



Review Article

ISSN: 2454-5023

J. Ayu. Herb. Med.

2016; 2(5): 186-191

September- October

© 2016, All rights reserved

www.ayurvedjournal.com

Psoriasis: A comparative study as per ayurvedic and modern classics

Darshana Deka^{*1}, Tapashi Borah², Amit Swarnakar¹, D. Baruah³, B. K. Bharali⁴

¹ SRF (Ayurveda), Regional Ayurveda Research Institute for GID, Guwahati, Assam- 781028 India

² Research Officer (S-4), Regional Ayurveda Research Institute for GID, Guwahati, Assam- 781028 India

³ Research officer (S-3), Regional Ayurveda Research Institute for GID, Guwahati, Assam- 781028 India

⁴ Assistant Director (S4) & In-charge, Regional Ayurveda Research Institute for GID, Guwahati, Assam- 781028 India

ABSTRACT

Psoriasis is a complex, chronic, multifactorial, inflammatory disease which involves hyper proliferation of the keratinocytes in the epidermis, with an increase in the epidermal cell turnover rate. At present time, Psoriasis is one of the most common human skin diseases. Majority of the dermatological disorders have been described under the roof of Kushtha in Ayurveda. In this article, ancient Indian literature regarding dermatological disorders is studied thoroughly to make a comparison between the information given in ayurvedic classical texts and those given in modern medical science in relation to psoriasis. After studying Kushtha in ayurvedic literature, it is clear that the disease Psoriasis is mostly comparable with two varieties of kshudrakustha i.e. Eka kustha and Kitibha kustha and also with a variety mahakustha i.e., Sidhma kustha. It is also clear from the study that there is vast resemblance between the Panchanidan i.e., Nidan, Purvarupa, Rupa, Upasaya, Samprapti of Kushtha and the etiopathogenesis and symptomatology of psoriasis. The objective of this review is successful in comparing psoriasis with kustha with special reference to Ekakustha and Kitibha kustha. Due to the close resemblance, it is also tried in this work that the treatment procedures along with various formulations mentioned in skin disorders of ayurveda can be applied in psoriasis which adds new dimensions in management of such a chronic and complex disease.

Keywords: Psoriasis, Kshudrakustha, Eka kustha, Kitibha kustha, Mahakustha, Sidhma kustha.

INTRODUCTION

Psoriasis is an autoimmune noninfectious, chronic, inflammatory skin disorder where altered keratinization of epidermal cell takes place with well-defined erythematous lesion and silvery plaques with a predilection for the extensor surface and scalp and a chronic fluctuating course.¹ The pathogenesis of Psoriasis involves both genetic predisposition including the influence of genes of the Human Leucocyte Antigen Complex and T-Cell mediated immunological mechanisms.² The word "Kustha" means that which makes one's skin look disgraceful or ugly.³ In Ayurvedic classics, Kushtha Roga is divided into two groups, Mahakustha and Kshudrakustha which are again classified into seven types and eleven types respectively. Due to mithyaahara, vihara and karma, tridoshas get vitiated affecting the Twak, rakta, mangsa and ambu and thus it produces kustha. It is classified as one of the "Astha Mahagada".⁴ In this Article, classical details of Kushtha with special reference to Ekakustha and Kitibha are studied elaborately along with its modern counterpart i.e., Psoriasis.

Aims and Objectives

The ancient Indian knowledge of Kushtha with special reference to Ekakustha and Kitibha is focused here and effort is made to compare the ancient Indian knowledge of Ayurveda in respect of this disease with the modern medical science. With this aim, the definition, pathogenesis, clinical features, concept of treatment, premonitory symptoms have been highlighted both from ayurvedic and modern literature in relation to psoriasis.

