ACNE AND ITS TREATMENT LINES

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Abstract

Acne is a cutaneous pleomorphic disorder of the pilosebaceous unit involving abnormalities in sebum production and is characterized by both inflammatory (papules, pustules and nodules) and noninflammatory (comedones, open and closed) lesions. Propionibacterium acnes and Staphylococcus epidermidis are common pus-forming microbes responsible for the development of various forms of acne vulgaris. Common therapies that are used for the treatment of acne include topical, systemic, hormonal, herbal and combination therapy. It is the sequelae of the disease that are the distinguishing characteristics of acne in skin of color, namely postinflammatory hyperpigmentation and keloidal or hypertrophic scarring. Although the medical and surgical treatment options are the same, it is these features that should be kept in mind when designing a treatment regimen for acne. This review focuses on the treatment of acne using various drug delivery systems.

INTRODUCTION

Acne vulgaris is a disease of the pilosebaceous follicle characterized by non-inflammatory (open and closed comedones) and inflammatory lesions (papules, pustules, and nodules). Its pathogenesis is multifactorial - the interplay of hormonal, bacterial, and immunological (inflammatory) factors results in the formation of acne lesions. Although acne is not a life-threatening condition, it can have detrimental effects on the quality of life of affected individuals. Fortunately, acne is readily responsive to the wide-range of available medications, with the goals of therapy being to clear the lesions, prevent scarring, and limit any treatment-related side-effects and psychosocial sequelae. Newer fixed-dose combination products target multiple acne pathogenic factors and offer simplified dosing regimens, which may potentially enhance both efficacy and patient adherence when compared with single agent therapy. The term acne is derived from Greek word “acme” which means “prime of life”. Although generally considered to be a benign, self limiting condition, acne may cause severe psychological problems or disfiguring scars that can persist for a lifetime. It is a pleomorphic disorder and can manifest at any time during life but it most commonly presents between ages of 12-24, which estimates of 85% of population affected. In recent years multifactorial nature of acne has been elucidated. An improved understanding of the pathophysiology of acne leads to rational therapy for successful treatment.

Fig. 1 Image of Acne in a person

All forms of acne involve one or more of these pathophysiologic factors:

- Hyperkeratinization of the follicular epithelium with comedone formation
- Increased sebum production
- Bacterial proliferation of Propionibacterium acnes (P. acnes)
- Local immune hypersensitivity causing inflammation

Acne may be classified according to predominance of specific skin lesions:

- **Comedonal** (non-inflammatory) – mild
- **Papular** (inflammatory) – mild-to-moderate
- **Pustular** (inflammatory) – moderate
- **Nodulocystic** – severe

This order also follows increasing severity, with cutaneous scarring as the ultimate result.²

**Pathophysiology**

The pathogenesis of acne vulgaris is multifactorial. The key factor is genetics.³ Acne develops as a result of an interplay of the following 4 factors:

1) Follicular epidermal hyperproliferation with subsequent plugging of the follicle.
2) Excess sebum production.
3) The presence and activity of the commensal bacteria *Propionibacterium acnes*.
4) Inflammation.

Retention hyperkeratosis is the first recognized event in the development of acne vulgaris.⁴ The exact underlying cause of this hyperproliferation is not known. Currently, 3 leading hypotheses have been proposed to explain why the follicular epithelium produces cells at a rapid rate that are retained in individuals with acne.

First, androgen hormones have been implicated as the initial trigger.⁵ Comedones, the clinical lesion that results from follicular plugging, begin to appear around adrenarche in persons with acne in the T-zone area. Furthermore, the degree of comedonal acne in prepubertal girls correlates with circulating levels of the adrenal androgen dehydroepiandrosterone sulfate (DHEA-S).⁶ Additionally, androgen hormone receptors are present in sebaceous glands; individuals with malfunctioning androgen receptors do not develop acne.⁷

Excess sebum is another key factor in the development of acne vulgaris. Sebum production and excretion are regulated by a number of different hormones and mediators. In particular, androgen hormones promote sebum production and release.⁸ Still, most men and women with acne have normal circulating levels of androgen hormones. An end-organ hyper-responsiveness to androgen hormones has been hypothesized. Androgen hormones are not the only regulators of the human sebaceous gland. Numerous other agents, including growth hormone and insulin-like growth factor, also regulate the sebaceous gland and may contribute to the development of acne.

*P. acnes* is an anaerobic organism present in acne lesions. The presence of *P. acnes* promotes inflammation through a variety of mechanisms. *P. acnes* stimulates inflammation by producing proinflammatory mediators that diffuse through the follicle wall. Studies have shown that *P. acnes* activate the toll-like receptor 2 on monocytes and neutrophils.⁹ Activation of the toll-like receptor 2 then leads to the production of multiple proinflammatory cytokines, including interleukins 12 and 8 and tumor necrosis factor. Hypersensitivity to *P. acnes* may also explain why some individuals develop inflammatory acne vulgaris while others do not.¹⁰

Inflammation may be a primary phenomenon or a secondary phenomenon. Most of the evidence to date suggests a secondary inflammatory response to *P. acnes*. However, interleukin 1-alpha expression has been identified in microcomedones, and it may play a role in the development of acne.¹¹

