

# Study on the Effect of *Varun Twak Lepa* in Management of *Vyanga*

## Research Article

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### Abstract

*Vyanga* is a disease, which decreases the glowing complexion of the face and affects the skin. Among many diseases concerned with the cosmetic values, *Vyanga* is common disease one of them known to us from thousands of years. *Acharya Sushruta* and *Vagbhata* has mentioned *Vyanga* as *Kshudra Roga*. Though it is considered as *Kshudra Roga* (minor disease), but it has got a major importance as a cosmetic problem in the society. *Vyanga* can be correlated with melasma, it is the common pigmentary disorder characterised by symmetrical hyper pigmented macules on face. Aim-To study on the effect of *Varun Twak Lepa* in management of *Vyanga*. In this study, the trial drugs used were *Varun Twak Lepa* for topical application. Material and methods- A total 40 patients of *Vyanga* were selected from OPD and IPD of *Kayachikitsa*. Observation and results- To study the effect of *Varun Twaka Lepa* assessment of patient were done on the basis of MSI score. In all three types, dermal, epidermal and mixed significant result was found on 20<sup>th</sup> and 30<sup>th</sup> day. In comparison of three types of melasma more significant result was found in epidermal type.

**Key Words:** *Vyanga*, *Kshudra Roga*, Melasma, *Varun Twaka Lepa*.

### Introduction

Beauty is one of the most valued aspect in this competitive era. The importance of beautiful and healthy skin is increasing day by day. Any unhealthy state of physique is reflected by the skin as beauty is manifested by complexion. *Vyanga* is a disease, which decreases the glowing complexion of the face and affects the skin. Among many diseases concerned with the cosmetic values, *Vyanga* is common disease one of them known to us from thousands of years. *Acharya Sushruta* and *Vagbhata* has mentioned *Vyanga* as *Kshudra Roga*.(1,2) And *Acharya Charak* has mentioned it as *Raktapradoshaj Vikar*.(3) Though it is considered as *Kshudra Roga* (minor disease), but it has got a major importance as a cosmetic problem in the society. It is characterized by the presence of *Niruja* (painless), *Tanu* (thin) and *Shavavarna Mandalas* (bluish-black patches) on face. (4) As per *Acharya Sushruta*, *Krodha* and *Ayasais* the main cause of *Vyanga*,(5) this is supported by *Madhavnidan*(6) and *Yogratnakar* (7) too. By *Acharya Vagbhata*, *Krodh* and *Shok* is the cause of *Vyanga* which leads to vitiation of *Vata*, *Pitta* followed by *Rakta Dosha*.(8) *Acharya Vagbhata* also explained the types of *Vyanga* they are *Vatik*, *Paittik*, *Kaphaj* and *Raktaj*.(9)

As per Modern science, *Vyanga* can be correlated with melasma, it is the common pigmentary disorder characterised by symmetrical hyper pigmented macules on face. It mainly affect the women at reproductive age who having Fitzpatrick skin type 4-6 and in darker types of skin like Asian, Africans, Hispanics and Americans.(10) The aetopathogenesis of Melasma includes ultraviolet radiation, birth control pills, some phototoxic topical or systemic medications, hormonal disturbances, cosmetics and genetic factors. (11) There are only three patterns of melasma, centrofacial, malar and mandibular and centrofacial pattern is the commonest one.(12) As per studies it is most common pigment disorder in Indians. In South East Asia, in dermatology clinics it accounting 0.25 % to 4%.(13) Though it is predominantly found in females but males are also affected, in India, female is to male ratio is 4:1.(14) Pregnant women can get affected 50% to 70 % and post pregnancy period is the most common time of onset of melasma.(15) Management of melasma includes Hydroquinone, corticosteroids, tretinoin, azelaic acid, chemical peeling, laser therapy. These are effective but it also causes more adverse effects on skin like irritation, erythema, cracking, PIH and prolonged dyschromia.(16) Apart from this, it is expensive, so considering this drawbacks there is need to search better method of management.

In *Ayurveda* many *Chikitsa* are explained for *Vyanga* by different *Acharyas*. These are *Lepa*, *Abhyanga*, *Raktamokshan*, *Virechan*, *Nasya* and *Shaman aushadhi*. *Lepa* is one among them and it is more effective, as it is directly acts on lesion.

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**Aim and Objectives**

**Aim of study**

“Study on the effect of *Varun Twak Lepa* in management of *Vyanga*”.

### Objectives of study

- To study the changes in MSI (Melasma Severity Index) in area of involvement and pigmentation.

