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To Study Of Efficacy Of Malati – Madhuka Gel On Garbhini Kikkisa (Straie Gravidarum)

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Abstract-
Striae gravidarum (SG), commonly known as stretch marks, affect up to 90% of pregnant women, often causing cosmetic and psychological distress. Ayurveda identifies this condition as Garbhini Kikkisa, *a Tridoshaja disorder characterized by* kandu *(itching),* daha *(burning), and* vaivarnya *(discoloration). Despite being medically harmless, Striae gravidarum (impairs quality of life, prompting the need for safe, effective, and economical therapies during pregnancy. To evaluate the clinical efficacy and safety of a gel formulation containing* Malati (Jasminum officinale*) and* Madhuka (Glycyrrhiza glabra*) in the management of Garbhini Kikkisa. An open-label, prospective clinical study was conducted on 33 antenatal women between 21–30 years of age in the 2nd or 3rd trimester presenting with Kikkisa. Malati–Madhuka Gel was applied twice daily for 4 weeks. Assessment was made on subjective parameters (*kandu, daha, vaivarnya*) and objective measures (scar grading, Davey's scoring for striae distribution). Data were analyzed using the Wilcoxon signed-rank test. The formulation produced complete relief in itching (100%) and burning sensation (100%), along with 60% improvement in discoloration. However, only 22.85% improvement was observed in scar length and depth. The gel was well tolerated, with no adverse events reported. Malati–Madhuka Gel is highly effective in alleviating the symptomatic aspects of Kikkisa, though its impact on structural striae reduction is limited. The formulation is safe, economical, and suitable for use during pregnancy. Larger randomized controlled trials are recommended.*

Keywords: *Garbhini Kikkisa, Striae gravidarum, Malati, Madhuka, Ayurveda, Pregnancy, Gel formulation*

INTRODUCTION

Pregnancy represents one of the most significant and transformative phases in a woman's life. Alongside profound physiological and psychological adaptations, numerous dermatological manifestations occur, among which *striae gravidarum* (SG) are the most prevalent. Nearly 90% of women develop SG during the second and third trimesters, primarily over the abdomen, breasts, thighs, and hips. Although harmless, these linear dermal scars are often associated with pruritus, burning, cosmetic disfigurement, and psychological distress. In Ayurveda, SG is correlated with *Garbhini Kikkisa*, classified under *Garbhinivyapad* (pregnancy-associated ailments). Acharya Charaka explains Kikkisa as a *Tridoshaja* condition occurring predominantly in the 7th month of gestation due to *sthanavaigunya* (localized tissue weakness) caused by fetal pressure. Clinical features include *kandu* (itching), *daha* (burning sensation), and *vaivarnya* (discoloration of the skin). The metaphorical term "Kikkisa," meaning serpent-like, illustrates the serpiginous linear lesions typical of striae.

Modern medicine attributes SG to dermal injury secondary to rapid mechanical stretching and hormonal influences. Increased levels of glucocorticoids, relaxin, and estrogen impair fibroblast function, reduce elastin and collagen synthesis, and predispose the dermis to rupture. Early lesions (*striae rubrae*) appear erythematous or violaceous due to vascular dilatation, which gradually evolve into pale, atrophic scars (*striae albae*). Various treatments moisturizers, retinoids (postpartum), laser therapy, and microdermabrasion have been attempted with variable outcomes. However, most are unsuitable during pregnancy owing to safety concerns.

Ayurvedic texts describe numerous topical remedies for Kikkisa, including *snehana* (oleation), *lepa* (herbal pastes), and *ghrita* preparations, with herbs such as Malati (*Jasminum officinale*), Madhuka (*Glycyrrhiza glabra*), Yashtimadhu, and Manjishtha for their skin-nourishing, *kandughna* (anti-pruritic), and *varnya* (complexion-enhancing) properties.

