

Treatment of postpill amenorrhea with abdominal obesity by traditional Korean medicine treatment focused on pharmacopuncture and moxibustion

A case report

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Abstract

Rationale: Hormone imbalance and menstrual irregularities are normal for postpill women. Pharmacopuncture and moxibustion can stimulate acupoints with herbal extract and heat, respectively, to regulate the function of qi and blood, expel pathogens, and support health.

Patient concerns: A 39-year-old female patient presented with amenorrhea, >6 months after she had stopped taking the oral contraceptive pill, which she had taken for more than 10 years, and possible associated infertility. Additionally, she reported sudden weight gain of approximately 12 kg in 1 year.

Diagnoses: In this study, we examined the amenorrhea lasted more than 6 months for postpill patient.

Interventions: She refused a strong acupuncture stimulus; she underwent lower abdomen pharmacopuncture with wild ginseng complex (WGC) and moxibustion at CV4, 5 times during 1 month. As a secondary treatment, 1 g Geoseub-hwan pills were prescribed for overeating and during social events. After 5 weekly primary treatments, Geoseub-hwan was prescribed intermittently.

Outcome: After 3 primary treatments, she began menstruation without menstrual cramps or discomfort. After 5 treatments, she exhibited improvement of body weight and body composition. At 1- and 3-month follow-up examinations, she confirmed regular menstruation without discomfort.

Lessons: Pharmacopuncture with WGC and moxibustion may be effective for the treatment of postpill amenorrhea with abdominal obesity and can be used for patients with fear of a strong acupuncture stimulus.

Abbreviations: BFM = body fat mass, BMI = body mass index, BMR = basal metabolic rate, BW = body weight, CAM = complementary and alternative medicine, EQ-VAS = EuroQoL visual analog scale, KOQOL = Korean version of obesity-related QOL, OCs = oral contraceptives, QOL = quality of life, SMM = skeletal muscle mass, TCM = traditional Chinese medicine, TKM = traditional Korean medicine, WGC = wild ginseng complex, WHR = waist-hip ratio.

Keywords: amenorrhea, infertility, menstruation, moxibustion, obesity, oral contraceptives, pharmacopuncture, wild ginseng complex

1. Introduction

Oral contraceptives (OCs) are one of the earliest contraceptive methods and the most commonly used hormonal method for

fertility control, reportedly used by over 200 million women globally.^[1–3] Previous high-dose birth control pills have been associated with thrombosis, embolism, cancer, and serious side effects, but reductions in dosage have diminished these effects. Ordinary OCs are preferred over double or triple OCs because they are easy to take, easy to distinguish, have manageable side effects, and easily change the menstrual cycle. Although they are known to be safe and easy, OCs have some side effects, including amenorrhea, weight gain, abdominal swelling, fatigue, and fluid retention; thus, some women may discontinue medication due to the side effects of OCs.^[4,5]

Postpill amenorrhea is a relatively uncomplicated medical problem to diagnose and treat in most cases; it can be associated with a pattern of hypothalamic deficiency, which typically involves low levels of gonadotropic and ovarian hormones and mild to moderate elevations of prolactin. Treatment is required only if amenorrhea lasts more than 6 months, or if amenorrhea lasts more than 3 months for postpill women who are considering pregnancy.^[5–7]

Obesity has become a worldwide health challenge as its prevalence has increased globally in recent decades; it is a major risk factor for the deterioration of health, dysfunction, and reduced quality of life (QOL). Obesity affects diverse metabolic

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complications, as well as female reproductive functions, such as menstruation and pregnancy. Obesity is associated with amenorrhea, infrequent menstruation, and polycystic ovary syndrome, which is associated with insulin resistance and hyperandrogenemia.^[8–13]

In complementary and alternative medicine (CAM), various treatment methods, such as acupuncture, pharmacopuncture, herbal medicine, cupping, and moxa, are used for many diseases, including obesity and female reproductive problems. In clinical practice of traditional Korean medicine (TKM) and traditional Chinese medicine (TCM), patients have been treated with multiple therapies, rather than monotherapies, to improve treatment efficiency and patient satisfaction. In TKM, pharmacopuncture therapy is one of the preferred methods for time-effective treatment without needle usage.^[14] Pharmacopuncture with wild ginseng complex (WGC) has been reported to exhibit therapeutic effects, including antiobesity in female patients, including postmenopausal women.^[15–18] Moxibustion is a heat therapy technique to promote healing in TCM and TKM, and has been used throughout Asia for thousands of years. The purpose of moxibustion is to stimulate the flow of qi and blood and maintain general health. Moxibustion at CV4 is a common treatment method for women with menstrual problems.^[14]

There are few reports regarding treatment of amenorrhea that has been present for 6 months for postpill women with suddenly increased body weight (BW), by using pharmacopuncture and moxibustion as a primary treatment method in TKM. Herein, we report the therapeutic effects of pharmacopuncture with WGC and moxibustion at CV4 for a patient with sudden increase in BW and amenorrhea for more than 6 months after the discontinuation of OCs.

