Hair removal: a summary of techniques with a particular emphasis on the importance and versatility of electrolysis

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Background and causes of excess or unwanted hair

The management of unwanted body and facial hair has been a constant challenge for the human species since the dawn of human culture in the Neolithic era. Of note this was the New Stone age which began around 10,000 BC in the Middle East and was characterised by a move towards domestication and the fashioning of tools from stone. Whilst methods and cultural preferences have changed throughout the course of history, the demand for body hair removal has never been so high with around 85% of females in the UK having some form of hair removal treatment [1].

There are various causes of unwanted hair. The majority fall into the category of normal systemic causes which are triggered by the onset of puberty, pregnancy or menopause and other normal hormonal activity. Psychiatric disorders such as anorexia nervosa can lead to either thinning and brittle hair, or to hypertrichosis (excess body hair). Emotional disorders and long-term stress are also significant causes.

Another common cause is topical stimulation; the removal of vellus or virgin hair growth, for example, by plucking. This can stimulate a deeper and richer blood supply to the hair follicle causing hair growth to become coarse and terminal in nature, which requires more management over time. Prescribed medicines for some medical conditions may also contribute to excessive hair growth, e.g. steroids, or combination hormone replacement therapy (HRT), which may contain a small amount of testosterone.

A number of medical conditions, such as polycystic ovarian syndrome, Cushing's syndrome, and adrenal tumours etc. can result in extremes of excess hair growth [2]. Such excessive hair growth often requires permanent treatment intervention via electrolysis, which will be explored later in the article.

Before exploring the different methods of treating unwanted hair, the cause of the hair growth should be determined if possible, by means of a detailed client consultation. Practitioners should create a personalised client case history, taking into account various lifestyle and medical issues, in order to establish the most likely cause of growth and therefore the most effective method of treatment, to either control or permanently remove the hair, depending on the client's preference [3].

There are a wide variety of hair removal and reduction techniques, suitable for different types of growth, and different client budgets. Arguably, the most widely used are the non-permanent methods.

Non-permanent methods of hair removal

Waxing / sugaring

Arguably the best temporary method of hair removal, this procedure is carried out with either hot or warm wax, with paper strips used to remove wax and hair growth from the skin (Figure 1).

Key advantages to the method are that large areas (for example, full legs and backs) can be treated. Hairs are removed from their roots resulting in the new growth appearing four to six weeks after the treatment and the hairs are characteristically soft with pointed ends. All areas of the face and body can be treated, including the bikini line and underarm area. Similarly, sugaring is an ancient Middle Eastern practice using a paste either applied in a ball or strip made from natural ingredients, such as sugar, water and lemon juice. It removes hairs in the same fashion as waxing and therefore demonstrates comparable results [4].

"Electrolysis has the power to radically improve an individual's physical and emotional wellbeing."

Figure 1: Waxing is one of the most popular and best forms of non-permanent hair removal.

Light-based hair removal systems

Laser and intense pulse light (IPL) both target the melanin within the hair follicle,

diffusing heat within the surrounding tissues. There are a variety of different types of lasers, e.g. Alexandrite, Ruby and Diode. Lasers usually work on either visible or infrared light spectrums, depending on the type.

In contrast, IPL uses a variety of different wavelengths to deliver heat energy at varying depths within the skin. Whilst both laser and IPL will substantially reduce hair growth, it is not permanent removal, and is technically termed as 'hair reduction' [5].

As the main focus of these methods is the melanin pigment within the tissues, this system is generally not effective on fair hair on white skin, black hair on black skin or on red hair. This is due to its inability to differentiate between the skin pigment cells and the hair pigment cells. Therefore, it is ideal for treating dark hair on fair skin but regular top up treatments will still be required to keep hair growth reduced.

Depilatory creams / mousses / pastes
These products use a chemical ingredient, commonly calcium thioglycollate or calcium hydroxide [1] which breaks down the keratin and dissolves it when removed with water or a spatula. Chemical action may lead to skin sensitivity and irritation. Regrowth occurs very quickly, ranging from a few days to several weeks.