### Material and Method

#### Source of material

- Clinical source: The patients which fulfilling the clinical criteria of *Vyanga* were selected from OPD and IPD of *Kayachikitsa* department.
- Drug source: The raw drug of *Varun* was collected from field and identified by Department of *Dravyaguna*. *Aja kshir* (Goats milk) was collected from local source and authenticated by Department of *Rasashastra* and *Bhaishajya kalpana*.

**Table No. -1: Drug review:-Varun twak lepa (Ref-Chakradatta, Chapter- Kshudra Rogachikitsa)**

Sr. no.	Contents	Part used
1	<i>Varun (Crataeva nurvala linn.)</i>	Stem bark
2	<i>Aja kshir</i> (Goats milk)	Milk

- Method of preparation of drug:-** Fine powder of *Varun Twak* was made. After that it was triturated with sufficient quantity of *Aja kshir*. Then it was dried properly and fine *churna* was made which was then preserved in airtight container.
- Ethics committee approval:-** Before commencement of study, it was approved by Institutional Ethics Committee (reference no. DMIMS (DU)/IEC/2017-18/6394) on dated 30 March 2017
- Study Design:** Single arm interventional study

#### Inclusion criteria:

- Patients irrespective of sex, religion, occupation, and chronicity less than 5 years were selected for the study.
- Patients among the age group of 20-50 years were selected for the study.
- Patients with clinical features of *Vyanga* as per *Ayurvedic* classics were included.

#### Exclusion criteria:

- Hyper pigmentation caused due to any known cases of systemic disease like Addison's disease, Cushing's syndrome.
- Hyper pigmentation since birth like Neavus of Ota.
- Hyper pigmentation caused by tumours like malignant melanoma.
- Patient suffering with systemic disorders like renal failure, hepatic disorder.

#### Withdrawal criteria

- If any type of side effect were observed during study.
- If aggravation of symptoms occurred.
- If patient is not having the desire to continue the treatment.

#### Methodology

Patients from the OPD and IPD of *Kayachikitsa* department who having the clinical features of *Vyanga* (Melasma) were selected for the study. The patients

were selected by irrespective of their sex, religion and occupation. Before participation in the study informed consent was obtained. Total 42 patients were registered as per the inclusion criteria and out of these, 40 patients had completed the study. All patients were examined by Wood's Lamp to assess the depth of pigmentation (Dermal/ Epidermal/Mixed).

#### Posology

Sufficient quantity of *Varun Twak Lepa* was given for local application once in a day for 30 days.

#### Method of application of Lepa

Patient was advised to clean face properly. Then take *Lepa churna* and make paste of it with water. Apply sufficient quantity over affected area for 20 minutes and then wash the face properly with water. The *Lepa* was applied once in a day for 30 days.

#### Assessment Criteria

- The assessment of patient was made on basis of MSI score on 0<sup>th</sup>, 10<sup>th</sup>, 20<sup>th</sup> and 30<sup>th</sup> day.

*Melasma Severity Index score* (17)

**Table No. :-2 Gradation of the area involved**

Grade	Area Involvement (A)
0	<10% area involved
1	11-30% area involved
2	31-60% area involved
3	>60% area involved

**Table No:- 3 Gradation of severity of pigmentation**

Grade	Pigmentation
0	No visible pigmentation
1	Barely visible pigmentation
2	Mild pigmentation
3	Moderate pigmentation

The MSI score is calculated by applying following formula

$$MSI = 0.4 (a \times p^2) l + 0.4 (a \times p^2) r + 0.2 (a \times p^2) n$$

"a" – area of involvement; "p" - severity of pigmentation; "l" - left side of face; "r" - right side of face; "n"-nose.

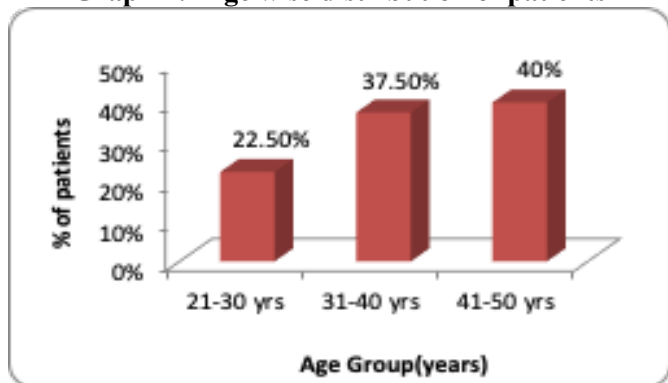
### Observation and Result

This study was conducted to study the result of *Varuntwak Lepa* in the management of *Vyanga*. Total 40 patients were participated in this study. it was single group study. In the Microsoft Excel Worksheet obtained data was coded and entered. Statistical analysis was done on the basis of descriptive and inferential statistics by using student's paired t test. The software used in the analysis was SPSS 22.0 version and  $p < 0.05$  is considered as level of significance.

