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A case study on effectiveness of *bhavita churna* of *Asoka twak* in Premenstrual Syndrome

Case Report

Ardra Ajayakumar[1*], Shincymol V V[2], Ansary P Y[3], Sara Moncy Oommen[4]

1. PG Scholar, 2. Associate Professor, 3. Professor & HOD, Department of Dravyaguna Vijnana, Government Ayurveda College, Tripunithura.
4. Professor & HOD, Department of Dravyagunavijnana, Government Ayurveda College, Kannur.
Kerala University of Health Sciences, Thrissur, Kerala.

Abstract

Premenstrual syndrome (PMS) is a disease characterised by manifestation of physical and psychological symptoms in females. It is a disorder of unknown etiology that recurs in the luteal phase of an ovulatory menstrual cycle. In *Ayurvedic* perspective, vitiation of *tridoshas* particularly *vata* can be observed in the pathogenesis of PMS. The *Asoka* - *Saraca asoca* (Roxb.) de Wilde has got *vedanasthapana, pittakaphahara* and *sokanasana karma* which implies that it can cure both somatic and affective symptoms. *Bhavana* includes processing of *churna* with liquid extracts to increase the potency. A clinical case of premenstrual syndrome has been selected to study the effectiveness of *bhavita churna* (processed powder) of stem bark of the drug. The treatment was conducted in the luteal phase (14 days prior to menstruation) for three menstrual cycles and a follow up was also carried out for another three consecutive menstrual cycles. There was significant reduction in symptoms as assessed through Premenstrual Syndrome Scale after 3 cycles of treatment when compared to before treatment. The effect sustained even after follow up. The *Asoka* - *Saraca asoca* (Roxb.) de Wilde stood as an effective drug for relieving physical and psychological symptoms observed in PMS.

Key Words: *Asoka,* Premenstrual Syndrome*, Bhavita churna, Vedanasthapana, Sokanasana.*

Introduction

Premenstrual syndrome is a cluster of symptoms appearing prior to the onset of menstruation. It is a cyclical disorder of severe physical and emotional distress. It appears specifically during the post-ovulatory phase of female reproductive cycle and disappears once menstruation begins. The reproductive years of many women are punctuated with distressing premenstrual symptoms that can disrupt their quality of life and relationships. It is more common in women aged 30-45 years.

The alteration in estrogen-progesterone ratio, decrease in serotonin level, decreases in GABA level, decrease in endorphin level during the luteal phase are postulated theories for etiology of PMS. More than 150 symptoms are characterized in PMS. The symptoms are mainly related to water retention like abdominal bloating, breast tenderness, abdominal pain, neuropsychiatric symptoms including irritability, depression, mood swings, tension and behavioral symptoms consisting of fatigue and insomnia. (1)

The diagnostic methodology of Premenstrual syndrome is still evolving. There is no physical examination technique or laboratory test that currently identifies PMS correctly. American College of Obstetricians and Gynecologists (ACOG) has clearly stated diagnostic criteria for PMS. Patient should report 1 of the following affective and somatic symptoms during the 5 days before menses in each of 3 prior menstrual cycles. Affective symptoms include depression, angry outburst, irritability, anxiety, confusion, social withdrawal. Somatic symptoms include breast tenderness, abdominal bloating, headache, swelling of extremities. (2)

Different questionnaires are accessible to quantify the symptoms. The Premenstrual syndrome scale is one among them intended to measure the severity of premenstrual symptoms which was used in the present study. The Premenstrual Syndrome Scale (PMSS) consists of 40 questions with three sub-scales (Physiological, Psychological and Behavioral symptoms). Physiological symptoms: Breast tenderness and swelling, Abdominal bloating, Weight gain, Headache, Dizziness/ Fainting, Fatigue, Palpitations, Pelvic discomfort and pain, Abdominal cramps, Changes in bowel habits, Increased appetite, Generalized aches and Pains, Food cravings, Skin changes, rashes and pimples, Nausea/ Vomiting, Muscle/ Joint Pain. Psychological Symptoms:

*** Corresponding Author:**
Ardra Ajayakumar
PG Scholar,
Department of Dravyagunavijnana,
Government Ayurveda College, Tripunithura.
Kerala. India
Email Id: ardraajayakumar@gmail.com