Threading
An ancient Asian method of removing facial hair, using a cotton thread to remove hair from the follicle by the root. This is a skilled technique [4] which can encourage fine vellus hair to become coarser in time, and therefore requires regular treatment.

Hair growth retardant cream (Vaniqua®)
This is a prescription drug in the form of a cream. It has been found to act as a hair retardant, which reduces, rather than stops growth [6]. By using this cream post waxing or after other methods where the hair is removed from the root, it has in some cases slowed down hair growth. However, upon cessation of treatment hair will re-establish in approximately eight weeks.

Permanent hair removal

Whilst non-permanent hair removal is suitable for a large proportion of the population, in some cases there is a genuine medical or psychological need for a permanent solution to unwanted hair growth. This is especially true in cases of those suffering medical conditions, such as polycystic ovarian syndrome, pilonidal sinus conditions, thyroid conditions and gender dysphoria, to name a few. In these instances, electrolysis should be considered (Figure 2). Its unique ability to destroy the hair germ cells results in permanent eradication of all hair growth, regardless of skin and hair type or colour. It can be carried out anywhere on the face and body and must be performed by a highly skilled and experienced practitioner.

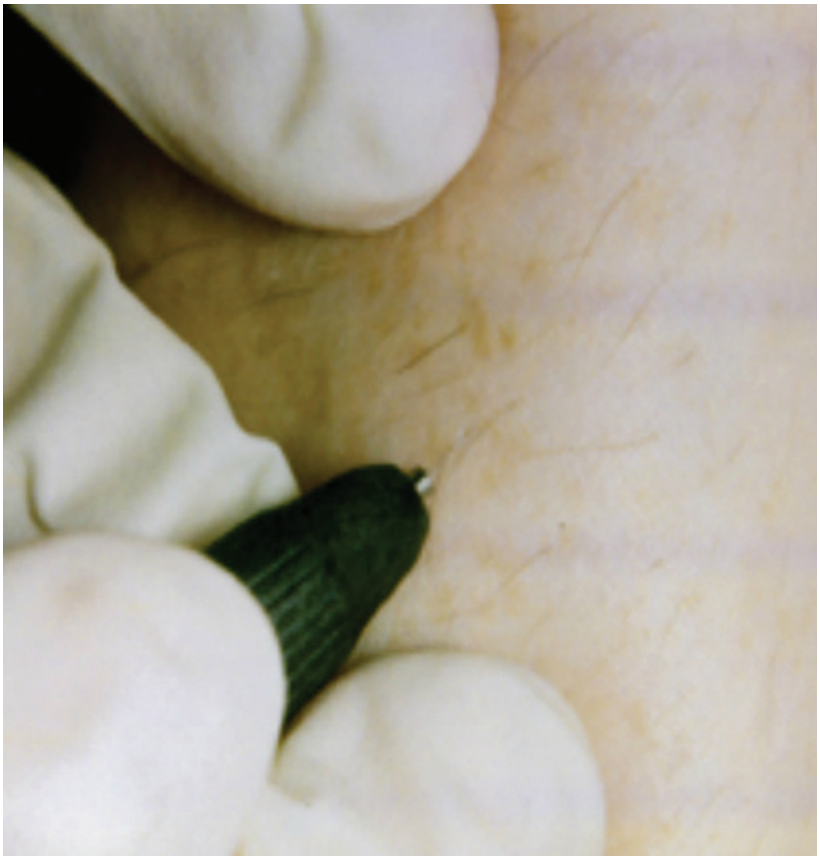

Figure 2: Hair removal by electrolysis.

There are three main methods of electrolysis:

- Galvanic
- Thermolysis (also called diathermy or radio frequency (RF) diathermy in some countries)
- Blend method.

Electrolysis involves the insertion of a very fine, disposable, sterile probe (the same diameter as the hair) into the hair follicle, which is a natural opening in the skin. A tiny amount of energy is then skillfully discharged into the hair follicle. The selection of energy is based on the skin and hair type presented; the amount of energy varies from 0.1 of a second to five seconds depending on the method of electrolysis used. The only sensation felt by the client is heat passing down the probe to the base of the follicle. The follicle destruction is achieved by heat (with thermolysis) or a chemical reaction (with galvanic) or both blended together (with blend).

