



Research Article

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Rational diagnostic advance of *Kushtha* (integumentary diseases) by a preliminary arbitrary grading system based on Ayurveda fundamental principles

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Abstract

Background: In *Ayurveda* all the skin diseases are described under *Kushtha* (integumentary diseases), *Kshudra roga* (~minor ailments) and few systemic disorders. As per ancient scholars of *Ayurveda* innumerable verities of *Kushtha* are occurred by the vitiation of seven fold of pathogenic substance. However, for diagnosis purpose, knowledge regarding predominant *Dosha* (~humor) is very much essential. As the predominant vitiating pathogenic factors depict the specific verity of *Kushtha* and the treatment principle is also equipped on the basis of *Dosha*. **Aims and objective:** On this background the present study was carried out to diagnose the particular verity of *Kushtha* described by *Ayurveda* classics with the help of *Doshik* predominance and to structure a standard grading system based on classical features of *Kushtha*. **Materials and Method:** Literary resources were critically analyzed in this study. All the data concerning features of *Kushtha* mentioned in classical *Ayurveda* texts were collected and visualize features were documented in the form of photography obtained from the patients to diagnose the disease accurately. **Result and Conclusion:** Different types of *Doshaja Kushtha* features were evaluated by the preliminary approach of arbitrary grading system and the model was supported with the help of clinical photographic features. This is the first preliminary approach to diagnose as well as assess the severity of the diseases *kushtha* based on *Ayurveda* fundamental principles.

Keywords: Skin diseases, *Doshaja Kushtha*, Arbitrary Grading, *Ayurveda*, Scale.

