

EFFECTIVENESS OF APPLYING MUD ON THE SCALP FOR DANDRUFF PROBLEM.

Clinical Research

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ABSTRACT

BACKGROUND: The aim of this study was to assess the effectiveness in controlling the dandruff in young peoples with the application mud on the SCALP. Dandruff is a common complaint and suffers from up to 50% of people at some point in their lives and has caused a great deal of discomfort. This condition is usually characterized by the presence of flakes on the skin and hair, and by itching. Symptoms can vary, and severity can range from mild growth, such as dry skin, to severe skin. Its reach and strength are great for young men.

METHOD: This was a randomized controlled trial study in which 20 young males with mild, moderate and severe dandruff were selected and given the mud application on the scalp for 10 days continuously one day after another. The dandruff was tested using dandruff test strips and given scores for the samples based on the severity of dandruff-test and post-test data's were collected and statistics were made and analyzed for determining the effectiveness and to know how far the study is liable.

RESULT: There were marked difference in pre test and post test mean value and a satisfactory t-value was obtained which shows there is improvement in the skin condition and reduction of dandruff after the 10 days of application of mud on the scalp.

CONCLUSION: Dandruff is one of the major problems among young studying and working people, because it may give a negative component of the facial index. From this study we can see that the mud application is an effective way to control dandruff and improve the skin condition of the SCALP, thereby mud is an easy and natural source of product to control skin conditions especially dandruff

KEYWORDS

Naturopathy, Hydrotherapy, Peloid, Mudtherapy, Dandruff, Dermatitis, SCALP, Alternate medicine.

INTRODUCTION

Ever been embarrassed due to your dandruff? You are not the only one. Numbers suggest that 1 in 2 people worldwide have struggled with dandruff at some point in their lives. Yes, it's not contagious. But does that make it any less difficult to deal with? Dandruff is a vicious cycle that keeps recurring. You might change a thousand shampoos, try a hundred home remedies, but you'll still find dandruff making a comeback in your life. Dandruff is a common condition that causes the skin on the scalp to flake. It isn't contagious or serious. But it can be embarrassing and difficult to treat. Mild dandruff can be treated with a gentle daily shampoo. If that doesn't work, a medicated shampoo may help. Symptoms may return later. Dandruff, or pityriasis capitis, is the most common symptom of seborrheic dermatitis. Dandruff is usually defined as excessive flaking of the scalp. People reporting dandruff often have seborrheic dermatitis and other diseases, such as psoriasis or eczema. Although it is considered a very common condition.

It is said that according to Ayurveda our body is made up of panchamahabhuthas and they are fire, earth, water, air, and space. And if there is any impairment in the proportion of these elements might lead to health disorders. And also these five elements are having the power and properties to cure and make our health in line. So for any health condition, we can blindly opt for making use of these natural elements, it can do some miraculous effects in its aspects, especially for the mud as it is the part of the earth element and our physical body is the interpretation of the earth element. The earth element is related to the growth and development of tissues, muscles, bones, teeth, and fats. The earth makes up most of mamsa (muscle), Medha (fat, and asthi (bone) of the seven dhatus. But also, each dhatu needs some amount of earth element for its form to hold.

REVIEW OF LITERATURE:

Mud application for curing skin disorders is an old method. Dandruff is caused when skin cells are pushed to the scalp and fall off. Dandruff scale is a cluster of corneocytes, which have retained a large degree of cohesion with one another and detach as such from the surface of the stratum corneum. The size and abundance of scales are heterogeneous from one site to another and over time. Parakeratotic cells often make up part of dandruff. Their numbers are related to the severity of the clinical manifestations, which may also be influenced by seborrhea. When that is applied to the scalp the fungus that is growing on the scalp is removed, dandruff becomes reduced it will act on dandruff until it is gone completely. The minerals in mud are highly effective for absorbing oil and for toning the skin. Mud is often used to detoxify and tone skin and is used as an anti-inflammatory agent for skin disorders. Mud commonly contains nutrients, trace elements, and various minerals that the body can absorb quickly. Some other benefits of mud include: reduces signs of aging, improving circulation, shrinking large pores, rinsing away blackheads, and helping clear acne. Although

natural mud masques are not ideal for exfoliation, they are very beneficial to those who suffer from acne or oily skin. The mud particles absorb oils from deep within the pores as they dry trapping oil in the mud.