*Corresponding author:

Dr. Darshana Deka

SRF (Ayurveda), Regional
Ayurveda Research Institute for
GID, Guwahati, Assam- 781028
India

Email:

dekadarshana07[at]gmail.com

Comparison of Psoriasis with Kustha with special reference to Sidhma Kustha, Ekakustha and Kitibhakustha

S No.		Psoriasis (Modern concept)	Kustha (Ayurvedic concept)
1	Definition	The word 'psoriasis', is derived from the Greek word "psora", which means "itch" or "scurf" or "rash". Psoriasis is a chronic (long-lasting) skin disease of scaling and inflammation. ⁵	"Kushnati iti Kustha" means that which makes ones skin look disgraceful or ugly or which destroys twak and other dhatus is called Kustha.
2.	Etiology	<p>Diet in Psoriasis- Diet has been suggested to play a role in the etiology and pathogenesis of psoriasis. It has been observed that psoriasis has been improved in 60% of the patients who changed their dietary habits. Fasting periods, low-energy diets and vegetarian diets improved psoriasis symptoms in some studies.⁷</p> <p>Environmental Factors-These environmental trigger factors can be mechanical injury, ultraviolet, and chemical injury; various infections; prescription drug use; psychological stress, smoking; and other factors. The most compelling of these is infection with group A streptococci. Streptococcal throat infections frequently precede outbreaks of guttate psoriasis which can then lead to chronic plaque psoriasis.¹⁰</p> <p>Psychological stress plays an important role. Till date several studies suggested that most of the dermatological disorders are chronic inflammatory, immunogenic and psychosomatic in nature¹¹</p> <p>Genetic factors- Research studies are found that really established the genetic component in Psoriasis. There is a clear genetic basis in psoriasis, as the incidence was found much greater amongst first- and second degree relatives of patients with psoriasis.¹³</p> <p>Immunologic factors: Evidence suggests that psoriasis is an autoimmune disease. Studies show high levels of dermal and circulating TNF-α. Psoriatic lesions are associated with increased activity of T cells in the underlying skin.¹⁵</p>	<p>Aharaja Nidana- Taking excessive amount or constant usage of certain foods like new formed rice, heavily digestible foods, citrus fruits, She buffalo milk, curd, fish, jaggery, unrefined sesame oil, Horse gram, black gram, field beans, food articles (sweets) prepared by sugars, and carbohydrate rich foods. Improper food habits play an important role in the etiology of Kustha.⁶</p> <p>Viharajanidana- Day sleep, sexual intercourse, suppressing the natural urge of the body, excessive exposure to sunrays, excessive worry/grief, excessive physical exercis⁸</p> <p>Sansargaja Nidana- Kushtha is considered as Sansargaja Vyadhi (communicable or infective disease)⁹</p> <p>Manasika Nidana/Behavioral factors -behavioral misconduct, excessive worry, grief, antisocial activities, sinful activities and other punishable activities</p> <p>Kulaja Nidana- Kushtha is considered as Adibala Pravratva Vyadhi i.e., a hereditary disorder¹²</p> <p>Poorva Janmakrata: According to Sushruta if the person suffered from Kushtha in his previous life and if he takes rebirth then he develops Kushtha in his present life also¹⁴</p>
3.	Pathogenesis	<p>Specifically, the epidermis is infiltrated by a large number of activated T cells, which appear to be capable of inducing keratinocyte proliferation. This is supported by histologic examination and immunohistochemical staining of psoriatic plaques revealing large populations of T cells within the psoriatic lesions.¹⁶</p> <p>Ultimately, a ramped-up, deregulated inflammatory process ensues with a large production of various cytokines (e.g., tumor necrosis factor-α [TNF-α], interferon-gamma, interleukin-12). Many of the clinical features of psoriasis are explained by the large production of such mediators. Interestingly, elevated levels of TNF-α specifically are found to correlate with flares of psoriasis</p> <p>Key findings in the affected skin of patients with psoriasis include vascular engorgement due to</p>	<p>Samprapti-</p> <p>Nidana Sevana \downarrow Tridosha Prakopa \downarrow Twak, Rakta, Mamsa and Ambu Shaithilyata \downarrow Further Vitiation of Doshas occurs \downarrow Doshas gets accumulated at the place of DhatuShaithilyata \downarrow Doshha and DushyaSamurchhana \downarrow Kustha^{18, 19},</p>

