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Case Report

Menstrual resumption following a two-week Shakti Bandha asana intervention in polycystic ovarian syndrome: a case report

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ABSTRACT

Polycystic Ovarian Syndrome (PCOS) has a global prevalence of 4-20% and is a leading cause of secondary amenorrhea and infertility. Conventional management options are increasingly less preferred by some women warranting the exploration of integrative, non-pharmacological strategies such as yoga for more comprehensive and sustainable management. The main objective of this case report was to evaluate the effect of Shakti Bandha Asana (SBA) in the management of PCOS-associated secondary amenorrhea. A 22-year-old female, previously diagnosed with PCOS, presented with amenorrhea for the past six months following the self-discontinuation of hormonal therapy. She was instructed to practice SBA for a duration of two weeks, following which menstrual resumption was observed. Improvements were noted in C-reactive protein levels and Polycystic Ovary Syndrome Questionnaire scores, while ovarian morphology and lipid profile showed mixed results. These findings suggest that a two-week SBA intervention may facilitate menstrual resumption, reduce inflammatory status and improved health-related quality of life in patients with PCOS-associated secondary amenorrhea.

Keywords: Menstruation, Polycystic ovarian syndrome, PCOS, Secondary amenorrhea, Shakti Bandha asana, Yoga

INTRODUCTION

Polycystic Ovarian Syndrome (PCOS) with a prevalence of 4% to 20% globally and 3.7% to 22.5% in India is the most common endocrine disorder affecting women of reproductive age in India.^{1,2} It is the leading cause of secondary amenorrhea and infertility.^{3,4} According to the Rotterdam criteria, PCOS is diagnosed by the presence of any two of the following: Oligo/amenorrhea, Clinical hyperandrogenism and PCOS morphology on ultrasound.² The aetiology of PCOS is multifactorial involving metabolic, reproductive, environmental, genetic and psychosocial factors. Major contributors include sedentary lifestyle, stress, high-calorie diet, physical inactivity and excess weight gain.⁴ These factors disrupt the

hypothalamic-pituitary-ovarian (HPO) axis. Altered gonadotropin-releasing hormone (GnRH) secretion reduces follicle stimulating hormone (FSH) and increases luteinizing hormone (LH), leading to decreased ovarian follicular response to FSH and elevated anti-Mullerian hormone (AMH) production. Consequently, arrest of follicles and increased steroidogenesis of oestrogen, dehydroepiandrosterone and testosterone occur in the ovaries, manifesting as menstrual irregularities such as primary or secondary amenorrhea, oligomenorrhea and hypermenorrhoea, representing major clinical features of PCOS.⁵⁻⁸ Yoga therapy has been reported to be an effective management modality for PCOS, with several studies demonstrating its beneficial outcomes.⁶ Shakti Bandha Asana (SBA) series of practices also called

‘Pawanamuktasana Part 3’ or ‘Energy Block Postures’ comprising nine asanas namely Raju Karshanasana, Gatyatmak Meru Vakrasana, Chakki Chalanasana, Nauka Sanchalanasana, Kashtha Takshanasana, Namaskarasana, Vayu Nishkasana, Kauva Chalasana and Udarakarshanasana was first described in Asana Pranayama Mudra Bandha by the Bihar School of Yoga in 1969.⁹

SBA has been shown to effectively manage primary dysmenorrhea.¹⁰ This case report evaluates the efficacy of SBA in the management of PCOS-associated secondary amenorrhea.

CASE REPORT

A 22-year-old female presented with amenorrhea for the past six months. She had a past history of irregular menstruation for two years along with male-pattern hair growth over upper lip and jawline, and hyperpigmentation of axilla, neck and groin and was diagnosed with PCOS. She was prescribed a combined oral contraceptive pill (OCP) (cyproterone acetate and ethinyl estradiol) along with metformin hydrochloride. However, she discontinued the OCP to avoid continued hormonal therapy for menstrual regulation, after which amenorrhea persisted for six months.

