

A STUDY OF PSORIASIS AND THE HEALING PROPERTY OF A NEW CHEMICAL COMPOUND

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ABSTRACT: *This paper discusses in brief stressing the modern scientific views as well as ancient Indian concept of it. A compound developed from the chemical reaction of Haritala (Orpiment), Parada (Mercury) and Palasha Bhasma (white ash of Butea Monosperma) was evaluated here and observed to have market psoriasis healing property.*

INTRODUCTION

Psoriasis is a common scaly erythematous diseases showing wide variation in severity and distribution of skin involvement. It is a troublesome and resistant variety of skin disease usually following an irregular chronic course of remissions and exacerbations.

Psoriasis is found all over the world, its incidence being <1% - 3% of the population. Males and females are equally predisposed and all age groups are affected. Congenital Psoriasis with active lesions present at birth is reported (Lerner and Lerner 1972).

Psoriasis is less severe in summer than in winter but its onset in summer months is high. It is not found to be infections in nature. Involvement of joints and nails are seen in certain percentage of patients suffering from Psoriasis of skin-Psoriasis is one of the oldest recorded skin diseases. The term 'Lepra' was used by Williams in description of Psoriasis in 1808.

Despite intensive investigations over the past two decades, the cause of the disease remains unknown. A genetic influence in

the causation of Psoriasis is now fairly well established. A sharp definable border, a bright red colour and a silvery white scale demarcate the lesions of Psoriasis. The sharp border which can be felt as well as seen abruptly demarcates the epidermal hyper-plasia and dermal changes of Psoriasis. There occurs an accelerated proliferation of keratinocytes as well as disturbed cell maturation. The epithelial cell proliferation is increased resulting in a twelve fold shortening of the cell cycle. Turn over rate of normal epidermis is 457 hours, which is shortened to 37.5 hours in Psoriasis skin.

This findings gave rise to the use of Cytotoxic drugs as well as ultra violet application (U.V.A) in the treatment of Psoriasis.

Modern medical science treats Psoriasis with external application of tars and steroids, with oral drugs like Methotrexate and Psoralen, and with the application of ultra violet radiation. These methods of treatment are applied either singularly or in combination with each other.

As the exact cause of the illness is not known to modern science, its complete prevention cannot be aimed at. But keeping Koebner or Isomorphic phenomenon in view the patients may be advised to avoid excessive scratching and excessive exposure to sun and ultra violet light.

Record of psoriasis is available in the oldest of Indian Medicinal books dating back to many centuries, the exact measure of which is difficult to make due to non availability of proper past historical data and also due to the difficulty in interpreting the oldest medical literature in its exactness. Literatures later to the most ancient ones which are fairly well interpretable or at least partly interpretable classify this disease as one or more varieties of the seven major skin diseases (Sapta Maha Kustha).

Analysing the aetiopathogenesis of Psoriasis in terms of Ancient Indian Science one finds that it has a multifactorial approach. There are inciting factors which throw the chemical environment in the body out of balance, disturb the physiology and stimulate the body tissues to behave pathologically. Certain inciting factors recorded are as follows:-

- i) Consumption of food elements antagonistic to each other in their chemical nature. Eg. Taking non-vegetarian food alongwith milk or milk preparations in the same meal.
- ii) Suppressing the urge of impulses of bowel, bladder, sneezing, yawning and vomiting, etc.
- iii) Hard exercise in full stomach. i.e soon after taking meal.

- iv) Regular consumption of semi-cooked food (Improperly cooked food.)
- v) Ingesting food while the previously taken food is not digested.
- vi) Drinking chilled water when tired with excessive heat, exhaustion (exercise, coitus) or mental worries.
- vii) Regular eating of acidic food stuff.
- viii) Sleeping in day time if otherwise not indicated.
- ix) Indulging in wicked, sinful or immoral activities, eg. Insulting or assaulting elders as father, teachers etc.

Practice of above mentioned inciting factors vitiate the three basic body humors (Vata, Pitta and Kapha) out of homeostasis (Balance), resulting in their tridiscordance (tridosha), involves the skin and deeper tissues causing skin diseases (Kustha).