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**Fig. 2 Illustration of Acne**

**What causes acne?**

Nobody is completely sure what causes acne. Experts believe the primary cause is a rise in androgen levels - androgen is a type of hormone. Androgen levels rise when a human becomes an adolescent. Rising androgen levels make the oil glands under your skin grow; the enlarged gland produces more oil. Excessive sebum can break down cellular walls in your pores, causing bacteria to grow. Some studies indicate that susceptibility to acne could also be genetic. Some medications which contain androgen and lithium may cause acne. Greasy cosmetics may cause acne in some susceptible people. Hormone changes during...
pregnancy may cause acne to either develop for the first time, or to recur. Genetically, there is a much greater chance for the children to have acne if their parents had acne in their teenage years, as the genes carry information from the parents to children. This form of acne cannot be avoided until and unless the advancement of medical science leads to the deletion of the culprit genes. Stress, this is not a proven fact whether the stress causes the initiation and formation of acne lesions, but this can surely aggravate the acne pimples and can also aggravate any condition of the skin that you are suffering.

![Comparison of Healthy skin with skin suffering from acne.](image)

**WHAT CAN MAKE ACNE WORSE?**

- **Menstrual cycle** - Girls and women with acne tend to get it worse one or two weeks before their menstrual period arrives. This is probably due to hormonal changes that take place. Some people say they eat more chocolate during this time and wonder whether there may be a connection. However, experts believe the worsening acne is not due to chocolate, but rather to hormonal changes.

- **Anxiety and stress** - mental stress can affect your levels of some hormones, such as cortisol and adrenaline, which in turn can make acne worse. Again, stress can make some people binge-eat. Experts believe the culprits are most likely the hormone levels, rather than the binge-eating.

- **Hot and humid climates** - when it is hot and humid we sweat more. This can make the acne worse.

- **Oil based makeup** - moisturizing creams, lubricating lotions, and all makeup that contains oil can speed up the blocking of your pores.

- **Greasy hair** - some hair products are very greasy and might have the same effect as oil based makeup. Hair products with cocoa butter or coconut butter are examples.

**STAGES OF ACNE**

There are various terms that describe different forms of acne, such as comedones, papules, pustules, nodules, and cysts. Basically, comedones (plural for comedo) are the name given to plugged follicles: an open comedo is called a blackhead because the surface is visible and turns “black” when it’s exposed to air. A closed comedo is a whitehead, which is like a blackhead, but is closed at the surface. Plugged follicles can become irritated and swollen enough to burst, thus affecting surrounding tissues. If a plugged follicle erupts above the skin’s surface, it becomes a pimple; when it erupts below the surface, it forms a red lump, such as a nodule or cyst.

**HOW BAD CAN ACNE GET?**

There are basically three levels of severity:

- **Mild acne** consists of a few lesions that are close to the surface, and not deep or inflamed.

- **Moderate acne** is marked by deeper nodular lesions and some redness.

- **Severe acne** involves many lesions, multiple cysts, and a great deal of redness and inflammation.

**What can trigger acne flare-ups?**

There are a number of factors that can make acne flare up or lead to “breakouts”, although triggers can vary from person to person. Avoiding the things that you notice may make your acne worse is a good way to help control your acne. For example,
Fig. 4 Stages of Acne

Make-up and hair care products can clog pores. When shopping, look for the following acne-friendly terms on product labels: “oil-free”, “non-comedogenic”, or “non-acnegenic”.

Physical pressure
Pressure due to a chin strap, phone receiver, sports helmet, headband, guitar strap, bra strap and other tight clothing can lead to localized acne that develops at the point of skin contact. Sweating
Sweating can worsen acne in some people. Most likely, it is because sweating helps to clog pores, especially if trapped under clothing.

Over washing
Washing your face twice a day with a mild cleanser is recommended for acne-prone skin. Cleaning it more often, scrubbing/exfoliating, or using strong cleansers or astringent products (i.e. toners with alcohol) can actually strip the skin and irritate it, which can lead to more acne.

Medications
Certain medications can cause acne to flare up, such as oral corticosteroids, some contraceptive pills (progestin only), and anti-convulsives, to name a few.

Menstrual cycle
Many girls and women may notice that their acne flares up as they are nearing their monthly period.

Picking or squeezing
Touching acne lesions can make them worse and raise the risk of permanent scarring. Squeezing or popping pimples can cause an eruption of sebum and bacteria into surrounding skin tissues leading to more swelling and redness and possibly infection.

Food
Actually, no study has yet proven that any specific foods or dietary habits can cause or worsen acne. However, if you find that a certain kind of food seems to aggravate your acne, try removing it from your diet. Removing entire food groups from your diet, though, is not healthy so is not recommended. (Canadian Dermatology Association).

Complementary and Alternative Medicines
They are defined by the World Health Organization as: “A broad set of health care practices that are not part of the country’s own tradition and are not integrated into the dominant healthcare system.”

“Complementary medicine” refers to use of CAM together with conventional medicine, such as using acupuncture in addition to usual care to help lessen pain. Most use of CAM by Americans is complementary.

“Alternative medicine” refers to use of CAM in place of conventional medicine."Integrative medicine” (also called integrated medicine) refers to a practice that combines both conventional and CAM treatments for which there is evidence of safety and effectiveness.

