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Case Report

Multimodal Ayurvedic Management of Obstructive sleep apnea (OSA) linked Pickwickian Syndrome (Obesity Hypoventilation Syndrome) (*Sthaulya* with *Shwaskruchrata*): A Case Report

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ABSTRACT:

Background: Obstructive sleep apnea (OSA) is a common sleep-related breathing disorder comes under purview of Obesity hypoventilation Syndrome (OHS) categorized by recurrent upper airway obstruction during sleep, resulting in snoring, excessive daytime sleepiness, fatigue, and impaired quality of life. Obesity is a major risk factor for OSA and contributes significantly to disease progression. **Clinical Findings:** A 38-year-old obese male (Body Mass Index (BMI) 32.5 kg/m²) presented with loud snoring, excessive daytime sleepiness, fatigue, drowsiness, disturbed sleep, recurrent upper respiratory symptoms, and progressive weight gain over six years. The patient had experienced two road traffic accidents secondary to excessive sleepiness while driving. STOP-BANG and Berlin questionnaires indicated a high risk of OSA, while the Epworth Sleepiness Scale (ESS) score was 16, suggesting excessive daytime sleepiness. **Interventions:** The patient underwent a multimodal *Ayurvedic* treatment protocol comprising *Udwartana* (powder scrubbing) *Utsadana* (oil mixed powder scrubbing) *Parisheka* (Pouring of Medicated decoction externally) *Pradhamana Nasya* with *Vacha Churna* (Nasal Instillation of Powder Drugs) and *Lashuna Swarasa*, *Shadbindu Taila Nasya*, *Snehapana* (Internal Oleation) with *Panchatikta Guggulu Ghrita*, *Virechana* (Therapeutic Purgation) internal medications (*Vyoshadi Vati*, *Triphala Guggulu*), and *yoga* practices including selected *asanas* and *pranayama*. Post-discharge medications and lifestyle modifications were advised. **Outcome** Marked improvement was observed in snoring, daytime sleepiness, fatigue and sleep quality. ESS score reduced from 16 to 0, Berlin Questionnaire categories changed from positive to negative, and STOP-BANG responses showed good clinical improvement. BMI decreased from 32.5 to 28.35 kg/m². No adverse events were reported. **Conclusion** This case demonstrates the potential role of a comprehensive *Ayurvedic* approach incorporating *Panchakarma*, internal medications and *yoga* in the management of obesity-induced OSA. Significant improvements were observed in clinical symptoms, sleep-related outcomes- Epworth Sleepiness Scale, Berlin Questionnaire Categories and body weight without any adverse effects, further large studies are warranted in order to validate this finding.

KEYWORDS: Ayurveda, Case Report, *Nasya*, Obesity Hypoventilation Syndrome, Obstructive Sleep Apnea, Pickwickian Syndrome, Sleep Disorder, *Virechana*, Yoga.

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1. INTRODUCTION

Obstructive Sleep Apnea (OSA) is a sleep disorder characterized by Collapse or obstruction of Upper airway leading to apnea or partial hypopnea. [1] This leads to decreased oxygen saturation and arousal from sleep. Prevalence data of OSA estimates that nearly 425 million adults aged between 30-69 years had moderate to severe obstructive sleep apnea. [2] Disease burden of OSA is more in men than women. [3] Major risk factor estimated for OSA is obesity. Patients with OSA usually present with excess snoring, fatigue, excess day time sleep, headache, restlessness, choking or gasping. [4] Patients with OSA are usually involved in motor vehicle collisions. [4] Moderate to severe OSA patients have fifteen-fold risk of motor vehicle accidents. [5] Various mechanisms like sleep fragmentation, intermittent hypoxia and intrathoracic pressure swings may lead to consequences such as cerebrovascular disease, hypertension, coronary artery disease and heart failure. The primary treatment of OSA is Continuous positive air pressure (CPAP) during sleep; other modalities include oral pressure therapy, hypoglossal nerve stimulation, use of oral appliances such as mandibular devices, weight loss and surgery in severe cases. No pharmacological interventions have been proven to treat OSA however few metanalysis have reported Dronabinol reducing AHI, decreasing sleepiness and increasing alertness. [6]