Here Vata (the wind humor – the marut element of pancha mahabhoota), Pitta (the acid humor – the tejas elements of Panchamahabhoota) and Kapha (the phlegm humor – the Khsiti element of Panchamahabhoota) are known as the triad of doshas. (Causative factors); and Rasa (cytoplasm – body fluid), Mamsa (flesh – tissues), Lasika (lymph) and Rudhira (blood) are known as the tetrad of dushyas (areas of action).

Ancient Indian Medical Science (Ayurveda) narrates Kustha (Leprosy or skin diseases) as seven major ones (Mahakustha) and eleven minor ones (Kshudra Kustha).

In all the seven major types, involvement of Tridosha (Sannipata) is found but its individual types are determined by the predominance of individual humor in the tridiscordance (doshapradhana). Psoriasis which fits to the description of Mandala Kustha as well as Sidhma kustha of the Sapta Maha Kustha is also caused by tridiscordance, with the predominance of Vata and Kapha and hence is difficult to cure (follows an irregular and chronic course). The classical feature of Psoriatic skin lesion that it sheds silvery scales on scratching has a mention in Madhava Nidana “Yad rajoghristam bimunchati” placing it in the category of Sidhma Kustha. (Madhava Nidana, Kustha Nidana, Chapter, Verse No.16).

The genetic influence of Psoriasis also has a mention in Indian Literature. Males and females suffering from Kustha (Psoriasi) pollute their semen and ova with it. When such polluted sperm and / or ova produce off springs they are either born as congenital psoriatics or remain prone to psoriatic illness.

Little information is available in Indian literature about the incidence of Psoriasis among people. Indian Medical Science advises treatment of Psoriasis with the following methods.

- i) Panchakarma (five specific purificatory processes).
- ii) Sheera Mokshana (Making to bleed from veins).
- iii) External application of herbal, mineral, or herbomineral agents.
- iv) Oral therapy by herbal, mineral or herbomineral drugs.

- v) Controlled exposure to sunlight (to ultra violet and other spectrum of light rays).

These methods of treatment are applied either singularly or in combination with each other. It is advised to practice Panchakarma prior to other methods of therapy to bring out excessive dosha from the body.

Ayurveda advises prevention of Psoriasis by keeping away from the inciting factors listed above which vitiate the body humors to precipitate the diseases. According to this science an individual who is disciplined, self limited and practices rightful dietary as well as behavioural measures has little chance to suffer from this disease.

Evaluation of Psoriasis healing property of a chemical compound developed from Haritala (AS₂S₃) Parada (Hg) and Palasha Bhasma./

Haritala, chemically known as Arseneous sulfide or Arsenic trisulfide (AS₂S₃) occurs in nature as a mineral known as Orpiment. It is commonly found under earth's crust being formed in layers as in the case of mica. The layers are closely set with each other appearing as a single mass, shining and golden yellow in colour. This Arsenic Trisulfide is mainly referred to as Patra Haritala in Rasa Tantras (Indian inorganic material medica). Arsenic trisulfide is obtained in laboratory as a yellow precipitate by passing Hydrogen sulfide (H₂S) through a solution of Arseneous Oxide in Hydrochloric acid.

The use of Haritala in treating skin ailments is widely authenticated and documented in Indian Medicinal Chemistry. It is described to have a broad spectrum skin disease healing property.

Parada (Mercury, Hg) is the most important ingredient in Indian Medicinal Chemistry and is described to have the properties to dispel illness, to re-establish homeostasis in tridosha (tridiscordance) and to revive disease and decayed tissue function by rejuvenating them. It is stated to work as an anti-senility factor (Rasayana). Documents are abundant in Rasa Tantras (Indian Alchemy books) relating the use of Parada in healing wide range of skin diseases (Kustha).

Considering the above mentioned criteria Haritala and Parada were selected to be the two specific ingredients for the compound.

Palasa (*Butea monosperma*) is known to have certain beneficial medicinal properties. Being also known as Brahma Vriksha it has anthelmintic (Krimi nashaka) as well as Rasayana (Tonic) effects on human system. Apart from imparting its medicinal values to the chemical compound it most probably, also, acts as catalyst in the chemical reaction.

MATERIALS AND METHODS

Good quality of Patra Haritala was purchased from the local market. It was then subjected to various specific stages of purification (as specified in Rasa Tantras) to get rid of the unwanted toxic substances (Mala) present in it, and to elevate it to medicine grade from mineral grade.

