



Case Report

Improvements in Premenstrual Syndrome, Primary Dysmenorrhea, and Menorrhagia with Natural Therapies: A Case Report

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Abstract

Premenstrual syndrome, primary dysmenorrhea, and abnormal uterine bleeding are separate but intertwined aspects of women's reproductive health. Symptoms can include, but are not limited to, heavy menstrual cycles, painful periods, abdominal cramping, and changes in moods and emotions that can significantly impact the quality of life for women. Women are increasingly interested in seeking natural or alternative therapies to address these conditions. The purpose of this case report is to share one woman's experience using *Lepidium peruvianum* (maca), *Medicago sativa* (alfalfa), and magnesium to address premenstrual syndrome, primary dysmenorrhea, and abnormal uterine bleeding, specifically menorrhagia, which has not reported in the scientific literature. In four months, the patient experienced a resolution of multiple PMS symptoms, including balanced moods, improved satiety, reduced cystic acne, and regulated bowel movements, as well as complete resolution of menstrual pain, cramping, and lighter menstrual cycles. This case demonstrated the safe and effective use of *Lepidium peruvianum*, *Medicago sativa*, and magnesium in a premenopausal woman to manage premenstrual syndrome, primary dysmenorrhea, and menorrhagia. Further, rather than focusing on one intervention, the case highlights the importance of personalized care (N=1) that utilizes targeted botanical and nutrient therapies in combination to maximize clinical outcomes.

Keywords: PMS; Dysmenorrhea; Menorrhagia; Heavy bleeding; *Lepidium peruvianum*; *Medicago sativa*; Magnesium; Case report

Abbreviations: AUB: abnormal uterine bleeding; bid: twice daily; CAM: complementary and alternative medicine; cap: capsule; caps: capsules; DHEA-S: dehydroepiandrosterone-sulfate; FSH: follicle-stimulating hormone; HPA: hypothalamus-pituitary-adrenal; IBS-D: irritable bowel syndrome-diarrhea;

IUD: intrauterine devices (IUD); LH: luteinizing hormone; mcg/L: micrograms per liter; mIU/mL: milli-international units per milliliter; Mg: milligrams; mg/mL: milligrams per milliliter; MSQ: Medical Screening Questionnaire; NA: not applicable; nmol/L: nanomoles per liter; ng/mL: nanograms per milliliter; PD: primary dysmenorrhea; pg/mL: picograms per milliliter; PMS: premenstrual syndrome; qd: 1 time per day; qhs: bedtime; tid: three times daily.

Introduction

Premenstrual syndrome (PMS), primary dysmenorrhea (PD), and abnormal uterine bleeding (AUB) are three separate but intertwined aspects of reproductive health that can impact the quality of life for women.

Premenstrual syndrome is characterized by at least one physical, emotional, or behavioral symptom occurring in the luteal phase of the menstrual cycle, with symptoms decreasing or disappearing within a few days of the onset of menses [1,2]. Current literature reports that 47.8% of women worldwide experience PMS, including symptoms of weight gain, headache, constipation, breast tenderness, changes in sleep, fatigue, mood swings, acne, and changes in appetite [1]. Further, 85% of women experience at least one mild symptom, with 20-25% of women experiencing moderate to severe symptoms [3].

Primary dysmenorrhea is classified by pelvic pain and cramping associated with the menstrual cycle [4]. It is reported that 50-90% of women experience PD [2,4].

The exact etiology of PMS and PD is not fully understood, though hormonal imbalances (progesterone, estrogen, and aldosterone), changes in neurotransmitters (serotonin and GABA), calcium and magnesium deficiencies, and inflammation are all thought to contribute [3,5,6]. The various root causes can make treating PMS and PD challenging in clinical practice.

Abnormal uterine bleeding (AUB) is the term used to describe deviations in the menstrual cycle, including menorrhagia, which is heavy or excessive bleeding (80 mL or more blood loss per cycle) [7,8]. The Centers for Disease Control reports that 10 million women in the United States are affected by this disorder. Common signs of menorrhagia include soaking through one or more tampons or pads every hour, blood clots larger than a quarter, a heavy flow that impacts the ability to engage in normal daily activities, and lower abdominal pain [8]. Menorrhagia is a leading cause of iron-associated anemia [7] and can greatly impact one's quality of life.