Malati possesses anti-inflammatory, cooling, and wound-healing effects, while Madhuka is renowned for its demulcent, antioxidant, depigmenting, and complexion-improving properties. Although classical references advocate their use in *parisheka* (herbal wash), this form is inconvenient in modern settings due

to short shelf life and poor patient compliance. A gel formulation provides enhanced stability, ease of application, and better acceptability among pregnant women.
This study was therefore undertaken to evaluate the efficacy and safety of Malati–Madhuka Gel in managing Garbhini Kikkisa, bridging traditional wisdom with a patient-friendly modern dosage form.

MATERIALS AND METHODOLOGY

STUDY DESIGN:
Type: Open label clinical trial
Objective: 1. collecting the information of Malati and Madhuka.
2. To evaluate the side effect of Malati-Madhuka gel if any
Sample Size: 33.
STUDY SITE:
Bharati Ayurveda Hospital, Department of Prasuti Tantra Evam Striroga, Bharati Vidyapeeth (Deemed to be University), College of Ayurveda and Hospital, Dhankawadi, Pune (India).
MATERIAL:
DRUG DETAILS:
1. Malati (jasminum officinalis)
2. Madhuka (glycyrrhiza glabra)

METHODOLOGY:
Gel of Malati-Madhuka to be applied on stretch marks twice daily after bath and at Bedtime for 4weeks.
Dose -5-10 gm (Depends on affected area)
Form -Aqueous Gel
Route of administration -Local Application
Time -Twice a day
In Morning after bath
In Evening at bed time

Duration of drug -4 weeks (28 days)

Follow up 1 st – after 15 Days
2 nd – after 30 Days

Selection Criteria:
Inclusion Criteria
1. Antenatal subject between 18 to 40 years.
2. Subject having pregnancy between 20weeks to 34 weeks.
3. Primi gravidae having classical sign and symptoms of kikkisa w.s.r to striae gravidarum.
Exclusion criteria
1. Any existing skin diseases due to other causes
2. Any type of skin allergy
ASSESSMENT CRITERIA
Subjects will be assessed for improvement in signs and symptoms by using Davey`s score. Method and scoring will be done before and after treatment and also assess the fundal height of subject.
DAVEY`S SCORE- The abdomen was divided into four quadrants using the midline and horizontal line through the umbilicus.
Davey`s scores

QUADRANT ABDOMEN	NO.OF STRIAE
RIGHT UPPER QUADRANT	
RIGHT LOWER QUADRANT	
LEFT UPPER QUADRANT	
LEFT LOWER QUADRANT	

GRADATION
No striae -Absent
1-2 striae - Mild
3-8 striae - Severe

Subjective Parameters:
1. Kandu (Itching)
2. Vidaha (Burning)
3. Vaivariniyata (Discoloration)
4. Twakbheda (scar on skin)

Parameters	Grade 0	Grade 1	Grade 2	Grade 3
Kandu(Itching)	No itching	Mild itching not disturbing normal activity	Occasional itching disturbing normal activity	Itching present continuously and disturbing normal activity
Vidaha(Burning)	No burning sensation	Mild burning not disturbing normal activity	Occasional burning disturbing normal activity	Burning present continuously and disturbing normal activity
Vavariniyata(Discoloration)	Normal skin colour	Mild developing	Moderate developing	Severe developing
Twakabheda (scar on skin)	Normal	Mild	Moderate	Severe

Objective parameters: -
Selected single and most prominent lesion from each abdominal quadrant.
Following parameters will be considered

No.	Parameters	Before treatment	After treatment
1.	Width of lesion (in cm)	✓	✓
2.	Length of lesion (in cm)	✓	✓
3.	Area of lesion (cm^2)	✓	✓

STATISTICAL ANALYSIS
Data before and after the treatment will be analysed statistically using appropriate method.
OUTCOMES
PRIMARY outcomes: Improvement in symptoms of kikkisa -striae gravidarum viz. itching and burning (60 -70% expected) and discolouration (40-50% expected) Reduction in the length and width of the lesion.