Board-certified dermatologist Dr. Dhaval Bhanusali, a mask treatment developer, says that the benefits of mud body treatments are usually immediate and obvious: The skin changes, blood flow changes, and muscles relax. "They're a great exfoliator," Bhanusali says. A key is in the minerals. Kaolinite, bentonite, magnesium, potassium, and other minerals in mud and clay masks imperceptibly abrade the skin and dislodge impurities, he says, and the minerals in mud also help retain heat, which helps relax muscles, stimulate blood flow, and improve the lymphatic system cleansing.

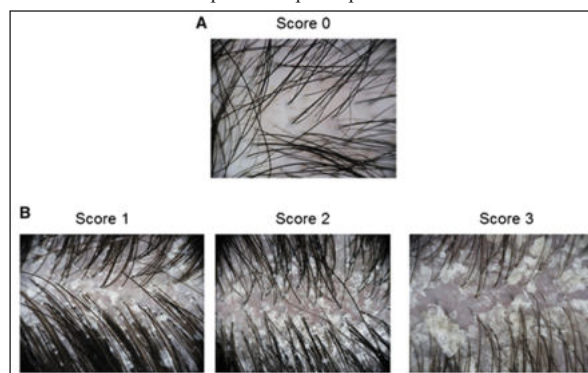
Based on the current knowledge about dandruff, dandruff is divided into two distinct stages.

a. Primary stage

1. Multiple host-specific predisposing factors
2. Multiple triggering factors of a non-specific nature/non-microbial origin

b. Secondary stage

1. Multiple microbial etiology
2. Varied individual-specific response pattern



Treating dandruff requires a rational approach and understanding, and should be tailored to each patient. Fungal etiology needs to be confirmed before the use of any antifungal line of therapy. The disease needs to be confirmed as primary or secondary to decide the specific line of treatment. Dermatologists must give high priority to treating dandruff as otherwise, an unknown "Tertiary" stage of disease might occur in the future that may pose a greater challenge to the medical fraternity. And this itself can give full hand support for trying with the

natural element, the mud which will not go to cause any discomfort and ailment.

Mud therapy can prevent and treat damage caused to the skin due to excessive heat. Exposure to high heat can cause acne, blemishes, dark spots, tanning, early signs of aging, skin allergies, rashes, redness, etc. all these problems can be prevented and treated by the use of a mud pack on the skin, especially the face. Multanimitti is one of the most popular mud face packs used to treat such skin problems.

While mud is mainly mineral in origin like clay, it contains 2–4% organic substances which play an important role in its therapeutic use (Hendrickson T. 2003). Therapeutic mud is “matured” or “ripened” in natural mineral water. The maturing process for each mud may be slightly different, but generally, it involves the oxidation and reduction of the mud over up to 12 months. The process of maturing the mud is characterized by changes in the chemical composition of the mud and changes in its appearance