**Age wise distribution of patients**

As per age wise distribution, more patient (40%) was from 41-50 yrs group and comparatively less than that (37.5%) was from 31-40 yrs age group.

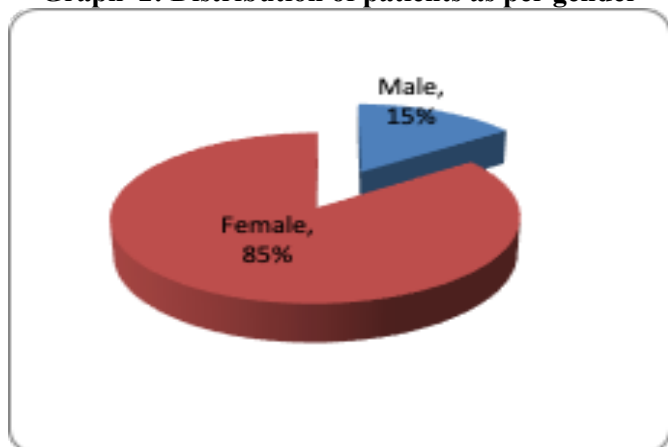
**Graph 1:- Age wise distribution of patients**



**Distribution of patients as per gender**

Distribution of patient as per gender shows that there were 34 (85%) female and 6 (15%) male.

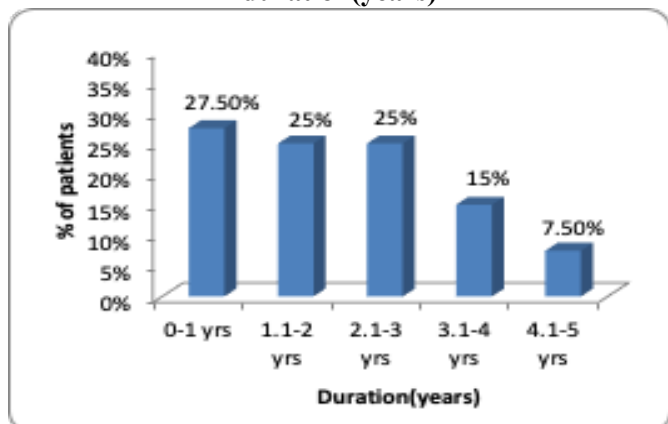
**Graph 2: Distribution of patients as per gender**



**Distribution of patients according to duration(years)**

Distribution of patients shows that 27.5% of patient having chronicity of disease upto 1 year. 25% of patient from 1.1 -2 year and again 25% was from 2.1-3 year.15% was from 3.1 -4 year and 7.5% was from 4.1-5 year.

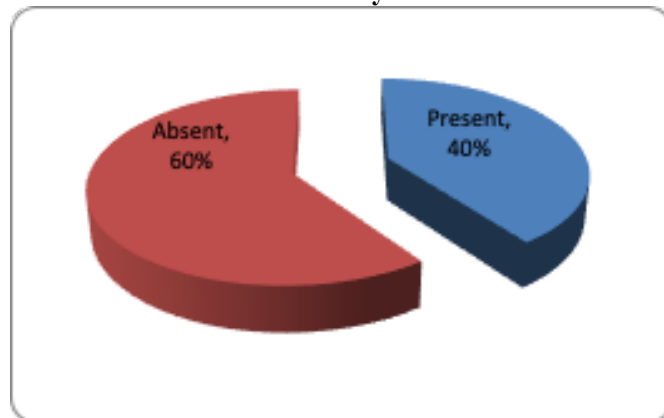
**Graph 3: Distribution of patients according to duration(years)**



**Distribution of patients as per family history**

Out of 40 patients , 16 patient (40%) having family history of Melasma where 24 patient (60%) not having such type of history.