Irritability, Anxiety, Tension, Mood swings, Loss of concentration, Depression, Forgetfulness, Easy crying/ crying spells, Sleep changes (Insomnia/ Hypersomnia), Confusion, Aggression, Hopelessness Behavioral symptoms: Social withdrawal, Restlessness, Lack of self -control, Feeling guilty, Clumsiness, Lack of interest in usual activities, Poor judgement, Impaired work performance, Obsessional thoughts, Compulsive behavior, Irrational thoughts, Being over sensitive. Each symptom will be assessed and provided with scores as follows. Never: 1, Rarely: 2, Sometimes: 3, Very often: 4, Always: 5. Rating of each item should be done from 1 (not present or no change from usual) to 5 (extreme change, perhaps noticeable even to casual acquaintances). In addition, the total score obtained from the sub-scales forms the PMSS total score/ actual score. (3)

Table 1: Premenstrual Syndrome Scale total score

Premenstrual Syndrome Scale (PMSS)			
Level of symptoms		**Actual scores**	**Percentage of scores**
No symptoms	-	1-40	< 20
Mild	Only slightly apparent	41-80	21-40
Moderate	Aware of symptoms, but it doesn't affect daily activity at all	81-120	41-60
Severe symptoms	Continuously bothered by symptoms	121-160	61-80
Very severe symptoms	Symptom is overwhelming and/ or interferes with daily activity	161-200	> 80

On the basis of analysis of *dosha* involved in symptom manifestation, predominantly vitiation of *vata* and aggravation of *pitta* can be observed in the pathogenesis with involvement of *rasavaha, raktavaha* and *manovaha srotases.*

The *Asoka* - *Saraca asoca* (Roxb.) de Wilde is a drug that exhibits its action especially in women. (4) It directly pacifies *pitta*. (5) The drug can mitigate unpleasant sensation and brings back body to normalcy owing to its analgesic activity (*vedanasthapana karma*). (6) It is described as one capable of relieving sorrow (*sokahara*). (7) The drug has enough potential to provide relief from physical and emotional symptoms seen in Premenstrual syndrome. In *Nighantu Adarsha* and in Ayurvedic Pharmacopoeia of India, the useful part is specially mentioned as its stem bark. (8,9) So, the stem bark of the drug was chosen for the study.

Bhavana is a process through which one can potentiate the powder or decrease its toxicity. One can increase the therapeutic efficacy of a drug and thereby decrease the dose through *bhavana*. (10)

The analgesic and CNS depressant activity of stem bark the drug has been observed from a previous experimental study. Therefore, a study was conducted to evaluate the effectiveness of *bhavita churna* (processed powder) of stem bark of *Asoka -Saraca asoca* (Roxb.) de Wilde clinically in a patient with Premenstrual Syndrome.

Materials and methods

Preparation of medicine

The *bhavita churna* (processed powder) of stem bark of the drug was prepared according to the *bhavana* procedure told in *Bhaishajya ratnavali*. As per the reference, fine powder of the drug should be soaked in a suitable liquid at night and then dried in the sunlight during day time. This process has to be repeated for 7 days. (11) In the present study, the *churna* (powder) of dried stem barks of *Asoka -Saraca asoca* (Roxb.) de Wilde was soaked in *kashaya* (decoction) prepared of its own stem bark, kept undisturbed (without trituration) for a whole night and dried under sunlight the next day. After properly dried, it was then finely powdered to remove lumps. The next day the processed *churna* was immersed in freshly prepared *kashaya* and the whole procedure was repeated. The entire procedure was conducted for 7 times and powdering of drug was done after each *bhavana*. The finely powdered *bhavita churna* (processed powder) were then filled in capsules with 500 mg in each.

Methodology of study

The patient was included based on ACOG diagnostic criteria for PMS. (2) The severity of symptoms was assessed before initiating treatment using Premenstrual Syndrome Scale (PMSS). (3) Treatment was provided during luteal phase /post-ovulatory phase, ie, 14 days prior to onset of menstrual bleeding in continuous 3 menstrual cycles. The assessment using PMSS was conducted after 3 consecutive cycles of treatment. A follow up of patient was conducted for next consecutive 3 menstrual cycles and assessment was also taken using PMSS. No specific dietary or lifestyle restrictions were advised to the patient.

