

Treatment of Vitiligo after Phenotypic Assessment: An Evidence- Based Case Report of a 32-Year-Old Female Treated by Homoeopathy

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Abstract: *Patient: Female, 32, Final Diagnosis: Multifocal-vulgaris Vitiligo. Symptoms: Hypopigmented macular patches, Frontal headache, Hot feeling in eyes, Flatulence. Clinical Procedure: Oral Medication. Introduction: Vitiligo is a skin disorder characterised by the selective destruction of functional melanocytes, resulting in the appearance of non-scaly, chalky white macules. It is the most common chronic depigmenting disease with an estimated worldwide prevalence 0.5- 2%.^[8] Although symptomless, it has a significant psychological impact as it is socially stigmatised, even in developed societies. Case Report: We present a case of a 32-year-old female patient who came to us after failed results from skin grafting and UVR therapy for her Vitiligo patch on left forearm. This represents a common scenario in homoeopathic OPDs, where patients arrive disappointed with conventional treatments in such cases. In order to treat her Homoeopathically, her phenotype was thoroughly evaluated through a comprehensive analysis of her medical, family, and constitutional history, taking into account her overall mental and physical characteristics as well. Based on this Homoeopathic remedy, Natrum muriaticum was selected. This promptly elicited significant improvement of Vitiligo macular patches over the course of next 2 months. During the follow-up changes were documented by photographs. The non-invasive methods VitiQoL^[10] (For Vitiligo) and VAS scale for other symptoms were used to assess treatment progress. Possible causal attribution of outcome with treatment was evaluated using MONARCH.^[9] Conclusion: Underlying cause of Vitiligo involves a complex interplay of genetic and epigenetic factors, along with the contribution of autoimmune mechanisms. Therefore, it is crucial to contemplate a treatment approach that is not merely limited to external projection of the disorder ie. 'White Vitiligo patches' and instead address the underlying cause of the disorder. This is done by selecting the medicine taking into account the phenotype of the patient which will eventually lead to treatment of the impacted melanocytes holistically. Pharmacogenomics is the future of medicine and Homoeopathic basis of prescription is very much on the lines of the same. The positive outcome in this case, supports the need for further investigation of the relevance of phenotypic assessment based Homoeopathic treatment in such cases where the disorders have genetic and epigenetic causes.*

Keywords: Vitiligo, Leucoderma, Homeopathy, Evidence-Based Medicine, Case report

MeSH Keywords: Vitiligo, Homeopathy, Evidence-Based Medicine

1. Introduction

Vitiligo has been considered "Sweta Kushta" (white leprosy) since ancient times in India.^[13] The first Prime Minister of India, Jawaharlal Nehru, ranked Vitiligo alongside 'Malaria' and 'Leprosy' as the three major medical "curses" affecting India.^[13] Given that the majority of individuals in India have skin tones falling within the Fitzpatrick scale Type III-VI, Vitiligo patches are more visibly apparent compared to lighter skin tones. Consequently, the psychological impact of Vitiligo and attached social stigma is notably more pronounced in the Indian population as well.

Vitiligo (WHO disease classification- L80)/ nonsegmental vitiligo (NSV) is a consensus umbrella term for all forms of generalised vitiligo.^[17] It is an acquired chronic depigmenting disorder of the skin resulting from selective destruction of melanocytes.^[3] This results in typical white patches, often symmetrical, which usually increases in size with time, corresponding to a substantial loss of functioning

epidermal and sometimes hair follicle melanocytes as well.^[17]

Talking about the aetiology, Vitiligo is an idiopathic hypopigmentation disorder of skin that has its origin dated back to more than 3000 years^[13] under different names but its exact aetiology still remains the topic of debate. Out of all the theories, the most indicated one is convergence or integrated theory^[3] which indicates that different pathogenetic mechanisms like auto immunity, genetics, epigenetics and others might work together, ultimately leading to the same clinical result. The heritability of vitiligo is remarkably high, with approximately two-thirds of cases stemming from common genomic variants and one-third from rare variants. Environmental factors account for about 20% of the risk for developing vitiligo.^[12] So, to summarise, Vitiligo's aetiology can be attributed to a complex genetic architecture in addition to the intrinsic and extrinsic triggers. This calls for a personalised medicine considering 'Phenotype' of an individual, which can addresses all the

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causative and triggering components rather than merely the treatment which targets the melanocytes superficially.^[12] The 'Phenotype' here means, the set of observable characteristics of an individual resulting from the interaction of its genotype with the environment.