A review of the research on peloids and pelotherapy has been carried out considering only the publications in English. More than 300 publications were reviewed that included: articles, books, and chapters from books related to the subject. Of them, a total of 198 have been chosen to be cited in the two papers related to this review (Part I and Part II), and 140 published in the period between 1990 and 2019 have been considered in this paper. In the present study a review on the organic compounds, organic matter content, and microorganisms present in the peloids, as well as their therapeutic activity, were surveyed and analyzed. The mineralogy, chemistry, and physical and physicochemical properties of peloids, as well as historical background, definition and classification, forms of application, maturation process, presence of radioactive isotopes, peloid interstitial liquid, cation release, and toxicity, are reviewed in the paper: Clays in pelotherapy. A review. Part I: Mineralogy, chemistry, physical and physicochemical properties (Carretero, 2020). The main microorganisms detected in peloids used for therapeutical purposes were microalgae, diatoms and thermophilic blue-green algae (Cyanobacteria) that are part of the so-called “bioglea”, which develop in some hot spring peloids and with a certain composition of mineral-medical water and solid phase. Organic compounds were detected in the peloids that were associated with these microorganisms such as sulfoglycerolipids, glycolipids, diacylglycerolipids, etc., which have proven anti-inflammatory properties. Many authors also indicated an antimicrobial action including the inhibitory effect on potential skin pathogens, that might partially explain the therapeutic properties of the peloids when they are used for dermatological diseases. Experimental findings or results of the therapeutic efficacy of peloids using in vitro and in vivo studies, or clinical trials or studies, demonstrated that the peloids improve the ailments of some diseases. Nevertheless, the peloids are usually applied in combination with other techniques, therefore its therapeutic efficacy has not been fully demonstrated. On the other hand, there are numerous researches conducted on the study of clays for their possible use as peloids, which include the study of the mineralogical, chemical composition, and physical and physicochemical properties of the obtained peloids. They are described in part I of the review of clays in pelotherapy (Carretero, 2020). It should be said that the peloids used in the studies for their therapeutic efficacy are not characterized from the point of view of their mineralogical, chemical, physical, and physicochemical properties. There are also few studies carried out on the organic compounds and microorganisms present in peloids, and their relationship with their therapeutic activity.

As like peloid, natural raw mud is also having its medical values and properties, it's having a definite proportion of minerals and trace elements along with Exfoliative, Anti-inflammatory, Anti-pruritis effects and helps in bringing the skin in tone and balances the PH, and gives a healthy environment for the skin to nourish. Mud helps in balancing the temperature of the surface and thereby making the blood and lymphatic circulation in the correct line.

Types of Mud

Mud found in different parts of the world has different properties. Mud composition varies with the place of origin. Firstly, mineral constituents of mud vary with the kind of rocks found in the region and the process of soil formation. Secondly, mud property is influenced by the kind of flora and fauna of the region. Therefore, it is essential to learn about the properties of mud before utilizing its benefits (Rajiv

Rastogi 2012). It is important to note that before using any type of mud it should be dried, powdered, and sieved to remove any type of impurities such as stones, grass, etc.

1. Black mud: Dark cotton soil having some greasiness is suitable for mud therapy as it is rich in minerals and also retains water for a long time. It should always be free from contamination and any kind of pollution.
2. Mud from the Dead Sea: Cleopatra and Queen Sheeba used it for enhancing beauty; the black mud of the Dead Sea has beautifying and therapeutic powers. It contains more 229 Nidhi Patel et al. / International Journal of Pharmacy & Therapeutics, 6(4), 2015, 227-231. than 20 kinds of salts and minerals including Magnesium, Calcium, Potassium Bromide, Silicates, Natural Tar, and organic elements. While these beneficial minerals are useful for healing any kind of skin disorder, the presence of silicates makes its masks very beneficial for softening and cleansing the skin. The mud enhances blood circulation and leaves the skin with a glow.
3. Moor Mud: It is mud produced over thousands of years from the organic residue of flowers, grasses, and herbs. This residue transformed over several years to fine paste which contains fulvic acids, vitamins, amino acids, plant hormones, humic acids in a form that could be easily absorbed by the human body. The mud has chelating properties which enable its top layer to filter out impurities/pollutants and preserve the purity of the mud. This mud has therapeutic properties and is useful in detoxification, healing, beautification, nourishing the human body. The mud has anti-inflammatory and anti-aging effects. It is also useful in conditions such as Arthritis and recovery from injury in sports (Evcik et al., 2007).
4. Red Mud: Red soils are predominantly found in South America, Central Africa, South and Southeast Asia, China, India, Japan, and Australia. In general, these soils have good physical conditions for plant growth although they often have very low water-holding capacity. Red soil is rich in iron oxide but deficient in nitrogen and lime. Its chemical composition generally includes non-soluble material 90.47%, iron 3.61%, aluminium 2.92%, organic matter 1.01%, Magnesium 0.70%, lime 0.56%, carbon-di-oxide 0.30%, potash 0.24%, soda 0.12%, phosphorus 0.09% and nitrogen 0.08%. Red soil is also called red podzolic soil or laterite soil. The pH values of most red soils (water extracted) range from 4.5-6.5. The pH value of soils is influenced by parent materials. Soils formed in limestone are normally higher than 5.5, but those from shale and slate lower than 5.0. It makes the nature of this red soil which has been produced due to its weathering is a bit more acidic. They are acidic mainly due to the nature of the parent rocks. The alkali content is fair. They are poor in lime, magnesia, phosphates, nitrogen, and humus.