SECONDARY outcome : Observations of the side effects if any

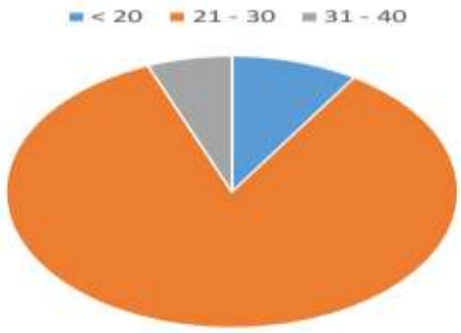
OSERVATION

1. Age Wise Distribution
 Trimester Wise Distribution
2. Prakruti Wise Distribution
3. Kandu (Itching) Wise Distribution
 Daha (Burning) Wise Distribution
4. Vaivarnya (Discoloration) Wise Distribution
5. Twak Bhed (Stretch Mark) Wise Distribution

Age Wise Distribution: Distribution of Patients According to Age Group

Age	No. of Patient	%
<20	03	9.09%
21-30	28	84.84%
31-40	02	6.06%

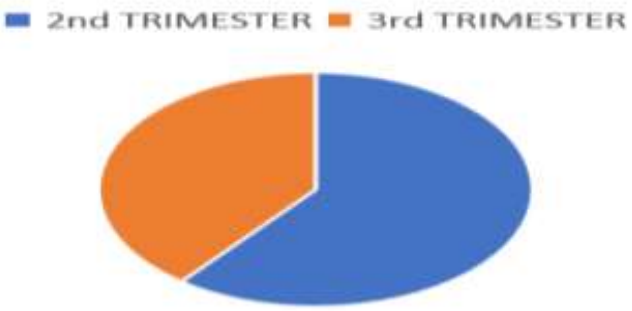
AGE WISE DISTRIBUTION



OBSERVATION: Out of 33 patients, 9.09% patients age were < 20 years, 84.84% patients age were between 21 - 30 years, 6.06% patients age were between 31 - 40 years.

TRIMESTER WISE DISTRIBUTION: Distribution of patients according to Trimester.

Trimester	No. of Patient	%
Second	20	60.06%
Third	13	39.39%



OBSERVATION: Out of 33 patients, 60.60% patients were belong from second Trimester and 39.39% patients were belong from third trimester.

PRAKRUTI WISE DISTRIBUTION: Distribution of patients according to Prakruti

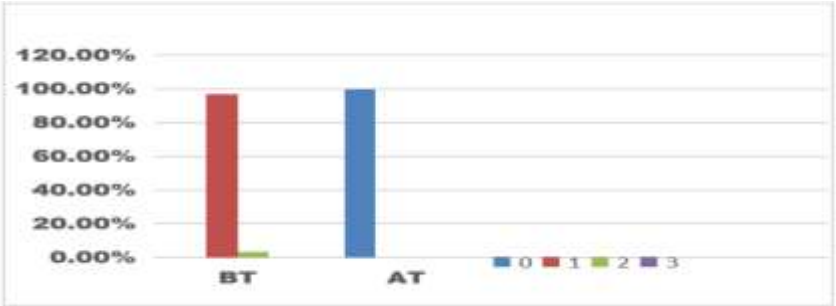
Prakruti	No. of Patients	%
V.P	08	24.24 %
P.V	03	9.09 %

V.K	04	12.12 %
K.V	04	12.12 %
K.P	02	6.06 %
P.K	02	6.06 %
V.P.K	06	18.18 %
K.V.P	02	6.06 %
P.V.K	02	6.06 %

OBSERVATION: Out of 33 patients, maximum number of patients 24.24% had vata pradhan pitta prakruti, 9.09% patients had pitta pradhan vata prakruti, 12.12% patients had vata pradhan kapha & kapha pradhan vata prakruti, 18.18% patient had vata Pradhan pitta-kapha prakruti,6.06% patients had kapha pradha pitta, pitta pradhan kapha, kapha pradhan vata-pitta &pitta pradhan vata-kapha prakruti.