		superficial blood vessel dilation and altered epidermal cell cycle. Epidermal hyperplasia leads to an accelerated cell turnover rate (from 23 d to 3-5 d), leading to improper cell maturation. Cells that normally lose their nuclei in the stratum granulosum retain their nuclei, a condition known as parakeratosis. In addition to parakeratosis, affected epidermal cells fail to release adequate levels of lipids, which normally cement adhesions of corneocytes. Subsequently, poorly adherent stratum corneum is formed leading to the flaking, scaly presentation of psoriasis lesions, the surface of which often resembles silver scales. ¹⁷	
4.	Premonitory signs and symptoms	Psoriasis can go undetected its first occurrence or during its earlier stages; symptoms appear mild as small, faint, dry patches. ²⁰	<ol style="list-style-type: none"> 1. Sparsajnatva- lack of touch sensation in the skin lesion area 2. Atisweda or Na Va – Excessive sweating or absence of sensation 3. Loma harsha – Horripulation 4. Kandu, Toda, Shrama and Klama – itching, pricking pain, physical exhaustion and mental fatigue. 4. Discoloration and elevation of the patches (kotha) in the skin. 5. Shoolam – Excessive pain in the ulcerated parts 6. Vranaadhikam – Instantaneous appearance and continued persistence of these ulcers and 7. Daha , Suptangata – Burning sensation and numbness.²¹
5.	Clinical features	<p>Common symptoms include:</p> <p>Plaques of red skin often covered with loose, silver scales. This is the symptom most commonly associated with psoriasis Such lesions can be extensive, itchy and painful. Cracking and bleeding may occur. In the most severe cases, these patches merge with one another to cover entire surface areas of the body.</p> <p>-Irritated patches of skin and dots , which are raised and thick, ranging from pink-red salmon to red in color. Often these skin patches or skin dots are, like noted in the aforementioned, covered in silvery scales.</p> <p>-Redness on elbows, knees, trunk and scalp. Though these are the main places in which psoriasis symptoms are seen, symptoms can occur anywhere on the body.</p> <p>-Change and disfiguration of nails. Thickening, yellow-brown spots, dents and pits in the nail surface, separation of nail from base and crumbling of the actual nail may occur.</p> <p>-Severe dandruff. Plaques of silver scales or crust may develop as loose flakes constantly shed²⁵</p>	<p>Sidhma Kustha: Svetam, Tamram – White and coppery in color. Tanu, Ghrustamvimunchati – Thin, and when rubbed, it emits small particles of the skin in the form of dust Alabupushpavarnam – It resembles the flower of alabu (Lagenariasiceraia) and Prayena Cha Urasi – It is generally located in the chest. It is caused due to Vata and Kapha Dosha increase.²²</p> <p>Kitibha: Shyavam- It is blackish brown in color Kina kharasparsham – It is rough in touch like a scar tissue and Parusham – It is hard to touch It occurs due to increase of Vata and Kapha Dosha²³</p> <p>Eka Kushta: Asvedana – Absence of sweating Extensive localization and Yatmatsyakalopamam – Resembles the scales of fish. It occurs due to increase of Vata and Kapha Dosha²⁴</p>
6.	Diagnosis	In most cases, <u>psoriasis</u> can be diagnosed by	By RogaPariksha,