2. Case report

In November 2017, a 39-year-old female patient (nonsmoker, 154 cm, 61.8 kg) presented with the primary concern of sudden weight gain of approximately 12 kg in 1 year. She stood for more than 8 hours per day at her job, and stated that her body was well-worn and especially swollen in the morning; moreover, her legs “felt like a piece of wood.” She stated that as her fatigue increased, her ability to exercise decreased, and her digestion was poor. At the 1st visit, she briefly mentioned amenorrhea and did not want to be treated for it. She stated that she had consistently taken OC since she was 28 years old and had recently stopped because of weight gain and a potential interest in pregnancy. She had been informed that there were no uterine or ovarian problems, according to her gynecologist. Her family history and previous medical history included no specific instances worthy of report. Her personality was positive and social, and she liked to attend social meetings, which included drinking. Because her weight gain increased at the end of each year, she primarily desired to reduce the risk of further weight gain related to social meetings, including drinking at the end of the year (i.e., she wished to increase her weight less than usual).

At 1st, she solely desired an herbal prescription to improve her general condition, including abdominal obesity, due to the fear of a strong stimulus by acupuncture. She was prescribed Chowe-suncheng-tang gamibang (Coicis Semen, Castanea Semen 9 g each, Raphani Semen 4.5 g, *Ephedrae herba*, Platycodi Radix, Liriois Tuber, Schizandrae Fructus, Acori Graminei Rhizoma, Polygalae Radix, Asparagi Radix, Zizyphi Spinosae Semen, Longanae Arillus 3.6 g each, Scutellariae Radix, Magnoliae

Cortex, Typhae Pollen 1.8 g each/1 pack, 120 cc) for 2 weeks, and was then prescribed Euiiin-tang granules (*E herba*, *Angelica sinensis* Radix, *Atractylodes macrocephalae* Rhizoma 1.33 g each, Coicis Semen 3.33 g, Cinnamomi Ramulus, Paeoniae Radix 1.0 g each, Glycyrrhizae Radix 0.67 g/1 pack; Hanpoong Pharm, Seoul, Korea) for 10 days due to cost and convenience of administration. However, she had a lot of social meetings that included drinks, did not take the medicine as prescribed, and her BW was not well controlled; it decreased slightly, then increased again to 61.3 kg at 6 weeks after the 1st visit. Furthermore, the amenorrhea period had increased to longer than 6 months, so the patient’s anxiety increased regarding amenorrhea and possible infertility. Therefore, she wanted to be treated primarily for amenorrhea and obesity. Because of her work schedule, she chose to visit our hospital once per week to treat her concerns. Due to her fear of a strong stimulus or obtaining qi by acupuncture, the primary treatments selected were pharmacopuncture with WGC and moxibustion at CV4. Pharmacopuncture with WGC was chosen to treat abdominal obesity and improve the circulation of qi and blood in the lower abdomen; notably, it can be performed for a short time in the abdominal area, which is rich in fat, with a small dose equivalent to 20% of the general use, and it caused little burden on the patient during treatment. As a secondary treatment, intermittent Geoseub-hwan was prescribed for obesity and digestion problem.

Anthropometric measurement and body composition analysis were performed during the patient’s treatment and at the 1-month follow-up (F/U); evaluations of QOL were performed during the patient’s treatment, as well as at the 1-month F/U and 3-month F/U. This case report involves retrospective chart reviews, for which the patient provided informed consent. Her height was measured to 0.1 cm by using a height meter (G-Tech International co., Uijeongbu, Korea). Her BW, body mass index (BMI), body fat mass (BFM), skeletal muscle mass (SMM), waist-hip ratio (WHR), and basal metabolic rate (BMR) were measured with a bio-impedance body mass analyzer (InBody, Seoul, Korea). QOL was evaluated by using EQ-VAS score and KOQOL (Korean version of obesity-related QOL) before and after treatment and at the 1- and 3-month F/U. The EQ-VAS is a visual analogue scale with values between 100 (best imaginable health) and 0 (worst imaginable health), on which patients provide a global assessment of their health. KOQOL was evaluated in 4 areas: psychosocial health, physical and work efficiency, sexual attractiveness, and relationship with food, on the basis of reliability and confirmative factor analysis.