Case report

A 32 years old married women attended Out Patient Department of Dravyaguna Vijnana, Government Ayurveda College, Tripunithura complaining of fatigue, pelvic pain radiating to legs, abdominal cramps, change in bowel habits, increased cravings for sour and cold food items, appearance of skin rashes, irritability, anxiety, tension, mood swings, loss of concentration, depression, tendency to cry for small causes, aggression, hopelessness, tendency to sit alone, restlessness, lack of self-control, guilty feeling, carelessness, lack of interest in usual activities, impaired work performance, obsessional and irrational thoughts, compulsive behavior and being over sensitive during 5 days prior to the onset of menses since 2012. There was no history of any hormone ingestion, intake of nutritional and herbal supplements, drug or alcohol abuse or any severe relationship problem. The appearance of symptoms was confined to the late luteal phase and diminished with the onset of menstrual

bleeding. She took medicine for the above complaints 1 year before and got no improvement. She did not have any gynecological, psychological, thyroid disorders. She had neither undergone any surgical interventions. She also reported similar symptoms especially change in bowel habits and pelvic pain for her sister. Menstrual history revealed that the patient attained menarche at the age of 13 years. The menstrual cycles appeared regularly every 28 days and bleeding was observed for 5-7 days. The patient was having moderate amount of blood loss along with clots. She experienced severe pain both during premenstrual and initial 1-2 days of menstrual period. She reported the obstetric history with two normal vaginal delivery and one miscarriage. No abnormality was detected following general, physical and systemic examinations except for presence of pallor. The *Dasavidha pareeksha* and *Ashtastana pareeksha* revealed normal findings except for involvement of vitiated *vata, pitta* and *rasa dhatu*. Poor *abhyavaharana sakti* (inability to consume adequate amount of food) was also reported by patient. The patient was diagnosed with Premenstrual syndrome based on ACOG diagnostic criteria for PMS. Informed consent was obtained from the patient prior to inclusion in the present study.

Treatment

The patient was provided with capsules filled with 500 mg of *bhavita churna* (processed powder) of stem bark of *Asoka – Saraca asoca* (Roxb.) de Wilde and advised to take 2 capsules thrice daily after food along with 1 glass of luke warm water during 14 days prior to the onset of menstrual bleeding. The medicine was provided for 3 consecutive menstrual cycles and a follow up was conducted for next consecutive 3 menstrual cycles.

Observations

There was significant reduction in symptoms as the total PMS score decreased after treatment when compared to before treatment. There was further reduction in severity of symptoms after follow up when compared to after treatment. The level of symptom was severe as reported by patient before treatment which changed to mild after treatment which even sustained after follow up.

Table 2: Change in actual score of PMSS in patient

Premenstrual Syndrome Scale Score	Level of symptoms	Actual scores	Percentage of scores
Before treatment	Severe	135	67.5
After treatment	Mild	51	25.5
After follow up	Mild	46	23.0

Discussion

The drug *Asoka - Saraca asoca* (Roxb.) de Wilde is indicated in *vedanasthapana dasemani* by *Acharya Caraka* which means the drug is capable of pacifying *vedana* (painful sensation) of *sareera* (body). (6) In a previous research work conducted by Dr. Asha S Raj on analgesic activity of stem bark of the drug, spasmodic pain similar to dysmenorrhea had been achieved by imparting peritoneal irritation using acetic acid solution in female Wistar-albino rats and the study came up with dose dependent significant analgesic activity. The analgesic property can be attributed to alkaloids, flavonoids, sterols, catechol and salicylates present in bark. Inhibition of prostaglandin synthesis by synergic action of these phytoconstituents were also postulated in the above study. (12) The analgesic property of the drug can be applied in physical symptoms such as pelvic discomfort and pain, abdominal cramps, headache, muscle/ joint pain and generalized aches and pains experienced by the patient.

The drug *Asoka - Saraca asoca* (Roxb.) de Wilde is a potent source of phytoestrogens which exhibits estrogen-mimicking action. The stem bark of the drug was evaluated for estrogenic activity in bilaterally ovariectomized Swiss albino rats and revealed estrogenic activity on account of restoration of estrous cycle as well as restoration of endometrial lining and glands. (13) The estrogen is considered as nature's psychoprotectant. In a research review on estrogen control of central neurotransmission, it is mentioned that low levels of estrogen in women are associated with premenstrual syndrome, postnatal depression and post-menopausal depression. (14) Estrogen stimulates increase in dopamine receptors in the striatum and also effects in significant increase in density of serotonin binding sites in areas of brain concerned with the control of mood, mental state, cognition, emotion and behavior. In the luteal phase of women with PMS, a decrease in serotonin level has been reported in association with a drop in estrogen level. By restoring estrogen levels by providing the drug, serotonin level might have increased and pacified symptoms like depression, hopelessness, anxiety. (15)

The stem bark of *Asoka - Saraca asoca* (Roxb.) de Wilde has minerals like calcium which has shown benefits in relieving symptoms like irritability, anxiety and cramps. (16) Exposure to stressful life events is an important risk factor for the development of psychological and behavioral symptoms of PMS. In an experimental study, rats were submitted to chronic stress through corticosterone injections and chronic administration of catechin, a phytoconstituent is present in stem bark of *Saraca asoca* (Roxb.) de Wilde could decrease depression and anxiety-like behaviors. (17) These properties might have resulted in reduction of symptoms in patient.

