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Case Study

SEBORRHEIC DERMATITIS TREATMENT WITH MUSTARD OIL: A CASE REPORT

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ABSTRACT

Seborrheic dermatitis is a chronic skin disease which is primarily associated with *sp. Malassezia* infection on the epidermis of the skin. The disease is characterized by massive skin exfoliation of seborrheic regions like forehead, behind pinna of ear, armpits, nasolabial fold, dandruff in the scalp, etc. Around 5% of general population is a victim of this disease. The patient condition often becomes a hindrance for his or her livelihood and results into low self-esteem. Modern medical therapy recommends use of selenium sulfide sulfide, azole group of antibiotics like ketokonazole, Econazole, Clotrimazole, etc. In severe cases corticosteroids like Betamethasone dipropionate (0.05% potency) is also used. But all these have not given clinically efficient results. The clinical symptoms visible in this disease are scaling or exfoliation of skin; redness and swelling of affected regions along with itching. Neutrophilic infiltration in the epidermal crust and dense presence of inflammatory mediators in the region are found in the region on performing histological studies using skin biopsy.

In the ancient Indian medical system of Ayurveda, mustard oil or *Sarshapa taila* has been characterized as deep penetrating, hot potency, pungent smelling fluid effective against skin itching and urticaria. This is a case report of experimental mustard oil therapy on a patient with Seborrheic dermatitis. It is being addressed to the global health community from both the fields of modern medicine and Ayurveda to carry a much deeper study on the topic and the therapy method which is being shown in this research.

KEYWORDS: Seborrheic dermatitis, Seborrhea, Ayurveda, Mustard oil, *Sarshapa taila*, Dermatology, Venerology, *Kayachikitsa*

INTRODUCTION

Seborrhoeic dermatitis is a dreadful chronic skin disorder, affecting almost 5% of general population. Despite high advancement in clinical dermatology, there is lack of knowledge about etiology of the disease. Redness, itching, inflammation, scaling of skin are common symptoms with impaired function of sebaceous glands. Sebum producing areas of skin like scalp, chest, underarm, genital region, etc are most common areas of clinical manifestations. Infection by *sp. Malassezia* is one of the primary etiological factors, as understood in dermatology till date. Often auto-immune disorders, HIV infection, Parkinson's disease have been linked to it, but not with phenomenal explanation. Vitamin B_6 deficiency has also been found be a reported reason. Histo-pathological studies reveal spongiosis and psoriasiform hyperplasia with follicular plugging in the acute phase. Neutrophil infiltration in the crust is evident in chronic phase[1] (Tongyu C, 2019, Pages 991-1001). Inflammatory markers like IL-1, IL-6, TNFα, IL-12, IL-4 and IFNγ has been found in the epidermis and around the follicles of diseased skin. Though, in most of the literature *sp. Malassezia* has been sited to be the most responsible etiological factor for Seborrheic dermatitis[2] (Ilko Bakardzhiev, 2017).

The disease being found in young adults and middle aged persons, often becomes a reason for depression and social disturbance for the affected individuals. Although not life threatening but has to been taken into serious consideration for safe-guarding livelihood of the population. Modern medical therapy recommends use of selenium sulfide sulfide, azole group of antibiotics like ketokonazole, Econazole, Clotrimazole, etc. In severe cases corticosteroids like Betamethasone dipropionate (0.05% potency) is also used.[3] (Neena Khanna, 2011).

MATERIALS AND METHODS

A thorough physical examination of the patient was carried out. Clinical blood tests were

conducted. Experimental Ayurvedic treatment mustard oil or *Sarshapa taila* was done, keeping all additional effects under observation.

CASE REPORT

The study was conducted with agreement of patient, safeguarding his physical and psychological well being.