OBJECTIVES:

i) To assess the level of dandruff among the common people. ii) To apply pure raw filtered mud to the SCALP. iii) To assess the effect after application of Mud for 10 days intermittently.

Several studies on the prevalence of dandruff across the world have shown a prevalence of dandruff of up to 50% in the general population. The prevalence may be increasing sharply with rapid urbanization. On the contrary, the prevalence of pityriasis Versicolor is only 2-8%. One survey in the USA has shown that about 50 million people suffer from dandruff and that nearly \$300 million is spent on various dandruff treatment products annually. The extrapolated prevalence of Dandruff in India is 195,785,036.

The prevalence may be increasing sharply with rapid urbanization. On the contrary, the prevalence of pityriasis Versicolor is only 2-8%. And according to the researcher dandruff (pityriasis capitis, seborrheic dermatitis confined to the scalp) is a disease that has been around for centuries despite several treatment options. Almost every day new players are entering the market with various anti-dandruff products, perhaps due to an increase in the incidence of dandruff all over the world. Interestingly, clinicians, especially dermatologists, gave little attention to this problem. In the end, the dandruff sufferer is puzzled by the array of anti-dandruff products with varied claims entering the market day by day. (Manuel et al 2011). Mud therapy can be

successfully used in the treatment of musculoskeletal disorders, gynecological conditions (inflammatory and menstrual cycle disorders) as well as neurological, cardiovascular, and skin pathology (eczema, acne, psoriasis).

Seborrheic Dermatitis (SD) and dandruff are common dermatological problems that affect the seborrheic areas of the body. They are considered the same basic condition sharing many features and responding to similar treatments, differing only in locality and severity. Dandruff is restricted to the scalp, and involves itchy, flaking skin without visible inflammation. SD affects the scalp as well as face, retro-auricular area, and the upper chest, causing flaking, scaling, inflammation, and pruritus, and can have marked erythema. Flaking in SD and dandruff is usually white-to-yellowish, and may be oily or dry. Dandruff shows many common features as SD in histology, such as epidermal hyperplasia, parakeratosis, and Malassezia yeasts surrounding the parakeratotic cells. Whereas inflammatory cells such as lymphocytes and NK cells may be present in great numbers in SD, dandruff shows subtle neutrophil infiltration or no infiltration. These findings support the notion that dandruff and SD are of a continuous spectrum of the same disease entity with different severity and location.