The pharmacological actions of a drug can be explained through the pharmacological properties (*rasapanchaka*) of the drug. The drug *Asoka - Saraca asoca* (Roxb.) de Wilde has *kashaya -tikta rasa, laghu-ruksha guna, seeta veerya* and *katu vipaka* according to *Ayurvedic* classics. The *kashaya rasa* purifies *rakta* (*asra visodhanam*) by its *deepana* (increases digestive fire) and *pachana* (corrects digestion) property. (18) Based on these, the drug may cure skin changes, rashes and pimples seen during premenstrual phase. *Kashaya rasa* pacifies aggravated *pitta dosha* by its *ruksha* and *seeta guna. Kashaya rasa* has *grahi* (constipating)

property by which it may cure the increased laxity of bowel during premenstrual phase. (19)

Tikta rasa is also mentioned as *raktagadapaha* (pacifies diseases of blood origin). (20) It is *medhya* which accounts for its action on brain which possesses receptors of steroid hormones as well as neurotransmitters. The *medhya* property helped to get relief from loss of concentration, obsessional and irrational thoughts, lack of self-control, feeling guilty seen in PMS. *Tikta rasa* pacifies aggravated *pitta dosha* by its *ruksha guna* and *seeta veerya*. (21)

The *laghu guna* of the drug helps for easy digestion (*ama pachana*) and kindling of digestive fire (*agni deepana*). The *laghu* guna accounts for normal functioning of *pachaka pitta* and *samana vata* in *koshta*. On account of this, proper *rasa dhatu* is formed from *ahara rasa*. As *artava* is considered as an *upadhatu* of *rasa dhatu*, proper *dhatu parinama* is an inevitable factor for formation of *sudha artava* (normal menstrual blood). The *ruksha guna* helps in stasis and spasm of endometrial arterioles at the late luteal phase and thereby causing normal *anulomana* of *apana vata* and expulsion of *artava* (*artava nishkramana*). The normal functioning of *doshas* helps in normal occurrence of menstrual cycle (*rtuchakra*) and provides relief from symptoms of Premenstrual Syndrome.

The *seeta veerya* is cooling and gives happiness and comfort to mind (*prahladana*). It also does *rakta prasadana* (makes blood pure and devoid of toxins). It pacifies aggravated *pitta dosha* and helps to pacify anger (*krodha*). It has *sthireekarana* (stabilizing) and *jeevana* (enlivening) property by which it stabilizes mental thoughts and provides relief from anxiety, tensions, irritability and mood swings. It can reduce neuronal excitability by virtue of its *sthambana* (arresting) property and gives relief from restlessness, lack of self-control and compulsive behavior. The *katu vipaka* helps to pacify aggravated *kapha dosha* seen in symptom like social withdrawal.

As a whole, on analyzing the physiological, psychological and behavioral symptoms of PMS, an involvement of *tridoshas* can be considered with a predominance of *vatika* and *paittika* symptoms over *kaphaja* symptoms. Among all, vitiated *vata* plays the crucial role in a majority of symptoms in Premenstrual syndrome. The symptoms mostly relate to vitiated *vata* and aggravated *pitta dosha*. The drug pacifies symptoms caused by *pitta* on account of its *kashaya, tikta rasa* and *seeta veerya*. The drug *Asoka* [*Saraca asoca* (Roxb.) de Wilde] also normalizes symptoms caused by vitiated *vata* by its *vedasthapana* property.

Conclusion

The *bhavita churna* of *Asoka – Saraca asoca* (Roxb.) de Wilde was capable of reducing physiological, psychological and behavioral symptoms experienced by the patient. The drug might have been reduced the symptoms owing to its *vedanasthapana* property as well as *sokahara karma.* Currently there is scarcity of an effective medicine with minimal side-effects that corrects physical and psychological symptoms in one hand. *Asoka - Saraca asoca* (Roxb.) de Wilde is a promising drug that possesses action at different levels, in somatic functions and in higher mental functions. There was significant reduction in symptoms after treatment and the effect of treatment sustained even after follow up.

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