EFFECT OF MALATI – MADHUKA GEL ON KANDU (ITCHING) IN STRIAE GRAVIDARUM (KIKKISA) :

KANDU (ITCHING)				
GRADE	BT		AT	
	No. of Patients	BT	No. of Patients	AT
3	0	0.00 %	0	0.00 %
5	10	3.33 %	0	0.00 %
1	95	99.96%	0	0.00 %
0	0	0.00%	30	100 %

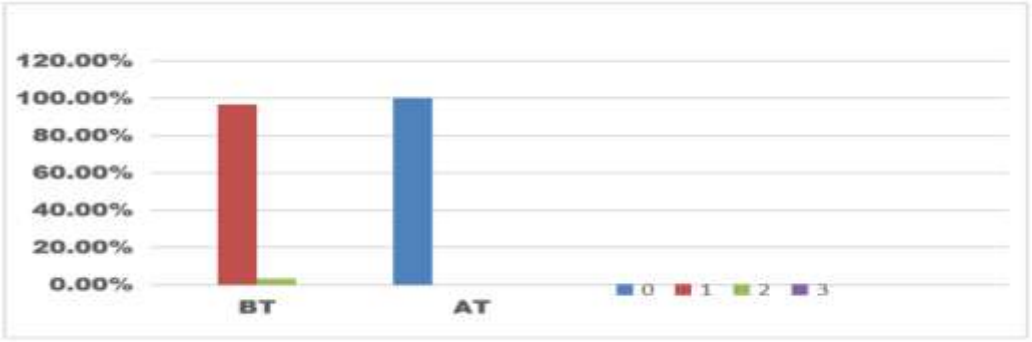


Parameter	Mean		X	% of Improvement	Positive Rank	Negative rank		P value
Kandu Itching	BT	AT					W	
	1.03	0	1.03	100 %	0	-435		

Observation: The Mean Grade of kandu (itching) before treatment was 1.03, which was decreased to 0 after treatment. The mean improvement score was 100% which is significant as observed by wilcoxon test (as P value <0.05) thus it can be said that there is significant increment on kandu (itching) in striae gravidarum (kikkisa)

EFFECT OF MALATI – MADHUKA GEL ON KANDU (ITCHING) IN STRIAE **GRAVIDARUM (KIKKISA):**

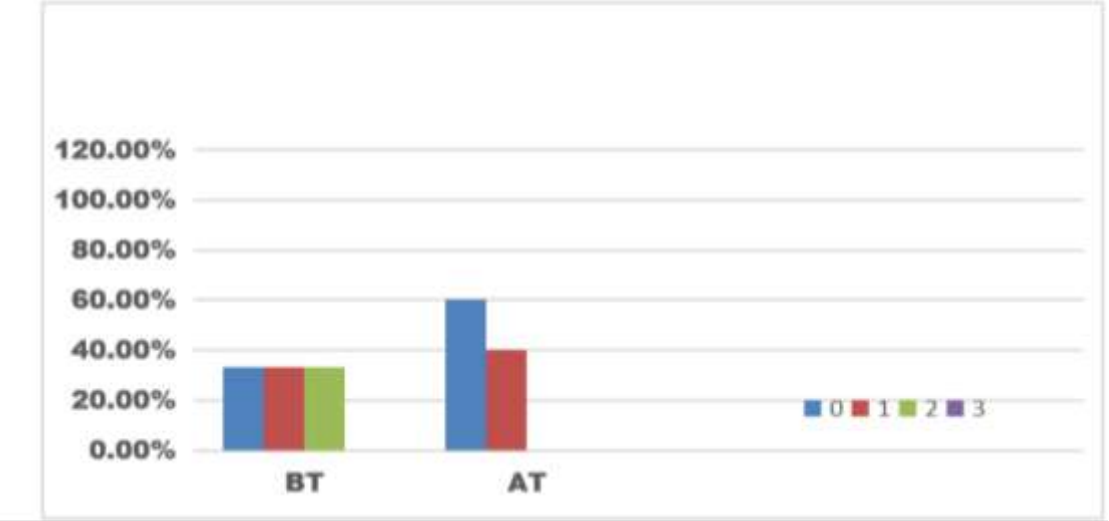
KANDU (ITCHING)				
GRADE	BT		AT	
	No. of Patients	BT	No. of Patients	AT
3	0	0.00 %	0	0.00 %
5	10	3.33 %	0	0.00 %
1	95	99.96%	0	0.00 %
0	0	0.00%	30	100 %