		<p>examining <u>skin</u>. If the dermatologist isn't sure whether the patient has <u>psoriasis</u>, he or she may order a <u>biopsy</u>.</p> <p>If there are <u>symptoms of psoriatic arthritis</u>, such as swollen and painful joints, your doctor might run <u>blood tests</u> and take X-rays to rule out other forms of <u>arthritis</u>.²⁶</p>	<p>1) Pratyaksha</p> <p>2) Darshan and Sparshanpariksha</p>
7.	Prognosis	<p>Scientific research has suggested that the physical and mental disability associated with moderate to severe cases of psoriasis is similar to that experienced with other chronic health conditions, such as heart disease and cancer.</p> <p>Associated Factors</p> <p>Psoriasis is related to several other factors, including:Smoking,Alcoholconsumption,Metabolic syndrome,Lymphoma,Depression,Suicide,Melano ma,Cardiovascularisease,Respiratorydiseases,Di abetes,Kidney disease,Arthritis</p> <p>These factors may also account for the mortality changes noted in patients with severe psoriasis.^{28,29}</p>	<p>Sadhya-Asadhyata</p> <p>It is advised in ayurvedic classics that the treatment of following types of patients suffering from Kustha should not be done.</p> <p>1) The patient of Kusta with the signs and symptoms all the 3 vitiated Doshas</p> <p>2) The patient who is weak</p> <p>3) The patient who is suffering from morbid thirst, burning sensation</p> <p>4) The patient having no digestion strength and</p> <p>5) The patient having maggots in the patches of Kustha.²⁷</p>
8.	Treatment	<p>Treatment is based on:</p> <ul style="list-style-type: none"> • The severity of the disease • The extent and location of the areas involved • Responsiveness to the treatment <p>Topical Treatment</p> <ul style="list-style-type: none"> • Corticosteroid creams and ointments (most common treatment) • Synthetic forms of vitamin D and retinoids • Retinoids • Coal tar preparations • Bath solutions and moisturizers • Tacrolimus and pimecrolimus (especially for inverse psoriasis) <p>Photo (Light) Therapy</p> <p>Daily, short, nonburning exposure to sunlight clears or improves psoriasis in many people. Sunlight is often included among initial treatments.</p> <p>A more controlled form of artificial light treatment (UVB phototherapy) is often used in cases that are more widespread. Alternatively, psoriasis can be treated with ultraviolet A (UVA light) and psoralen. Psoralen is an oral or topical</p>	<p>Chikitsa:</p> <p>Patient suffering from Kustha dominated by Vata is administered with herbal ghee internally. Patient suffering from Kustha dominated by Kapha, is administered <u>Vamana – emetic therapy</u>. Patient suffering from Kustha dominated by pitta is given <u>Virechana – purgation therapy</u>. For Vamana and Virechana for a Kushta patient, patient suffering from Kustha, the recipes described in the Kalpathana section is employed.</p> <p>Rakotamokshana – bloodletting:</p> <p>PracchannaRaktamokshana Blood- letting is done with a coarse device in case of Kusht with mild symptoms. SiraVyadha Raktamokshana – vein puncture – is administered in more acute stage.</p> <p>Multiple Shodhana therapies:</p> <p>Kushta patient with more vitiated Doshas (Bahudosha) is given Shodhana therapies for several times, with a lot of care.</p> <p>Excessive elimination of Doshas(morbid factors) might weaken the patient and the aggravated Vata might endanger patient's life instantaneously. Because Vayu gets aggravated and the patient becomes weak soon after the elimination therapies which condition will be remedied by the administration of the <u>Snehapana – oleation therapy</u>.³⁰</p> <p>Shamana treatment for Kushta – Palliative measures:</p> <p>The remedies for cure of different types of Kustha, are categorized on the basis of aggravation of Doshas.³¹</p> <p>Therapies for the cure of Kustha in general are-</p>