In Ayurveda Obesity Induced OSA aligns with that of *Sthoulya* with *Shwaskruchrataa* (breathing difficulty) which is one among the *Asthanindita roga* (8 physical deformities) with predominantly *meda* and *kapha dusti* having symptoms like *Shwaskruchrataa, Trishna* (excess thirst), *moha* (delusion), *swapna krathana* (Snoring), *sadana* (feeling of fatigue), *ati kshudha* (excess hunger) etc. [7]

Treatment modalities of *sthoulya* include *Apatarpana* chikitsa (Depleting therapy) as first line of management which includes *shodhana* like *Basti*, *virechana* and *nasya*. External modalities like *Udwartana*, *utsadana, parisheka and Pathya aahara* (Wholesome diet) which mainly focuses on reducing the *kapha* and *meda*. In this case probable *samprapti* can be driven as excessive intake of *Kapha medovardhaka aahara*, *vihara* leads to *agnimandya* resulting in *kapha* and *meda vriddhi* (*Sthoulya*), further accumulated *medas* leads to *srotorodha* in *pranavahasrotas* leading to *avarna* of *vata* because of *kapha* and *medas* lead to manifestation as *shwaskruchrataa*, *swapana krathana* (snoring), *sadana* (fatigue) leads to *vyadhi utapatti*.

Uniqueness of this case is rarely found clinical presentation in Ayurveda setting. Patient with typical symptoms of OSA linked with OHS and that multimodal Ayurveda intervention in this case has helped in improving patient outcomes and prevents further complications which are associated with OSA.

2. CASE STUDY

Patient information: A 38-year-old male presented with complaints of snoring, excessive daytime sleep, fatigue, drowsiness throughout the day, disturbed sleep due to snoring for 6 years above complaints aggravated for 1 year. Associated with gradual weight gain for 6 years, with increased hunger and laziness, recurrent episodes of cough, cold and sneezing on and off for 6 years. Patient had a sedentary lifestyle with prolonged sitting and indulged in high sugar diet, oily, junk food and Bing eating with lack of physical activity, gradually complained of laziness and fatigue. Patient also had a history of road traffic accident twice due to drowsiness and excess sleep while driving. Patient has no history of diabetes, hypertension, asthma or thyroid no relevant surgical history.

Clinical Findings: On examination the patient was well nourished and obese built, with no signs of pallor, icterus, clubbing and lymphadenopathy. Vitals were stable with BP 110/80 mm hg, PR 72bpm, RR 18cpm. His height measured 157 cm, with weight 80 kg and BMI 32.5 kg/m^2. The patient had class 1 obesity. Systemic examinations like Central

nervous System (CNS), Cardio Vascular System (CVS) were normal and respiratory rate arounds 24/min and no abnormality was detected. The Stop Bang Questionnaire and Berlin Questionnaire showed High Risk OSA, Epworth Sleepiness Scale Scored 16 which indicated more daytime Sleepiness.

Family and Psychological History: No any family history found with these presenting complaints present.

Table no 1: Timeline of events

Year	Event
2021	Initial symptoms appeared – Snoring, Daytime sleep, fatigue, cough and cold, Gradual weight gain – 60kgs
2022-2023	Snoring gradually increased, Persistent complaints of Daytime sleep, fatigue, cough and cold every 6 months, Weight gain up to 68 kgs
2024	Increased Snoring and persistent complaints of daytime sleep and fatigue; Weight Gain up to 70 kg
2025	Increased Snoring and persistent complaints of daytime sleep and fatigue, dry cough and cold 2-3 times in a year, Weight Gain up to 78kg; ENT consultation – Diet and Exercise Advised.
2025 (November)	Road traffic accident – Increased drowsiness, Daytime sleep Similar episode of Motor vehicle collision after 1 week – No sustained Injury
2026	Increased intensity of snoring, Increased symptoms of excess day time sleep, fatigue and drowsiness Weight on Admission 80 kgs, BMI 32.5