Conservative treatment options for Vitiligo are phototherapy, topical therapies, surgery, chemical depigmentation, laser therapy, skin camouflaging and immunotherapy. The conservative treatment plan for a patient incorporates any one or combination of the above seven treatment modes, but due to no consideration of the phenotype, the treatment approach is not addressing the root cause and fails to deliver the desired treatment outcomes. Consequently, the prevailing notion within conventional medicine is that Vitiligo is incurable, highlighting the need for alternative approaches that take into account the holistic nature of the disease.

Homoeopathy is a medicine system on the lines of pharmacogenomics working on a dynamic plane targeting the phenotype where both the role of an individual's genotype and epigenetics comes into play. Through the administration of dynamic doses of drug substances, Homoeopathy surpasses the mere external manifestation of Vitiligo, depicted as "white patches," and adopts a comprehensive approach that embraces the patient's entire phenotype. This personalised methodology recognizes that not all patients with white patches are treated uniformly, but rather, their treatment is tailored according to their distinct phenotypic attributes.

Presented here is a case study of a woman in her early thirties who underwent homoeopathic treatment for Vitiligo after assessing her phenotype. After a two-month treatment duration, significant improvements were observed in her condition (Table 3), as evidenced by parameters such as photograph analysis (repigmentation >90%) and VitiQoL scores. Additionally, her accompanying complaints of headache (measured using VAS), burning in the eyes (measured using VAS), and flatulence also showed improvement. The overall case outcome was assessed using MONARCH guidelines^[9] (Table 4)

2. Case Summary

Case Presentation

In April, 2022, a 32 year old average built woman visited for Homoeopathic treatment for a pre-diagnosed case of Vitiligo patch which gradually increased over the past 6 years on left upper arm. She was recommended to get Homoeopathic treatment after she failed at getting the solution through UVR therapy (2 years back) and skin grafting (1 year back). She also presented with other symptoms like headache in the frontal region (VAS- 9/10), burning in eyes (VAS- 5/10) along with pulsation under skin and flatulence along with heaviness in abdomen (severe).

Past Medical History

She had no significant medical history of past illnesses, except for undergoing UVR therapy two years ago and skin grafting one year ago for her Vitiligo patch.

Obstetrics and Gynaecological History

The patient's menstrual history revealed regular cycles with an average length of 27 days. Menarche began at the age of 13. The menstrual flow lasted 3-4 days and was described as moderate. There was no reported dysmenorrhea or abnormal bleeding. No significant changes or disorders in the menstrual pattern were observed. The patient is unmarried and has no obstetric history.

Family History

The patient's grandmother had a long-standing history of progressive Vitiligo affecting her face and extremities for more than 30 years.

Diagnosis

Multifocal-vulgaris Vitiligo.

The patient's symptoms were assessed through a combination of photographic analysis (Figure 3A) and the VitiQoL questionnaire (Table 2). Prior to treatment, her VitiQoL score was recorded as 63 out of 90.

Homoeopathic Perspective and Intervention

The selection of Homoeopathic medications involves a meticulous process that revolves around the careful analysis of the patient's phenotype. This comprehensive approach encompasses the diagnosis of the disease as well as a thorough consideration of the patient's physical and mental symptoms. This individualised Homoeopathic (iHom) approach ensures that the most appropriate homoeopathic remedy is selected for each case. This approach holds particular significance in cases where the disorder is influenced by genetic, epigenetic, and autoimmune factors.

The symptoms are aggregated in a specific pattern and repertorised using any repertorial tool, which in this case was homoeopathic software, RADAR. The repertorial analysis in addition to the P.D.F (Potential Differential Field- Symptoms not considered in repertorisation) and clinical experience of the physician is then taken into account to select a Homoeopathic remedy.

Mental Generals

The patient exhibited a reserved and sensitive nature with short-tempered and emotional tendencies. She lacked self-confidence and had a tendency to weep. Her condition of Vitiligo contributed to her depression, as it affected her prospects of marriage. The social stigma associated with her condition was amplified by her low socioeconomic background.

Physical Generals

The patient had an average build and a chilly constitution. Her appetite and thirst were normal, and her tongue appeared clean. She had a preference for salty food and chicken. Her bowel movements and urination were normal, but she experienced constipation for over two years. She had normal perspiration and no significant history of dreams.