ANAMNESIS VITAE

Includes past medical history, family history and lifestyle of patient

General Information

The patient is 21 years old, male, Indian by nationality. The patient was born on 30.09.1999 in Kolkata, West Bengal, India. Post-partum conditions were normal, with normal breathing, cardiac status, infantile jaundice was not reported, neither was any infection reported post-partum. The patient is unmarried and has not undergone any sexual contact as such. Started smoking at the age of 18 years and smokes 12 cigarettes a day and alcohol is also consumed but occasionally. At present, the patient is an undergraduate student of medical science in Russian Federation. He migrated to Russia in October 2017. The patient weighs 85kg and has a height of 6ft and 2 inches and hence has a BMI score of 24 (normal weight). The weight is primarily contributed due to increased circumference of region located between epigastrium and hypogastrium. He uses spectacles from the age of 11 years and has myopia with astigmatism. He has not been involved in any sports, as such. From the age of 14 years had intensive scaling of scalp and has reported "snow flake like dust" dandruff with itching. But he did not consult any dermatologist.

Past Medical History of the Patient

The patient has not been reported with any past medical disease as such. He used to live a normal healthy lifestyle. Although in 2015, was diagnosed with minor neurotic depression. In childhood, he was a slow learner. No complicacy related to cardiac, neurological, urinary, reproductive, reparatory systems were reported. Although, from childhood had problem of general acidity of stomach. At the age of 9 years was diagnosed with chronic juvenile tonsillitis and was treated with homeopathic remedy, but with no significant effect. With age the problem disappeared as he got involved in sports for few years (expected result of hardening and tampering).

Family History

Father and mother are both of Indian nationality. The father has slight blockage in left bundle branch (LBBB) and is a patient of first stage hypertension and is on daily 50mg Losartan dosage. The father has been operated on renal caliculi and recurrence was treated medicinally. Cough syncope has also been reported in the father once after Augmentin was administered. The mother of the patient is reportedly sensitive to external allergens and frequently has been a victim of allergic reactions with itchy, red and inflamed *wheals* all over the body, responsive to chlorpheniramine. She is a 1st stage patient of sero-positive rheumatoid arthritis and has been reported with shifting pain from brachial region to the extremities.

ANAMNESIS MORBI

Includes present problem, complaint, diagnosis, general observation of the patient

Primary Complaint

The patient had complaint of drying of skin. He complained of itchy, red forehead, increased dandruff, dandruff of facial hair, maxillary region and nasolabial folds. He had itchy scalp as well. The problem was so severe that it was noticeable by surrounding people and the patient felt timid and humiliated to attend social gatherings. The patient complained that his problems became severe around June 2019.

General Observation

From general observation– drying of skin and lack of sebum was noted on epidermis. He had intensive dandruff with inflamed and red scalp. He had red forehead with white scaling of epidermis. Scaling was observed on facial hair and maxillary region. Loss of hair was noticed. No pustules, pus, tumor, patch, papule, wheal, vesicle or erosions were noticed. Exfoliation of epidermis was very prominent and change in skin pigmentation on left frontal lobe of skull, 3cm above the supra-orbital margin was noticed.

Cardiac System

Borders of the heart on percussion were normal with left apex impulse being slightly left to mid-clavicular line on the 5th intercostals space and right sterna margin was preserved as the right borer. All heart sounds were normal on auscultation. Rhythm was sinus and regular with 78 beats per minute heart rate.

No necessity was felt for additional diagnosis.

Pulmonary System

Breathing was normal. Lung tissue was resonant on percussion and breathing was vesicular on auscultation. Equal deflection of left and right scapula was recorded on physical examination. No complaint of breathlessness. No sputum was found.

No necessity was felt for additional diagnosis.

Digestive System

Normal anatomical position of Liver in left hypochondrium and stomach in right hypochondrium was noticed on percussion. No pain was reported by the patient on palpation of stomach, mesogastrium and intestine. No sound change of stomach was heard on auscultation. Stool is also normal with no complaint of constipation or pain.

No additional diagnosis was suggested.

Urinary System

Urinates 5 to 6 times daily. No pain of kidney on palpation. No pain is felt during urination, no significant change in urine colour or smell reported. Has never complained about past urinary tract infection or renal caliculi.

Nervous System

No complaint regarding cognition, pain and lack of body movement coordination was observed. Patellar reflex, Brachial reflex, Achilles tendon reflex, Corneal reflex and Biceps reflex were normal.

