Table III
GRADING OF THE HIRSUITE PATIENTS

Grading	Chin	Side angles of the jaw
Grade 1	44 cases	50 cases
Grade 2	100 cases	75 cases
Grade 3	50 cases	5 cases
Grade 4	50 cases	0 cases

Table IV
METHODS OF TEMPORARY HAIR REMOVAL USED.

Method of hair removal	No. of cases
Plucking by tweezer	83 cases (33.7%)
Waxing	20 cases (12.3%)
Threading	15 cases (5.9%)
Shaving and chemical depilatories	7 cases (2.4%)
Tweezer and threading	90 cases (36.88%)

were presented with excess hairs on the face only. The chin is the most commonly affected area in the face as shown by our figures. (Table II). Precise grading of hirsutism is difficult, due to previous hair removal by temporary methods or by electrolysis. Cosmetic cover-ups may mask hair and even stubble. The color, shape and texture of hair will affect the appearance of its density. Furthermore, perception is altered by lighting conditions and the presence or absence of magnification. In spite of these difficulties, the modified grading system is useful. (Fig. 1). However, their study was performed in Norway so we suggest a higher or modified grading suitable for the Mediterranean population as they are more hairy. Furthermore, we suppose that their grading system although it is useful yet it is not objective and they didn't apply it on the side angles of the jaw. (Fig. 2). In this work we introduced a new and objective grading method for the chin and the side angles of the jaw. We counted the hair in a circle 1/2 cm in

diameter on each side. According to the mean number of hairs we graded our cases. Hirsute patients are always inquiring about the number of sessions they will need. We can use this grading system to tell every patient approximately the number of sessions she will need for electrolysis. There are many known methods of temporary hair removal either by epilation or depilation. Epilation refers to the removal of hair by extraction from its root. In Egypt waxing and threading are the most common methods as shown by our figures i.e. waxing 12.3% and threading 5.7%. However as 96% of our cases were presented with hairs on the face for which the most practical method of removal is plucking. The highest incidence of hair removal method was plucking with tweezers (33.7%). Repeated plucking commonly resulted in side effects. It is also related to individual tolerance and technique. So some women are able to pluck facial hair for 30 minutes daily without side effects, while others not. We believe that repeated plucking in ad-

dition to its common side effects as hyperpigmentation, distorted follicles and scarring it may activate inactive follicles to produce new hair. Furthermore, we suggest that repeated epilation by any method either tweezer, waxing or threading might trigger transformation of the fine vellus hair into thick intermediate or terminal hair in susceptible women e.g. with family history of hirsutism. So, these factors must be considered in grading the hirsute females. This agrees with the results mentioned before by Speemen (7) who mentioned that hirsutism is considered a dynamic process and presently inactive follicles may be activated to produce new hairs. So, the body which approximately contains about 730 follicles/cm various factors may enable these follicles to emerge from dormancy.

Removal of hair by shaving was the least used method in our series. This might be due to the wrong concept among women regardless their culture that shaving thicken individual hairs. This is because short hair is less flexible than a long hair and therefore feels more bristly (3). Patients should be informed that shaving is an ideal temporary method of hair removal, particularly if combined with appropriate cosmetic cover-ups. If they prefer one of the methods of epilation they should be informed that plucking is more preferable as it removes individual terminal hairs only, in contrast to waxing which removes hair from the whole affected area, the vellus in conjunction to the terminal hair.

Electrolysis have been available for very long time (8), and for many hirsute women electrolysis seems the logical accepted solution since they are fed up with all non-permanent methods of management and their side effects as well (9). They are willing to accept complications as pigmentation or even scarring over the tedious and psychologically hurting frequent shaving or epilation which are not also free of almost the same complications (10). Electrolysis satisfactorily removes hair from 90% of our patients without any concomitant hormonal therapy. The rest of them still require more sessions of electrolysis.

Some postinflammatory erythema is normal after

electrolysis. Usually it disappears in 30 minutes to few hours. Small white swelling around the hair follicle is more common after galvanic electrolysis or the blend. This swelling vanishes within 1/4 to 1/2 hour. Poor insertion may result in bruises around the hair follicle openings. They are caused by minute bleeding known as microhemorrhages. Immediate pressure with a clean cotton for 2 minutes helps to minimize the size of the bruise.

Crusting may occur when tissue destruction reaches the skin surface. It resolves in a few days, however it may be followed by hyperpigmentation and even scarring.

Hyperpigmentation occurs most frequently in dark-skinned races (especially under the chin). (11). Pigmentation in susceptible individual can occur from any inflammation to the skin such as ingrown hairs, folliculitis or repeated plucking. Hyperpigmentation was the most common side effect seen in our patients after electrolysis. However, most of them were presented to our department with hyperpigmentation as a result of repeated plucking and threading in this area. This usually fades during the next weeks or months. In some patients we used topical tretinoin in association with hydroquinone 2% for 2-4 weeks after end of electrolysis. The results were very much appreciated by our patients. Scarring does not occur with properly performed electrolysis. However, tiny pitted scar may occur in some cases. Furthermore, if electrolysis currents are applied at too high a level e.g. telogen hair or because of operator error or defective short or broken needle, scarring occur. In most instances it takes several months to determine whether or not scarring had occurred.

Shaving 1 to 5 days before electrolysis greatly increase efficacy. It ensures that only growing anagen hairs are epilated. This is very important because as many as 60% of the hairs may be in telogen. Telogen hairs are very difficult to eradicate because of the short telogen follicle which may predispose to more side effects.

Until the 1960s the same needle was repeatedly used in different persons. Electrologists thought that the heat of the process would produce sterili-

zation. Hepatitis was a danger in tattooing, ear piercing, accidental punctures and dental instruments. (12). He didn't mention electrolysis. Also AIDS virus is theoretically not likely to be transmitted by electrolysis. However, the public perceives this to be a hazard.

Recommendations for electrolysis

1. Blend method combines galvanic direct current and thermolysis high-frequency alternating current. This method requires 1/4 of the time needed for galvanic electrolysis alone.
2. The use of disposable, individual, prepackaged, presterilised electrolysis needles. These can be reused after sterilization but only for the same patient. They were kept in an individual envelop attached to each patient's file.
3. Using insulated needles as they have the capacity to deliver energy more precisely to the base of the hair follicle and this also helps to protect the upper follicle and skin surface from the destructive effects of electrolysis.
4. Wearing gloves during electrolysis, although some electrologists found it to be unnecessary.

In conclusion we suggest that every case of hirsutism should be thoroughly investigated. The patient should be informed about different methods of hair removal and about the advantages and disadvantages of every method. The wrong believes about shaving should be corrected. If the patient will perform electrolysis precise grading of hirsutism should be done and accordingly the number of sessions she will need.

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