There are several causes of menorrhagia, including prostaglandin disorders, uterine fibroids, adenomyosis, and intrauterine devices (IUD) [7]. Of these, uterine fibroids are reported to be responsible for about 30% of all menorrhagia cases [9]. With multiple causes, the treatment of heavy menstrual bleeding can be complicated and include, but is not limited to, less invasive options, such as drug therapies, and more invasive considerations, including hysterectomy [10].

While conventional medicine is often required for these health concerns, it is reported that 52% of women seek complementary and alternative medicine (CAM), which includes nutrition and supplements, as an option for care.

The purpose of this case report is to share one woman's experience in using *Lepidium peruvianum* (maca), *Medicago sativa* (alfalfa), and magnesium to address PMS, PD, and AUB, specifically menorrhagia, which has not been reported in the scientific literature. In four months, the patient experienced resolution of multiple PMS symptoms, including balanced moods, improved satiety, reduced cystic acne, and regulated bowel movements, as well as complete resolution of menstrual pain and cramping and lighter menstrual cycles. The case report was written following the CARE guidelines [11].

Case Presentation - June 8, 2022

A 39-year-old Caucasian female presented for a nutritional consultation. Based on a pre-consultation phone call, the patient understood that nutritional and supplemental recommendations would be provided and that the clinician was not allowed to provide a medical diagnosis or prescribe medications based on the clinician's scope of practice.

The patient has a medical history of IBS-D, rosacea, environmental allergies, premenstrual syndrome, primary dysmenorrhea, and abnormal uterine bleeding, defined as menorrhagia, as medically diagnosed by other healthcare providers. She takes over-the-counter allergy medication as needed, over-the-counter pain medications during her cycle, and some supplements, as recommended by a previous provider. Her primary reason for the nutritional consultation was to address painful, heavy menstrual cycles that required her to miss one day of work each menstrual cycle and the many symptoms she experienced before her cycle.

The patient began her menstrual cycle at age 13 and reported missing one day of school throughout high school due to heavy bleeding and pain. She utilized oral birth control pills, which helped regulate menstrual bleeding but did not address the variety of PMS symptoms she also experienced. She reports one pregnancy at the age of 34, stating it was the "worst time in my life" due to morning sickness that lasted throughout the pregnancy, urinary incontinence, and severe moodiness. After childbirth, she had an intrauterine device (IUD) placed but reported that she "didn't do well," with continued pain, cramping, and heavy bleeding, and therefore had it removed six months later.

At the time of the initial consultation, the patient reported PMS symptoms as "very bad," rating it as an 8-9 out of 10 on a scale of 1-10, with ten being the worst. Symptoms include cramping before the start of the menstrual cycle and into the first 1-2 days of the cycle, increased hunger, moodiness, cystic acne, and changes in bowel movements (increased diarrhea).

Cramping and pain one day before and one to two days into the menstrual cycle were the primary reasons she missed at least one day of work each cycle. She took 800 mg of ibuprofen, one to

two times daily, Tylenol, as needed throughout the cycle, and placed a heating pad on her abdomen to assist in reducing cramps.

The patient reported very heavy menstrual cycles, using “ultra” and “super” tampons and maxi pads during the first two days of each cycle, changing them every 3-4 hours, and tapering to regular and light tampons throughout the cycle. The length of her cycle ranged from 5-7 days and occurred every 28-29 days. Upon presentation, the patient had not been medically evaluated for fibroids, endometriosis, adenomyosis, or other causes of heavy bleeding.

She regularly exercises four times weekly, eats a lower-carbohydrate diet rich in vegetables, lean protein, and healthy fats, reports low stress, a strong support system, and gets approximately eight hours of sleep each night. The patient expressed her confidence in complying with any recommendations that would be provided as she worked with a nutritionist in the past to lose 100 pounds in five years, with many of those healthy habits still in place at the time of this consultation.

The patient was nutritionally assessed during this initial session using nutrition-based intake forms, a 3-day food log, and a Medical Screening Questionnaire (MSQ). A thorough review of the patient’s health history was completed as described above. A limited nutrition-focused physical exam was conducted over video conferencing,

revealing cystic acne along the jawline. The clinician reported limited visibility over telehealth to conduct a nutrition-focused physical exam. The patient did not share recent laboratory testing.