Diagnosis

The patient has localized epidermal skin disease; no other skin complication was noted. All organ system observations showed normal condition. He had localized skin exfoliation, loss of hair, redness and inflammation. Hence, the diagnosis was made as– Seborrheic dermatitis.

Initial Therapy with Modern Medicine and Results

On diagnosis of Seborrheic dermatitis the patient was treated with daily dosage of B_{12} complex for 4 months, Ketoconazole cream was applied daily on forehead and maxillary area over the affected epidermis. He was kept under daily shampooing with Sodium sulphate. Minoxidil oil was used to address the hair loss issue. The therapy was started around September 2019 and was continued for 8 months.

No significant change was noticed. Exfoliation of skin continued with redness and skin itching. Loss of hair also continued and the patient lost significant amount of hair by late 2020 and baldness was visible. Little decrease in dandruff was noted on the scalp and facial hair. The skin was very dry with whitening in some portion of the forehead. The therapy was routinely clinical and recommended by most dermatologists[4] (Gary G, 2013, pg 44-49). The patient voluntarily stopped therapy stating no visible cure.

Experimental Ayurvedic Therapy and Results

In the treaty of *Maharshri Charaka*, *Charaka Samhita* mustard has been chosen for the use of alleviation of skin itching and urticaria. The mustard oil has been described as pungent smelling, hot in potency and deep penetrating fluid by *Maharshri Vagabhata* in his *Astanga Hridaya*. For such properties being noted in classical Ayurvedic text, mustard oil (or *Sarshapa taila*) was chosen for an experimental therapy.

But Mustard oil was not locally applied on the affected epidermis, rather umbilicus or *Nabhi* was chosen. The umbilicus has been described as the source of *Prana* or blood and has been described as river or stream nourishing the body suing the term *"Jala harini"* by *Maharshri Sushruta*[5] (B.M.N.Kumar, 2017). On the other hand from modern perspective of anatomy it is known that the rectus abdominis muscle is supplied by the superior epigastric artery which is a continuation of internal thoracic artery and inferior epigastric artery, both later forming anastomosi[4]. The umbilicus is located horizontally at the center of rectus abdominis muscle and vertically again at the center of linea alba in the umbilical region of mesogastrium. This was the reason behind choosing umbilicus for the therapy.

The therapy was started on December, 2020. Every night before sleep, the umbilicus was drenched in mustard oil of around 2ml. The practice was continued till March 2021 and results were recorded.

The results were excellent and clinically significant. There was absolute recovery of skin epidermis. Lost pigmentation of frontal lobe of skull, 3cm above the supra-orbital margin was restored to normal. Exfoliation of skin, redness and swelling was absolutely absent on the affected areas. Dandruff was not observed on scalp and slow hair re-growth is also being experienced. No additional skin complication has been recorded. Complete blood count, lipid profile and liver function test was done to confirm for any side effect. No side effect has been recorded apart from slightly increased triacylglycerol (TAG), although clinically insignificant.

Clinical test report with analysis is as follows

Test Name	Value	Units
Complete Blood Count (CBC)		
Erythrocytes		
Haemoglobin	15	g/dl
RBC count	4.9	10^{12}/l

PCV (Packed cell volume)	44.9	%
MCV (Mean corpuscular volume)	91.6	fl
MCH (Mean corpuscular hemoglobin)	30.6	pg
MCHC (Mean corpuscular hemoglobin concentration)	33.4	g/dl
RDW CV	13.5	%
Leukocytes		
WBC count total	7.500	Cells/µL
Differential Leukocyte Count		
Neutrophil	69	%
Lymphocytes	25	%
Eosinophil	3	%
Monocyte	3	%
Basophil	0	%
Absolute Neutrophil Count	5.175	Cells/µL
Absolute Lymphocyte Count	1.875	Cells/µL
Absolute Eosinophil Count	225	Cells/µL
Absolute Monocyte Count	225	Cells/µL
Absolute Basophil Count	0	Cells/µL
Thrombocytes		
Platelet Count	172	10^9/l
Erythrocyte Sedimentation rate		
ESR	8	Mm in 1hr
Morphology		
RBC Morphology	Normocytic & Normochromic	
WBC Morphology	No abnormal cells found	
Platelets	Adequate	

It is to be noted here that all the parameters of CBC are normal and no pathology has been recorded. Morphological structure of blood cells is also normal.