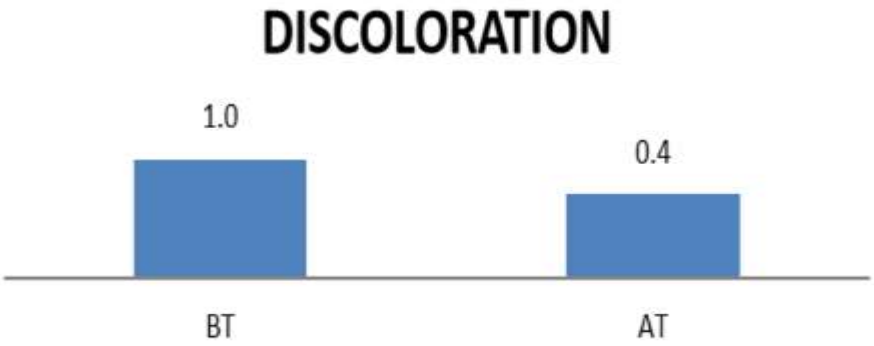
Parameter	Mean		X	% of Improvement	Positive Rank	Negative rank		P value
DAHA BURNING	BT	AT					W	
	0.4	0	0.4	100 %	0	-78	-78	0

OBSERVATION: The mean grade of Daha (Burning) before treatment was 0.4, which was decreased to 0 after treatment. The mean improvement score was 100% which is significant as observed by wilcoxon test (as P value <0.05) thus it can be said that there is significant increment on Daha (Burning) in striae gravidarum(kikkisa).

EFFECT OF MALATI – MADHUKA GEL ON VAIVARNYA (DISCOLOURATION) IN STRIAE GRAVIDARUM (KIKKISA):



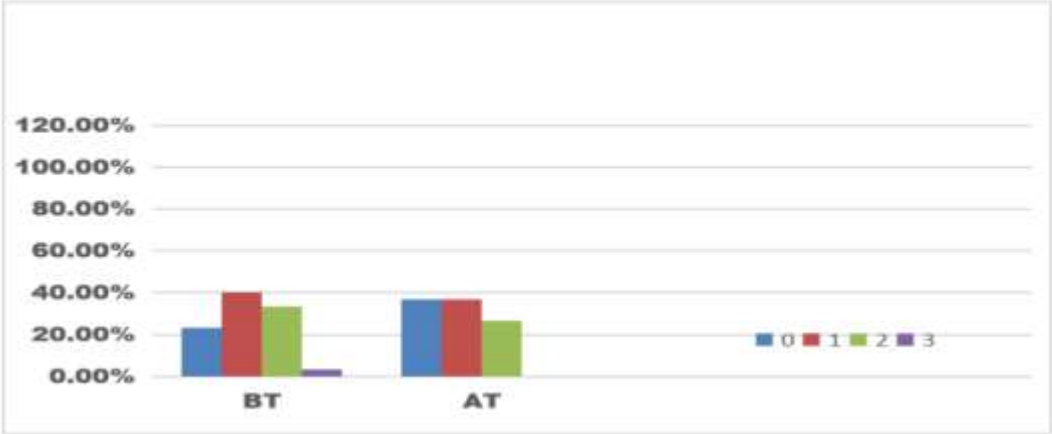
VAIVAENYA(DISCOLOURATION)				
GRADE	BT		AT	
	No. of Patients	BT	No. of Patients	AT
0	10	33.33 %	18	60.00 %
1	10	33.33%	12	40.00%
2	10	33.33%	0	0.00%
3	0	0.00%	0	0.00%