The consultations adhered to a personalized nutrition care model that consists of assessment, interpretation, intervention, and monitoring, beginning with a comprehensive initial consultation and regular follow-up consultations for six months. All consultations were completed via telehealth. Of note, diagnosing medical conditions does not fall within the scope of practice for the reporting clinician.

Recommendations were provided, as detailed in the Case Report Timeline and Recommendations (Table 1),

This included continuation with a low-carbohydrate dietary pattern with reinforcement for including a variety of vegetables and adequate hydration. Supplement recommendations included *Lepidium peruvianum* (maca) for menstrual support, magnesium to aid in the reduction of menstrual cramps, and *Medicago sativa* (alfalfa) to support bowel motility and aid in the metabolism and detoxification of hormones. The patient was also advised that she could continue to take her current supplements as recommended by another provider. Upon receiving these recommendations, the patient expressed excitement and high confidence in her ability to implement them.

Table 1: Case Report Timeline and Recommendations.

Relevant History: 39-year-old female presenting for a nutritional consult. Medical diagnosis of PMS, primary dysmenorrhea, menorrhagia, environmental allergies, IBS-D, and rosacea provided by other treating physicians. History of 100 lbs. weight loss. Sought nutritional counseling primarily for the management of PMS, dysmenorrhea, and menorrhagia. No prescription medications were taken. Over-the-counter allergy medications are taken, as needed, ibuprofen and Tylenol are taken as needed during the menstrual cycle.									
	6/8/22	6/28/22	7/20/22	8/19/22	9/14/22	10/11/22	11/9/22	12/7/22	1/25/23
Anthropometrics									
Body weight	159 lbs.	154 lbs.	153 lbs.	157 lbs.	N/A	N/A	154 lbs.	151 lbs.	150 lbs.
Dietary									
Low-carbohydrate diet that has been followed for approximately 5 years.	Modify with a focus on 5 servings of different colored vegetables per day, 75-100 grams of carbohydrates, up to 125 grams of protein, avoidance of calorie counting.	Continue	Continue	Continue	Continue	Continue	Continue	Modify to increase to 7-9 servings of colorful vegetables per day.	Continue
Supplements									
FemmenessencePRO Harmony (<i>Lepidium peruvianum</i>) Symphony Natural Health	1 cap bid	1 cap bid	1 cap bid	1 cap bid	1 cap bid	1 qd	1 qd	1 qd	1 qd
pH QuintessencePRO (<i>Medicago sativa</i>) Symphony Natural Health	1 cap tid	3 caps qhs	3 caps qhs	3 caps qhs	3 caps qhs	3 caps qhs	3 caps qhs	3 caps qhs	3 caps qhs
Magnesium Glycinate Vital Nutrients	1 cap bid	1 cap bid	1 cap bid	1 cap bid	1 cap bid	1 cap bid	1 cap bid	1 cap bid	1 cap bid
DHEA- 25 mg Designs for Health	NA	NA	NA	NA	1 qd	1 qd	1 qd	1 qd	1 qd, until re-tested
Continue with vitamin D3 5000 IU and vitamin C 500 mg as directed by another provider.									
Lifestyle									
Continue with current exercise routine and guidance from personal trainer.									
Abbreviations: cap=capsule; caps=capsules; mg=milligrams; qhs= bedtime; qd= 1 time per day; bid= twice daily; tid= three times daily; NA= not applicable									
Summary of outcomes:									
Within four months-									
<ol style="list-style-type: none"> Resolution of PMS symptoms including balanced moods, improved satiety, reduced cystic acne, regulated bowel movements (1-2 per day, well-formed). Resolution of pain and cramping associated to the menstrual cycle. Decreased blood loss during the menstrual cycle. 									
No adverse effects were reported.									

Follow-Up Consultation #1 - June 28, 2022

The patient returned on this date to assess her progress. She reported consistently consuming 100 ounces of water daily and adding more variety to her vegetable intake. She stated she was feeling hungrier at bedtime but acknowledged that she was six days away from starting her menstrual cycle and believed this was the reason for the increased hunger. She had been mostly consistent with her supplements, missing *Lepidium peruvianum* two times. The patient expressed concerns about her bowel movements, describing them as hard and pellet-like and acknowledged that she had not yet started the recommended supplement to assist in regulating bowel movements. She did not yet have a menstrual cycle; therefore, any changes or improvements were not yet reported.