		<p>medication that makes the body more sensitive to light. This treatment is known as PUVA.</p> <p><u>Phototherapy</u> may cause side effects such as nausea, headache, and fatigue, burning, and itching. Both UVB and PUVA may increase the person's risk for <u>squamous cell</u> and, possibly, <u>melanoma skin cancers</u>.</p> <p>Systemic Treatment</p> <p>For more severe types of psoriasis, systemic therapy includes</p> <ul style="list-style-type: none"> • Methotrexate—a type of systemic medication that affects the whole immune system. • Cyclosporine—another type of systemic medication that suppresses the immune system. • Hydroxyurea— less toxic than methotrexate or cyclosporine, but may be less effective • Systemic retinoids—Compounds with vitamin A-like properties taken internally may be prescribed in severe cases. • Newer medications include biologic agents, which affect a part of the body's immune response by targeting certain cells in the immune system that cause inflammation <p>Prevention:</p> <p>Avoiding physical trauma to the skin, infections, and cold, dry temperatures may help reduce flare-ups in people with the condition. It is advised to avoid certain foods which are thought to make the psoriasis worse.^{37,38,39,40}</p>	<p>Intake of Rasanjana (solid extract prepared of the decoction of Daruharidra) along cow urine cures Kushta (skin diseases).</p> <p>Intake of Abhaya along with Trikatu (Ginger, pepper and long pepper), Guda (Jaggery) and sesame oil for 1 month cures Kushta.³²</p> <p>Patolamuladi Kashaya, Mustadi Churna, Triphaladi Churna,^{33,34,35}</p> <p>Madhvasava, Kanakabindvarista, Triphalasavaare useful in treatment of kushta.³⁶</p> <p>Use of Sulphur:</p> <p>Administration of Lelitaka (Sulphur) with the juice of (Amalaki) together with honey is the remedy par excellence for the cure of 17 types of Kushta (skin diseases). Similarly, is the therapeutic efficacy of Makshika Dhatu (copper pyrite) taken together with Cow's urine⁴¹</p> <p>Use of Mercury: If Rasa (mercury) is processed by adding sulphur or Svarnamakshika (copper Pyrtite), the Bhasma so prepared would be a remedy par excellence for curing all ailments. Similarly, Mercury processed with Diamond and Shilajatu, or Yogaraja cures all ailments.⁴²</p>
--	--	--	---

DISCUSSION

After studying Kushta in ayurvedic literature, it is clear that the disease Psoriasis is mostly comparable with Eka kushta, Kitibha kushta and Sidhma kushta which are categorized under kshudrakusthas and mahakushta respectively. Panchanidan of kushta i.e., Nidan, purvarupa, rupa, upasaya, samprapti of Kushta are studied simultaneously with the etiopathogenesis and symptomatology of psoriasis. Aharaja nidana is mentioned in kushta whereas as per modern science also diet plays a role in the aetiopathogenesis of psoriasis. Environmental factors like various kinds of mechanical injury, ultraviolet injuries are mentioned as excessive physical exercise, excessive exposure to sunrays. Infection is supposed to be a triggering factor whereas samsargaja nidana was mentioned in classics. Psychological stress factors help in the manifestation of dermatological disorders as manasika nidana mentioned for kushta. Genetic factors for psoriasis can be focused as kulaja nidana i.e., Kushta is a Adibalaprabritta vyadhi. Regarding pathogenesis, the epidermis is infiltrated by a large number of activated T cells, which appear to be capable of inducing keratinocyte proliferation. Key findings in the affected skin include vascular engorgement due to superficial blood vessel dilation and altered epidermal cell cycle. Epidermal hyperplasia leads to an accelerated cell turnover rate (from 23 d to 3-5 d), leading to improper cell maturation. In addition to parakeratosis, affected epidermal cells fail to release adequate levels of lipids, which normally cement adhesions of corneocytes, as a result poorly adhered stratum

corneum leads to flakes and scales of psoriasis. Samprapti of kushta says as vitiated tridoshas cause saithilya of twak, rakta, mangsa and lasika take shelter there resulting in Kushta. There seems to be a close association between pathogenesis of psoriasis and kushta, which is a subject of further research. Regarding prodromal symptoms of psoriasis, very less informations are found and simultaneously purvarupas of kushta are highlighted. It is clear from the clinical features that psoriasis mostly resembles with the rupa of Ekakushta, Kitibha kushta and Sidhma kushta. Regarding prognosis, limited informations are found. If severe form of psoriasis is associated with chronic health conditions such as heart disease or cancer, these factors may also account for the mortality changes noted in patients with severe psoriasis. Similarly in the classical reference of kushta, patients who are week, having morbid thirst or burning sensation are said to be asadhya i.e., Untreatable. Regarding treatment of Psoriasis, there is very limited scope in modern medicine. Various preparations are available for tropical and systemic applications. But the treatment procedures are with serious side effects. Whereas very effective treatment modalities are found in ancient ayurvedic classics for kushta. As Ayurveda emphasizes as the Nidana Paribarjana as the first line of treatment to treat a disease, so it is also applicable to prevent the manifestation of this chronic dermatological disorder called psoriasis. The panchakarma purificatory therapies along with shaman therapies are much helpful compared to modern medications as different aforesaid varieties of Kushta have similar presentations with Psoriasis. Such comparative study of Ayurvedic disease with its modern