The treatment can be adapted to suit each client's skin, hair and pain threshold. During a course of treatments there will be a constant, gradual decrease in the growth of the hair until it has all been permanently removed, and there are no hairs left, as follicle destruction has been achieved. The number of treatments required will vary from person to person and will be discussed at the consultation. The first sign that electrolysis treatment is working is that the hair growth becomes softer, finer and lighter in colour. There is an immediate aesthetic improvement for the client, which continues gradually over the course of treatment.

The impact of electrolysis on certain medical conditions should not be underestimated. Below are three case studies of incidences where electrolysis techniques have made a significant improvement to the physiological and psychological wellbeing of the client.

Case study 1

A male patient with a pilonidal sinus condition was referred via a consultant surgeon from the local hospital (Figure 3). This is an ingression of exogenous

hairs, causing a foreign body reaction in the anus area which requires treatment in order to avoid surgery. In this case, there is only one treatment option available other than surgery. Electrolysis will permanently destroy the hair germ cells, thus preventing the hairs from re-growing and causing further pilonidal sinuses. By carrying out electrolysis, in some cases the need for surgery is eliminated, saving the patient from the physical and emotional trauma of the operation, as well as the unsightly scarring and costly recovery period that would have resulted.

Case study 2

A transgender male to female client required genital hair removal prior to surgery. Surgeons performing gender reassignment surgery generally advocate electrolysis, as it is a permanent solution to unwanted hair growth, which can help the patient enormously in terms of psychological wellbeing prior to, and after the surgery. One key benefit is that the procedure reduces the chance of hair balls growing inside the newly formed vaginal cavity as all the hair germ cells are destroyed.

Case study 3

A client in her 30s with polycystic ovaries presented to a clinic with a full beard, hair across her chest and stomach, and very dense hair growth. She had been shaving and plucking all areas on a regular basis for some time. The client was hugely psychologically impacted by the condition, and sought out electrolysis as a last resort. She had successful removal of her beard, moustache, breast and stomach hair growth. In addition, her eyebrows were groomed and shaped to have a more feminine appearance. She had never worn a low cut t-shirt or dress, and bought her

Figure 3: Pilonidal sinus.

first one following treatment. She used to wear scarves and chunky jewellery to hide her condition and is now free of these for the first time in her adult life, reporting a major increase in emotional wellbeing.

Summary

In conclusion, whilst for many people temporary methods of hair removal are adequate, others need more help to keep excessive hair growth at bay. Finding a permanent and effective solution to unwanted hair can be life changing. Far from being simply a beauty treatment of purely cosmetic value, the case studies above demonstrate that electrolysis has the power to radically improve an individual's physical and emotional wellbeing. An additional benefit is the cost-effective outcome for certain cases, such as some patients with pilonidal sinus, by eliminating the need for costly surgery and postoperative care. To quote Angela Wheat, Chair of the BIAE, "No electrolysis quite literally means no hope for thousands of people who cannot find a suitable alternative."

Recommended reading

The BIAE website www.electrolysis.co.uk has further information; members' names and addresses are also published, so members of the public can access details and find a practitioner in their area.

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BIAE

Electrolysis is a highly skilled technique and the British Institute and Association of Electrolysis (BIAE) is the only British professional body representing electrolysists.

All BIAE members have to take additional practical and theoretical examinations, to ensure the highest professional standards. These are above the National Occupational Standard (NVQ level 3). Members also abide by a code of ethics, which is a guide to excellence in professional conduct and practice. Breaches of this lead to disciplinary procedures by the organisation against members. BIAE members are required to take annual continuous professional development (CPD) achieving a minimum of 10 points each year, which is checked by the BIAE board before any CPD certificates are issued and is listed on the BIAE national register of members.

The aim of CPD is to improve the quality of each practitioner's current and future work, whilst ensuring that members retain the capacity to practise electrolysis safely, effectively and legally. In addition, it helps to keep members in touch with current practice techniques, sterilisation methods and hygiene procedures, as well as changes in technology and legislation that occur between the time of initial qualification and retirement. The BIAE is at the forefront of maintaining the highest standards of excellence in this fast paced industry.