Diagnostic Assessment: Based on Symptoms like loud snoring, excess day time sleep, fatigue, disturbed sleep, gradual onset of weight-gain intermittent episodes of apnea and hypopnea the condition was diagnosed as obesity induced Obstructive Sleep Apnea, also the dietary habits were indulgence in high sugar diet, junk food and sedentary lifestyle contributed to obesity. Further the validated tools were used to asses this complex clinical condition using STOP-Bang Questionnaire, [8] Epworth Sleepiness Scale, Berlin Questionnaire. [9]

Investigations: X-ray Paranasal sinuses dated 09/2/26: X-ray findings suggested Mild deviation of bony nasal septum towards left side and hypertrophy of bilateral inferior turbinate's, Maxillary and frontal sinus were well pneumatized and appeared normal.

Fasting Blood Sugar was 123 mg/dl, HBA1c (Glycated hemoglobin) was 6. Lipid profile Revealed total cholesterol 154 mg/dl, HDL 41 mg/dl, Low Density Lipoprotein 77mg/dl, Triglycerides 130 mg/dl, Very Low-Density Lipoprotein 26 mg/dl. Total cholesterol/HDL ratio was 3.76 and LDL/HDL Ratio was 1.88 which were normal.

Diagnostic Challenges: The case presented with some diagnostic challenges, first Between obstructive sleep apnea and second obesity hypoventilation syndrome, comparing daytime manifestations of symptoms and nocturnal symptoms from attendants through detailed history also as the definitive diagnosis of obstructive sleep apnea is via polysomnography, it was delayed because of patient compliance and limited accessibility.

Prognosis: Considering the complex clinical condition prognosis was not favorable. But due to age compliance and timely initiation of treatment along with strict adherence to the treatment given and follow ups prognosis became favorable and showed satisfactory recovery of patient.

Therapeutic intervention: Detailed Treatment timeline IP Based and oral spanned over period of 3 and half months outlined in table 3.

3. FOLLOW-UP AND OUTCOME:

Adherence: Adherence to treatment was assessed daily in patient supervision during admission. After discharge from the hospital, adherence was assessed by self-reporting at follow-up visits up to 14 weeks. The patient followed the

advised *Panchakarma*, and oral medications with good adherence.

Tolerance: Tolerability was assessed in terms of the absence of discomfort such as drug intolerance, gastrointestinal upset, or exacerbation of symptoms. All treatments, including *Virechana*, were well tolerated without any interruption in the treatment plan.

Adverse Events: No adverse reactions were observed during the study period.

After *Nasya* there was gradual improvement in intensity of snoring, fatigue and laziness reduced patient was active. Patient had sound sleep post procedures, duration of day time sleep was also reduced there was no drowsiness or fatigue during daytime and headache also reduced comparatively post *nasya*. It has been documented throughout the admission with this questionnaire outlined in Table 4.

Table no 2: Differential diagnosis: [10]

Disease	Inclusion	Exclusion
Central Sleep apnea	Day time sleep, fatigue, snoring, drowsiness.	Less prominent snoring, presence of respiratory effort while sleeping, Airway obstruction
Obstructive Sleep apnea	Loud snoring, excess daytime sleep, fatigue, drowsiness, Presence of respiratory effort while sleeping, Airway obstruction, History of road traffic accidents.	