Table 1: Procedure of Shakti Bandha asanas.⁹

Asana name	Procedure
Rajju Karshanasana (pulling the rope)	Sit on the floor with the legs outstretched together, keeping the eyes open. Imagine a rope hanging in front of the body. Inhale while reaching upward with the right arm, keeping the elbow straight and gaze directed upward, as though grasping the rope. Exhale as you slowly pull the arm downward, allowing the eyes to follow the movement. Repeat with the left arm to complete one round.
Gatyatmak Meru Vakrasana (dynamic spinal twist)	Sit on the floor with both legs outstretched and comfortably apart, ensuring the knees remain straight and stretch the arms sideways at shoulder level. Keeping the arms straight, twist the trunk to the left and bring the right hand toward the left big toe while extending the left arm behind the back in a straight line, turning the head to gaze at the left hand. Repeat on the opposite side.
Chakki Chalanasana (churning the mill)	Sit with the legs outstretched widely apart and interlock the fingers, extending the arms in front of the chest at shoulder level, keeping the elbows straight. Bend forward without strain and rotate the trunk in a circular, churning motion from the waist, moving the hands over the right toes, leaning back on the backward swing, and then sweeping across the left toes before returning to the centre. Practice in both clockwise and counterclockwise directions.
Nauka Sanchalanasana (rowing the boat)	Sit with both legs outstretched in front and imagine the action of rowing a boat, clenching the hands as though holding oars with the palms facing downward. Exhale while bending forward from the waist and straightening the arms, then inhale as you lean back, drawing the hands toward the shoulders to complete a smooth circular movement along the sides of the legs and trunk; this constitutes one round. Repeat the practice in the opposite direction.
Kashtha Takshanasana (chopping wood)	Squat with the feet approximately 45 cm apart, knees fully bent and separated, and interlock the fingers with arms straight between the feet, keeping the elbows inside the knees and the eyes open. Inhale as you raise the arms above and slightly behind the head, lengthening the spine and directing the gaze upward. Exhale forcefully with a “ha!” Sound while bringing the arms down in a chopping motion, returning the hands to the floor between the feet.
Namaskarasana (salutation pose)	Squat with the feet approximately 60 cm apart, knees wide, and elbows pressing against the inner knees; bring the palms together in front of the chest in a prayer gesture. Inhale as you gently extend the head backward and use the elbows to press the knees outward, holding the position for three seconds with breath retention. Exhale while straightening the arms forward, simultaneously pressing the knees inward against the upper arms and bringing the chin towards the chest, maintaining the posture for three seconds.
Vayu Nishkasana (wind releasing pose)	Squat with the feet approximately 60 cm apart and grasp the insteps, placing the fingers beneath the soles and the thumbs above, while the upper arms press gently against the inner knees and the eyes remain open. Inhale as you move the head backward and direct the gaze upward, holding the breath for three seconds. Exhale while straightening the knees, lifting the buttocks, and bringing the head toward the knees to accentuate the spinal flexion. Hold the breath for three seconds, then inhale to return to the starting position.

Continued.

Asana name	Procedure
Kauva Chalasana (crow walking)	Squat with the feet apart and buttocks above the heels, placing the palms on the knees. From this posture, take small alternating steps while keeping the knees deeply flexed so that the buttocks remain close to the heels, walking either on the toes or the soles and bringing the opposite knee to the floor. Continue for as many steps as comfortable.
Udarakarshanasana (abdominal stretch pose)	Squat with the feet apart and hands resting on the knees, and inhale deeply. Exhale and bring the right knee to the floor near the left foot, use the left hand to gently press the left knee inward while rotating the trunk to the left. Direct the gaze over the left shoulder and hold the breath out for 3-5 seconds. Inhale as you return to the starting position and repeat on the opposite side.

She visited the outpatient department (OPD) at International Institute of Yoga and Naturopathy Medical Sciences, Chengalpattu to regulate her menstruation. She was 158 cm tall and weighed 49 kg with a body mass index of 19.6 kg/m². She attained menarche at 14 years of age. Her last menstrual period occurred six months prior to presentation. Her menstrual cycles had been irregular with a flow duration of seven days and usage of 2-3 sanitary pads per day during the first two days. Dysmenorrhea and passage of clots were absent while leucorrhoea was reported.

