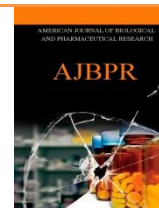




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A CURRENT VIEW ON ALOPECIA AREATA

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ABSTRACT

Hippocrates first used the term alopecia, the characteristics of the hair fall disease we know to be alopecia were first described by cornelius celsus in 30 A.D. Hair loss is the thinning of hair on the scalp. The medical term for hair loss is alopecia. Alopecia areata (AA) is a non-scarring autoimmune hair loss on the scalp/body. Causes like Emotional strains, stresses and nervous disorders Aging, Infections, Hormonal imbalance etc. Genetic predisposition, autoimmunity, and environmental factors play a major role in the etiopathogenesis of AA. The most common site affected is the scalp in the form of single or multiple patches of alopecia. Histopathology is characterized by an increased number of telogen follicles and presence of inflammatory lymphocytic infiltrate in the peribulbar region. This article explains outline of etiologic and pathogenic mechanism, clinical features, diagnosis and management of alopecia.

INTRODUCTION

Hippocrates first used the term alopecia, the characteristics of the hair fall disease we know to be alopecia were first described by cornelius celsus in 30 A.D. Alopecia is a non scarring disease, inflammatory that effects men, women, children. The factors that activate the onset of Alopecia and the mechanisms of its development are not fully understood.

Circumstantial evidence suggests alopecia is an autoimmune where cells of an individual own immune system prevents hair follicles from producing hair fiber. Though hair loss is not a debilitating or life threatening sickness, the very thought of becoming bald can lead to emotional stress and traumatic experience for those who suffer from premature or excessive hair loss. Many will try anything and everything to bring back their locks or at

least, some of their once full head of hair. Hair loss sufferers spend billion of dollar annually on remedie ranging from drugs, vitamins to special tonics and shampoos.

DEFINITION

Alopecia is considered to be a non-scarring, inflammatory, cell-mediated autoimmune disease characterized by spontaneous reversible hair loss that most frequently affects the scalp. The presence of peribulbar lymphocytic inflammatory infiltrate is a histopathologic characteristic, found in most of the terminal hair in one evolutionary stage catagen or telogen. The follicles become smaller during the course, forming miniaturized hair and are substituted by fibrous tracts. Eosinophils are also found in all the stages of alopecia, both in the peribulbar infiltrate and in the fibrous tract [1].

HAIR LOSS

Hair loss is the thinning of hair on the scalp. The medical term for hair loss is alopecia. Alopecia can be

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temporary or permanent. The most common form of hair loss occurs gradually as androgenetic alopecia that a combination of hormone (androgens are male hormone) and heredity is need to develop the condition. Other types of hair loss include alopecia areata (patches of baldness that usually grow back), telogen effluvium (rapid shedding after childbirth, fever or sudden weight loss), traction alopecia (thinning from tight braids or ponytails).

Hair Loss Causes

Emotional strains, stresses and nervous disorders Aging, Infections, Hormonal imbalance, Polluted environment, Toxic substances, Injury and impairment, Radiation. It is normal to lose between 50-100 hairs a day, this is part of the hair renewal process. However most people suffer from excessive hair loss at one time in their life. There are many reasons for this including medication, radiation, chemotherapy, and exposure to chemicals, hormonal and nutritional factors generalized or local skin disease, and stress. Many of these causes are temporary and a few are permanent. These are some of the more common reason for hair loss [2].

TYPES OF ALOPECIA

The most common type of alopecia areata occurs when hair is lost in one or more spots on the scalp.

- Hair may also be lost more diffusely over the whole scalp, in which case the condition is called diffuse alopecia areata.
- Alopecia areata monocularis describes baldness in only one spot. It may occur anywhere on the head.
- Alopecia areata multilocularis refers to multiple areas of hair loss.
- The disease may be limited only to the beard, in which case it is called alopecia areata barbae.
- If the patient loses all the hair on his/her scalp, the disease is then called Alopecia areata totalis.
- If all body hair including pubic hair is lost, the diagnosis then becomes Alopecia areata universalis.
- Alopecia areata totalis and universalis are rare.

ALOPECIA AREATA

Alopecia areata is an autoimmune condition which causes patchy hair loss. It can result in a single bald patch or extensive patchy hair loss

ALOPECIA TOTALIS

Alopecia totalis is a more advanced form of alopecia areata which results in total loss of all hair on the scalp.