Repertorization

The case was repertorized using RadarOpus version 2.2.16 (Figure 1 and 2)

The parameters selected for repertorisation were:

- Vitis
- Desires Chicken
- Constipation
- Headache
- Short tempered
- Anxiety
- Emotional
- Weeping tendency
- Irritable

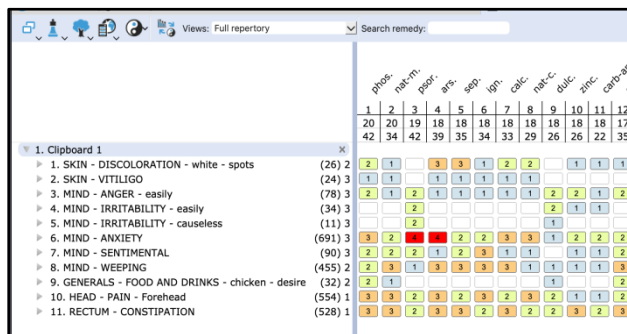


Figure 1: Analysis and evaluation of symptoms for repertorisation at the first consultation (RadarOpus version 2.2.16.) [Repertorial Result: 11 Symptoms/ 933 remedies. Analysis Strategy: “Sum of symptoms (Sorted degrees)”]

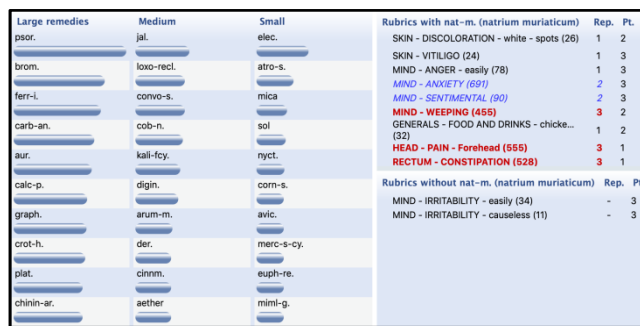


Figure 2: Full repertorial analysis through ‘Vithoulkas Expert System (version 1.5)’ through RadarOpus version 2.2.16.

Note: The remedies in this case are categorised into large, medium, and small groups, providing a comprehensive repertorial analysis perspective.

Nat. m was selected as the remedy based on a comprehensive evaluation that considered both the repertorial totality and the potential differential field (PDF).

The right part of the view highlights the presence of Nat. m in terms of rubrics and their presence in this case.

Rationale of Prescription

Homoeopathic prescriptions are determined by assessing the phenotype through a comprehensive evaluation of symptoms ie. “Totality of symptoms”, taking into account both the physical and mental constitution of the patient in addition to the pathological condition. Although Phosphorus was the first indicated remedy in RADAR analysis but overall constitution of the patient and clinical experience in such cases where specific weightage was given to weeping

tendency and ‘being chilly’ oriented towards the second indicated remedy in RADAR’s analysis ie. Natrum muriaticum.

Initial Prescription

1/04/2022- Natrum muriaticum 30/1 dose was given followed by placebo for 2 weeks. The follow-up details are presented in Table 1.

Table 1: Evolution of the case after first prescription

Date	Symptoms	Prescription
14/04/2022	Vitiligo patch: Appearance of pigment in the skin Headache (VAS): 7/10 Burning in Eyes (VAS): 3/10 Gastric Symptoms: Flatulence improved. Heaviness in abdomen remained the same Overall- The emergence of pigmentation instilled a sense of motivation and hope in the patient regarding her condition	-Natrum muriaticum 30 CH- Single dose -Sac lac- 15 Days
05/05/2022	Vitiligo patch: No change in skin colour seen Headache (VAS): 7/10 Burning in Eyes (VAS):2/10 Gastric Symptoms: Flatulence aggravated. Heaviness in abdomen remained the same Overall- Felt dull and lethargic. No other significant change was reported	- Natrum muriaticum 200 CH- Single dose -Sac lac- 15 Days
20/5/2022	Vitiligo patch: Colour of skin pinkish Headache (VAS): 5/10 Burning in Eyes (VAS):2/10 Gastric Symptoms: Flatulence almost nil. Heaviness in the abdomen also improved Overall- The patient experienced improvements in self-confidence and her short-tempered nature, leading to an overall sense of feeling better	-Sac lac- 15 Days
06/06/2022	Vitiligo patch: Appearance of more pigmentation specifically in the margins of patches VitiQoL: Improved from 63/90 (1/04/2022) from the start of the treatment to 12/90 on 6/06/2022 Headache (VAS): 3/10 Burning in Eyes (VAS):2/10 Gastric Symptoms:Flatulence and heaviness in the abdomen almost nil Overall- The patient experienced positive changes in both her emotional and physical well-being, leading to an overall improvement in her state	- Natrum muriaticum 200 CH- Single dose -Sac lac- 15 Days