The clinician reiterated the original recommendations without any modifications (Table 1).

Follow-Up Consultation #2 - July 20, 2022

The patient returned approximately one month later, reporting considerable improvements in her menstrual cycle. She stated that she took 800 mg of ibuprofen “out of habit” and didn’t need Tylenol, as the pain reduced to mild cramping only. She worked out intensely on day one of her cycle, something she had been unable to do for many years. By day two, over-the-counter medications were not used, and she noted less bleeding, as indicated by drier tampons that sometimes hurt to remove. By night two and into day three, she reported only needing a panty liner due to light bleeding or spotting. The menstrual cycle ended after day three. Additionally, she reported less cystic acne at the jawline, which the clinician also observed.

High compliance was reported by the patient with the dietary and supplement recommendations. At times, the patient felt overwhelmed with the number of supplements; therefore, the clinician and patient collectively reviewed the reasons for use and how long she could anticipate needing each recommended supplement.

Finally, after beginning the supplement to support bowel motility, the patient reported easy, productive, well-formed bowel movements one to two times daily. The clinical recommendations were again reinforced (Table 1).

Follow-Up Consultation #3 - August 19, 2022

The patient returned for a follow-up visit after having another menstrual cycle. The most recent menstrual cycle was eleven days later than average. Historically, the clinician has observed changes in the menstrual cycle (beginning earlier or later) after starting *Lepidium peruvianum* and encouraged the patient to continue using the supplement as directed.

The patient reported that her moods improved, stating she “wasn’t emotional or whiny to her husband.” This cycle was the first time in many years that she did not take a day off from work or use a heating pad to manage the pain and cramps during her cycle. Her bowel movements remained consistent (1-2 times daily). She informed the clinician that her primary care physician ordered a hormone panel, and she was waiting to receive the results at an upcoming visit with the provider. A summary of her progress with the menstrual cycle is provided in Table 2. The clinical recommendations were reinforced (Table 1).

Table 2: Summary of Menstrual Cycle Progress: August 2022-January 2023.

Follow up/ Date	Menstrual Cycle Progress
August 2022	<p>This cycle came on day 35, longer than normal for the client.</p> <p>Day 1: Patient reported diarrhea at the start of the cycle, as she normally experiences, a pantyliner was used through the morning, with slight cramping (2/10) beginning at about 11:30 am. She took ibuprofen (800 mg) to alleviate this pain. A regular-size tampon was used from 2-8 pm and was reported as 50% full.</p> <p>Day 2: Light bleeding, very dry tampon (regular-size) that hurt to remove.</p> <p>Day 3: Minimal blood on panty liner. She reported a very dry and uncomfortable tampon, “barely spotting” at this time, resuming the use of a panty liner only.</p> <p>Day 4: Some spotting.</p>
September 2022	<p>Day 1: She reported panty liner use only, some cramping, and took 800 mg of ibuprofen. Cramping was mild and ibuprofen was taken more preventatively based on her activities planned for the day. Minimal brown/red blood was noted.</p> <p>Day 2: Red blood, thick maxi pad was used in the morning, two regular-sized tampons during the day through 2 pm, while engaging in physical activity. Panty liners were used for the rest of the day.</p> <p>Day 3: The client stated there was nothing to report (she did not take notes).</p> <p>The cycle lasted four days including one day of spotting. The client reported that she was not snappy or moody anymore. No other symptoms to report.</p>
October 2022	<p>This cycle started with use of panty liners only, but she had to change the liner every hour, so she switched to tampons and used two to three tampons per day for two days of the cycle. Day 4-5, she used a panty liner only, due to spotting.</p> <p>Cramping only occurred on day one, for which 400 mg of ibuprofen was taken.</p>
November 2022	<p>First month on the reduced dose of <i>Lepidium peruvianum</i>.</p> <p>It was a 5-day cycle, light flow with use of panty liners and regular-sized tampons only. Very minimal cramping on day one, for which no ibuprofen was taken.</p>
December 2022	<p>Day 1: Very light bleeding, one regular-sized tampon-hurt to remove after eight hours, no cramping and no ibuprofen was used as a result. A panty liner was used through the night.</p> <p>Day 2: Slightly heavier flow requiring regular-sized tampons through the day, mild cramps, no medications.</p> <p>Day 3-4: Light flow/spotting</p> <p>The client reported being “so happy to not have cramps and to not have to use the heating pad or take meds.”</p>
January 2023	<p>The client didn’t write down any detailed notes this menstrual cycle because “it was so easy!” Her notes were: “period started, period ended”. It lasted 4 days and occurred on day 27.</p> <p>She noted that on day one, she was able to go to gym and deep clean house, which would not have been normal given the intensity of cramps in the past.</p>