ALOPECIA UNIVERSALIS

Alopecia universalis is the most advanced form of alopecia areata which results in total loss of all hair on the body, including eyelashes and eyebrows.

ALOPECIA BARBAE

Alopecia barbae is alopecia areata that is localised to the beard area. It can be a single bald patch or more extensive hair loss across the whole of the beard area

ANDROGENIC ALOPECIA

Also known as male pattern baldness or female pattern baldness. It is a thinning of the hair to an almost transparent state, in both men and women. It is thought to be a hereditary form of hair loss and is the most common type of progressive hair loss.

TRACTION ALOPECIA

Traction alopecia is usually due to excessive pulling or tension on hair shafts as a result of certain hair styles. It is seen more often in women, particularly those of East Indian and Afro-Caribbean origin. Hair loss depends on the way the hair is being pulled. Prolonged traction alopecia can stop new hair follicles developing and lead to permanent hair loss.

ANAGEN EFFLUVIUM

This hair loss is generally caused by chemicals such as those used to treat cancer. Initially it causes patchy hair loss, which often then becomes total hair loss. The good news is that when you stop using these chemicals the hair normally grows back (usually about 6 months later). Other drugs also can cause hair loss. Many medicines used to treat even common diseases can cause hair loss.

TELOGEN EFFLUVIUM

A form of hair loss where more than normal amounts of hair fall out. There is a general 'thinning' of the hair. Unlike some other hair and scalp conditions, it is temporary and the hair growth usually recovers [3].

Pathophysiology

A histopathologic hallmark of alopecia areata is the presence of perifollicular inflammation and in particular, a filtrate of predominantly lymphocytes around anagen follicles. This in-filtrate is commonly referred to a swarm of bees and is typically seen in patients with active disease. When alopecia areata is more chronic this infiltrate may not be a striking feature, rather a shift to the telogen stage of the hair cycle or follicles in early anagen predominates. Transplantation studies using severe-combined immune deficient mice have established that alopecia areata is transferrable with T-cells. There is also evidence to suggest that immune privilege is lost in alopecia areata.

SIGNS AND SYMPTOMS

Typical first symptoms of AA are small bald patches. The underlying skin is unscarred and looks superficially normal. These patches can take many shapes,



but are most usually round or oval. AA most often affects the scalp and beard, but may occur on any hair-bearing part of the body. Different skin areas can exhibit hair loss and regrowth at the same time. The disease may also go into remission for a time, or may be permanent. It is common in children. The area of hair loss may tingle or be painful. The hair tends to fall out over a short period of time, with the loss commonly occurring more on one side of the scalp than the other. Exclamation point hairs, narrower along the length of the strand closer to the base, producing a characteristic "exclamation point" appearance, are often present. When healthy hair is pulled out, at most a few should come out, and ripped hair should not be distributed evenly across the tugged portion of the scalp. In cases of AA, hair will tend to pull out more easily along the edge of the patch where the follicles are already being attacked by the body's immune system than away from the patch where they are still healthy [4].

ALOPECIA CONDITIONS

Alopecia areata is a recurrent nonscarring type of hair loss that can affect any hair-bearing area and can manifest in many different patterns. Although it is a benign condition and most patients are asymptomatic, it can cause emotional and psychosocial distress. See the images below. Alopecia areata can be classified according to its pattern, as follows:

Reticular - Hair loss is more extensive and the patches coalesce

Ophiasis - Hair loss is localized to the sides and lower back of the scalp

Sisaiapho - Hair loss spares the sides and back of the head

Alopecia totalis - 100% hair loss on the scalp

Alopecia universalis - Complete loss of hair on all hair-bearing areas

Nail involvement, predominantly of the fingernails, is found in 6.8-49.4% of patients, most commonly in severe cases. Pitting is the most common; other reported abnormalities have included trachyonychia, Beau lines, onychorrhexis, onychomadesis, koilonychia, leukonychia, and red lunulae.

Alopecia areata most often is asymptomatic, but some patients (14%) experience a burning sensation or pruritus in the affected area. The condition usually is localized when it first appears, as follows:

- Single patch - 80%
- Two patches - 2.5%
- Multiple patches - 7.7%

No correlation exists between the number of patches at onset and subsequent severity.