Outcome (2 months of follow-up)

The case presented a remarkable response not only in the Vitiligo patch but also in other associated symptoms. This provides compelling evidence for the efficacy of Homoeopathy, which operates on the principles of the Biocybernetic model^[6], in addressing the multifaceted nature of Vitiligo. The underlying epigenetic, genetic, and immune mechanisms involved in the disorder are effectively targeted, leading to significant improvement and highlighting the holistic approach of Homoeopathy in treating complex conditions.

The efficacy of the medicine in addressing symptoms beyond the Vitiligo patch serves to underscore the

importance of personalised medicine based on phenotypic assessment, as opposed to a generalised approach that solely targets the superficial manifestation of an underlying and complex disorder.

The outcome of the case is presented in *Figure 3, Table 1, Table 2 and Table 3.*

Moreover, the Modified Naranjo Criteria (MONARCH) were utilised to assess the likelihood of the documented changes being connected to the homoeopathic intervention. The resulting score of 10 out of 13 points (*Table 4*) indicates a high probability of correlation.



3 (A): Before Treatment



3 (B): During Treatment

Figure 3: Vitiligo on Left Arm Disappearing during treatment (>90% repigmentation)

VITILIGO-SPECIFIC QUALITY-OF-LIFE INSTRUMENT (VitiQoL) ^[10]			
S. No.	During the past month	B.T	A.T
1	Have you been bothered by the appearance of your skin condition?	6	1
2	Have you felt frustrated about your skin condition?	6	0
3	Has your skin condition made it hard to show affection?	4	0
4	Has your skin condition affected your daily activities?	3	0
5	When you were talking to someone, have you worried about what they may be thinking of you?	5	2
6	Have you been afraid that people will find fault with you?	5	1
7	Have you felt embarrassed or self-conscious because of your skin?	5	1
8	Has your skin condition influenced the clothes you wear?	5	3
9	Has your skin affected your social and leisure activities?	4	1
10	Has your skin condition affected your emotional well-being?	6	1
11	Has your skin condition affected your overall physical health?	0	0
12	Has your skin condition affected your grooming activities (ie. hairstyle, use of cosmetics)?	3	1
13	Has your skin condition affected your sun protection efforts during recreation (ie. limiting exposure time during peak sun hours, seeking shade, wearing a hat, long sleeves or pants)?	0	0
14	Has your skin condition affected your chances for making new friends?	5	1
15	Have you worried about progression or spread of disease to new areas of the body?	6	0
	Total	63	12
Please check how severe you currently feel your skin condition is:			
16	Severity of skin condition	5	2

Table 2- The VitiQoL instrument is a vitiligo-specific self-report instrument for HRQL (Health-related quality of life) that helps patients assess how their skin condition has affected their quality of life over the past month. It consists of a total of 16 questions, including 15 specific questions and 1 overall question. Each question can be rated on a scale of 0 to 6, where 0 indicates "Not at all" and 6 indicates "All the time."

Outcome: The significant improvement in the case is evident from the reduction in scores across the fifteen-question questionnaire set, with the overall score decreasing from 63 to 12 (on a scale of 90 to 0). Furthermore, there was notable progress in question number 16, with the score decreasing from 5 to 2 (on a scale of 6 to 0). These improvements highlight the substantial positive changes observed in this particular case.

[Abbreviations Used: B.T: Before Treatment. A.T: After Treatment]

Table 3: Health parameters before and after treatment

Parameter/ Scale	Status Before Starting The Treatment	Status After 2 Months of Treatment
Hypopigmented macular patch (Lt. Upper Arm)	100% (Establishing the Baseline: 100% Representation of the Initial Reference Point)	<10% (Fig. 1 shows 90% repigmentation)
VitiQoL ^[10]	63/90	12/ 90
Headache (VAS)	9/ 10	3/ 10
Burning in eyes (VAS)	5/ 10	2/ 10
Flatulence along with heaviness in abdomen	Severe (Every day)	Almost Nil (Very rarely)

Adverse Effects

The patient did not experience any adverse effects during the course of her treatment and follow-up.