AYURVEDA AND ACNE
Barberry: Barberry’s main bioactive constituent is the alkaloid berberine. Berberine exhibits anti-inflammatory, antibacterial, and androgen-inhibiting properties. Preliminary studies show that it can inhibit the skin cell processes that form comedones in acne, and in animal model research, berberine suppressed sebum production by over 60%. Laboratory studies show that two other barberry alkaloids, berine and jatrorrhizine, exert antibacterial effects against a number of different bacteria, including Propionibacterium acnes (P. acnes). When used as recommended, berberine alkaloids from barberry are considered nontoxic. However, if consumed in large quantities they can cause severe, even fatal, poisoning. Pregnant or nursing women and newborn infants should not consume any herb that contains berberine because it can cause a severe, potentially fatal form of jaundice. Other herbs that contain berberine are goldenseal and yellowroot. Topical use of barberry can cause skin irritation, but creams containing berberine have been used for 20 days without adverse side effects.
Basil: Some studies suggest that certain species of basil may be effective as acne treatments. Lab experiments show that both sweet and holy basil oils (Ocimum basilicum and sanctum) are active against gram positive Propionibacterium acnes (P. acnes), the bacteria associated with acne development. Holy basil extracts from leaves and oil from the seeds have anti-inflammatory properties. It is believed that the linolenic acid in holy basil seed oil inhibits certain pro-inflammatory mechanisms. Low levels of linoleic acid in sebum and inflammatory proteins are considered to be factors leading to the formation of acne, and results from a randomized, placebo-controlled clinical trial showed that topical application linoleic acid reduced pimple size.

Bittersweet nightshade (Solanum dulcamara): Traditionally it has been given as an oral antidote for a number of skin conditions—including acne. Steroidal alkaloid components (e.g., solasodine and soladulcine) from bittersweet nightshade stems have anti-inflammatory, astringent, and antimicrobial properties. Because of these characteristics it is approved as a topical acne treatment by Germany’s regulatory authority on herbal remedies, the German Commission E. Brewer’s yeast (Saccharomyces boulardii) healed or substantially improved acne in over 80% of the treatment group. There were no serious adverse side effects reported in this 5-month study.

Burdock (Arctium lappa): In Ayurveda burdock is considered an alternative and cleansing herb, with antimicrobial and anti-inflammatory properties that may be beneficial for acne.
Preliminary research confirms that burdock has antioxidant, anti-inflammatory, antibacterial properties, and suggests that it may also have hormonal effects. Controlled animal studies have shown that burdock extracts reversed hyperproliferation of skin cells, a symptom of both psoriasis and acne. The linoleic acid content of burdock is believed to be responsible for its inhibitory effects against hyperproliferation. Low levels of linoleic acid in sebum is considered a cause of acne, and clinically topical application of linoleic acid reduces pimple size. Burdock’s high concentration of linoleic acid may be a significant tool to get rid of acne. Burdock root is considered likely safe, but with insufficient information pregnant and nursing women are advised to not use it. Anyone allergic to members of the Asteraceae plant family (e.g., ragweed) should avoid taking burdock orally since it may also induce an allergic reaction. Topical use of burdock may cause dermatitis.

Chasteberry (Vitex agnus-castus): Preliminary study evidence indicates that chasteberry (also known as vitex) can help treat premenstrual, hormonal light and moderate acne. Studies have shown that when taken orally, the whole fruit extract of chaste tree naturally regulates the female sex hormones estrogen and progesterone, considered to be follicle-stimulating. Balancing androgen sex hormones is important in terms of acne because increased androgens can stimulate excess sebum production and acne. Side effects are minimal (e.g., upset stomach or skin rash), but pregnant and nursing women should not take this herb.

Green Tea: Green tea is a rich source of antioxidants called catechins. As such, its antioxidants may be able to combat the oxidative activities of free radicals that appear to be involved in many aspects of acne development and progression. Green tea may be able to prevent and treat acne via multiple mechanisms. There is no solid evidence that drinking green tea in any amount can help cure acne, but this may be because not much clinical research has been done in this area. Animal studies indicate that EGCG’s anxiety-reducing and insulin-modulating effects may help prevent or treat acne. The results of these studies suggest that oral supplements of the powerful green tea antioxidant might be something worth trying to alleviate the stress of acne lesions.

Guggul (Commiphora mukul): Guggul extracts appear to have anti-inflammatory and antibacterial properties that may benefit acne patients. Research suggests guggulipid reduces sebum secretion and blocks bacterial metabolism of triglycerides that promote the development of acne. The cholesterol-lowering effects of guggul appear to work best when combined with a non-Western, Indian diet. Those patients with oily skin responded much better to the guggulsterone treatment.