Table no 3: Intervention Given

Date	Therapy	Drug used	Dose	Duration
11/02/26 - 22/02/26	*Sarvanga Udwartana*	*Udwartana churna* (*haritaki choorna (Terminalia chebula Retz.), Vibhitaki choorna (Terminalia bellirica Roxb.), sarshapa beeja choorna (Brassica campestris L.), kulatha choorna (Macrotyloma uniflorum (Lam.)), devadaru choorna (Cedrus deodara (Roxb.) Loud.), yava choorna (Hordeum vulgare L.) and goduma choorna (Triticum aestivum L.)* ,) (Batch no IJKLE) f/b *Dashamula Pariseka* (Batch no -IKLE2627)		6 days 11/02/26 to 16/02/26
	Sarvanga Utsadana	*Udwartana Churna + Kottamchukkadi Taila* (IKLE2627) f/b Baspa Sweda		17/02/26-18/02/26
	Nasya Pradhamana	*Vacha Churna* (Batch no -IKLE2627) (Morning) *Lashuna Swarasa* (Evening)	One pinch each nostril. 4 drops each nostril	2 days 11/02/26-12/02/26
	Yoga: Asana- *Suryanamskara, parwatasana, Tiryak tadasana, Simhasana* Pranayama- *Bhastrika* (5) *cycles, Suryabhedana* (10) *cycles, Nadishodhana* (5)		Daily 30 mins in the morning.	5 days 16/02/26-20/02/26

	cycles, kapalbhati (3) *cycles* Omkara Chanting (10) cycles.			
	Shamana	*Vyoshadi vati* (Batch no-SE251388A) *Triphala Guggulu* (DU172510)	1 twice daily (BD) 1 twice daily (BD)	6 days
	Nasya	*Shadbindu Taila* (Batch no-W0250479A)	6 to 16 drops in *arohan* (increasing) order	4 days 13/02/26-16/02/26
	Virechana (*Snehapana*)	*Panchatikta guggulu Ghrita* (Batch no-IKLE2627)	Day1:50 ml, Day2: 100ml Day3: 130ml	3 days 17/02/26-19/02/26
	Vishrama kala Abhyanga	*Kottamchukkadi Taila* (Batch no-IKLE2627) f/b *Baspa Sweda*		19/02/26-22/02/26
	Virechana	*Trivrut leha* (Batch no-25C0246) *+ Draksha Hima -11 Vegas*	50 g + 100 ml	22/02/26
	Discharge Medications	Decrin plus (Batch no-DP160)	1 BD after food	3 months
Post IPD (23/02/26 - 30/05/26)	Discharge Medications	*Navaka Guggulu* (Batch no-NGT013)	2 BD after food	3 months
		Varunadi Kashaya (Batch no-KQ24EN)	2 table spoon full BD after food	3 months
		Trigo Tab (Batch no-BT25017A)	1 OD (once Daily)	3 months
		Shadbindu taila Pratimarsha nasya (Batch no-W0250479A)	2 drops E/N	3 months
		Helin Capsule steam (Batch no-NCH2602)	Once at night	1 months
Diet & Lifestyle Advice (*Pathya Ahara*):		*Laghu ruksha Kapaha Medoharaaahara* advised like *Barley* (*Yava*), green gram (*Mudga*), millets. Avoid oily food items, junk food,sugar rich bevarages day time sleep etc.		3 months

Table 4: Timeline of Clinical Outcomes during Treatment and Follow-up

Time Point	Phase	Assessment	Observation
13/02/2026	Before Treatment	STOP-BANG Questionnaire	Score 5/8; High risk for OSA
		Berlin Questionnaire	Positive in all three categories; High risk for OSA
		Epworth Sleepiness Scale (ESS)	16/24 (Excessive daytime sleepiness)
		BMI	32.5 kg/m²
		Clinical Symptoms	Severe snoring, daytime sleepiness, fatigue, drowsiness, disturbed sleep, headache, laziness
18/02/2026	During Treatment (*Nasya* Phase)	STOP-BANG Questionnaire	Improvement in tiredness; persistent snoring
		ESS	Reduced to 7/24
		Clinical Symptoms	Reduction in fatigue, drowsiness and headache; improved sleep quality
22/02/2026	End of Inpatient Treatment	STOP-BANG Questionnaire	Only gender criterion positive; marked reduction in OSA risk indicators
		Berlin Questionnaire	Negative in all categories
		ESS	0/24