- Cessation of spread of vitiligo or stabilisation
- Long-term permanence of repigmentation resulting from treatment (at least two years’ follow-up)

3. Discussion

The treatment options for the management of Vitiligo according to conservative medicine are topical treatments (corticosteroids and calcineurin inhibitors), phototherapy and systemic steroid treatment, surgical grafting techniques and depigmenting treatments.^[3] But, none of these offer a satisfactory treatment focusing on all of the below mentioned outcomes:

In conclusion, conservative medical treatments provide only superficial camouflage and are unable to effectively address all of the treatment outcomes outlined above, including the challenges related to repigmentation and the spreading of patches. Moreover, these treatments exhibit limited efficacy when it comes to lesions located in acral areas and older macular patches.^[3]

Hence, there is a strong need to look for treatment options beyond the conservative approach.

a) Primary Outcome^[18]:

- Quality of life measured using a validated tool e.g. VitiQoL in this case (Table 2).
- Percentage of repigmentation (restoration of normal skin colour) of vitiliginous skin:
- Adverse effects

There is compelling evidence indicating that immunological and genetic factors play a key role in the destruction and dysfunction of melanocytes in Vitiligo. Genetic variations in DNA sequences involved in skin homeostasis, pigmentation, and immune response regulation, as well as altered expression patterns, have been identified as potential contributors to the development of vitiligo.

b) Secondary outcomes^[18]:

The Homoeopathic treatment in this case highlights the significance of improvement in symptoms beyond the Vitiligo i.e. Headache and GIT symptoms, suggesting the involvement of underlying healing of underlying causative mechanisms rather than just the impact on melanocytes.

The selection of Homoeopathic medication after phenotypic assessment leads to a personalised dynamic medicine for that individual. Here, the focus is not on the disease, but “The patient” as a whole. So, the focus is not on the patch of the vitiligo but “The patient” having the patch.

The administration of a Homoeopathic remedy, guided by a holistic phenotypic assessment, aims to activate the "Central curative station" according to the 'Biocybernetic model'.^[6] This model proposes that Homoeopathic medicines exert their effects by regulating key biological systems, including the Reticuloendothelial system, the Central nervous system-autonomic nervous system axis (CNS-ANS), The Genetic code (DNA-RNA; gene suppression or activation), Bioelectromagnetic sensitivity mediated by DC electricity, Biophoton or water signalling transmission, and The Endocrine-adaptation reaction to stress (general adaptation syndrome). By targeting these interconnected pathways, Homoeopathic remedies have the potential to elicit therapeutic responses at multiple levels of biological functioning. Homoeopathy activates the “Central curative station” and hence delivers promising outcomes in case of Vitiligo where complex causative intrinsic and extrinsic mechanisms are responsible. There have been researches showing promising outcomes in cases of Vitiligo through Homoeopathic treatment.^{[5][12]} The collective research findings, including this case report, exhibit a consistent and favourable pattern of recovery in patients with Vitiligo. The ideal course of Vitiligo healing through Homoeopathy occurs in the following pattern: Initially, the lesions demonstrate stabilisation, characterised by a cessation in spreading, absence of lesion enlargement, and absence of

new lesion formation. Subsequently, re-pigmentation may occur, accompanied by distinct demarcation of previously diffuse lesion borders, indicating a halt in disease progression. Additionally, patients often report an improvement in their overall quality of life, along with potential amelioration of associated conditions such as thyroid dysfunction. These clinical responses to homoeopathic treatment exemplify an optimal therapeutic outcome for individuals with vitiligo.^[12]

The case here presented a woman who sought Homoeopathic treatment after failed attempts to get resolution in the conventional medicine system. She had a positive family history as her grandmother suffered from Vitiligo as well. She was prescribed Homoeopathic medicine, Natrum Muriaticum based on the thorough case evaluation that included repertorisation of the case. Her treatment was carried for 2 months and she had >90% repigmentation. She was suffering for more than 6 years and in around 2 months, she had such remarkable recovery. The patient presented here reported an improvement in overall mental well being as well that can be attributed to iHOM. Being a single case report, no conclusions about the influence of iHOM on psychological factors may be drawn. However, there are certain observations that make a homoeopathic treatment effect likely. Overall, effectiveness of the treatment was depicted by MONARCH (Table 4)

In summary, conditions like Vitiligo necessitate a personalised approach to medicine, focusing on the patient as a whole rather than solely addressing the external manifestations of the underlying disorder. Evidence-based medicine offers the opportunity not only to target existing hypopigmented patches but also to address desired outcomes such as preventing relapses and disease progression. By considering the individual's specific needs and goals, Homoeopathy can provide comprehensive and effective treatment for patients with Vitiligo.