Licorice (Glycyrrhiza glabra): Laboratory and animal studies indicate that components of licorice root appear to possess anti-inflammatory and soothing properties that reduce redness. A form of licorice extract, licochalcone A, has been shown to effectively treat rosacea. In clinical studies healthy subjects who consumed seven grams a day of licorice showed decreased levels of testosterone in their blood. One constituent, glycyrrhetinic acid, appears to inhibit an enzyme that is a precursor to androgen hormones, which may explain licorice’s inhibitory effects on sebum production. Although normal amounts of sebum are necessary to keep skin healthy, excess production of these natural oils can lead to the development of acne. Other components of licorice have known antioxidant properties.
Laboratory experiments show that licorice also has antibacterial properties against *Propionibacterium acnes* (*P. acnes*), and does not appear to cause bacterial resistance. Although licorice has GRAS status in the U.S., consumption of only five grams per day can cause serious health problems in people with high blood pressure or heart and kidney conditions. For these reasons patients with hypertension are advised not to consume or use licorice.

**Saw palmetto (Serenoa repens):** Saw palmetto is considered an anti-androgenic substance because it inhibits the enzyme necessary to convert testosterone to dihydrotestosterone (DHT). DHT influences sebum production by the sebaceous glands, and lowering DHT levels may help reduce the excess oils that contribute to the development of acne. In fact, when excessive androgen hormones are suspected in acne cases (e.g., in females with polycystic ovary syndrome) herbal clinicians often look to saw palmetto as a first-line regimen. Oral use of saw palmetto is generally considered safe. Based on one report of excessive bleeding during surgery in a patient who used saw palmetto, there is a concern that it may have anticoagulant properties. Those having elective surgery should discontinue use several weeks prior to any surgical procedure, and people on anticoagulant drugs (e.g., aspirin and warfarin) should be cautious about using saw palmetto.

**Tea Tree Oil:** Extracted from the leaves of the tea tree, studies have confirmed tea tree oil’s antibacterial activity against harmful microbes without damaging normal, healthy skin microbes. This includes inhibiting growth of the gram positive bacteria associated with acne *Propionibacterium acnes*. In laboratory experiments it’s even been shown to kill *Staphylococcus aureus* and methicillin-resistant *Staphylococcus aureus* (MRSA) and actively inhibits herpes simplex virus. Tea tree oil constituents also have anti-inflammatory properties. Clinical studies have demonstrated the effectiveness of tea tree oil in the fight against acne.

**MINT (Calamintha graveolens)**

The essential oils of lemon balm, a perennial herbaceous member of the mint family, are frequently used in aromatherapy, topical creams, homeopathic natural medicine, and food products. Studies show its bioactive components exert antibacterial and soothing, sedative effects. The vapors of lemon balm oils in aromatherapy allow these active polyphenols to be absorbed through the lungs and cross the blood-brain barrier to suppress anxiety-producing neurotransmitters (e.g., GABA). Lemon balm, may also help alleviate acne symptoms systemically when taken orally. Lab experiments have demonstrated its antioxidant properties, while animal studies show that oral administration of lemon balm reduces oxidative damage in the skin linked to a high-fat diet. Studies in rats confirm that lemon balm relieves symptoms of depression and anxiety. These results suggest that lemon balm may help prevent the oxidative damage related to diet that has been linked to acne and concurrent mood disorders (e.g., depression). Dermatologists caution against using the essential oil of peppermint topically since it can irritate already inflamed or sensitive skin. Lemon balm should not be used by pregnant women or hypothyroid patients, and it may have a mild sedative effect. Because of this, caution should be exercised when using lemon balm with other sedatives or alcohol, and avoid using lemon balm for two or more weeks prior to anesthesia for surgery.
Turmeric (Curcuma longa): Turmeric’s primary biologically active component is curcumin. Research has shown that curcumin has potent antioxidant, wound-healing, and anti-inflammatory properties, which may prove to be therapeutic against acne. Turmeric is considered safe in amounts found in foods and when taken orally and topically in medicinal quantities. It may cause atopic dermatitis in some people. However, pregnant women should not take medicinal amounts of turmeric because it could stimulate the uterus. Topically, turmeric may cause the skin to temporarily stain yellow—especially in people with light skin tones. When used as a topical remedy, it is typically mixed with water or honey to a pasty consistency and applied directly to the skin. Orally, dried turmeric can be mixed into liquid and consumed.

Usnea barbata (usnea): Usnea possesses strong antimicrobial and antioxidant properties. In recent lab experiments, one of its main chemical constituents (usnic acid) demonstrated the ability to significantly inhibit gram positive Propionibacterium acnes (P. acnes). Research shows that usnic acid also exerts anti-inflammatory effects that could benefit acne patients as well. Usnea barbata should only be used topically since oral consumption of usnic acid may be toxic to the liver. Side effects of topical use may include skin irritation. Usnea should not be used by pregnant or lactating women since there is insufficient safety information.

Viola or wild pansy (Viola tricolor): Viola has traditionally been used as a topical home remedy for skin conditions like eczema and acne. In Ayurvedic terms, viola is a blood-cleanser herb. The dried aerial parts of the viola are used in natural medicine preparations. They contain a number of beneficial polyphenols, including salicylic acid a known antimicrobial used in many homeopathic and commercial acne treatment products. Lab experiments have...
confirmed that viola extract exerts antimicrobial activity against gram positive and negative bacteria.