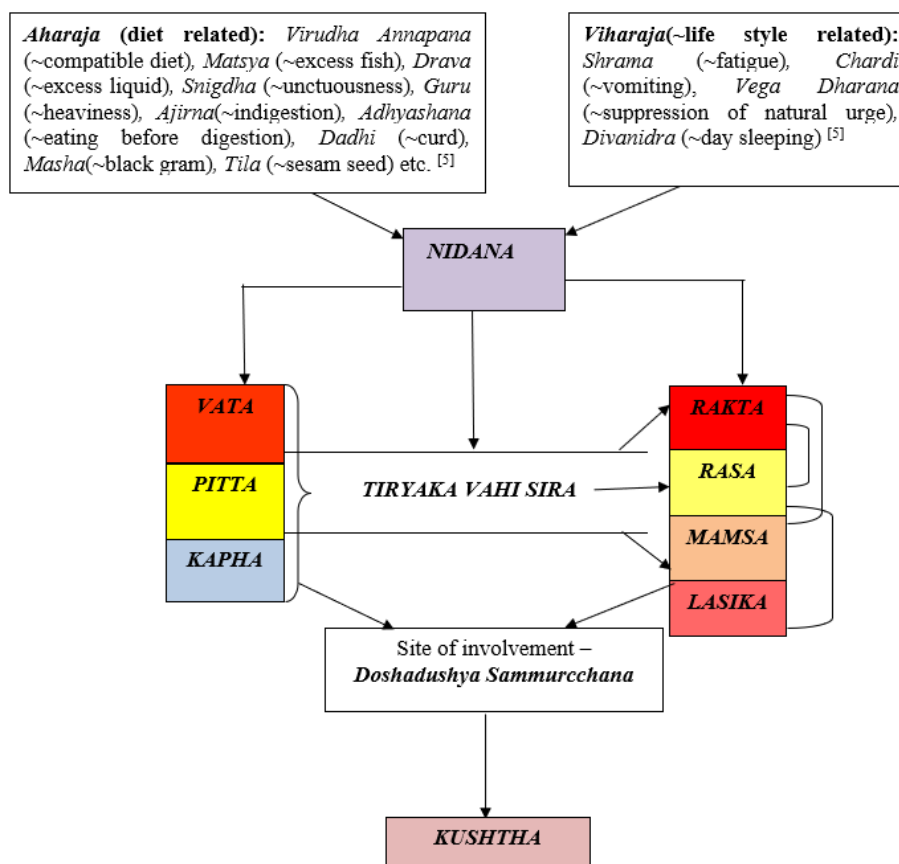
INTRODUCTION

In *Ayurveda* all the skin diseases are described under *Kushtha*, *Kshudra roga* and few systemic disorders. Among of them maximum numbers of skin disorders are described under the broad heading *Kushtha*. The word *Kushtha* depicts the ugly skin generally; three *Dosha* (~humor) and four *Dushya* (~pathological factors) are involved at a time [1]. The *Dosha* are aggravated due to the particular *Nidana* (~etiological factor) and then it vitiates the *Dhatu* (~tissues) and *Upadhatu* (~sub tissues) i.e *Tvaka* (~skin), *Mamsa* (~muscle), *Rakta* (~blood) and *Lasika* (~lymph). These seven constitutes are the prime pathogenic substance of *Kushtha* [1]. Innumerable verities of *Kushtha* are occurred by the vitiation of seven fold of pathogenic substance. Only one pathological substance is not responsible for manifestation of sign and symptoms of *Kushtha*. In this way these vitiating seven *dravya* mutually produced the disease *Kushtha*. However, for diagnosis purpose, knowledge regarding predominant *Dosha* is very much essential. As the predominant vitiating pathogenic factors depicts the specific verity of *Kushtha*. This can easily understand by the manifestation of sign and symptoms of different types of *Kushtha* [2]. So the features of different *Doshaja Kushtha* are like features of *Vataja Kushtha* i.e. *Rauksha* (~roughness), *Shosa* (~emaciation), *Toda* (~inflammation), *Shula* (~pricking pain), *Samkocana* (~shrinking), *Parushya* (~duskinness), *Khara bhava* (~coarseness), *Harsha* (~horripilation), *Shyava* (~dullness), *Aruna* (~redness). Features of *Pittaja Kushtha* are *Daha* (burning sensation), *Raga* (~seething), *Parisrava* (~exudation), *Paka* (~suppuration), *Visra Gandha* (~foul smell), *Kleda* (~gumminess), *Angapatana* (~necrosis) and features of *Kaphaja Kushtha* are *Shvaitya* (~paleness), *Shaitya* (~coldness), *Kandu* (~itching), *Sthairjya* (~firmness), *Uisedha* (~puffiness), *Gaurava* (~heaviness), *Sneha* (~unctuousness), *Jantubhirabhikshana* (~insect affected), *Kleda* (~gumminess) etc. According to the modern science; the Skin diseases are very common health problems in developing country [3]. From this manifestation, the knowledge regarding causative factors as well as *Doshik* involvement can be short out very easily. As we know *Dosha Pratyaniik Cikitsa* is one of the best *Cikitsa* if we understand the *Doshik* predominance then the treatment schedule may be prepared accordingly. In *Kushtha* the treatment principle is equipped on the basis of *Dosha* [4].

According to the modern science; the Skin diseases are very common health problems in developing country. In *Kushtha* the treatment principle is equipped on the basis of *Dosha*. For this purpose, the present study has been carried out to diagnose the particular verity of *Kushtha* with the help of *Doshik* predominance. Literary resources were analyzed in this study. All the data concerning features of *Kushtha* mentioned in

classical *Ayurveda* texts were collected and visualize features were documented in the form of photography to diagnose the disease accurately. The *Doshaja Kushtha* features were evaluated by the preliminary approach of arbitrary grading system and with the help of photography.

Flowchart 1: Pathological process of *Kushtha*



Assessment of *Doshaja Kushtha*

The *Doshaja Kushtha* features were evaluated by the preliminary approach of arbitrary grading system and with the help of photography. Based on appropriate literary meaning of the particular signs and symptoms the grading was prepared. Before taking the photograph written consent has been taken from each of the participants [6].

Arbitrary grading of *Doshaja Kushtha*

1. For *Vataja Kushtha*:

Table 1: Arbitrary grading on the symptom *Rauksha*: [*Snehabhavah* [7] = Dryness of the skin] Figure 1

Features	Score
a) Using of oily substances more than 6 times /day and amount more than 60 ml.	4
b) Using of oily substances 6 times /day and amount 60 ml.	3
c) Using of oily substances 4 times /day and amount 40 ml.	2
d) Using of oily substances 2 times /day and amount 20 ml.	1
e) Dryness of the skin not present.	0

Or

Features	Score
a) Extremely dry skin; more scale and pronounced separation of scale edges, some evidence of cracking (for hands, the skin looks abraded).	4
b) Severely dry skin, pronounced scaling visible with the naked eye definite uplifting of edges or scale sections-skin surface may have a whitish appearance.	3
c) Moderately dry skin, fairly uniformly distributed scale, but no widespread uplifting flaking.	2
d) Slightly dry skin; occasional scale, not necessarily uniformly distributed.	1
e) Smooth, no evidence of dryness.	0