Dandruff is an improper cluster or collation of corneocytes caused due to pathophysiological changes in the stratum corneum of the scalp. Increased research on dandruff has suggested that Malassezia yeasts are responsible for initiating inflammatory and hyperproliferative responses of the epidermis. The pathogenesis of dandruff consists of four pathophysiological events namely interaction of Malassezia with the epidermis, initiation, and propagation of mild inflammation, disruption and differentiation of the epidermis, and functional skin barrier disruption as shown in Sebaceous glands are microscopic exocrine glands that secrete an oily matter, the secretion being maximum on the scalp, face, and cheek. In general, bacteria and fungus require a lipid environment to grow and so it is generally found in areas with many sebaceous glands. The sebum secretion is a complex mixture of wax esters, saturated and unsaturated fatty acids, tri- glycerides, sterol esters, squalene, and sapiens acid (primitive to humans). The secretion of sebum is under hormonal control, and thus, hormonal imbalance may lead to over secretion of sebum. The commensal microbes such as Malassezia, propionibacterium, and staphylococcus on the scalp feed on this sebum, breaking the triglycerides and esters into monoglycerides and free fatty acids including oleic acid. The free fatty acids that are formed cause skin irritation leading to scalp hyperproliferation which further leads to the formation of dandruff. Thus, people who suffer from dandruff generally have overactive sebaceous glands, which make their scalp oily. The investigations exhibit that the increased number of scalp microorganisms found in dandruff occurs as a secondary part of increased nutrients. There are 14 described species of the yeast namely M globosa, M obtuse, M restricta, M furfur, M slooffiae, M capre, M yamotaensis, M japonica, M equina, M dermatitis, M pachydermatis, M cuniculi, M nana and M are sympodial. Their growth may be exacerbated by the hyper- secretion of sebum and hyperproliferation of the stratum corneum. Out of these, Malassezia globosa and Malassezia restricta predominate on dandruff scalp." M globosa is considered to be the initiating organism by its high lipase activity and is expressed as M globosa lipase on the human scalp. Another important one is M furfur that can grow in the yeast phase as well as the mycelial phase. The organism requires a complex lipid environment for growth which explains its occurrence on the skin.!? One of the probable reasons for more studies on M furfur is its ability to form filaments when it becomes its pathogenic form, making it more researchable and interesting. Mating of Malassezia species may also be considered to be a vital part of the pathogenesis of dandruff formation. Various researches prove that Malassezia species complete their sexual cycle during growth on the human scalp. It is believed that their close relatives Malassezia species may potentially complete their life cycle on human skin. Human skin presents an environment with a temperature below the physiological temperature and that would immobilize cells, thus facilitating the mating process.

METHODOLOGY:

Research Design:

A group was selected, and pre-test design and post-test design were adopted for this study.

Setting:

The setting was within the homes of the respected group members, as it will help to yield space and comfortability as well as save time and

efficiency. The filtered mud which is made into a fine powder is stored and an adequate amount of mud is given to the samples to apply on the scalp for 10 days.

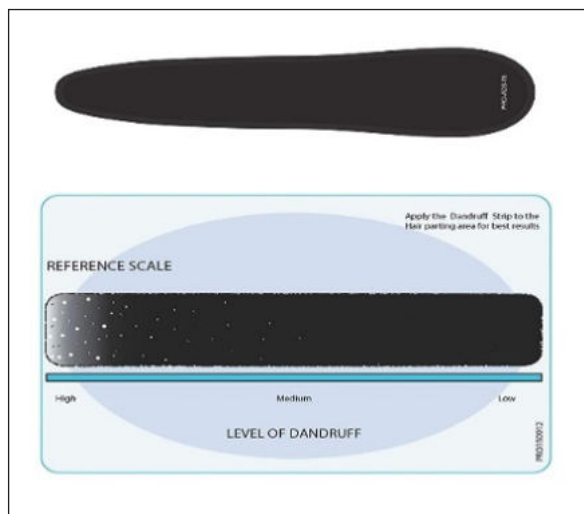
Population:

The population for the present study was young males of 20-30yrs of age with mild, moderate, and severe stages of dandruff.

Sampling And Sample Size:

The total number of samples for the study was 20 members who were having dandruff for a prolonged period. A simple random sampling technique was used as per inclusion criteria.

Inclusion Criteria: Young males studying and working and having dandruff between 20-30 years of age. Here both dry and wet dandruff peoples were also included without any exclusion or making as a separate list.



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Exclusion Criteria:

Young males who were having scalp psoriasis, working in chemical factories, people using any kind of shampoos/conditioners, and diagnosed with any other skin conditions.