**Fig. 20 Image of Viola.**

There are no known adverse side effects are drug interactions with viola extracts. However, since there is insufficient safety information available pregnant or nursing women should avoid using viola.\(^1\)

**HOMEOPATHY AND ACNE**

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. A miasmatic tendency (predisposition/susceptibility) is also often taken into account for the treatment of chronic conditions. The medicines given below indicate the therapeutic affinity but this is not a complete and definite guide to the homeopathic **treatment of acne**. The symptoms listed against each medicine may not be directly related to this disease because in homeopathy general symptoms and constitutional indications are also taken into account for selecting a remedy. To study any of the following remedies in more detail, please visit our Materia Medica section. None of these medicines should be taken without professional advice.

**HOMEOPATHIC REMEDIES FOR ACNE:**

**Materia medica**

**Sulphur**

Is perhaps the remedy most often indicated in this affection, especially if chronic. The skin is rough and hard and the acne is associated with comedones and constipation; great aggravation from water is the characteristic leading to Sulphur in skin affections. Face is Pale, sickly color. Heat and spotted redness of face. Black pores. Itching intensely in evening and from warmth. The acne punctata is the variety corresponding most nearly to Sulphur. Simple forms yield to Belladonna or Pulsatilla. Acne rosacea yields to Arsenicum iodatum or Sulphur iodide.

**Sanguinaria**: It is another useful remedy in acne, especially in women with scanty menses and irregular circulation of blood. Other remedies for acne dependent on sexual disturbances of women are Calcarea carbonica and Aurum muriaticum natronatum.

**Kali bromatum**: This remedy is especially adapted to the acne simplex and the acne indurata, especially in hyperaesthetic, nervous females. Face flushed. Acne of face, pustules. General failure of mental power, loss of memory, melancholia, anesthesia of the mucous membranes. Suicidal mania with tremulousness. Itching of skin worse on chest, shoulders, and face. Anesthesia of skin. This remedy may be given if Asterias Rubens fails. Dr. J.H.Clarke says, "I know of no remedy of such universal usefulness in cases of simple acne as Kali bromatum 30," and the late Dr.A.M. Cushing recommended Arsenicum bromatum 4x as very efficacious. Thuja is one of our best remedies for acne facialis. Calcarea picta is also a useful remedy for acne; clinically it has been found one of the good remedies. Calcarea sulphurica is indicated where the pimples suppurate.

**Antimonium crudum**: Small red pimples on face, acne in drunken with gastric derangements, thirst and white-coated tongue. Face with sad expression Fat, fretful, cross and peevish; cries if looked at, touched or washed. Ecstatic, dreamy, sentimental. Pustules.

**Antimonium tartaricum**: Obstinate cases, with tendency to pustulation, are curable with this remedy.

**Berberis aquifolium**: It is useful where the skin is rough and the acne persistent.

**Natrum muriaticum**: It acts especially on the sebaceous glands, and is a very helpful remedy in acne. In this affection attention must be directed especially to the patient's type, temperament and tendencies and the general symptoms are far more important than the local ones.

**Asterias Rubens**: Pimples on the face at the age of puberty. A remedy for the sycotic diathesis; flabby, lymphatic constitution, flabby with red face. Nervous disturbances. Pimples on side of nose chin and mouth.

**Belladonna**: Acne rosacea. Alternate redness and paleness of the skin. Skin dry, hot and swollen, pustules on face. Face is red, bluish-red, hot, swollen, and shining. Patient is restless and talks fast. Acuteness of all senses.

**Hepar Sulphur**: Papules prone to suppurate and extend. Acne in youth. Suppurate with prickly pain. Easily bleed. Unhealthy skin; every little injury suppurates. Cannot bear to be uncovered; wants to be wrapped up warmly. Sticking or pricking in afflicted parts. Great sensitiveness to slightest touch. Constant offensive exhalation from the body Face, Yellowish complexion. Suits especially scrofulous and lymphatic constitutions that are inclined to have eruptions and glandular swellings. Unhealthy skin. Great sensitiveness to all impressions. The lesions spread by the formation of small papules around the side of the old lesion. Chilliness, hypersensitive, splitter-like pains, craving for sour and strong things are very characteristic.

**Calcarea Silicata**: Pimples, comedones. A deep, long acting medicine for complaints which come on slowly and reach their final development after long periods. Hydrogenoid constitution. Skin Itching, burning, cold and blue, very sensitive, very sensitive to cold. Patient is weak, emaciated, cold and chilly, but worse from being...
overheated; sensitive generally.

**Nux vomica**: Acne; skin red and blotchy. Body burning hot, especially face; yet cannot move or uncover without feeling chilly. The typical Nux patient is rather thin, spare, quick, active, nervous, and irritable. Nux patients are easily chilled, avoid open air. Very irritable: sensitive to all impressions. Ugly, malicious. Does not want to be touched. Face Pale, yellowish, earthy or livid countenance. Yellow about nose, mouth or eyes. Red, swollen.

**Arsenicum iodatum**: Acne hard, shotty, indurated base with pustule at apex. It will be indicated by a profound prostration, rapid, irritable pulse and severe cases of acne vulgaris. Great emaciation. Skin is Dry, scaly, itching. Debilitating night-sweats.

**Causticum**: Acne rosacea. Acne in groups, aggravated by heat. Acne especially on nose Adapted to persons with dark hair and rigid fibre; weakly, psoric, with excessively yellow, sallow complexion; Ailments from suppressed eruptions. Burning pimple with itching.