Alopecia areata can affect any hair-bearing area, and more than one area can be affected at once. Frequency of involvement at particular sites is as follows:

- Scalp - 66.8-95%
- Beard - 28% of males

- Eyebrows - 3.8%
- Extremities - 1.3%

Associated conditions may include the following:

- Atopic dermatitis
- Vitiligo
- Thyroid disease
- Collagen-vascular diseases
- Down syndrome
- Psychiatric disorders - Anxiety, personality disorders, depression, and paranoid disorders
- Stressful life events in the 6 months before onset [5].

ALOPECIA AREATA AND DENTAL DISEASE ASSOCIATION

Autoimmune mechanisms may be cited to explain AA of dental origin occurring at a distance from the site of infection. In effect, infections of dental origin arise as a result of chemical, mechanical or bacterial irritation, which causes an inflammatory reaction in the dental root canals followed by pulp tissue necrosis and the migration of germs towards the periradicular zone, external to the tooth. Depending on the stage of the infectious process, histological examination may reveal the presence of numerous inflammatory cells such as polymorphonuclear leukocytes, macrophages, lymphocytes, plasma cells, basophils and eosinophils. Interaction between the external irritants and the host defense cells may in turn induce the appearance of endogenous chemical mediators including neuropeptides, fibrinolytic peptides, kinins, complement fragments, vasoactive amines, lysosomal enzymes, cytokines and immune response mediators. These immune responses are divided into antigen-antibody and cell mediated immune reactions. Some studies have demonstrated the presence of systemically circulating immune complexes, fundamentally in acute dental infections. Although the presence of lymphocyte populations appears to have been demonstrated in acute and chronic infections in the tissues surrounding the teeth of animals, their presence in humans remains to be fully confirmed. Thus, the presence of common immune mediators in the pathogenesis of both dental infection and AA could explain the dental origin of the latter. In many cases the resolution of AA requires combined therapy involving topical or intralesional corticosteroids, immunotherapy with diphenyl cyclopropanone. In other cases treatment consists of simply eliminating the dental infectious process of variable origin or retained teeth causing infection or mechanical stimulation of nerve fibers. Alopecic patches of dental origin are generally located on the same side as the infectious process. In the case of upper maxillary teeth, these locations are typically found above a line traced along the lip commissures, scalp, beard and even eyebrows. When located below this line, the cause usually corresponds to the mandibular teeth. As in a case of AA involving the beard and caused by the proximity and



possible stimulation of the fibers of the inferior alveolar nerve due to the presence of a retained lower molar. However, in another case report, the bald patch was located on the contralateral side. Thus, dental counseling is advised in all cases of AA of unknown origin in the absence of other possible causes. In this sense, a thorough examination is required, with X-ray exploration to detect possible infectious foci or sites of nerve fiber stimulation. Such measures may contribute to resolve the hair loss by simply eliminating the cause without the need for unwarranted pharmacological treatments [6].

TREATMENT

Treatment is not mandatory, because the condition is benign, and spontaneous remissions and recurrences are common. Treatment can be topical or systemic.

Corticosteroids

Intralesional corticosteroid therapy is usually recommended for alopecia areata with less than 50% involvement. Administration is as follows:

- Injections are administered intra dermally using a 3-ml syringe and a 30-gauge needle.
 - Triamcinolone acetonide is used most commonly; concentrations vary from 2.5-10 mg/mL.
 - The lowest concentration is used on the face.
 - A concentration of 5 mg/mL is usually sufficient on the scalp.
 - Less than 0.1 mL is injected per site, and injections are spread out to cover the affected areas (approximately 1 cm between injection sites).
 - Injections are administered every 4-6 weeks.
- Topical corticosteroid therapy can be useful, especially in children who cannot tolerate injections. It is administered as follows
- Fluocinolone acetonide cream 0.2% (Synalar HP) twice daily or betamethasone dipropionate cream 0.05% (Diprosone) has been used.
 - For refractory alopecia totalis or alopecia universalis, 2.5 g of clobetasol propionate under occlusion with a plastic film 6 days/wk for 6 months helped a minority of patients.
 - Treatment must be continued for a minimum of 3 months before regrowth can be expected, and maintenance therapy often is necessary.
 - Systemic corticosteroids (prednisone) are not an agent of choice for alopecia areata because of the adverse effects associated with both short- and long-term treatment. Some patients may experience initial benefit, but the dose needed to maintain cosmetic growth is usually so high that adverse effects are inevitable, and most patients relapse after discontinuation of therapy.