Similarly commercial mercury was purchased from the local market and was subjected to the eight specific stages of treatment (Asta Karma) described in Rasatantras to detoxify it (Sapta Kanchuka Mookta) and to bring it to a stage beneficial for human consumption.

Dried wood of Palasa tree was burnt in open air to obtain its carbon free white ash.

Required quantities of Patra Haritala (AS_2S_3), Parada (Hg) and white ash of Palasa were sealed together in a heat resistant clay container sealed properly from all sides and was subjected to continuous grade heating. At the end, heat application was stopped and the container in situ was allowed to be cooled itself completely to normal temperature. The container then was opened, the entire content was taken out, powdered finely and bottled air tight for trial use.

Five cases with established diagnosis of Psoriasis of Skin, collected from the Skin and V. D. Department of Bokaro General Hospital were included in this study of these five cases three were females and two were males, aged in between 20 yrs to 45 yrs. All of them had generalized psoriatic lesions of skin with varying severity and involvement of skin areas. None of them had nail and/or joint involvement. Prior to the trial the subjects were thoroughly examined and investigated to assess their physical status and to assess the presence of any other systems it illness which was found non-conclusive in all these cases. The trial period lasted for six weeks during which each of the five subjects were given a single oral dose of 200 mg. of the compound daily in empty stomach immediately before morning breakfast. They were allowed to take normal diet and to do normal activities during this period. They were closely followed up at least once a week for six weeks to assess the skin lesions step by step, as well as to look for the development of any side effects and toxicity. The trial was culminated after six weeks and final assessment was made. Two subjects, one male and one female dropped out of the trial in the fourth week due to unknown reasons

which was never reported. Three subjects, two females and a male successfully completed the trial.

Observations and Result

The following observations were made and the results found out:-

- i) The compound was readily acceptable and well tolerated by the subjects throughout the trial period.
- ii) No side effect or toxicity was either reported by the subjects or was noticed in them.

- iii) Right since the beginning of medication till its end all the subjects showed a gradual, systematic and steadily progressive healing of the skin lesions. At the end of the trial period marked remission was found in all the subjects, their psoriatic skin replaced by healthy skin tissue.
- iv) There was no discolouration of skin.
- v) The subjects did not show any change in their general health, energy level and working capacity.