Table 2: Arbitrary grading on the symptom *Shosha* [*Sharirasya Kurvati* [8] = Features of wasting over the lesion] Figure 2

Features	Score
a) Collection of debris's occurs daily.	4
b) Collection of debris's occurs one day alternately.	3
c) Collection of debris's occurs more than four days.	2
d) Collection of debris's occurs rarely.	1
e) Debris's are absent.	0

Table 3: Arbitrary grading on the symptom *Toda*: [*Sucibhih Tudyamanena Iva Vyatha*^[9] = Needling pain in the lesion]

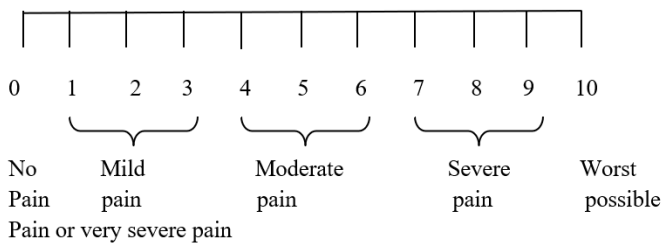
Features	Score
a) Very sever needling pain in the lesion occurs continuously in 24 hours.	4
b) Sever needling pain in the lesion occurs in 24 hours.	3
c) Moderate needling pain in the lesion occurs in 24 hours.	2
d) Mild needling pain in the lesion occurs in 24 hours.	1
e) No such pain.	0

Table 4: Arbitrary grading on the symptom *Shula*: [*Ruka Shulam*^[10] = Pricking pain in the lesion]

Features	Score
a) Very sever pricking pain in the lesion occurs continuously in 24 hours.	4
b) Sever pricking pain in the lesion occurs in 24 hours.	3
c) Moderate pricking pain in the lesion occurs in 24 hours.	2
d) Mild pricking pain in the lesion occurs in 24 hours.	1
e) No such pain.	0

OR:

0–10 Numeric Pain Rating Scale



Note: All types of pain should be analyzed by using of VAS (Visual Analogue Scale)

Table 5: Arbitrary grading on the symptom *Samkocana*: [*Kuncanam Samkocanah*^[11] = Shrinkage of the skin] Figure 3,4

Features	Score
a) More than 4 ridges present in 10 cm ² surface area except the normal site of ridge.	4
b) 3 to 4 ridges present in 10 cm ² surface area except the normal site of ridge.	3
c) 1 to 2 ridges present in 10 cm ² surface area except the normal site of ridge.	2
d) Less than one ridge present in 10 cm ² surface area except the normal site of ridge.	1
e) Number of ridges in 10 cm ² surface area except the normal site of ridges is absent.	0

Table 6: Arbitrary grading on the symptom *Ayama*: [*Ayamahvistarana*^[12], *Ayamahsayucita Adeshasya Dirghikaranam Iva*^[13] = Stretching of skin] Figure 5

Features	Score
a) Excessive glittering occurs due to stretching.	4
b) Neither mild nor excessive glittering occurs due to stretching.	3
c) Mild glittering occurs due to stretching.	2
d) Rarely glittering occurs due to stretching.	1
e) Glittering due to stretching absent.	0

Table 7: Arbitrary grading on the symptom *Parushya*: [*Parushyam Kathinyam*^[14] = Hardness of the skin] Figure 6

Features	Score
a) Hardness of the skin during touch and visible crisscrosses marking with cracking of the skin and persists continuously.	4
b) Hardness of the skin during touch with visible crisscrosses marking without cracking of the skin and remaining for a considerable time.	3
c) Hardness of the skin during touch, white streak after scratching on skin, disappearing after sometime.	2
d) Visualized persisting hardness of the skin.	1
e) Hardness of the skin not occurs.	0

Table 8: Arbitrary grading on the symptom *Khara Bhava*: [*Karkashyam Kharasparshatvam*^[15] = Coarseness of the skin] Figure 7,8

Features	Score
a) Lining and even words have written by nail and persists for more than 10 minutes.	4
b) Lining and even words have written by nail and persists for 10 minutes.	3
c) Deep line on scrubbing by nails and persists for 5 minutes.	2
d) Faint line on scrubbing by nail and persists for 1 minute.	1
e) No line on scrubbing with nail.	0