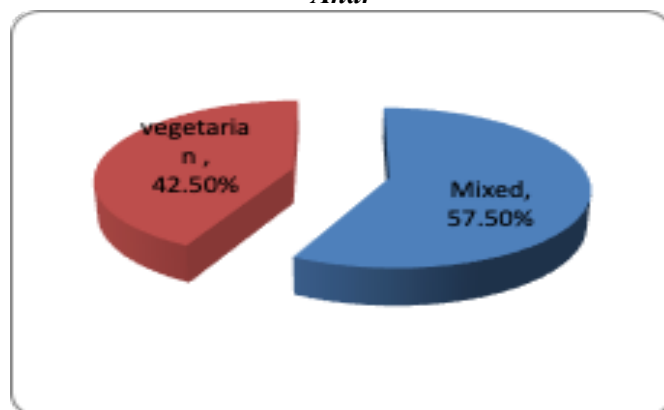
**Graph 4: Distribution of patients as per family history**



**Distribution of patients according to type of Ahar**

As per distribution of patients according to Ahar, there were 23 patients (57.5%) having mixed and 17 patients (42.5%) having vegetarian diet.

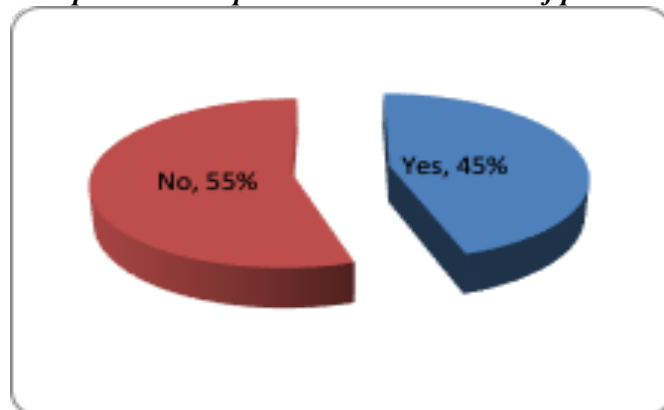
**Graph 5: Distribution of patient according to type of Ahar**



**Sun Exposure wise distribution of patients**

This table shows that, 18 patient (45%) were having history of regular sun exposure while 22 patient (55%) had no history of regular sun exposure.

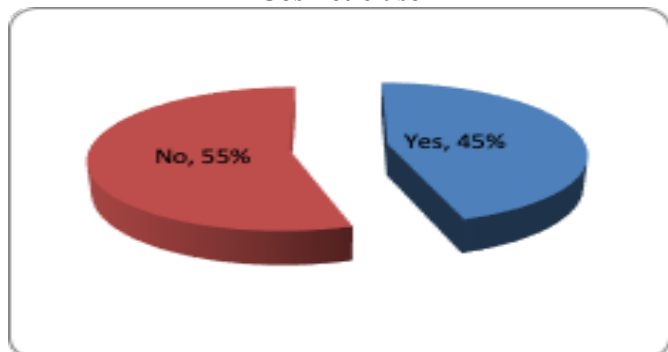
**Graph 6: Sun Exposure wise distribution of patients**



**Distribution of patients as per Cosmetic use**

As per above table there were 18 patient (45%) having history of regular cosmetic use while 22 patient (55%) had no history of cosmetic use.

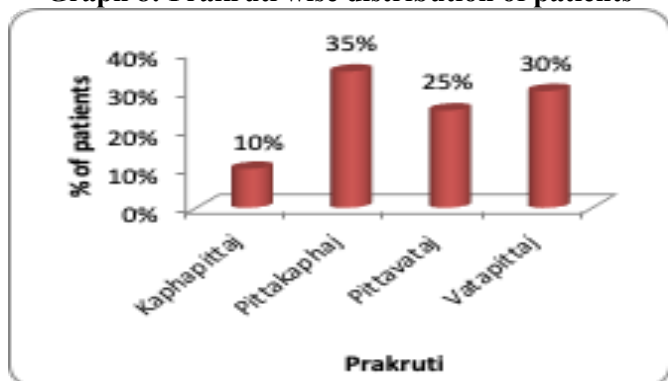
**Graph 7 : Distribution of patients as per Cosmetic use**



**Prakruti wise distribution of patients**

In the categorization of *Sharir Prakruti*, 35 % patients were of *Pittakaphaj Prakruti*, and 30% patients were of *vatapittaj*, 25% patients were of *Pittavataj*, comparatively less number of patient 10% were of *Kaphapittaj*.