Immunotherapy

- Topical immunotherapy is defined as the induction and periodic elicitation of an allergic contact dermatitis by

topical application of potent contact allergens.

- Commonly used agents include squaric acid dibutylester (SADBE) and diphencyprone (DPCP).

Anthralin

- Both short-contact and overnight treatments have been used.
- Anthralin concentrations varied from 0.2-1%.

Minoxidil

- Minoxidil appears to be effective in the treatment of extensive disease (50-99% hair loss) but is of little benefit in alopecia totalis or alopecia universalis.
- The 5% solution appears to be more effective.
- No more than 25 drops are applied twice per day regardless of the extent of the affected area.
- Initial regrowth can be seen within 12 weeks, but continued application is needed to achieve cosmetically acceptable regrowth.

Psoralen plus UV-A

- Both systemic and topical PUVA therapies have been used
- 20-40 treatments usually are sufficient in most cases
- Most patients relapse within a few months (mean, 4-8 months) after treatment is stopped

Prednisone (Deltasone)

Prednisone is an immunosuppressant occasionally used in rapidly progressive alopecia areata in an attempt to halt the condition, but the relapse rate is high. Use of systemic steroids for the treatment of alopecia areata is under much debate. Prednisone stabilizes lysosomal membranes and suppresses lymphocytes and antibody production. Many drug doses and regimens have been used in the treatment of alopecia areata, but no formal recommendation exists [7].

Other Treatments

Hair transplantation

Hair surgery is increasingly used to treat many women with female-pattern hair loss. Clinical experience indicates that when the newer technique of follicular-unit transplantation is performed by an experienced surgeon, a natural result is possible. However, data on long-term outcomes are lacking, and rates of graft failure, although considered to be very low, remain uncertain. Costs vary, but they may range from \$4,000 to \$15,000 per session, depending on the size of the area treated and the surgeon. One or two sessions are usually sufficient for a cosmetically acceptable result.

Hair density in the donor (occipital) area must be sufficient to yield the required number of grafts with no visible scarring. Complications, which are rare, include infection, permanent scalp dyesthesias and arteriovenous



malformations (which occur in less than 1% of patients). Many surgeons use minoxidil therapy in patients who have undergone hair transplantation [7].

Naturopathic Treatment

Saw Palmetto

Saw palmetto (*Serenoa repens*) is an extract from the berries of a palm tree that is native to the West Indies. This plant is grown abundantly on the southeast coast of North America. As stated previously, the irreversible conversion of testosterone to DHT is facilitated by the enzyme 5 α -reductase. Saw palmetto is a herb that is commonly used to treat hair loss as its mechanism of action lies in inhibiting 5 α -reductase, thereby reducing the production of DHT and the binding of DHT to androgenic receptors. Similarly, it is often used to treat benign prostatic hyperplasia in men, due to its ability to inhibit 5 α -reductase levels without affecting testosterone levels in men. Thus, the mechanism of action of this plant is thought to be similar to the pharmaceutical medication finasteride, which is used as a conventional treatment for hair loss.