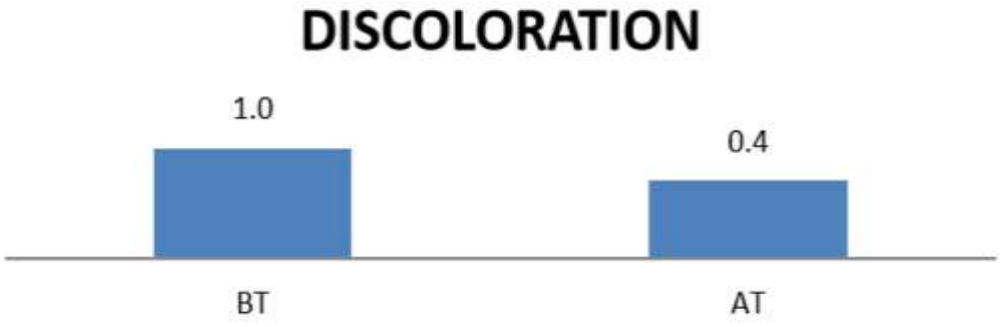
Parameter	Mean		X	% of Improvement	Positive Rank	Negative rank	W	P value
VAIVARNYA (DISCOLOURATION)	BT	AT						
	1.0	0.4	0.6	60 %	0	-153	-153	0

OBSERVATION : The mean grade of Vaivarnya (Discolouration) before treatment was 1.0, which was decreased to 0.4 after treatment. The mean improvement score was 60% which is significant as observed by wilcoxon test (as P value <0.05) thus it can be said that there is significant increment on Vaivarnya (Discolouration) in striae gravidarum (kikkisa)

EFFECT OF MALATI – MADHUKA GEL ON TWAKBHEDA (SCAR MARK) IN STRIAE GRAVIDARUM (KIKKISA) :



TWAKBHEDA(SCAR MARK)				
GRADE	BT		AT	
	No. of Patients	BT	No. of Patients	AT
0	07	23.33%	11	36.66 %
1	12	40.00%	11	36.6%
2	10	33.33%	8	26.66%
3	01	3.33%	0	0.00%



Parameter	Mean		X	% of Improvement	Positive Rank	Negative rank	W	P value
TWAKBHEDA (SCAR MARK)	BT	AT						
	1.166	0.9	0.26	28.85 %	0	-36	-36	0.08%

OBSERVATION: The mean grade of Vaivarnya (Discolouration) before treatment was 1.0, which was decreased to 0.4 after treatment. The mean improvement score was 60% which is significant as observed by wilcoxon test (as P value <0.05) thus it can be said that there is significant increment on Vaivarnya (Discolouration) in striae gravidarum(kikkisa).

DISCUSSION -

The present study evaluated the clinical efficacy of Malati–Madhuka Gel in 33 antenatal women with *Garbhini Kikkisa* (striae gravidarum). The results demonstrated significant symptomatic improvement, with complete relief in itching (*kandu*) and burning (*daha*), and 60% reduction in discoloration (*vaivarnya*). Improvement in scar marks (*twakbheda*) was only 22.85% and statistically insignificant, indicating that while the formulation is highly effective for symptom control, its influence on dermal scarring is limited.

OBSERVATION

The majority of participants were in the **21–30 years age group**, reflecting the typical reproductive age in Indian women. Most cases occurred in the **second trimester**, correlating with the phase of rapid uterine enlargement and hormonal changes that reduce skin elasticity and predispose to striae. From the Ayurvedic perspective, this period corresponds with *Sthanavaigunya* and dosha aggravation around the 7th month, which is consistent with classical descriptions. Patients with **Vata–Pitta dominant prakriti** were more frequently affected, validating the Ayurvedic principle that prakriti influences disease susceptibility.

ymptom-wise Effects

Itching (Kandu): The gel provided 100% relief. In Ayurveda, this is explained by the *kandughna* property of both Malati and Madhuka, which pacify *Vata–Kapha*. Modern pharmacology attributes the effect to anti-inflammatory, antihistaminic, and soothing compounds such as glycyrrhizin and ursolic acid.

Burning (Daha): A 100% reduction was observed. The *sheeta virya* and *pitta-shamaka* properties of the ingredients counter Pitta vitiation. Antioxidants and triterpenoids further reduce inflammatory mediators responsible for burning sensations.