		BMI	28.35 kg/m²
		Clinical Symptoms	Snoring absent, no daytime sleepiness, fatigue or drowsiness; sound sleep restored
21/03/2026	1-Month Follow-up	Clinical Assessment	Sustained relief in snoring and daytime sleepiness; active daily routine maintained
		ESS	0/24
		BMI	27.9 kg/m²
25/04/2026	2-Month Follow-up	Clinical Assessment	No recurrence of excessive daytime sleepiness; normal sleep pattern maintained
		ESS	0/24
		BMI	27.5 kg/m²
30/05/2026	4-Month Follow-up	Clinical Assessment	Symptomatic relief maintained without recurrence of snoring, fatigue, or drowsiness
		ESS	0/24
		BMI	27.2 kg/m²

4. DISCUSSION:

Evidence regarding OHS also known as Pickwickian syndrome remains limited and available literature primarily restricted to case reports. Apart from these, to the best of our knowledge, no published clinical study has evaluated Ayurvedic management of OHS till the date. One of case reported a fatal case of malignant obesity hypoventilation syndrome in a 35-year-old male with extreme obesity (BMI 115 kg/m²) who presented with respiratory distress and multiorgan dysfunction. Despite intensive care management, patient developed progressive organ failure later recurrent cardiac arrest lastly resulting in death. [11] Another one case study of a middle aged morbidly obese female with obstructive sleep apnea associated with OHS who presented with type II respiratory failure and required invasive mechanical ventilation followed by BiPAP support. Although her condition initially showed some early improvement, addition of medroxyprogesterone and acetazolamide along with continued ventilatory support facilitated clinical recovery and hospital discharge because of early diagnosis and prompt action. These reports highlights severity of OHS, challenges associated with its management and further need for exploring alternative and integrative therapeutic approaches. [12]

This case highlights multimodal approach in the management of Obesity induced obstructive sleep apnea. The treatment modalities were planned considering the *sthoulya roga* in this condition. Interventions like *udwartana, pariseka, utsadana, nasya, snehapana, virechana* were planned for basically reduced the *kapha* and *meda dusthi*. Initially *udartana* was planned as mentioned in table no 3 as one of the *Rukshana* modality to reduce the *meda* and *kapha* and as *strotoshodhana*. *Pradhamana nasya* with *vacha churna* (Acorus calamus Linn.) was selected as *vacha* possess *katu tikta rasa*, *teekshna guna, ushna virya* and *katu vipaka* because of above properties it is *kaphavatahara*, *teekshna* and *ushna virya* of drug helps in *stroshodhana, lashuna swarsa* because of its *teekshna guna* helps in removing the *avarana* of kapha and does *strotoshodhana*. *Nasya* with *shadbindu taila* as mentioned in table no 3 was planned as it contains drugs like *rasna, eranda, jeevanti, vidanga, bhringraj, yastimadhu* and *tila taila* which are *kapha vatahara* helps in relieving the nasal obstruction and inflammation there by reducing the congestion and oedema in nasal cavity and also helps in maintain proper mucociliary clearance which intern helps in reducing snoring. [13] *Snehapana* with *panchatikta guggulu ghrita* was planned as mentioned in table no 3 as this formulation possess *tikta* and *katu rasa*, *ushna virya* and *katu vipaka*. *Tikta rasa has Deepana,*