**Chelidonium Majus**: Painful red pimpls and pustules; especially on nose and cheeks. Wilted skin. Dry heat of skin with itching. Painful red pimpls and pustules. Face red, without heat. Itching over entire face and forehead. Depression and sadness, even to weeping. Restlessness and solicitude concerning the present and future.

**Graphites**: Pimples and acne; itching. Skin is Rough, hard, persistent dryness of portions of skin. Unhealthy skin; every little injury suppurates. Patients who are rather stout, of fair complexion, with tendency to skin affections and constipation, fat, chilly, and costive, with delayed menstrual history, take cold easily. Has a particular tendency to develop the skin phase of internal disorders. Anemia with redness of face. Tendency to obesity. Timid. Unable to decide.


**Sabina**: Hypochondriacal dejection. Low spirited and joyless, with a feeling of general exhaustion. Acne. Face is pale, with lusterless eyes encircled by blue ring. Black pores on nose and face.

**Calcarea phosphorica**: Acne in anaemic girls at puberty, with vertex headache and flatulent dyspepsia, relieved by eating. Skin is dark - brown, yellowish. Red, with prickling like nettles after a bath.

**Thuja occidentalis**: Pimples on face. Face glowing redness of whole face, with a fine network of blood vessels, as if it were marbled with oily skin. Burning heat and redness of. Flushes of heat in. Sweat on, especially on side on which he does not lie. Pimples on upper lip and chin. Lips, etc. All eruptions burn violently after cold washing. Corrosive itching. Better scratching, but then followed by burning. Painful sensitiveness of affected part. The skin symptoms better by touch.


**Nitricum acidum**: Anxious about his complaints, with fear of death. Sadness and despondency. Face yellow. Sunken eyes encircled by yellow. Dark yellow, almost brownish complexion. Pimples on forehead and temples. Skin with Black pores.

**Bovista**: Acne from the use of cosmetics; especially during summer. Pale swelling of cheeks. Skin itching, especially when getting warm, better not scratching. Sadness, with restlessness. Easily offended: takes everything in bad part.


**NATUROPATHY AND ACNE**

**Herbal remedies for Acne**: Several plants and plant-based preparations are used for the treatment of acne. Some of them are discussed below:

**Amaranth**: *Amaranthus hypochondriae* Linn. (Family:*Amaranthaceae*) are native to China and Mexico. Amaranth seeds and leaves have been used effectively as an astringent and also make a good wash for skin problems ranging from acne and eczema to psoriasis. The main constituents are saponins. 43

**Asparagus**: *Asparagus officinalis* Linn. (Family:*Asparagaceae*) and several other related species of *Astragalus* are useful in the treatment of acne, bruises, sprains, muscle aches and as a general topical counterirritant 44. The plant contains a number of sesquiterpenes, lactones (helenalin, dihydrohelenalin, arnifolin and the arnicolides), flavonoid, glycosides and about 0.3% of a volatile oil. 45 The essential active principles are helenalin and dihydrohelenalin esters, which have been shown to have strong antimicrobial, anti-oedema and anti-inflammatory properties 45.

**Asparagus**: *Asparagus officinalis* Linn. (Family:*Liliaceae*) is a dioecious perennial herb, native to Europe and Asia and is widely cultivated. The fleshy roots and seeds have been used for medicinal purposes. Roots contain inulin, fructo oligosaccharides, glycoside bitter principles (officinalisins I and II), β-sitosterol, steroidal glycosides (asparagosides A to I) and asparagusic acid, yamogenin 46. Home remedies containing the shoots extract are used as topical application to cleanse the face and acne form...
lesions. 

**Fig. 22 Image of Arnica.**

**Fig.23 Image of Asparagus**

**Calendula:** The flower heads of *Calendula officinalis* Linn. (Family: Asteraceae) have long been used for the treatment of various skin ailments and to facilitate healing and reduce inflammation. The herb contains flavonoids (quercetin), triterpinoidsapoinins (arvenoside A), essential oils and polysaccharides. 

**Fig.24 Image of Calendula.**

**Jojoba Oil:** Simmondsia Chinesis, (Family: Buxaceae), Jojoba seeds produce 50% by weight colourless and odourless oil, which is used in cosmetic application. The oil is composed of straight chain monoesters of C-20 and C-22 acids and alcohols with 2 double bonds. The oil is of value in management of Acne and Psoriasis. 

**Lavender:** Including *L. angustifolia* Mill, *L. stoechas* Linn, *L. dentata* Linn, (Family: Lamiaceae), have been used medicinally. Fresh flowering tops are collected and essential oil is distilled or extract is obtained by solvent extraction. Extract have been used to treat conditions ranging from acne to migraine. Flower contains 1-3% of essential oil. The oil is a complex mixture of more than 150 compounds, the most abundant of which is linaloyl acetate (30-55%), linalool (20-35%), cineole, camphor, beta ocimene, limonene, caproic acid, caryophyllene oxide and tannins (5-10%). 

**Fig.25 Image of Jojoba plant.**

**Rhubarb:** *Rheum officinale* Baill. (Family: Polygonaceae) and other species of rhubarb are native to Southern Siberia, China and India. The main constituents include potassium, calcium and lesser amount of phosphorus. The anthraquinones present are rhein, emodin, chrysophanol in rhubarb are useful to relieve the itchiness and pain accompanying psoriasis as well as Acne vulgaris.