Table 9: Arbitrary grading on the symptom *Harsha* [*Gatranam Lomnanca*^[14] = Horripilation]

Features	Score
a) Generalized horripilation in absence of external or internal stimuli.	4
b) Moderate horripilation in presence of external and internal stimuli.	3
c) Mild horripilation in environmental or psychological status.	2
d) Occasional horripilation in presence of external or internal stimuli.	1
e) No horripilation.	0

Table 10: Arbitrary grading on the symptom *Shyava* [*Shyavamitishuklanuvidha Krishna Varnah*^[15] = Dark brown colour of skin] Figure 9

Features	Score
a) Deep dark brown coloration of lesion.	4
b) Moderate dark brown coloration of lesion.	3
c) Light dark brown coloration of lesion.	2
d) Faint dark brown coloration of lesion.	1
e) Normal skin color.	0

Table 11: Arbitrary grading on the symptom *Aruna* [*Arunamisat Lohitam*^[16] = Reddish brown color of the skin] Figure 10

Features	Score
a) Bright reddish brown coloration of lesion.	4
b) Moderate reddish coloration of lesion.	3
c) Light reddish brown coloration of lesion.	2
d) Faint reddish brown coloration of lesion.	1
e) Normal skin color.	0

2. For Pittaja Kushtha

Table 12: Arbitrary grading on the symptom *Daha* [*Dahah Sarvanginah Tapah Dahah*^[17] = Burning sensation in whole over body]

Features	Score
a) Burning sensation in whole over body occurs continuously more than 24 hours.	4
b) Burning sensation in whole over body occurs continuously 24 hours.	3
c) Burning sensation in whole over body occurs after an interval of 24 hours.	2
d) Burning sensation in whole over body occurs occasionally in 24 hours.	1
e) e. Burning sensation in whole over body not occurs.	0

Table 13: Arbitrary grading on the symptom *Raga* [*Rago Raktabhata*^[14] = Reddish discoloration of skin] Figure 11,12

Features	Score
a) Bright reddish discoloration of skin.	4
b) Moderate reddish discoloration of skin.	3
c) Light reddish discoloration of skin.	2
d) Faint reddish discoloration of skin.	1
e) No such reddish discoloration of skin.	0

Table 14: Arbitrary grading on the symptom *Parisrava* [*Parisravah*^[14] = Exudation from lesion] Figure 13,14

Features	Score
a) Exudation from lesion occurs continuously without any scratching.	4
b) Exudation from lesion occurs frequently without any scratching.	3
c) Exudation from lesion occurs intermittently with or without any scratching.	2
d) Exudation from lesion occurs only after scratching.	1
e) Exudation from lesion not occurs.	0

Table 15: Arbitrary grading on the symptom *Paka* [*Pakah iti Pacanam, Tena Kledasrutih*^[14] = Suppuration from lesion] Figure 15,16

Features	Score
a) Suppuration occurs from lesion continuously in 24 hours without removing of tiny splinter.	4
b) Suppuration occurs from lesion frequently in 24 hours with removing of tiny splinter.	3
c) Suppuration occurs from lesion intermittently in 24 hours with removing of tiny splinter.	2
d) Suppuration occurs from lesion occasionally in 24 hours with removing of tiny splinter.	1
e) Suppuration from lesion not occurs.	0

Table 16: Arbitrary grading on the symptom *Visra Gandha* [*Mamsashonitagandhih Visragandhi*^[18], *Visro Gandha Amagandhah*^[14] = Raw flash like smell of lesion or flashy smell of lesion]

Features	Score
a) The other person can recognized the raw flash like smell of lesion regularly.	4
b) The other person can recognized the raw flash like smell of lesion irregularly.	3
c) The effected person can recognized the raw flash like smell of lesion regularly.	2
d) The effected person can recognized the raw flash like smell of lesion occasionally.	1
e) No such raw flash like smell of lesion.	0

Or

Features	Score
a) Raw flash like smell of lesion can identified from long distance >6 feet.	4
b) Raw flash like smell of lesion can identified from 5-6 feet distance.	3
c) Raw flash like smell of lesion can identified from 3-4 feet distance.	2
d) Raw flash like smell of lesion can identified from very short distance near about 1-2 feet.	1
e) No such raw flash like smell of lesion.	0