pachana and *lekhana* action possess *kapha, meda* and *kledahara* properties which helpful in reducing *meda dhatu* and helps correcting *medadusthi*. Also, *guggulu* has *ushna* and *ruksha guna,* which helps in reducing the *medadhatu* as it has *lekhana* and *Karshana* properties, has anti-inflammatory, immunomodulatory and lipidaemic action. [14-15] *Sarvnaga abhyanga* with *kottamchukkadi taila* was planned outlined in table no 3 as it contains drugs like *kustha* (*Saussurea lappa* Roxb.), *shunti* (Zingiber officinale Rosc), *vacha* (*Acorus calamus* L.), *sarshapa* (*Brassica campestris* L.), *lashuna* (*Allium sativum* L.), etc., which helps in *strotoshodhana* and *kaphamedohara* as it is *khara paka taila Kalpana*. *Virechana* was planned with *Trivrut leha* outlined in table no 3 along with *Draksha hima. Virechana* helps in restoring the *agni* by *stroshodhana* and helps in balancing the *tridosha*. *Post virechana,* there is a reduction in the E. coli colonization, which helps in the management of obesity by rectifying the gut flora dysbiosis. [16] *Vyoshadi vati* contains *trikatu* as a major component, *trikatu* possesses *Deepana, pachana* and *lekhana* properties thereby helping in reduction of excess meda and also helps in management of various respiratory ailments. *Triphala guggulu* contains *triphala* and *guggulu* as major ingredients; *triphala* possesses anti-obesity and lipid profile-modulating properties. [17] *Pranayama* practices like *nadishuddi* mentioned in table no 3 improves apnea hypopnea index in sleep apnea syndrome. [18] Thus the treatment achieved *samprapti vighatanaa* by correcting *agnimandya* reducing *kapha meda dushti* relieving *srotorodha* in *pranavahasrotas*. *udwartana*, *pradhamana nasya*, *Virechana*, *kapaha medahara* internal medicines facilitated *lekhana*, *deepana*, *pachana*, and *srotoshoshadana* resulting in restoring normal *vata gati*. Also, pranayama and yoga incorporated in between showed improving airway patency. This resulted in reduction of obesity, upper airway congestion, snoring, and decreased daytime sleep in obesity induced obstructive sleep apnea. [19]

Strength: Rare presentation presented to Ayurveda hospital achieved full recovery with multimodal Ayurveda approach.

Limitation: Advanced blood investigation including arterial blood gas and polysomnography would have been done for better clinical reasoning.

5. CONCLUSION:

The Present case highlights multimodal approach in six-year-old chronic diagnosed case consisting *Shodhana* (*nasya*, *virechana*), *shamana* medications, *pathya* and *yoga* in the management of obesity induced obstructive sleep apnea. Clinical improvements were seen with the 12 days treatment of admission in hospital along with three and half months of successive follow-ups. An incidental finding was the improvement in recurrent episodes of cough, cold, and sneezing suggesting enhanced respiratory health when assessed via standardized scales, intensity of snoring and daytime sleep significantly reduced (ESS Score reduced from 16 to 0). Subjective improvement in appetite, sleep, fatigue was noticed. Significant reduction of BMI from 32.5 to 28.35 was seen. No any adverse effects were noticed during treatment even in follow-ups reported. Overall quality of life was improved of patient. OSA linked OHS is complex clinical condition which was challenging to Ayurveda setting but with multimodal Ayurveda approach with personalized treatment plan catered all single symptoms present with patient and offer safe and effective management strategy. Further large sample-controlled studies are required in order to validate these findings.

Declaration of Patient Consent – The authors confirm that they have acquired a patient consent form, in which the patient or caregiver has granted permission for the publication of the case, including accompanying images and other clinical details, in the journal. The patient or caregiver acknowledges that their name and initials will not be disclosed, and sincere attempts will be undertaken to safeguard their identity. However, complete anonymity cannot be assured.

Patient's Perspective: The patient reported satisfaction with Ayurvedic treatment, stating relief from long-standing symptoms without any adverse effects experienced. Due to long term symptoms patient was unable to

perform his daily activities which was disturbing his quality of life too. After admission and follow up at ayurvedic hospital he expressed satisfaction with treatment and showed recovery.

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Declaration of Generative AI

The authors declare this manuscript was written without the use of generative artificial intelligence tools. All the content, including text generation, data analysis and references was developed and reviewed by the author without assistance from AI technologies.

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