Family history was significant for type 2 diabetes mellitus in her father and hysterectomy for leiomyoma in her mother. Personal history was unremarkable. She was a student preparing for competitive examinations and had earlier maintained a reversed sleep pattern, staying awake at night for study and sleeping during the day.

She also reported experiencing significant academic stress. Systemic examination revealed no significant abnormalities.

Diagnostic assessment

The Last Menstrual Period (LMP) was noted. Initial laboratory investigations revealed low high-density lipoprotein (HDL) levels (42.0 mg/dl) while other lipid parameters and C-reactive protein were within normal reference limits.

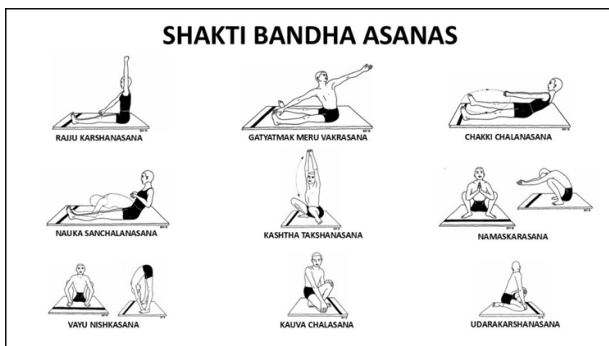


Figure 1: Illustration of Shakti Bandha asanas.⁹

Ultrasonography (USG) revealed polycystic ovarian morphology with bilateral enlarged ovaries (right:11 CC, left:13.7 CC), multiple peripherally arranged sub-

centimetre follicles and increased stromal echogenicity. The findings of the clinical, biochemical and USG parameters are depicted in Table 2. Polycystic Ovary Syndrome Questionnaire (PCOSQ) was also used to assess the health-related quality of life. It consists of 26 items across five domains: emotions, body hair, weight, infertility problems and menstrual problems (Table 3).¹¹

Table 2: Baseline and post intervention assessment of clinical, biochemical and ultrasonographic parameters.

Parameter	Baseline assessment	Post assessment
Last menstrual period	25/07/2025	15/02/2026
C-reactive protein	0.67 mg/l	<0.4 mg/l
Ovarian dimensions and volume	Right ovary: 3.6×3.3×1.8 cm (volume: 11 CC), left ovary: 4.2×3.3×1.9 cm (volume: 13.7 CC)	Right ovary: 3.8×2.4×3.0 cm (volume: 14.23 CC), left ovary: 4.0×2.1×2.7 cm (volume: 11.79 CC)
Total cholesterol	170 mg/dl	160 mg/dl
High-density lipoprotein	42 mg/dl	38 mg/dl
Low-density lipoprotein	99.8 mg/dl	107 mg/dl
Triglycerides	141 mg/dl	76 mg/dl

Therapeutic intervention

After a detailed consultation and baseline assessment, the patient was instructed to practice SBA series of practices for three sets, with each set comprising of 10 rounds of each of the nine asanas for a duration of two weeks after obtaining informed consent. The procedure and illustration of SBA are depicted in Table 1 and Figure 1 respectively.

Follow-up and outcomes

Following the two-week SBA intervention, the patient reported resumption of menstruation. Post-intervention assessment demonstrated improvements in CRP levels and

across all domains of the PCOSQ scores, while ovarian morphology and lipid profile showed mixed results as mentioned in Table 2, Table 3 and Figure 2.

