



Case Report

Naturopathy and Yoga for improving quality of life in *Pemphigus vulgaris* and managing co-morbid type 2 diabetes: A case reportSagun Tiwari ^a, Apar Avinash Saoji ^{b, *}, Kshamashree Madle ^b, Namrata Sapkota ^a, H.C. Shashikiran ^a, Prashanth Shetty ^a^a Sri Dharmasthala Manjunatheswara College of Naturopathy and Yogic Sciences, Ujire, India^b The School of Yoga and Naturopathic Medicine, Division of Yoga and Life Sciences, Swami Vivekananda Yoga Anusadhana Samthana, Bangalore, India

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ABSTRACT

A 57 years old male patient was admitted to an inpatient Naturopathy and Yoga (N&Y) hospital, diagnosed with pemphigus vulgaris (PV) for one year and co-morbid type 2 diabetes (T2DM) for 10 years, associated with poor quality of life (QoL). He was administered N&Y therapies for 10 days, along with conventional medicines. There was improved QoL and reduced dosage of insulin, along with reduction in body weight. These changes were sustained and improved further during the 60-day follow-up period. Although there was no improvement in the skin lesions, the improvement in QoL indicate a possible role of N&Y in management of PV and T2DM. This case report also warrants further studies for N&Y in the management of dermatological conditions as well as metabolic syndrome.

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1. Introduction

Pemphigus vulgaris (PV) is a chronic, intraepidermal bullous, autoimmune, life threatening disease characterized by erosions and blisters of skin and mucous membranes. PV is an uncommon disease with an incidence ranging from 0.076 to 5 per 100,000 person [1]. It affects all races and ethnicity with high incidence in Ashkenazi Jews and people with Mediterranean descent. In India, PV is the commonest variant among the pemphigus group of disorders [2]. PV is associated with IgG antibodies targeting several types of keratinocyte antigens and eliciting epidermal cleaving (acantholysis) via intracellular signaling activating apoptotic enzymes (apoptolysis) [3]. PV is caused by circulating autoantibodies to the epithelial adhesion proteins desmoglein 1 and 3. These autoantibodies result in a failure of epidermal cells to adhere correctly to each other. This causes flaccid blisters and subsequently painful erosions in the skin and mucus membranes.

All types of skin diseases are significantly related to physical and psychological disturbances. PV affects the attitude and quality of

life (QoL) of the patients as it covers the large surface area of the skin along with mucous membrane [4]. Patients suffering from PV have physical, emotional and psychological burden as there is no cure for it. Palliative management strategies are used to minimize the diseases progression, mostly thorough use of immunosuppression therapies [1].

Naturopathic medicine is a drugless, noninvasive, evidence-based medicine which provides the suitable environment for self-healing [5]. Yoga therapy is broadly used for psychological, and physical health. In India, Naturopathy and Yoga (N&Y) are used as a single system of medicine [6]. Although there is growing evidence for the role of N&Y to enhance QoL and management of symptoms in various disorders [7,8], there are no studies reporting their effect on PV. Thus, the current case study presents role of N&Y in improving the QoL and management of co-morbidities with PV.

2. Presenting concerns

A 57 years old male patient was admitted in a N&Y hospital with history of PV for 1 year. He was diagnosed with PV through histopathological study, when he approached a hospital for fluid filled lesions on chest and back region, which later spread all

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Table 1
Timeline of the case.

Health Event	Time
Diagnosis of Type 2 Diabetes	December 2007
Initial Diagnosis of Pamphigus vulgaris	June 2016
Admission to Yoga and Naturopathy Hospital	18 July 2017
Discharge	28 July 2017
First Follow up	27 August 2017
Second Follow up	26 September 2017

over of the body. The lesions ruptured, causing itching sensation over the area. He was taking Tab. Deflazacort 15 mg OD for managing the PV. He also had been diagnosed with type 2 diabetes (T2DM) for 10 years, managed with Human Mixtard Insulin injections (30 units/day), Tab. Glimpiride 2 mg OD and Tab. Metformin 500 mg OD.

3. Clinical findings

A detailed case history was taken when he was admitted to the hospital. The height of the patient was found to be 173 cm, weight was 72 kg and Body Mass Index (BMI) was calculated to be 24.06 kg/m². His resting blood pressure was found to be 118/78 mmHg, pulse rate was 78 beats/m. On examination, maculopapular rashes were observed all over his chest, abdomen and back.

4. Diagnostic focus and assessments

Dermatology Life Quality Index (DLQI) is a simple and reliable tool (Chronbach's alpha ranging from 0.83 to 0.93) to assess QoL in patients with dermatological conditions, with a score ranging from 0 to 30. A higher score indicates poorer QoL [9]. DLQI scores were obtained on the day of admission (day 1) and on the day of discharge (day 10), and on follow up on 30th and 60th day from the day of admission. Fasting (FBG) and Post Prandial Blood Glucose (PPBG) levels were monitored using glucometer on day 1, 10, 30 and 60.