Discoloration (Vaivarnya): 60% improvement was noted. Ayurveda classifies both Malati and Madhuka as *Varnya dravyas*, promoting normal skin tone. Modern studies highlight the role of glabridin and liquiritin in inhibiting tyrosinase, thereby reducing hyperpigmentation.

Scar Marks (Twakbheda): Minimal improvement was achieved. Since striae are essentially dermal scars due to collagen and elastin rupture, complete reversal with topical therapy is rarely possible. However, progression of new striae was prevented in most cases, suggesting some role in strengthening dermal tissue.

Probable Mode of Action

The combined Ayurvedic properties of Malati (Tikta–Kashaya rasa, Ushna virya, Vranaropana) and Madhuka (Madhura rasa, Sheeta virya, Varnya, Kandughna) support *Tridosha* pacification and skin healing. From a modern viewpoint, **their** antioxidant, anti-inflammatory, collagen-stabilizing, and depigmenting activities explain the observed improvements. The gel base also enhanced absorption, provided moisturization, and increased patient compliance.

Malati–Madhuka Gel significantly improves the key symptoms of *Garbhini Kikkisa*—itching, burning, and discoloration—thereby enhancing maternal comfort and psychological well-being. While its effect on scar regression is modest, its safety, affordability, and ease of application make it a valuable Ayurvedic option for managing striae gravidarum during pregnancy.

CONCLUSION -

The present clinical study was conducted to assess the efficacy of Malati–Madhuka Gel in the management of *Garbhini Kikkisa* (striae gravidarum), a condition that, although not medically serious, causes considerable cosmetic concern and psychological distress in pregnant women. A total of 33 antenatal participants fulfilling the inclusion criteria were enrolled, and the results were assessed through both subjective and objective parameters.

Findings confirmed that *Garbhini Kikkisa* most commonly appears during the late second and early third trimester of pregnancy, corresponding with rapid uterine enlargement and hormonal changes that reduce dermal elasticity. This observation is consistent with both Ayurvedic texts, which describe Kikkisa as a *Tridoshaja* condition manifesting around the seventh month, and modern dermatology, which places the onset of striae gravidarum between 24–28 weeks of gestation. The majority of participants belonged to the 21–30 year age group, reflecting the typical reproductive age and the phase when cosmetic appearance holds high psychosocial value.

With regard to prakriti, most patients showed Vata–Pitta predominance, aligning with the Ayurvedic concept that Vata causes dryness and skin stretching, while Pitta is responsible for burning and

discoloration. This validates the influence of constitutional factors in disease susceptibility and may guide preventive strategies in antenatal care.

Therapeutically, the Malati–Madhuka Gel was highly effective in alleviating the most distressing symptoms. Complete relief in itching (*kandu*) and burning (*daha*) was achieved, which greatly improved maternal comfort and compliance. Moderate improvement was observed in discoloration (*vaivarnya*), reflecting the varnya and pitta-shamaka properties of the ingredients. However, the gel was less effective in addressing the structural dermal damage (*twakbheda*), with no significant change in the length, width, or depth of striae. This finding supports the view that while topical agents can reduce symptoms and improve appearance, they cannot completely reverse established dermal scars. Importantly, progression of new striae was arrested in most participants, suggesting a preventive role of the formulation.

Another significant outcome was the excellent safety and tolerability of the gel. No adverse reactions were reported, underscoring its suitability for use in pregnancy, where many modern pharmacological agents are contraindicated. The gel was also well accepted by patients due to its non-greasy, easy-to-apply base.

In conclusion, Malati–Madhuka Gel can be recommended as a safe, cost-effective, and supportive treatment for *Garbhini Kikkisa*. While its effect on scar dimensions is limited, it provides substantial relief from itching, burning, and discoloration, thereby enhancing maternal comfort, cosmetic satisfaction, and overall quality of life during pregnancy. Future large-scale controlled trials with longer follow-up and advanced assessment methods are warranted to validate these results and explore its preventive potential further.

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