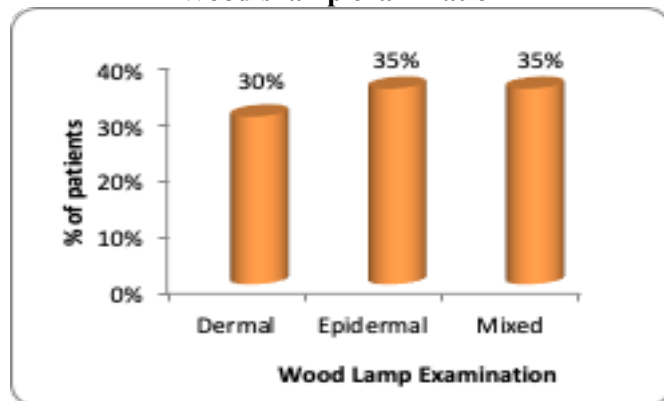
**Graph 8: Prakruti wise distribution of patients**



**Distribution of patients according to Wood's lamp examination**

The types of Melasma was diagnosed with the help of Wood's lamp exam. In this study, there were 14 patient (35%) of epidermal, 14 patient (35%) of mixed and 12 patient (30%) of dermal type.

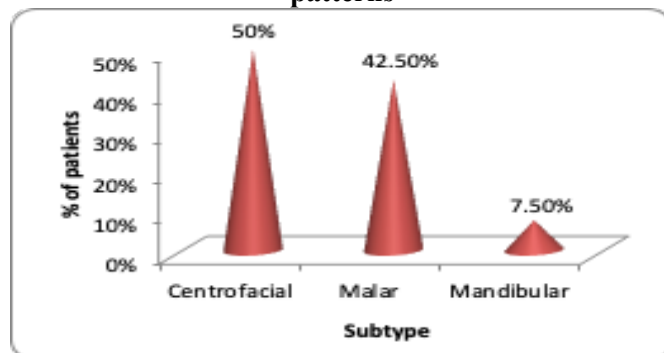
**Graph 9: Distribution of patients according to Wood's lamp examination**



**Distribution of patients as per clinical pattern**

There are three facial patterns of Melasma centrofacial, malar and mandibular. In this study there were 20 patient (50%) of centrofacial, 17 patient (42.5%) of malar comparatively very less 3 patient (7.5%) of mandibular observed.

**Graph 10: Distribution of patients as per clinical patterns**



**Comparison of MSI score with baseline : Dermal (Student's paired t test)**

	Mean	N	Standard deviation	Standard Error Mean	Mean difference	t- value	p value
Baseline	10.46	12	3.62	1.04	-	-	
10 <sup>th</sup> day	10.46	12	3.62	1.04	-	-	
20 <sup>th</sup> day	6.93	12	3.82	1.10	3.53±1.30	9.35,	p =0.0001,S
30 <sup>th</sup> day	5.41	12	3.38	0.97	5.05±1.53	11.41,	p =0.0001,S

The mean MSI score in dermal type of patient was 10.46 then 10.46, 6.93, 5.41 on baseline, 10<sup>th</sup> day, 20<sup>th</sup> day and 30<sup>th</sup> respectively. Significant result was observed on 20<sup>th</sup> day and 30<sup>th</sup> day.

**Comparison of MSI score with baseline: Epidermal (Student's paired t test)**

	Mean	N	Standard deviation	Standard Error Mean	Mean difference	t-value	p-value
Baseline	5.72	14	3.94	1.01	-	-	
10 <sup>th</sup> day	5.72	14	3.94	1.01	-	-	
20 <sup>th</sup> day	3.80	14	2.99	0.77	1.92±1.89	3.92	p =0.002,S
30 <sup>th</sup> day	2.13	14	2.08	0.53	3.58±2.45	5.65	p =0.0001,S

The mean MSI score in epidermal type of patient was 5.72, 5.72, 3.80 and 2.13 on baseline, 10<sup>th</sup> day, 20<sup>th</sup> day, and 30<sup>th</sup> day respectively. Significant result was observed on 20<sup>th</sup> and 30<sup>th</sup> day.

**13: Comparison of MSI score with baseline: Mixed (Students paired t test)**

	Mean	N	Standard deviation	Standard Error Mean	Mean Difference	t-value	P value
<b>Baseline</b>	14.07	14	11.80	3.27	-	-	
<b>10<sup>th</sup> day</b>	13.27	14	9.97	2.79	0.80±2.34	1.22,	p=0.243,NS
<b>20<sup>th</sup> day</b>	10.03	14	8.81	2.44	4.04±3.82	3.81	p=0.002,S
<b>30<sup>th</sup> day</b>	6.52	14	5.46	1.51	7.55±8.53	3.19,	p=0.008,S