Data Collection Procedure:

Samples were selected by general observation of scalp and by noticing cardinal signs of dandruff. The need and the purpose of the study were explained to the test samples. The researcher explained the causes, etiology, risk factors, and the various aspects of disease conditions using the latest information mediums (Internet, Books & Articles). Then the samples were taken to a Consultant Dermatologist and confirmed the condition to be dandruff. The whole samples were get analyzed and differentiated the level of dandruff as mild, moderate, and severe. After the application of mud intermittently one day after another 10 times consecutively, again the samples were analyzed to know the level of dandruff. Dandruff test strips were used to analyze the level of dandruff and for getting the score of severity. Then the samples are given a score from 0 to 10. Where 0 is the least dandruff and 10 is the most high level of dandruff present on the scalp.

METHOD OF PREPARATION OF MUD:

The mud was taken out 60cm depth from the backyard, make sure that the soil is not treated with any kind of fertilizer or chemicals and it was filtered into fine soil, then it was made to place under the sun for one whole day. Again it is sieved and filtered into fine soil, then it is mixed with plenty of water in a container and made to filter the loose watery mud with a cotton cloth in another container and wait for the fine

smooth mud to sediment down. After the mud get settled down in the container the extra water above is poured out and again 2 times do the same procedure add plenty of water and mix the same mud and allow it to sediment down and after that, the water is poured out leaving the raw smooth mud inside. And then this mud is taken out and dried under the sunlight and made into fine powder and store. The mud is soaked in fresh water 12hrs before the application on the SCALP.

	Sl:No	Pre test	Post test
	1	8	5
	2	6	3
	3	7	3
	4	5	3
	5	9	5
	6	8	4
	7	10	5
	8	10	5
	9	3	1
	10	5	2
	11	3	0
	12	7	3
	13	9	5
	14	6	2
	15	8	4
	16	8	6
	17	7	4
	18	5	2
	19	7	4
	20	6	3
Mean		6.85	3.45
SD		1.9564	1.4992
Mean difference		4.15	
T-test		4.70558E-13	

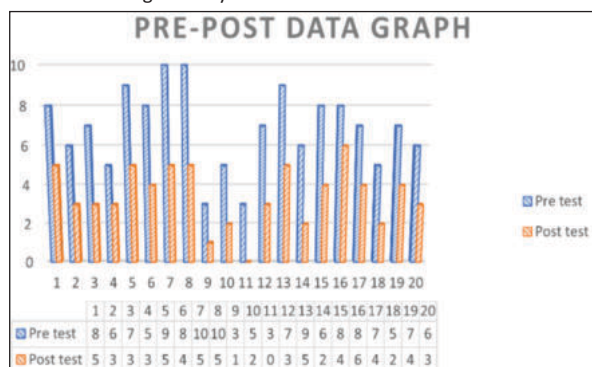
METHOD OF DATA ANALYSIS:

Scoring was given to each sample. Mean and standard deviation was calculated and the value was done and the data was analyzed, categorized, and interpreted in tables. Appropriate stratified techniques were applied to analyze the data to find out the significance.

Findings:

Among 20 participants, 22% of participants were in the age group of 20 years, 45% of participants were in the age group of 23 years and 34% of participants were in the age group of 25-30 years.

Among 20 Participants 55% were suffering from dandruff for less than 1 year and 45% were suffering from dandruff for more than a year. Then 60% were having dry and 30% were having wet dandruff. And 10% were having both dry and wet dandruff combined.



Comparison Between Pretest And Post-test

The above table shows the following inferences. The mean value for the pretest was 6.85. The value for a standard deviation for pre-test was 1.9564. The mean difference is 4.15.

CONCLUSION:

Dandruff is one of the major problems among young studying and working people, because it may give a negative component of the facial index. Application of mud is one of the nonpharmacological therapy which can be performed anywhere, requires no special equipment, is non-invasive, cost-effective. Hence it is a natural and good solution for dandruff which helps in controlling the environment over the scalp from giving a suitable place for the fungus which causes dandruff and helps in controlling the heat, thereby helping in reducing dandruff markedly.

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