counterpart not only helps in proper understanding of diseases particular but also can add new dimensions to the treatment aspect under proper research based evaluation.

CONCLUSION

Psoriasis is a non-infectious chronic inflammatory disease of skin characterized by well-defined erythematous plaques with silvery scales having chronic fluctuatory course affecting both sex and different age groups. Kustha is described as one of the most chronic diseases in Ayurvedic literature. Under the roof of Kustha, Ayurveda described a wide range of dermatological disorders including its classification, etio-pathogenesis, clinical presentation, prevention and management. The disease courses and the treatment modalities mentioned for dermatological disorders as described in Ayurveda are highlighted here with their modern counterparts and the measures mentioned in classics are focused in this study which provides management in natural way with no adverse effects. However this article needs further discussion so that a fruitful conclusion can be drawn in near future on the basis of research based evaluation.

Acknowledgement

The authors are thankful to Director General, Central Council for Research in Ayurvedic Sciences, New Delhi for encouragement and providing us the opportunity to collect the information for publication.

Author Contribution

All the authors have authored and technically reviewed the paper.

REFERENCES

1. Edwards CRW Bouchier IAD, Haslett C & Chilvers ER, Davidsons Principles and Practice of Medicine, 18 th edn, (ELBS with Churchill Livingstone, USA) 1999, 948-52.
2. Harrison, Eugene Braunwald, Anthony, S. Farci, Dennis L.Kasper, Stephen, L. Hauser, Dan.L. Longo, J.Larrey, Harrison's Principle of Internal Medicine, 15 th Edition Vol-1, MC Graw Hill Publications.
3. Charak Samhita of Agnivesha Revised by Charaka and Drihabala with elaborated Vidyotini Hindi commentary by Pandit Kashinath Sastri and Dr. Gorakha Natha Chaturvedi.
4. Sushruta Samhita, Ayurveda Tatva Sandeepika Hindi commentary by Vaidya Priyavrat Sharma, Chaukhamba Sanskrit Pratisthan Varanasi, Sutrasthan-33/4-5.
5. Questions and Answers about Psoriasis 1`National Institute of Arthritis and Musculoskeletal and Skin Diseases.
6. Agnivesha, Charaka Samhita, elaborated by Charaka and Drihabala, Vaidyamanorama Hindi Commentary by Acharya Vaidyadhara Shukla, Prof. Ravi Dutt Tripathy, Chaukhamba Sanskrit Pratisthan, Delhi, 2006, Vol-2, Chikitsa sthana7/4-8,p-181.
7. Sanjeev S.Tonni, Shamsad Begum, Diet in Psoriasis-An Ayurvedic Perspective, J-ISM, V2(4) pp210-215.
8. Agnivesha, Charaka Samhita, Elaborated by Charaka and Drihabala Sukla Vaidyamanoramahindi commentary by Acharya Vidyadhara Shukla, Prof. Ravi Dutt Tripathi, Chaukhamba Sanskrit Pratisthan, Delhi 2006, vol-2 Chikitsa sthana7/4-8,p-181.
9. Sushruta Samhita, 14th edition, volume 1, Chaukhamba bharati Academy, Varanasi, 2005, 251.
10. Prieto-Perez R Cabaleiro T.Dauden E.Ochoa D.Roman M.Abad-Santos F (Aug 2013) Genetics of Psoriasis and pharmacogenetics of Biological drugs,'Auto immune Dis, 2013, PMID 24069534.
11. Sing Satyapal, Tripathi JS, Rai NP, An overview of Ayurvedic and contemporary approaches to psychodermatology. The Journal of Phytopharmacology 2014;3(4):286-299.
12. Sushruta Samhita, 14th edition, Volume 1, Chaukhamba Sanskrit Sansthan, Varanasi, 2003,250.
13. Lomhott G. Psoriasis: Prevalence, Spontaneous course & genetics. Acensus study on the prevalence of skin diseases on the Faroe Islands, Copenhagen: GEC Gad,1,1963:31-3.
14. Sushruta Samhita, 14th edition, volume 1, Chaukhamba bharati Academy, Varanasi, 2005, 49.