The mean MSI score in mixed type of patient was 14.07, 13.27, 10.03 and 6.52 on baseline, 10<sup>th</sup> day, 20<sup>th</sup> day, and 30<sup>th</sup> da on baseline, 10<sup>th</sup> day, 20<sup>th</sup> day, and 30<sup>th</sup> day respectively. Significant result observed on 20<sup>th</sup> and 30<sup>th</sup> day

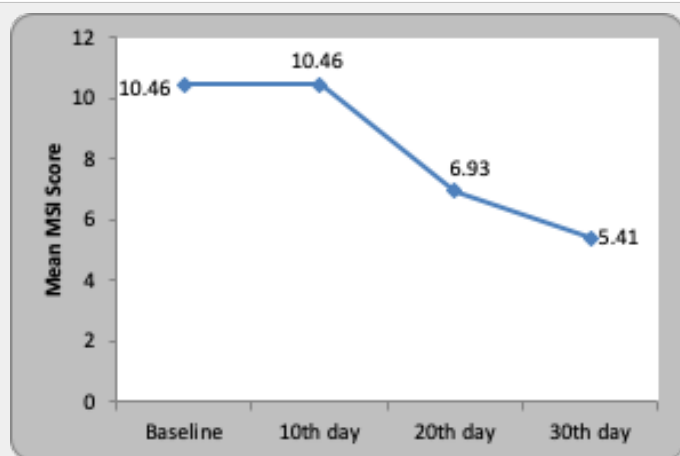
**Comparison of data of MSI score with baseline (Student’s paired t test)**

	Mean	N	Standard Deviation	Standard Error Mean	Mean Difference	t-value	p value
<b>Baseline</b>	9.86	40	8.04	1.27	-	-	
<b>10<sup>th</sup> day</b>	9.60	40	7.09	1.12	0.26±1.35	1.21,	p=0.23,NS
<b>20<sup>th</sup> day</b>	6.76	40	6.17	0.97	3.09±2.67	7.31,	p=0.0001,S
<b>30<sup>th</sup> day</b>	4.54	40	4.21	0.66	5.31±5.30	6.34,	p=0.0001,S

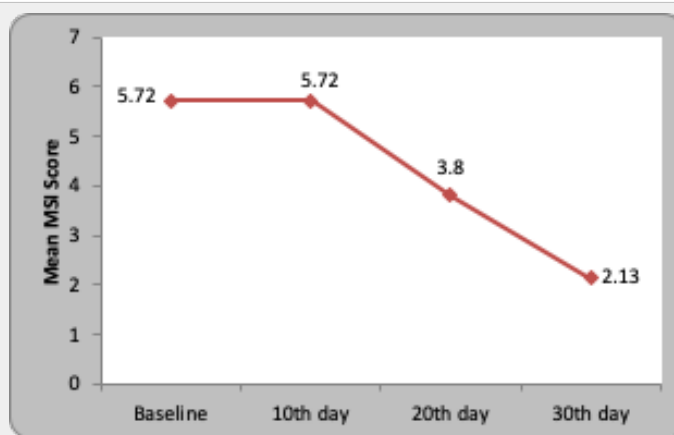
The mean MSI score in total number of patient was 9.86, 9.60, 6.76 and 4.54 on baseline, 10<sup>th</sup> day, 20<sup>th</sup> day, and 30<sup>th</sup> day respectively. Significant result was observed on 20<sup>th</sup> and 30<sup>th</sup> day.

Percentage of improvement is 48.27, 62.76 and 53.66 in Dermal, Epidermal and Mixed respectively. By comparing the result of improvement in Dermal, Epidermal and Mixed, it was found that more improvement is observed in Epidermal type than Dermal and Mixed.

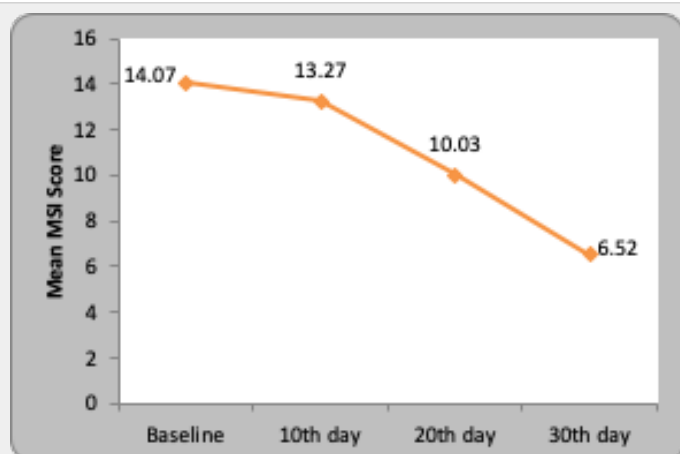
**Graph 11: Comparison of MSI score with baseline : Dermal**