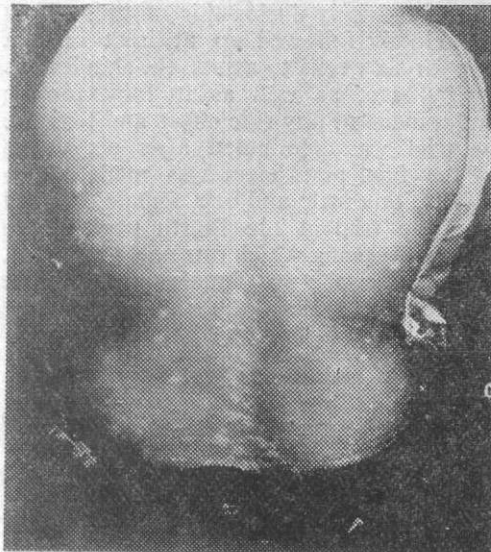


Fig. I A

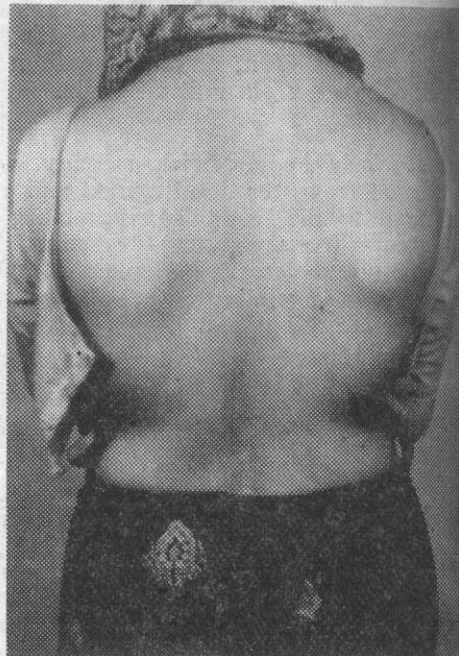


Fig. I P →

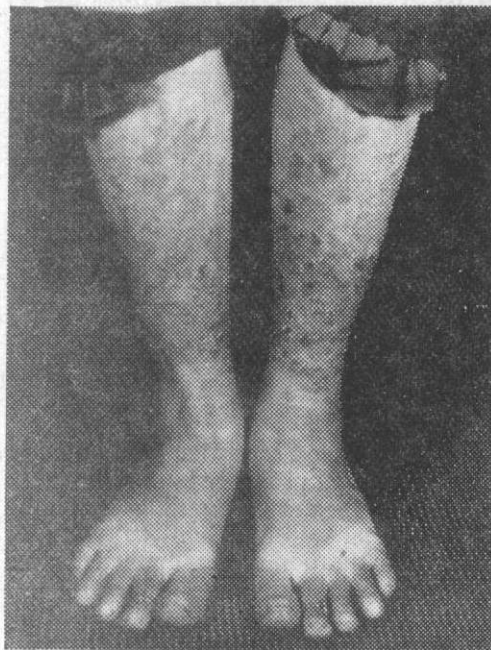


Fig. I C



Fig. I D →



Fig. II A



Fig. II B



Fig. III A



Fig. III B

DISCUSSION

The compound exerts its healing effect on Psoriasis most probably by inhibiting the pathological factors responsible for rapid and abnormal proliferation as well as disturbed maturation of the epithelial cells. Considering the tridosha (Tridiscordance) theory of Ayurveda explaining the genesis of Psoriasis, I am inclined to believe that this compound brings about remission in Psoriasis by correcting the vitiated humors and establishing a state of balance (homoeostasis) in them (brings them back to physiological state from pathological state).

The modern treatment for Psoriasis is messy, cumbersome and is risked with the development of disagreeable long lasting side effects like dark tanning of the skin and neoplastic changes of the skin (Squamous cell carcinoma). Besides, such modern treatment facilities are available at restricted places, only at specific skin centre making it impossible for the entire psoriatic population to avail the benefit of it. Moreover it cannot be given to out patient population through out patient clinics and institutionalization (hospitalization) is necessary.

Especially in countries like India where modern treatment facilities for Psoriasis is very limited only a small percentage of the entire psoriatic patients are able to receive it. Psoriasis being quite commonly seen in India one can easily understand that majority of the Psoriasis patients in India fail to receive any competent and suitable treatment.

The present compound of this study appears to have a markedly potent antipsoriatic activity. It can be conveniently administered in a single daily oral dose. Hospitalisation is not necessary as the

patients can be conveniently treated at their homes through out-patient clinics indulging in their usual diet and daily activities. There is no side effect or toxicity of the compound.

Considering the above criteria there appears to be a promising future for this compound to be regarded as the potent antipsoriatic medicine. In countries like India where patients greatly outnumber of doctors, hospitals and clinics, this compound should be considered as a boon to the suffering mass of Psoriasis patients. It is observed that this compound may work as a broad spectrum skin disease healing medicine.

CONCLUSION

Orpiment and mercury, the two main ingredients of the compound are heat labile, mercury vaporizes at 357°C and Orpiment at around 620°C. Earthen-ware pots and clay for sealing them to process the compound was put into practice. Soil in and around Bokaro being sandy the earthen ware pots available here are some what porous in nature. As the compound had to be processed in moderately intense heat (Presumably around 700°C – 1000°C) a part of parade and a part of Haritala might have escaped out. If modern equipments and competent heat resistant sealing is used the entire amount of mercury and orpiment can be retained inside the container to develop the compound in its full strength. In this situation the compound can be rendered more potent.

Apart from purifying Parada to medicine grade, Astasamskara (Eight specific steps of treatment) is designed, in addition, to make it less quick (Baddha) and more heat stable (Agnisthayee) i.e. elevation of its boiling

point to a comparatively higher degree than 357°C. The seventh step of Atasamskara, i.e . Niyamana Samskara is designed to achieve it. But here what exact degree this heat stability is achieved, (to what exact degree the boiling point of mercury is heightened) is not recorded due to lack of modern laboratory facilities.

No specific treatment for Haritala (Orpiment) is available in Rasa Tantras hitherto referred which renders it heat stable

beyond its vaporization point (around 620°C).

If real heat stability (at 600°C – 700°C) is achieved in Parada and high quality containers and sealing materials are used the compound shall have its maximum potency and may require only smaller dosage to heal Psoriasis.

The efficacy of a medicine is directly proportional to the richness of elemental strength present in it.

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