Liver Function Test

Bilirubin Total	0.860	mg/dl
Bilirubin Direct	0.26	mg/dl
Bilirubin Indirect	0.60	mg/dl
ALT	43	U/l
AST	33	U/l
Alkaline Phosphatase (ALP)	86	U/l
Protein Total	7.9	g/dl
Albumin	4.7	g/dl
Globulin	3.2	g/dl
Albumin/Globulin ration	1.5	

Liver function test also shows all parameters to be normal.

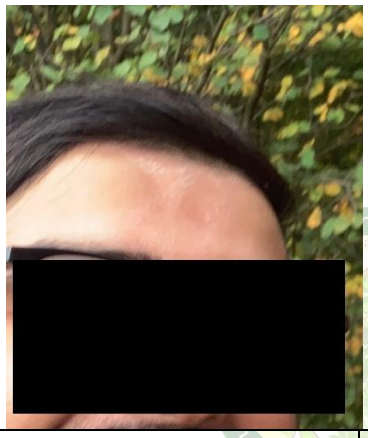
Lipid Profile Basic

Cholesterol Total	182	mg/dl
Cholesterol HDL	46	mg/dl
Cholesterol VLDL	32	mg/dl
Cholesterol LDL	104	mg/dl
Triglycerides	160	mg/dl
Cholesterol Total/HDL ratio	4	
Cholesterol LDL/HDL ratio	2.3	

The lipid profile test is also almost satisfactory. There is slight increment in Triglyceride volume and lie in the borderline high range (150-199 mg/dl). Although this should not be immediately associated with the therapy carried out until a sample population study is conducted for a statistical data. But precautions must be taken in clinical management.

The tests have been conducted in NABL accredited laboratory in India.

Before Treatment with Mustard Oil



In the above picture exfoliation of skin is visible along with redness. Healthy epidermis is visible in patches.	In the above picture, exfoliation with changed skin tone on frontal lobe of skull 3cm above the supra-orbital margin is visible along with dandruff in the scalp.

After 4 months of therapy with Mustard oil

In the above picture it is evident that there is no exfoliation of skin, epidermis is normal and healthy. The skin was oily on physical examination. The lost pigment of skin tone has been recovered.	In the above picture it is evident that facial hairs are in normal condition. No dandruff visible in facial hair, no exfoliation in maxillary region and nasolabial fold.

CONCLUSION

Although it is a fact that without a sample population study, no therapy should be brought into clinical practice. But in this case it is also proven that modern approaches to Seborrheic dermatitis are a massive failure. Drastic suggestions like using corticosteroids and biological products like

infliximab, adalimumab - TNFα inhibitors, anakinra– IL1 inhibitor or tocilizumab – IL6 inhibitor has also surfaced[6] (Konerding MA, 1997, dis 711-2). If drenching umbilicus in mustard oil for a period of 4-6 months can resolve the disease completely with better results then it must be definitely advocated to be brought in daily clinical practice. This case history has imposed serious questions over the general believes regarding the disease. It is being argued by scholars that *sp.* Malassezia is the primary etiological factor of the disease, *M. globosa* and *M. restricta* and many other members of the species are the main reason of the epidemic[7] (Del Rosso J. Q, 2011. pg 32-38). If *sp.Malassezia* is the causative agent of this disease, then the patient at the beginning must have responded to Ketoconazole. But he did not. Neither Vitamin B_{12} complex supplement nor sodium sulphate did any improvement. From general observation it appears that drying and de-keratinization of epidermis was the sole reason behind the disease– lack of sebum was noted before starting therapy with mustard oil and sebum returned after the therapy curing the condition. This report opens a new arena of biochemical studies in venerology as it has to be determined which compound or sequence in molecular chain binded with which receptor near umbilicus and how it might stimulate sebum production from sebaceous glands.

Through this article, a strong patient population based study of this therapy and modern biochemical study along with histological examination is being pleaded for to the global scientific community. Further improvement in the technique might be achieved only after complete understanding of the pharmacodynamics of mustard oil or *Sarshapa taila*.

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