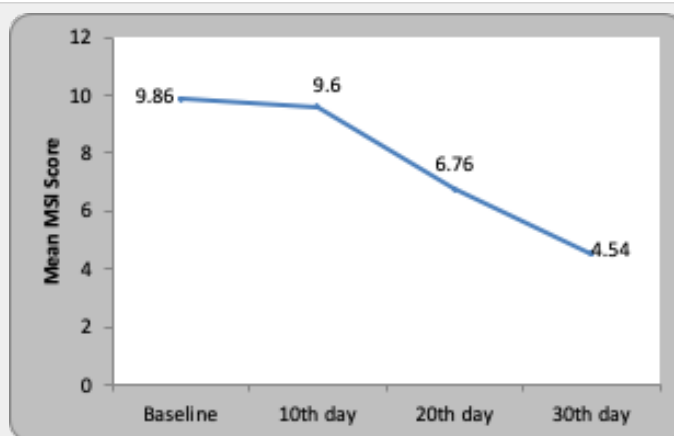
**Graph 12: Comparison of MSI score with baseline : Epidermal**



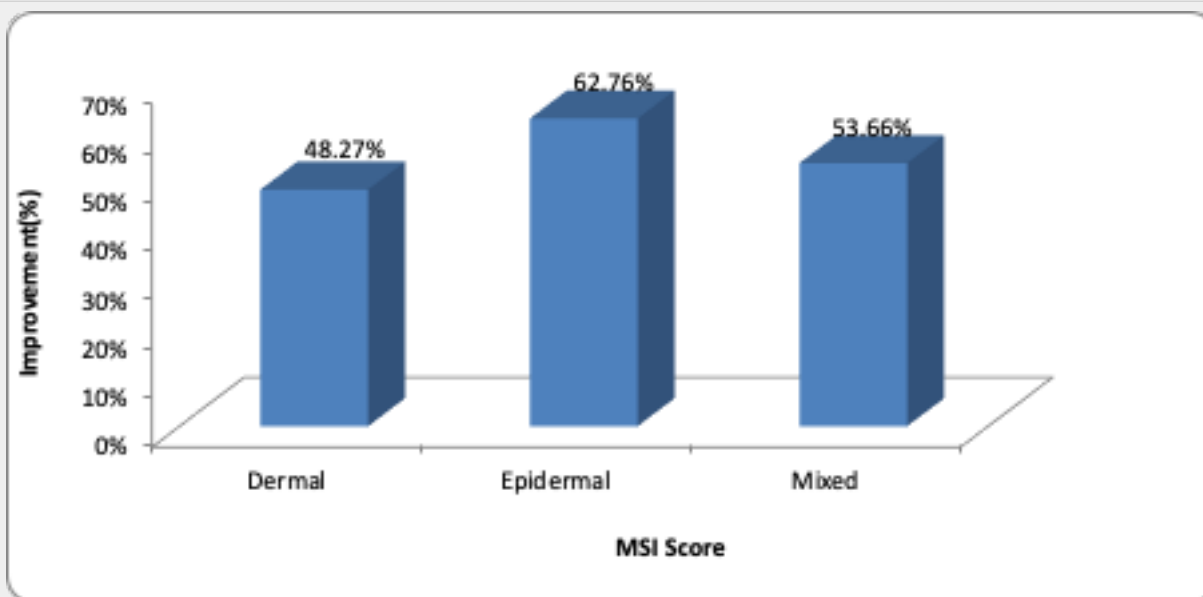
**Graph 13: Comparison of MSI score with baseline : Mixed**



**Graph 14: Comparison of data of MSI score with baseline**



**Graph15: Showing comparison in improvement of Dermal , Epidermal and Mixed**



## Discussion

To study the effect of *Varuntwak lepa*, total 42 patient were selected out of them 40 patients had taken complete treatment.

Melasma commonly manifested in 3<sup>rd</sup> and 4<sup>th</sup> decade of life.(18) In our study maximum patient was found from 4<sup>th</sup> and 5<sup>th</sup> decade of life that means from the age group of 31-40 and 41-50 years.

In this study 85% were female and as per study of Savita et al also the percentage of female is predominant.(19) Females are more prone to hormonal imbalances which might be the cause.(20) This study didn't showed significant role of family history but in Sanaz et al study its found.(21) By chronicity of disease, 77.5% patient were found in the range of 1 year to 3 year.