Table 17: Arbitrary grading on the symptom *Kleda* [*Kledi Klinnatayuktam*^[19] = Wetness of lesion] Figure 17

Features	Score
a) Wetness of lesion occurs continuously in 24 hours.	4
b) Wetness of lesion occurs repeatedly in 24 hours.	3
c) Wetness of lesion occurs intermittently in 24 hours.	2
d) Wetness of lesion occurs occasionally in 24 hours.	1
e) Wetness of lesion not occurs.	0

Table 18: Arbitrary grading on the symptom *Angapatana* [Sloughing of limbs] Figure 18,19

Features	Score
a) Sloughing of figure more than one.	4
b) Sloughing of three digitalis of figure.	3
c) Sloughing of two digitalis of figure.	2
d) Sloughing of one digitalis of figure.	1
e) Not occurs.	0

3. Kaphaja Kushtha

Table 19: Arbitrary grading on the symptom *Shvaitya* [*Shvaityam Gatra Shuklata*^[20] = White coloration of the skin] Figure 20

Features	Score
a) Deep white coloration of skin.	4
b) Medium white coloration of skin.	3
c) Light white coloration of skin	2
d) Faint white coloration of skin.	1
e) Normal skin color.	0

Table 20: Arbitrary grading on the symptom *Shaitya* [*Shaityam Shitasparshatvam*^[20] = Coldness on touch] Figure 21

Features	Score
a) Feeling of very sever coldness or freezing like sensation on touch.	4
b) Feeling of sever coldness on touch.	3
c) Feeling of moderate coldness on touch.	2
d) Feeling of mild coldness on touch.	1
e) Not occurs.	0

Table 21: Arbitrary grading on the symptom *Kandu* [*Kandu Kacchu*^[21], *Kanddu Kharjuh*^[22] = Itching in the lesion] Figure 22,23

Features	Score
a) Intense and constantly occurs, disturbs routine activity and sleep, duration is 10 to 12 minute, scratching very essential, recurs 8/10 times in 12 hours.	4
b) Which occurs frequently and disturbed the routine activity and disturbed sleep, duration is 7 to 9 minute, scratching every time is essential, recurs 3 to 4 times in 12 hours.	3
c) Which comes frequently, disturb routine activity but does not disturb sleep, duration is 4 to 6 minute; usually scratching is not required, recurs 1/2 times in 12 hours.	2
d) Which comes occasionally, does not disturb routine activity and sleep, duration is 1to3 minute; usually scratching is not required.	1
e) Itching not present.	0

Table 22: Arbitrary grading on the symptom *Sthairjya* [*Sthiram Kathinam*^[23], *Sthiram Acalatvam*^[24] = Stable skin or localization or slow spreading lesion]

Features	Score
a) Spreading of lesion not occurs.	4
b) Spreading of lesion occurs rarely.	3
c) Spreading of lesion occurs very slowly.	2
d) Spreading of lesion occurs slowly.	1
e) Rapid spreading of lesion.	0

Table 23: Arbitrary grading on the symptom *Utsedha* [*Utsedhah Ucchritah*, *Utsedham Unnatatvam*^[25] = Bulging on skin] Figure 24

Features	Score
a) Bulging of skin can be palpable and it is more than 1 mm.	4
b) Bulging of skin can be palpable and it is near about 1 mm.	3
c) Bulging of skin can be palpable.	2
d) Bulging of skin can not be palpable.	1
e) No such bulging of skin.	0

Table 24: Arbitrary grading on the symptom *Gaurava* [*Adra Carmavanaddham Manyate*^[26] = Feelings of covering by wet cloth in the body]

Features	Score
a) Feelings of covering by wet cloth in the body continuously more than 24 hours.	4
b) Feelings of covering by wet cloth in the body after an interval of 24 hours.	3
c) Feelings of covering by wet cloth in the body in a particular time in 24 hours.	2
d) Feelings of covering by wet cloth in the body occasionally in 24 hours.	1
e) Feelings of covering by wet cloth in the body not occur.	0

Table 25: Arbitrary grading on the symptom *Sneha* [*Snehah Snigdhatvam*^[27] = Unctuousness of skin] Figure 25,26

Features	Score
a) Excessive unctuousness of skin can be felt by touch and washing of skin needed more than 4 times/day.	4
b) Moderate unctuousness of skin can be felt by touch and washing of skin needed 3 to 4 times/day.	3
c) Mild unctuousness of skin can be felt by touch and washing of skin needed 1 to 2 times/day.	2
d) Unctuousness of skin can be felt by touch and no need of washing.	1
e) Unctuousness of skin not occurs.	0