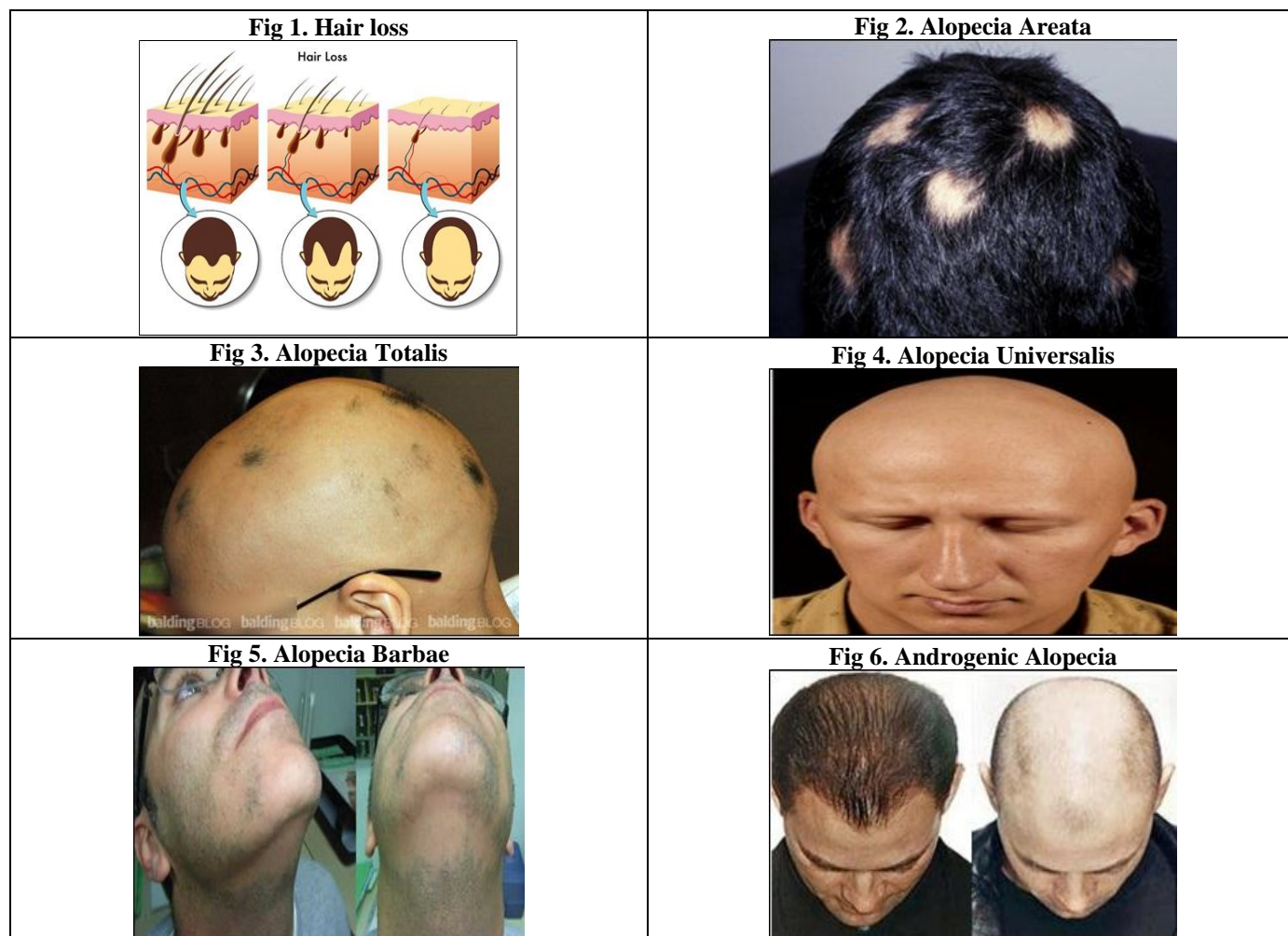
Coconut Oil

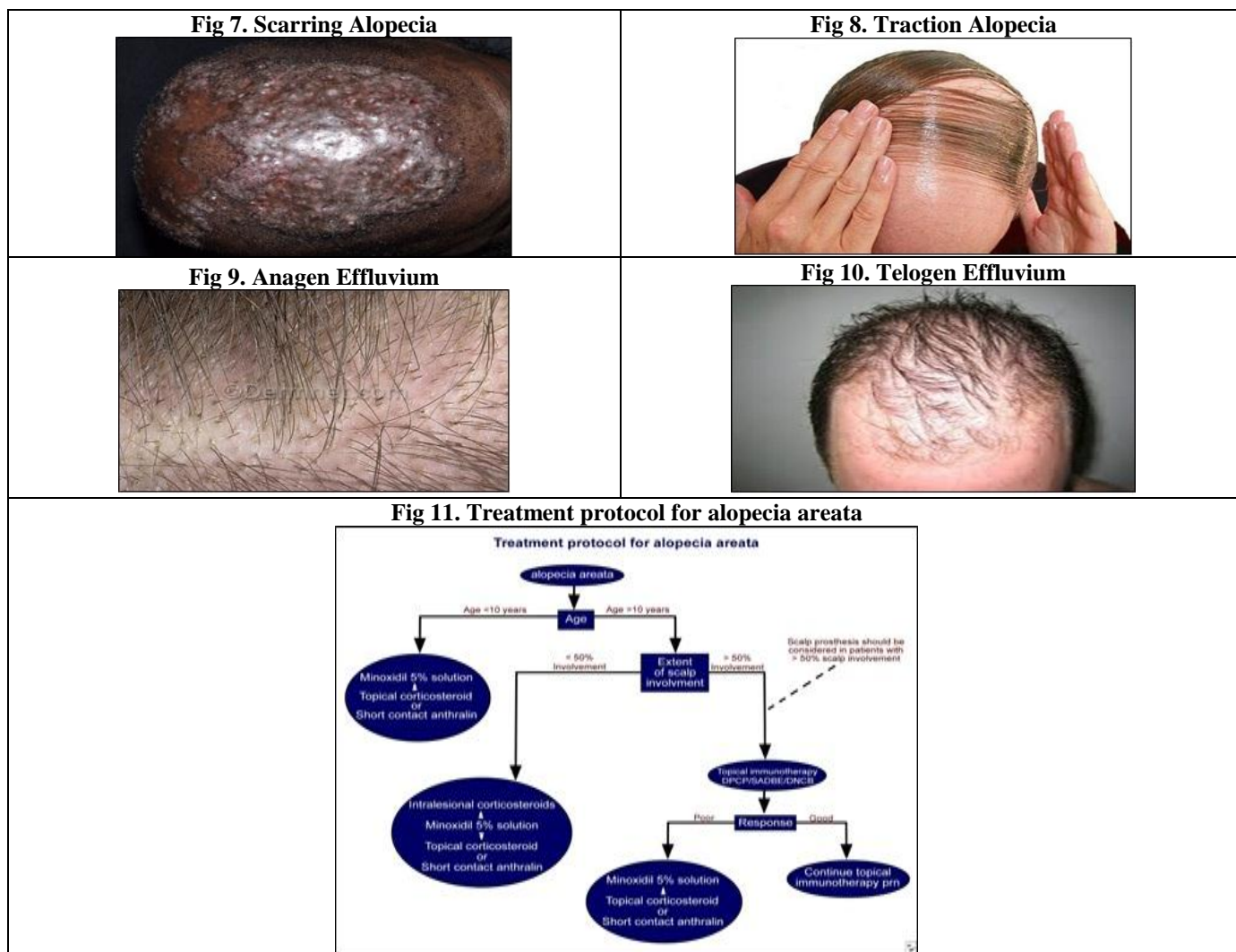
Coconut oil is a triglyceride of lauric acid, which is a principal fatty acid. In addition to being an excellent cooking oil and moisturizer for the skin, coconut oil has a high affinity for hair proteins. Due to its low molecular weight and straight linear chain, it is able to penetrate inside the hair shaft and protect the hair from damage. One study found coconut oil to reduce protein loss significantly from both undamaged and damaged hair.

HOMEOPATHY TREATMENT

Homeopathic medicines are known to give very good results in case of alopecia areata. The medicines most commonly found useful are Acid-flouricum, Phosphorus, Graphites, Psorinum, Selenium, Lycopodium.

Homeopathy treats the person as a whole. It means that homeopathic treatment focuses on the patient as a person, as well as his pathological condition. The homeopathic medicines are selected after a full individualizing examination and case-analysis, which includes the medical history of the patient, physical and mental constitution etc [8].





CONCLUSION

Alopecia areata is difficult to treat and few treatments have been assessed in randomized controlled trials. The tendency to spontaneous remission and the lack of adverse effects on general health are important considerations in management, and not treating is the best option in many cases. On the other hand, alopecia areata may cause considerable psychological and social disability and in some cases, particularly those seen in secondary care, it may be a chronic and persistent disease causing extensive or universal hair loss.

Contact immunotherapy is the best-documented treatment in severe alopecia areata but it is not widely available, involves multiple visits to hospital over several months and stimulates cosmetically worthwhile hair

regrowth in <50% of patients with extensive patchy hair loss. Continuous or pulsed systemic corticosteroids and PUVA have also been used to treat alopecia areata. However, in view of the potentially serious side-effects and inadequate evidence of efficacy, none can be recommended at this time. Children may be treated in a similar fashion to adults. However corticosteroids are often poorly tolerated and many clinicians are reluctant to use aggressive treatments such as contact immunotherapy in children.

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CONFLICT OF INTEREST:

The authors declare that they have no conflict of interest.

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