**Fig.26 Image of Lavender**

**Fig.27 Image of Rhubarb**
Rose: The aqueous extract of the petals of the *Rosa* species (Family: *Rosaceae*) are used for the daily care of the skin. The rose water is also effective against acne and blackheads. The main constituents are tannins, eugenin, pentagalloylpyrogallol; monoterpenoids-eugenol, geraniol; andrugosal and phenylethyl alcohol.

Soapwort: *Saponaria officinalis* Linn. (Family: *Caryophyllaceae*) is a perennial herbaceous plant native to Northern Europe. Soapwort has been administered topically for the treatment of acne, psoriasis, eczema and boils. It contains water-soluble steroidal saponins (saponoside D) found in all parts of the plants and acts as a surface-active agent to facilitate cleaning.

**Table 1 Name of Drugs used in Unani.**

<table>
<thead>
<tr>
<th>NAME OF DRUGS</th>
<th>DOSAGE &amp; DURATION</th>
<th>ROUTE OF ADMINISTRATION</th>
<th>SIDE EFFECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syp. Mussafi/Safi</td>
<td>10-12ml, 8-12 hourly</td>
<td>Orally administered</td>
<td>Loose motions</td>
</tr>
<tr>
<td>Syp. Nilofar</td>
<td>10-12ml, 8-12 hourly</td>
<td>Orally administered</td>
<td>-</td>
</tr>
<tr>
<td>Arg. Mundi</td>
<td>10-12ml, 8-12 hourly</td>
<td>Orally administered</td>
<td>-</td>
</tr>
<tr>
<td>Jamad Mohasa</td>
<td>Q.S upto 1 month.</td>
<td>Tropical application</td>
<td>-</td>
</tr>
<tr>
<td>Arq. Mundi</td>
<td>10-12ml, 8-12 hourly</td>
<td>Orally administered</td>
<td>-</td>
</tr>
<tr>
<td>Arq. состояние</td>
<td>10-12ml, 8-12 hourly</td>
<td>Orally administered</td>
<td>-</td>
</tr>
<tr>
<td>Pentaphylla</td>
<td>As directed by Physician</td>
<td>Tropical application</td>
<td>-</td>
</tr>
<tr>
<td>Glycosmic</td>
<td>As directed by Physician</td>
<td>Tropical application</td>
<td>-</td>
</tr>
<tr>
<td>Piper Nigrum</td>
<td>As directed by Physician</td>
<td>Tropical application</td>
<td>-</td>
</tr>
<tr>
<td>Azadiracta Indica</td>
<td>As directed by Physician</td>
<td>Tropical application</td>
<td>-</td>
</tr>
<tr>
<td>Azadaracta Indica</td>
<td>As directed by Physician</td>
<td>Tropical application</td>
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<td>Tropical application</td>
<td>-</td>
</tr>
</tbody>
</table>

**ALLOPATHY AND ACNE:** The treatment of acne depends on the severity of it. With mild acne, home care – including proper diet along with nonprescription products – is often successful in controlling the disease. In more severe cases, it is essential to seek the help of a qualified health care practitioner. The following table shows some of the medical options used to treat acne, according to the severity of the case:

- **Mild acne** – Benzoyl peroxide
- Azelaic acid
- **Topical Retinoids**

- **Moderate acne** – Antibiotics
- Hormonal Treatment

- **Severe Acne** – Surgery
- Isotretinoin

**TREATMENT OF MILD ACNE**

1. **Benzoyl peroxide**
   Benzoyl peroxide is an extremely mild topical medication, and is used commonly to treat acne. Studies have proven that it is safe for adults and children as well as pregnant women. The properties that make benzoyl peroxide useful in treating the condition are –

   - **It is an antiseptic**: The product acts on the skin surface, reducing the number of bacteria and yeasts. It has the edge on antibiotics in that it doesn’t cause bacterial resistance to develop. It may actually reverse any resistance built up due to prior medications.
   - **It acts as an oxidizing agent**: Benzoyl peroxide is comedolytic; it reduces the number of comedones on the skin’s surface.
   - **It is an anti-inflammatory**: Benzoyl peroxide is available as a non-prescription product in the form of creams or gels. It can be combined with other topical drugs as well.

**Side Effects:** Mild skin irritation, including redness, dryness, and itching of treated area.

2. **Azealaic acid**
   Azelaic acid is found naturally, as the by-product of the yeast (*Pityrosporum ovale*) living on healthy skin. It is available as a non-prescription drug, either as a gel or as a cream. It is applied directly to the skin, and it acts by exfoliating dead cells from the skin, thus preventing the clogging of pores.

3. **Topical Retinoids**
Retin-A (Tretinoin): This is a derivative of vitamin A. It helps by reducing inflammation, fighting bacteria and opening blocked pores. It comes in the form of a cream or a gel, and is applied directly to the affected area. **Caution:** Retin-A (Tretinoin) can cause peeling of the skin, causing photosensitivity, irritation and redness.

Adapalene: This is a topical retinoid closely related to Retin-A. However, it is much milder than Retin-A and may cause less skin irritation.