Follow-Up Consultations #4-8 - September 2022 – January 2023

The patient regularly followed up for an additional five months to report on the progress of her menstrual cycle, as detailed in Table 2. Highlights of these visits include:

- In September, the patient shared recent laboratory reports ordered by her primary care physician (Table 3). An additional recommendation of DHEA-25 mg was made based on these results (Table 1), which included low-normal DHEA levels, low-normal estradiol, and low testosterone. At this time, only mild cramping was reported, with resolution of all other symptoms and a drastic decrease in the volume of blood loss.
- In October, due to the vast improvements in the menstrual cycle, it was recommended to reduce *Lepidium peruvianum* to one (1) capsule daily, which aligns with the supplement’s general guidelines for use.
- In November, she experienced a light menstrual flow with only mild cramping that did not require any medication.
- In December, she experienced a light menstrual flow with no cramping.
- In January, the client did not record any notes of her cycle because “it was so easy,” free of pain, cramping, and symptoms, and was a light blood flow.

In summary, during this time frame, substantial improvements were achieved, including 1) drastic reduction and later resolution of menstrual pain and cramping, 2) decreased blood flow, 3) resolution of multiple PMS symptoms, including regulated moods and bowel movements, a decrease of cystic acne, and improved satiety. No adverse events were reported at any time by the patient.

Table 3: Hormone Biomarkers drawn on August 8, 2022 - Day 35 of the menstrual cycle (luteal phase).

Biomarker	Value	High/Low/Normal
LH	1.5 mIU/mL	Low normal
FSH	3.8 mIU/mL	Normal
Prolactin	8.0 ng/mL	Normal
Estradiol	59 pg/mL	Low normal
Progesterone	6.35 ng/mL	Normal
Testosterone	10 mg/dL	Normal
Free testosterone	<1.0 pg/mL	Low
Sex hormone binding globulin	91 nmol/L	Normal
DHEA-S	67 mcg/dL	Low normal

Abbreviations: LH, luteinizing hormone; FSH, follicle-stimulating hormone; DHEA-S, dehydroepiandrosterone-sulfate; mIU/mL, milli-international units per milliliter; ng/mL, nanograms per milliliter; pg/mL, picograms per milliliter; mg/mL, milligrams per milliliter; nmol/L, nanomoles per liter; mcg/L, micrograms per liter.

Results and Discussion

A 39-year-old female experienced complete resolution of PMS, primary dysmenorrhea, and menorrhagia in four months. She sustained these outcomes for an additional four months following the primary use of *Lepidium peruvianum* (maca) and secondary therapies of magnesium and *Medicago sativa* (alfalfa). At the conclusion of the reported sessions, the client was encouraged to continue implementing the previously provided recommendations and to follow up as needed.

Background and strength of the primary therapy

Lepidium peruvianum, specifically, a proprietary formulation known as MacaHarmony®, also commonly known as maca, was the primary treatment. The clinician has used this therapy extensively in clinical practice for over ten years, with a high success rate for various hormonal health concerns, including PMS and menstrual health support.

Extensive literature reports on the many benefits of maca for women, including increased energy levels, improvements in moods

and cognition, hormone balance, reduction in premenstrual, perimenopausal, and post-menopausal symptoms, increased fertility, improvement in select cardiovascular markers, and improvement in bone health [12-16].

The mechanism of action of *Lepidium peruvianum* on hormones is not fully understood. However, it is reported to work through the hypothalamus-pituitary-adrenal (HPA) axis and the plant sterols, glucosinolates, alkaloids, and other active constituents found in maca may all play a role [14,16].