Table 4: Modified Naranjo Criteria (MONARCH) for Assessing Causal Attribution of Clinical Outcome to Homoeopathic Intervention

Modified Naranjo Criteria	Y	N	Not Sure/ NA	Case
1. Was there an improvement in the main symptom or condition for which the homoeopathic medicine was prescribed?	2	-1	0	2
2. Did the clinical improvement occur within a plausible time frame relative to the drug intake?	1	-2	0	1
3. Was there an initial aggravation of symptoms?	1	0	0	0
4. Did the effect encompass more than the main symptom or condition, that is, were other symptoms ultimately improved or changed?	1	0	0	1
5. Did the overall well-being improve?	1	0	0	1
6 (A) Direction of cure: did some symptoms improve in the opposite order of the development of symptoms of the disease?	1	0	0	0
(B) Direction of cure: Did at least two of the following aspects apply to the order of improvement of symptoms: from organs of more importance to those of less importance, from deeper to more superficial aspects of the individual, and from the top downwards.	1	0	0	1
7. Did “old symptoms” (defined as nonseasonal and noncyclical symptoms that were previously thought to have resolved) reappear temporarily during the course of the improvement?	1	0	0	0
8. Are there alternate causes (other than the medicine) that with a high probability could have caused the improvement? (consider known course of disease, other forms of treatment, and other clinically relevant interventions)	-3	1	0	1
9. Was the health improvement confirmed by any objective evidence? (in this case Photograph)	2	0	0	2
10. Did repeat dosing, if conducted, create similar clinical improvement?	1	0	0	1
Total				10

Note: The causal attribution score is significantly high for the treatment in this case, suggesting that the observed effects can indeed be ascribed to the homoeopathic intervention. (Maximum score = 13, minimum score = -6)

4. Conclusion

Vitiligo is a complex disease which is not treatable according to the conventional medical literature. The causative factors have major genetic and epigenetic factors apart from other other idiopathic causes. Gene expression studies have identified 36 susceptibility loci for Vitiligo, out of which immunoregulatory proteins are approximately encoded by 90%, while the 10% encode melanocyte proteins, suggesting the major involvement of immune parameters.^[7]

This makes it evident on how focus should be on adopting a treatment methodology which can target the impacted melanocytes from the core immune mechanism rather than the reverse approach where we aim at primarily camouflaging of the skin first.

Researches have shown how Individualised Homoeopathic treatment (iHOM) had positive outcomes in cases of Vitiligo.^[5,12] This case is an added contribution in the same, and becomes of even more clinical significance because this woman was treated by Homoeopathy after failing in conservative approaches to treat Vitiligo like UVR therapy and skin grafting.

This calls for a progressive approach from the medical fraternity to further research on Homoeopathic approach to target the disorder, which has been a medical mystery for over 3000 years.

Highlights

- This case report presents beneficial results of Homoeopathic treatment after phenotypic assessment for Vitiligo, a condition for which there is no cure according to conventional medical literature.
- The efficacy of the treatment was evaluated through the utilisation of relevant questionnaires and visual documentation to assess the therapeutic progress and observed improvements.
- There appears to be a plausible causal relationship between the administered Homoeopathic treatment and the observed clinical improvement in the patient.

Informed Consent

Signed "Informed Consent" was obtained from the patient on her first visit after she filled up the form and agreed to undergo treatment for her ailment through homoeopathy.

Source of Funding

None

Conflict of Interest

Authors have no conflict of interest to declare.

Ethical Approval

Does not apply here as the case report involves treatment that was sought voluntarily by the patient.

Data Statement

The de-identified data from this study may be obtained by writing to the corresponding author.

Author's Contribution

SK, SD, SB: conception. SB: patient recruitment, treatment and clinical assessment. SD, SB: analysis and interpretation of data. SD, SB: drafting the manuscript. SK: The entire study was shaped under his guidance. All authors have read and approved the final version of the manuscript.

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