Table 2a
List of Naturopathy therapies administered during the patient's inpatient stay.

Day	Morning Therapy (duration ~ 45 min)	Afternoon Therapy (duration ~ 20 min)
1	Rest	Gastro Hepatic Pack
2	Red rice paste with turmeric to whole body	Cold Hip Bath
3	Mud application to whole body	Gastro Hepatic Pack
4	Red rice paste with turmeric to whole body	Cold Hip Bath
5	Neem oil application to whole body	Whole body dry sauna
6	Mud application to whole body	Gastro Hepatic Pack
7	Red rice paste with turmeric to whole body	Cold Hip Bath
8	Mud application to whole body	Gastro Hepatic Pack
9	Red rice paste with turmeric to whole body	Whole body dry sauna
10	Neem oil application to whole body	Gastro Hepatic Pack
Name of the therapy	Details of application	
Red Rice Paste with Turmeric to whole body	Paste of red rice (approx. 500 gm) was mixed with freshly ground turmeric paste (about 250 gm) and applied over skin throughout the body. After the plastered paste dried, it was washed off using plain water	
Mud application to whole body	Non-contaminated, sun dried black soil, soaked in water overnight was applied over skin throughout the body and left to dry under sunlight. After the plastered mud is dried, it was washed off using plain water	
Neem Oil application to whole body	Oil extracted from Azadirachta indica fruits and seeds was applied over the body with gentle massage. Patient was advised not to use any chemical soaps for bath following therapies	
Gastro Hepatic Pack	The hot water bag (45 °C) was applied over the abdomen, covering the epigastric, left and right hypogastric, left and right lumbar and umbilical region. The ice bag covered the region of lumbar vertebrae L2, L3, L4 and L5.	
Cold Hip Bath	Patient was asked to sit in a specially designed tub immersing from mid-thigh to umbilical region in water (18–24 °C).	
Whole Body Dry Sauna	Patient was seated in a specially designed sauna cabin at a temperature of 50–55 °C.	

5. Methods

Following a detailed history, initial counseling and signed informed consent, the N&Y therapies were planned. The dosage of insulin and oral hypoglycemics was tapered while monitoring the blood glucose levels. He was admitted to the inpatient facility for 10 days. Later he was given a follow-up N&Y plan. The follow up data was obtained through email and telephonic feedback. The timeline of the case is depicted in Table 1.

6. Therapeutic focus and assessment

The patient was kept on a calorie restricted (estimated at about 800 Kcal/day), wholesome vegetarian diet consisting of seasonal fruits (water melon/papaya/pomegranate), salads (prepared from green gram sprouts/carrot/leafy vegetables) and boiled vegetables. The calorific value of the food was calculated by using the quantity of each food item and their estimated calorific value as suggested by the National Institute of Nutrition, Hyderabad [10]. The N&Y module was adapted from an earlier study on metabolic syndrome [6], with changes made based on the patient's response assessed in the daily visit of the physician. In addition, considering the skin ailment of the patient, topical application of neem oil, and turmeric paste in the red-rice paste was also added to the Naturopathy protocol. The Yoga therapy practices consisted of *asana*, *pranayama*, deep relaxation, *suddhi-kriya* and *dhyana*. The N&Y module is presented in Tables 2a & 2b.

7. Follow-up

Following the completion of the 10-day inpatient stay at the hospital, the patient was advised to continue calorie restricted vegetarian diet (approx. 1200–1500 Kcal/day), and yoga practices for 1 h/day. He was also advised to continue using the red rice paste with turmeric at least twice a week. The Patient reported to have good compliance with the follow-up advice using the periodic telephone calls. Data on day 30 and day 60 was collected (weight, FBG, PPBG and DLQI) through telephone call.

Table 2b
List of Yoga practices.

Integrative Yoga Protocol for Everyday		
Name of the Practices	Details	Duration
Loosening practices	Joint loosening practices for hand, leg, neck and trunk	5 min
<i>Suryanamaskara</i>	12 counts (3 rounds)	5 min
Breathing practices	Hand in & out breathing, hand stretch breathing, straight leg raising with breathing, <i>Salabhasana</i> Breathing, tiger brathing	10 min
Asana practices	<i>Ardha chakrasana</i> , <i>Ardhakati Chakrasana</i> , <i>Padahasthasana</i> <i>Ardha Machendrasana</i> , <i>Vakrasana</i> , <i>Navasana</i> , <i>Parivrtta Trikonasana</i>	20 min
<i>Pranayama</i>	<i>Kapalabhati</i> (60 strokes/min for ~2 min), <i>Surya anuloma viloma</i> (9 rounds ~1 min) <i>Vibhagiya pranayama</i> (9 rounds each ~3 min) <i>Nadisuddhi</i> (9 rounds ~2 min) <i>Bhramari</i> (9 rounds ~2 min)	10 min
Relaxation	Deep Relaxation Technique (DRT)	10 min
Total Duration		60 min
<i>Dhyana</i>	Cyclic Meditation	30 min/session, Sessions on alternate days
<i>Suddhi Kriya</i>	<i>Jala Neti</i> , <i>Sutra Neti</i> , <i>Vamana Dhouti</i>	On alternate days