Of importance, research has shown that there are up to 17 different phenotypes (or colors) of maca [14,17]. The colors (predominately red, black, yellow, purple, grey, and white) [14,17,18] vary in their DNA and active ingredient profiles and elicit different physiological responses in the body [14,19,20]. As an example, red maca can help reduce prostate hyperplasia in men [14], black maca is most known for its energy and fertility-enhancing properties [14], whereas a proprietary combination of maca phenotypes, demonstrated a positive impact on hormone balancing in peri- and post-menopausal women [21-24]. Moreover, black maca, which is favorable for men, including improvement in sperm health and libido, may worsen some symptoms in women due to the androgenic effects on testosterone receptors [25]. Therefore, the clinician recognized that using the correct type of maca for women's hormone health is critical when choosing therapeutic options and believes that this choice contributed to the favorable outcomes experienced by the patient.

Background and strength of secondary therapies

The recommendations incorporated detoxification support utilizing a highly concentrated extract of *Medicago sativa* (alfalfa). Through Phase I (hydroxylation) and Phase II (methylation and glucuronidation) pathways, the liver is responsible for the proper metabolism, detoxification, and excretion of hormones [26]. *Medicago sativa* has been noted to be a safe therapy for many health concerns, including but not limited to overall detoxification and anti-inflammatory support, dermatological, and anxiolytic effects [27]. The patient reported noticeable improvements in bowel movements when this supplement was consistently used, suggesting improvement in detoxification and elimination processes.

Additionally, magnesium was also recommended to help decrease menstrual cramping. One study compared 200 mg of magnesium (taken during menstruation only) to hormonal contraceptives (taken daily). While the hormonal contraceptive group was found to have better relief of pain and cramping, in three months, both groups had significantly reduced pain and decreased need for painkillers [4]. It is possible that the use of magnesium helped the client transition away from over-the-counter pain

medications and using a heating pad to manage cramping and pain.

Additional case strengths

This case had several strengths aside from the favorable patient outcomes. First, the patient kept meticulous notes about her symptoms, pain, cramping, and menstrual blood flow. This record-keeping allowed for the immense specificity of this case to be documented. Second, the consumption of a healthy, low-carbohydrate diet and regular exercise was already being implemented by the patient and, therefore, reduced the number of interventions that the clinician recommended. Lastly, the patient maintained regular follow-up consultations so adjustments could be made to her plan as needed.

Limitations

The clinician acknowledges several limitations in this case report. First, a multi-modal approach to clinical care does not allow for a definitive conclusion regarding the effectiveness of any one therapy. Second, despite previous clinical success with the primary treatment option, it is reasonable to conclude that the combination of interventions contributed to the improvements experienced by the patient. Third, having lab values before the initiation of treatment and again after improvements in symptoms would aid in the specific hormonal impact *Lepidium peruvianum* may have on this population, as demonstrated in other studies. Lastly, the author recognizes that the outcomes of a case report cannot be translated into a larger population.

Therefore, further research on using a single or combination of interventions for PMS, PD, and AUB should be explored.

Conclusion

Case reports are an excellent way for healthcare providers to share successes and provide opportunities for learning based on clinical experience rather than clinical trials [28]. This case report (N=1) demonstrated the safe and effective use of *Lepidium peruvianum*, *Medicago sativa*, and magnesium in a premenopausal woman for the management of PMS, PD, and AUB, with complete resolution of symptoms and decreased menstrual flow within four months. At the time of submission, the author is unaware of studies demonstrating the successful use of this combination of botanical and nutrient therapies. Though a cause-and-effect relationship cannot be concluded, this case report demonstrates how a personalized care plan using combination therapies enhanced the quality of life for one woman. This finding may provide a foundation for other clinicians to consider in their practice or for researchers to explore the benefits of one or more therapies.

Informed Consent

The patient presented in this case report provided written

informed consent to publish patient information in the present manuscript. The patient also received a copy of the manuscript to read and review.

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Conflict of Interest

The author declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: At the time of clinical care, the author had no conflict of interest to report. At the time of writing, the author is an independent contractor of Symphony Natural Health, manufacturer of the maca supplement, Femmenessence®.

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