Table 26: Arbitrary grading on the symptom [*Jantubhirabhikshana* = Maggot formation]

Features	Score
a) Visible in naked eye with innumerable in number.	4
b) Visible in naked eye with medium in number.	3
c) Visible in naked eye with few in number.	2
d) Not visible in naked eye but inferred with some evidence.	1
e) Not present.	0

Table 27: Arbitrary grading on the symptom *Kleda* [*Kledah Mala Adravatvam*^[28] = Stickiness of lesion] Figure 27

Features	Score
a) Stickiness of lesion occurs incessantly in 24 hours.	4
b) Stickiness of lesion occurs frequently in 24 hours.	3
c) Stickiness of lesion occurs intermittently in 24 hours.	2
d) Stickiness of lesion occurs occasionally in 24 hours.	1
e) Stickiness of lesion not occurs.	0

Table 28: Shows assessment of grading and remarks:

Grade	Grade of point	Sign (degree)	Remark
G4	4	++++	Very severe
G3	3	+++	Severe
G2	2	++	Moderate
G1	1	+	Mild
G0	0	Nil	Normal

DISCUSSION

Proper knowledge regarding sign and symptoms are helpful for diagnosis of the disease. There is no such standard parameter to indentify the severity of the diseases *Kustha* based on Ayurveda fundamentals. Therefore the arbitrary grading approach has been taken to identify the severity of this disease. Every classical sign and symptoms of *kustha* are analyzed based on appropriate literary meaning and grading is made to justify the disease pattern and also for prognostic purpose [Table 1-27; Plate-1(Figure 1-27)]. As according to ancient classics of Ayurveda, if all the sign and symptoms are present together for a particular disease then the disease may consider as incurable^[29], but it can only be justified when the physicians are able to understand the severity of each and every sign as well as symptoms of a particular disease. In this present study, Grade 0 is indicating the absence of symptoms, Grade 1 for mild, Grade 2 for moderate, Grade 3 for sever and Grade 4 for very severe condition of the disease [Table 28]. Visual evidence i.e. photography is presented as supportive of the model as there no such established laboratorial parameter to identify the all types of *kustha* in Ayurveda. Like as for pain measurement visual analogue scale can be prioritized. Prime objective of Ayurveda is to prevent the disease as well as cure by hook and crock. This is the first preliminary approach to frame the ancient treatment principle of the disease *kustha*. Proper diagnosis is very crucial factor in order to provide the proper treatment of a malady. This is possible after achieving the proper knowledge of *Dosha*, without vitiation of *Dosha* diseases may not be occurred^[30]. And ultimately pin point management of a disease is achievable with proverbial proficiency about the severity of sign and symptoms.

Plate 1: Visualized sign and symptoms of different *Doshaja Kushtha*:



Figure 1: *Rauksha*



Figure 2: *Shosha*



Figure 3: *Samkocana* (1)



Figure 4: *Samkocana* (2)



Figure 5: *Ayama*



Figure 6: *Parushya*



Figure 7: *Khara bhava*



Figure 8: *Khara bhava*



Figure 9: *Shyava*



Figure 10: *Aruna*



Figure 11: *Raga*



Figure 12: *Raga*



Figure 13: *Parisrava (1)*



Figure 14: *Parisrava (2)*



Figure 15: *Paka (1)*



Figure 16: *Paka (2)*



Figure 17: *Kleda*



Figure 18: *Angapatana*



Figure 19: *Angapatana*



Figure 20: *Shvaitya*



Figure 21: *Shvaitya*



Figure 22: *Kandu* (1)



Figure 23: *Kandu* (2)



Figure 24: *Utseda*



Figure 25: *Sneha*



Figure 26: *Sneha*



Figure 27: *Kleda*

CONCLUSION

Ayurveda emphasize the treatment of an ailment by uprooting the prime pathological factors (*dosha dushya sammurchnana*). This only can possible after proper diagnosis of a particular disease. This study is the

first preliminary approach to diagnose the disease *kustha* based on Ayurveda fundamentals. Here each classical symptom is presented with clinical photographs and an arbitrary grading system. This preliminary approach can be validated by advance multicentric clinical study.

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