8. Outcomes

The changes from the day of admission to day 10 and follow up days 30 and 60 are depicted in Table 3. The DLQI scores reduced from 21 on day of admission to 18 on day of discharge and further reduced to 15 on day 60 of follow-up, demonstrating better QoL. The body weight reduced from 72 Kg on admission to 70.5 Kg on day 10, which further reduced to 69 on day 60, with a corresponding reduction in the BMI (24.32, 23.82 and 23.32 kg/m² on day of admission, day 10 and day 60 respectively). There was a better glycaemic control depicted through the FBG (123, 112 and 108 mg/dl on day of admission, day 10 and day 60 respectively) and PPBG (180, 160 and 158 mg/dl on day of admission, day 10 and day 60 respectively) requiring lesser quantity of insulin (from 30 units/day to 10 units/day on day 10 which was constant thereafter through the follow-up period). The dosage of oral hypoglycemics was maintained throughout the follow-up period.

9. Discussion

A ten-days N&Y protocol was administered to a 57-year-old male patient suffering from PV and T2DM, followed up for next 60 days. The DLQI scores reduced, which are indicative of better QoL. There was also reduction in the dosage of insulin required to keep the blood glucose in normal range, along with reduction in body weight and BMI. The patient self-reported the N&Y protocol to be easy to adapt and continued to follow the advice given to him on discharge.

Although, no much difference was observed in the skin lesions of PV, there was about 28.5% reduction in the DLQI scores, which is

a reliable tool to assess the QoL in patients with dermatological conditions. This is the first study reporting changes in the QoL in patients with PV using N&Y. Earlier reports of use of N&Y are for metabolic syndrome [6], rheumatoid arthritis [11] and urinary incontinence [12].

The changes observed in the QoL in the current study may be due to reduction in symptoms. This may also be due to stress ameliorating effect of yoga [13,14]. Also, calorie restriction performed in this case could help in reducing the body weight and BMI and thereby enhancing insulin sensitivity and concurrently reducing the need for insulin supplement. These observations are similar to an earlier study done on Metabolic syndrome [6]. N&Y could help though normalizing the autonomic functions through an enhanced vagal tone [15]. The other mechanism involved could be reduction in inflammation due to calorie restriction [16]. Also, the turmeric applied along with the red rice paste could act as a topical anti-inflammatory, which is found to be useful in various kinds of arthritis [17]. However, the earlier trials used the extract of the curcumin administered internally, whereas we used turmeric paste as a topical application.

Other therapies such as massage with neem oil may have also helped, since neem oil is considered to have immunomodulatory and anti-inflammatory effects [18]. Earlier studies using topical application of neem oil has found to induce dermatitis [19], however, our patient did not get any adverse reaction. Topical mud application also has been found to be beneficial in dermatological conditions due to the properties of mud [20]. Naturopathic therapies such as hip bath [21] and Gastro Hepatic pack [22] are found to help in management of T2DM.

Table 3
Changes in the variables on the admission, discharge and follow up.

	Day 1 (admission)	Day 10 (discharge)	Day 30 (follow up)	Day 60 (follow up)
Height (cm)	172	–	–	–
Weight (kg)	72	70.5	70	69
Body Mass Index (kg/m ²)	24.32	23.82	23.65	23.32
Fasting Blood Glucose (mg/dl)	123	112	102	108
Post Prandial Blood Glucose (mg/dl)	180	160	154	158
Insulin Dosage (units)	30	10	10	10
Dermatology Life Quality index scores	21	18	17	15
Systolic Blood Pressure (mmHg)	118	122	–	–
Diastolic Blood Pressure (mmHg)	78	72	–	–

10. Patient perspective

The patient self-reported feeling of wellness during and following the 10 day inpatient treatments. He found the therapies easy to adapt and follow. He felt comfortable with his body and that prompted him to continue to follow-up of N&Y.

11. Conclusion

The observations from the case study reinforce the utility of N&Y as a possible useful integrative treatment modality in the management of T2DM and as a possible tool to enhance the QoL in patients with PV. Further clinical trials are warranted to assess the efficacy of N&Y in the management of PV.

Informed consent

An informed written consent was obtained from the patient for reporting this case.

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None.

Conflict of interest

None.

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