**TREATMENT OF MODERATE ACNE**

1. **Antibiotics**
   Antibiotics are anti-inflammatory in action. They act on the skin by reducing the number of bacteria in the hair follicles and on the skin surface.

   **Topical antibiotics**
   The most commonly prescribed topical antibiotics are -
   - Erythromycin
   - Clindamycin

   **Side effects:**
   - Contact dermatitis
   - Mild irritation of the skin
   - Dryness in and around the area treated

   **Oral antibiotics**
   The oral antibiotics most commonly prescribed for acne include -
   - Tetracycline
   - Erythromycin

   **Side effects:**
   - The patient can be allergic to the antibiotics in rare cases.
   - Photosensitivity can occur.
   - Nausea, diarrhea and gastrointestinal irritation
   - Women can get vaginal thrush/yeast infection.
   - One of the most severe side-effects of antibiotics is bacterial resistance.

2. **Hormonal Therapies**
   The options available in hormonal therapy are –

   - **Estrogen:** Estrogen is the female hormone. Estrogen may counter the effects of androgens and hence decrease sebum production. Sometimes, doctors prescribe estrogen alone. Then, the patient should be closely monitored throughout the treatment period, as estrogen can affect the physiology of the body in various ways.

   - **Estrogen-containing oral contraceptives:** Oral contraceptives that have estrogen as one of their constituent hormones are the most commonly prescribed. They do not have as many side effects as estrogen alone, because the other hormones in the contraceptives balance its effects. However, women still need to be monitored for possible side effects such as menstrual spotting, tenderness in breasts and weight gain.

**TREATMENT OF SEVERE ACNE**

1. **Isotretinoin**
   Isotretinoin is a retinoid derived from vitamin-A, and is extremely effective in treating severe acne. It helps to normalize exfoliation of skin cells in hair follicles affected by acne. It is a very potent drug, and patients taking it should be constantly monitored for side effects. Patients should ask their dermatologists about the medicine before beginning treatment. They should also know that only 50% of patients are completely cured by this drug. Many people experience relapses after a few years. In such a case, the same treatment needs to be done once more.

   **Properties of isotretinoin**
   - Isotretinoin shrinks the sebaceous glands, thereby reducing sebum production.
   - It is an anti-inflammatory
   - It inhibits the growth of bacteria as it keeps the skin dry
   - It removes comedones and prevents the formation of new ones.

   **Side Effects and Precautions:**
   Isotretinoin is a strong drug, and has several side effects. Some of these are:
   - It makes the acne flare-up before it starts to heal
   - All patients get dry and cracked lips
   - Dry, sore and red eyes
   - Risk of conjunctivitis
   - Dry and itchy skin
   - Nosebleeds in some people

   **Some important precautions to be kept in mind are:**
   - Isotretinoin should not be taken with tetracyclines.
   - Isotretinoin should not be taken with Vitamin-A.
   - Pregnant and lactating mothers must not take this drug.

2. **Accutane**
   Accutane is an extremely potent form of isotretinoin, and is used only for very severe acne. It works by reducing the number of bacteria on the surface of the skin, reducing the level of sebum and unclogging blocked pores. However, it has strong side effects such as behavioral changes and severe depression.

   **Side Effect:** Women trying to start a family, already pregnant or lactating should not take accutane.

3. **Corticosteroids**
   These are very powerful anti-inflammation drugs used to treat severe acne. When given in low doses, they help to stop the excessive secretion of androgens. However, corticosteroids can trigger steroid acne when used for a long time. So, they should not be taken over a long period.

4. **Surgery**
   Surgery is required in cases of acne that does not respond well to other treatment, and in cases of severe scarring. The various surgical options include –

   - **Comedo extraction:** When comedones have not responded to any treatment, a dermatologist can extract them surgically.
   - **Ultraviolet light therapy:** This therapy is used more as a cosmetic treatment than a cure. Ultraviolet light merely helps tan the skin, thereby masking some scars. However, tanning may increase the risk of skin disorders. If your dermatologist recommends this course of action, and you are concerned about the risk, let him/her know.
   - **Chemical Peels:** This therapy is used by a dermatologist to decrease the number of papules and to remove blackheads by applying chemical peels containing glycolic acid.
   - **Dermabrasion for acne:** Dermabrasion is used to smooth out scars near the surface of the skin.
CONCLUSION:
Acne be managed very effectively with a range of treatments. Treatment is aimed at improving appearance, discomfort, and psychological wellbeing; and preventing scarring. It is an important disorder to treat, and it should not be dismissed as something trivial or purely cosmetic. Adult acne is found in women, and as compared to adolescent acne is more inflammatory, with involvement of the cheeks and lower half of the face, while comedones are rare. Facial scarring occurs in a majority and stresses along with psycho-social problems are common, which emphasizes that adult acne should not be neglected.

Complementary therapies in acne should be viewed in a wider context than that of the very limited empirical evidence base that exists for their use. Also rigorously conducted trials should be conducted to define efficacy and adverse effect profiles of currently used CAM acne therapies. Present outcome measures should be assessed further and agreement reached about which should be used more widely. Some creative methods of assessing acne can also be explored.

REFERENCE
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