15. emedicine.medscape.com/article/1943419-overview
16. Krueger JG, Bowcock A. Psoriasispathophysiology: Current Concepts of pathogenesis, Ann Rheum Dis.2005 Mar. 64 suppl.2:ii30-6[Medicine]
17. emedicine.medscape.com/article/1943419-overview
18. Charak Samhita, Chikitsa Sthan,17th sloka
19. Byadgi P.S. Kustha, Parameswarapp's Ayurvediya Vikriti Vigyan and Roga Vigyan, 1st edition, volumell, Varanasi, Chaukhambha Sanskrit Sansthan, 2009;268-98.
20. www.mariobadescu.com/symptoms of psoriasis.
21. Charak Samhita, Chikitsa Sthan,7th Chap,Sloka 11-12
22. Charak Samhita, Chikitsa Sthan,7th,19th sloka
23. CharakSamhita, Chikitsa Sthan,7th ,18th sloka
24. Agnivesha, Charaka, Drihabalaa, Charaka Samhita, volume-1, Chaukhambhabharati Academy, Varanasi, 2005, 643.
25. www.mariobadescu.com/symptoms of psoriasis.
26. Web MD Medical Reference/Reviewed by Stephanie.S. Gardener MD ON June 05,2015.
27. Charak Samhita, Chikitsa Sthan,7th chapter,slok 37-38
28. <http://www.ncbi.nlm.nih.gov/pubmed/18700909>
29. <http://emedicine.medscape.com/article/1943419-overview>.
30. Charak Samhita, Chikitsa Sthan,7th chapter,slok 39-42.
31. Charak Samhita, Chikitsa Sthan,7th chapter,sloka 60
32. Charak Samhita, Chikitsa Sthan,7th chapter,sloka 61
33. Charak Samhita, Chikitsa Sthan,7th chapter,sloka 62,63,64
34. Charak Samhita, Chikitsa Sthan,7th chapter,sloka 65,66,67
35. Charak Samhita, Chikitsa Sthan,7th chapter,sloka 68,69
36. Charak Samhita, Chikitsa Sthan,7th chapter,sloka 73,82
37. American Academy of Dermatology <http://www.org/dermatology-a-to-z/diseases-and-treatments/m-p/psoriasis>
38. Moderate to severe psoriasis:biologicdrugs.National psoriasis Foundation,<http://www.psoriasis.org/net> community/sublearn 03-severe-metho
39. <http://www.ebscohost.com/dynamed> updated September8,2014.
40. Varanasi J. Bhagavathula N, Ellis CN, Pershadsingh HA. Thiazolidinediones: potential as therapeutics for psoriasis and perhaps other hyperproliferative skin diseases. Expertopin Investig. Drugs.2006;15:1453-1468.
41. Charak Samhita, Chikitsa Sthan,7th chapter,sloka 70
42. Charak Samhita, Chikitsa Sthan,7th chapter,sloka 71,72

HOW TO CITE THIS ARTICLE

Deka D, Borah T, Swarnakar A, Baruah D, BBharali BK. Psoriasis: A comparative study as per ayurvedic and modern classics. J Ayu Herb Med 2016;2(5):186-191.