Ultraviolet radiation is known factor of melasma.(22) In this study, 45% patient were having history of regular sun exposure and remaining 55% patient were not. So it is difficult to correlate sun exposure and melasma. In the similar manner history of regular cosmetic use was also found in 45% patient but as per Smeeta B K et al sun exposure and cosmetic use showed significant result.(23)

Most of the patient were *Rajsik* who predominantly took mixed diet, *Viruddha ahar* and *Katulavan rasatmak Ahar*. In the classification of *Sharirik Prakruti*, most of the patient were of *Pittakaphaj*, *Vatapittaj* and *Pittavataj Prakruti*. As per *Samprapti Pitta* and *Vata* plays major role in formation of disease.(24) As per Madgundi A K et al study *Pittavataj* and *Vatapittaj Prakruti* were more prone to *Vyanga*.(25)

As per Wood's lamp examination, 35% , 35%, and 30% of Epidermal, Mixed and Dermal were found respectively. In the distribution of lesion, most of patient were of centrofacial pattern and then of malar pattern. It is supported by Angadi S S et al.(26)

Assessment of patient were done on the basis of MSI score.(27) To study the effect of *Varun twaka lepa* assessment taken on 0<sup>th</sup>, 10<sup>th</sup>, 20<sup>th</sup> and 30<sup>th</sup> day. In all three types, dermal, epidermal and mixed significant result was found on 20<sup>th</sup> and 30<sup>th</sup> day. In comparison of three types of melasma more significant result was found in epidermal type.

## Probable mode of action of drugs

The mode of action of drug which was under trial can be understood on the basis of inherent properties of the drug. In literature, *Varun* is described as *Tikta*, *Kashaya Rasatmak*, *Laghu*, *Ruksha Gunatmak* and *Ushna Viryatmak*. *Tikta* and *Kashaya Rasa* of *Varun* encounter *Pitta* and *Rakta Dosha*.(28) *Kashay Rasa* having the properties to bring *Savarnata*(29) in skin by virtue of which it helps in removing the *Twak Vaivarnya* and helps to attain normal skin colour. *Ushna Virya* pacifies *Vata* and *Kapha Dosha*. It is also having the properties of *Raktadoshahar*(30) which help to pacify *Sanchit Dosha* locally.

As per phytochemical constituent *Varun twak* contains lupeol, butanol, triterpenoid etc(31) butanol also contains compound like succinic acid, lactic acid. (32) The study which was conducted by Malinowaska et al had shown that lupeol contains the property of stimulating skin repairing process.(33) Lactic acid has exfoliating property, so it is used in chemical peeling for the treatment of melasma it is supported by Singh R et al.(34) Succinic acid also having anti microbial, anti acne, and anti ageing property.(35) So all these active principle might be act on melasma combinely.

*Aja kshir* is *Madhur* and *Kashay Rasatmak*, *Laghu*, *Snigdha* and *Shit Viryatmak*. *Madhur* and *Kashay Guna* subsides the *PittaDosha* which is the main cause of *Vyanga*. *Snigdha Guna* alleviates the *Vata Dosha* and it is also responsible to maintain the moisture level in skin. *Shit virya* also act as *Pittashamak*. All these, combinedly break the *Samprapti* of *Vyanga*.

It is rich in essential fatty acids, minerals, proteins, and multivitamins.(36,37) Among them some minerals like Zinc, Selenium it protect skin from ultraviolet radiation.(38) By the study of Choi Y K et al, it shows that multivitamins inhibited melanogenesis and also act as antioxidant.(39) Hence, all these factors act combinedly and cease the production of *Vyanga* and subsides its symptoms.

### Limitations and Recommendation

#### Limitations

- Due to restriction of time, smaller number of patients had taken for study
- Duration of study was short.

#### Recommendation

- This study can be carried out for longer duration and more patients.
- This study can be conducted by using *Varun Twak Lepa* as cream base or gel.

### Conclusion

From this study it can be concluded that

- As *Vyanga* is having similar clinical features with Melasma it can be interrelated with it.
- It is found more in females in Madhyamavastha.
- The most frequently found melasma is Centro-facial pattern.
- Melesma is found in both types of patients i.e. the one who are exposed to sun and also unexposed ones hence we cannot rule out sun exposure to be the causative factor.
- Progress in Melasma Severity Index score indicates that *Varun Twaka Lepa* is found to be efficient in reducing the severity in pigmentation.
- As per types *Varun Twaka Lepa* is found to be more efficient in epidermal.

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