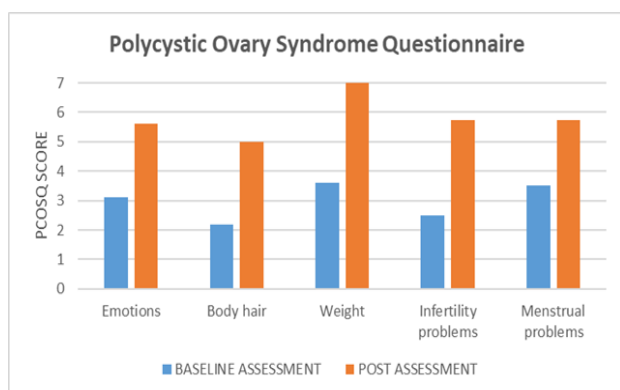


Figure 2: Baseline and post-intervention assessment of PCOSQ.

Table 3: Baseline and post intervention PCOSQ domain scores.

Domain	Baseline assessment	Post assessment
Emotions	3.125	5.625
Body hair	2.2	5
Weight	3.6	7
Infertility problems	2.5	5.75
Menstrual problems	3.5	5.75

PCOSQ scores range from 1-7, with higher scores indicating better health-related quality of life.

DISCUSSION

Hormone therapy and insulin sensitizing agents constitute the conventional management for PCOS; however, they are increasingly less preferred by some women due to the need for prolonged use, non-effectiveness in some cases, contraindications in certain women, poor gastrointestinal tolerance, and potential risks such as ovarian and endometrial cancer, stroke and venous thrombo-embolism among others.¹² This necessitates the exploration of integrative, non-pharmacological strategies such as yoga for a more comprehensive and sustainable management of PCOS. Previous studies have reported that yoga therapy may help regulate menstruation and restore ovulation and ovarian morphology.² A nine-week yoga intervention has demonstrated reductions in AMH, testosterone and LH levels in women with PCOS.¹³

From a yogic perspective, disturbances in the Manonmaya kosha such as stress or psychological distress is the root cause of most illnesses affecting the human body. This aligns with clinical evidence demonstrating an association between mood and anxiety disorders and PCOS.^{6,14} An agitated Manonmaya kosha may negatively influence the Pranamaya kosha resulting in dysregulated Apana Vayu which may be responsible for dysregulated menstruation.¹⁴

Yoga exerts effects on both physiological and psychological domains, thereby offering a holistic approach to PCOS management.^{6,15} Yogasanas are known to promote deep relaxation and hormonal regulation. They also improve blood and oxygen delivery to reproductive organs, and regulate autonomic balance, lipid levels and emotions. Thus, by lowering stress and stabilizing the neuro-endocrine system, yogasanas support menstrual regulation and reproductive function.^{2,6,15}

The SBA practices particularly reduce neuromuscular tension, improve circulation and neuromuscular tone of the pelvic region, remove spinal energy blockages, restore endocrine homeostasis and consequently regulate menstruation. Among the SBA, Chakki Chalasana has been widely studied. Literature states that it improves endocrine glandular secretion, massages the reproductive organs and increases their blood supply. It also optimizes energy flow in the Swadhisthana Chakra and improves the ovulatory function and menstrual regularity. Nauka Sanchalanasana positively affects the pelvis, removing the energy blockages and is particularly helpful in gynaecological disorders. Kashtha Takshanasana improves flexibility of the pelvic girdle, tones the pelvic muscles and also regulates the mood. Namaskarasana improves hip flexibility and Vayu Nishkasana massages pelvic organs and muscles along with stretching and toning spinal nerves innervating the reproductive organs. Kauva Chalasana and Udarakarshanasana provides an alternate stretch and compression effect to the abdominal region which may also influence the pelvic organs.^{9,15,16}

CONCLUSION

This case report suggests that a two-week SBA intervention may facilitate resumption of menstruation in a case of six-month secondary amenorrhea associated with PCOS. Improvements were observed in inflammatory status, selected lipid parameters (total cholesterol, triglycerides) and health-related quality of life, although changes in ovarian morphology and certain lipid indices (HDL, LDL) were less favourable. These findings may be attributed to the short duration of SBA intervention. Further long-term studies with a larger sample size are required to validate these findings and explore the potential integration of SBA into the management of PCOS and its associated amenorrhea.

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Conflict of interest: None declared

Ethical approval: Not required

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