The WGC extract (107 mg/mL in a sealed vial) comprised 4 herbs as follows: Wild ginseng (*Panax Quinquefolius*, 100 mg/mL), Bovis Calculus (*Bostaurus*, 2 mg/mL), Fel Ursi (*Ursus arctos*, 3 mg/mL), and Moschus (*Moschus berezovskii*, 2 mg/mL); it was manufactured at Namsangcheon Herbal Medicine Dispensary (Yongin, Korea), an extramural facility meeting Korean Good Manufacturing Practice (K-GMP) standards, in water and alcohol (v/v=1:1). The locations of the pharmacopuncture treatment were 5-point vessels (CV4 and left and right side of ST28 and SP14), inferior to the navel points on the meridians of the stomach, as well as the spleen and the concept vessels. WGC extract (0.2 mL) was injected into each point (1.0 mL total) at each weekly visit for 1 month. After pharmacopuncture therapy on her abdomen, moxibustion treatment was applied at CV4, the 4th point on the conception vessel, which is located on the midline of the abdomen, three-fifths of the way from the umbilicus to the superior edge of the pubic bone, in a supine position for

Table 1
Changes of body compositions and quality of life in the patient.

	Before treatment	After treatment	1 mo F/U
BW	61.3kg	59.0 kg	59.5 kg
BFM	23.3 kg	20.6 kg	21.2 kg
SMM	19.7 kg	21.0 kg	20.9 kg
Protein content	7.2 kg	7.6 kg	7.5 kg
BMI	25.8	24.9	25.1
WHR	0.96	0.90	0.90
BMR	1156 kcal	1200 kcal	1197 kcal
EQ-VAS	70	80	80
KOQOL	22	21	21

BFM=body fat mass, BMI=body mass index, BMR=basal metabolic rate, BW=body weight, KOQOL=Korean version of obesity-related quality of life, SMM=skeletal muscle mass, WHR=waist-hip ratio.

The EQ-VAS is a vertical visual analogue scale that takes values between 100 (best imaginable health) and 0 (worst imaginable health). KOQOL was evaluated in 4 areas: psychosocial health, physical and work efficiency, sexual attractiveness, relationship with food, on the basis of reliability and confirmative factor analysis.

approximately 20 minutes, once per week. To treat the obesity and digestion problem, as a secondary treatment, Geoseub-hwan (*E herba* 3.5g, Brassicae Rhizoma, Sophorae Fructus 0.9g each, Scutellariae Radix, Coptidis Rhizoma, Phellodendri Cortex, Rhei Rhizoma 0.4g each), 1g concentrated pills, were prescribed at 1g/dose, regardless of the meal time, in cases of overeating or during social meetings. The patient took this pill 20 times. After 5 weekly treatments, she was prescribed 10 doses of Geoseub-hwan (1g each) for use only in cases of overeating or during social meetings to help manage the obesity.

After 3 treatments of pharmacopuncture and moxibustion, she reported that she had begun menstruation without menstrual cramps or discomfort. After 5 treatments, her BW had decreased from 61.3 to 59.0kg, BMI decreased from 25.8 to 24.9, WHR

decreased from 0.96 to 0.90, and BFM decreased from 23.3 to 20.6kg; however, SMM increased from 19.7 to 21.0kg, and BMR increased from 1156 to 1200 kcal. In terms of QOL, KOQOL improved from 22 to 21 and EQ-VASs score improved from 70 to 80. At the 1-month F/U, the patient reported monthly menstruation without any discomfort. There were no significant changes in obesity. At the 3-month F/U, the patient confirmed no menstrual abnormalities by telephone F/U. Her KOQOL and EQ-VAS scores had not changed (Table 1, Fig. 1).

3. Discussion

Obesity is an adult disease that has a significant health impact, regardless of sex and age. It causes social problems, as well as physical and mental problems. Obesity increases the incidences of hypertension, arteriosclerosis, hyperlipidemia, diabetes, and cardiovascular disease; it also impairs endocrine function. Obese patients experience psychologic atrophy and social inequalities, due to physical appearance, along with health risks. In women, obesity can increase menstrual irregularities, amenorrhea, infertility, preeclampsia, miscarriage, and fetal mortality.^[8-13]

It is important to consider the menstrual cycle in women’s health because variations in menstrual cycle length are associated with risk factors for cardiovascular disease and other health outcomes, such as breast cancer, myocardial infarction, and hip fractures. Longer menstrual cycles have been associated with higher BMI and recent use of OCs.^[7,8]

When OCs are used correctly, their effects are similar to surgical contraception. OCs were 1st used in the 1960s; more recent contraceptives have included dermal patches, vaginal ring contraceptives, injections, implants, and intrauterine contraceptive devices. Side effects of OCs include weight gain and amenorrhea.^[4,5] Postpill amenorrhea can also occur. For this syndrome, treatment is required only if amenorrhea lasts longer

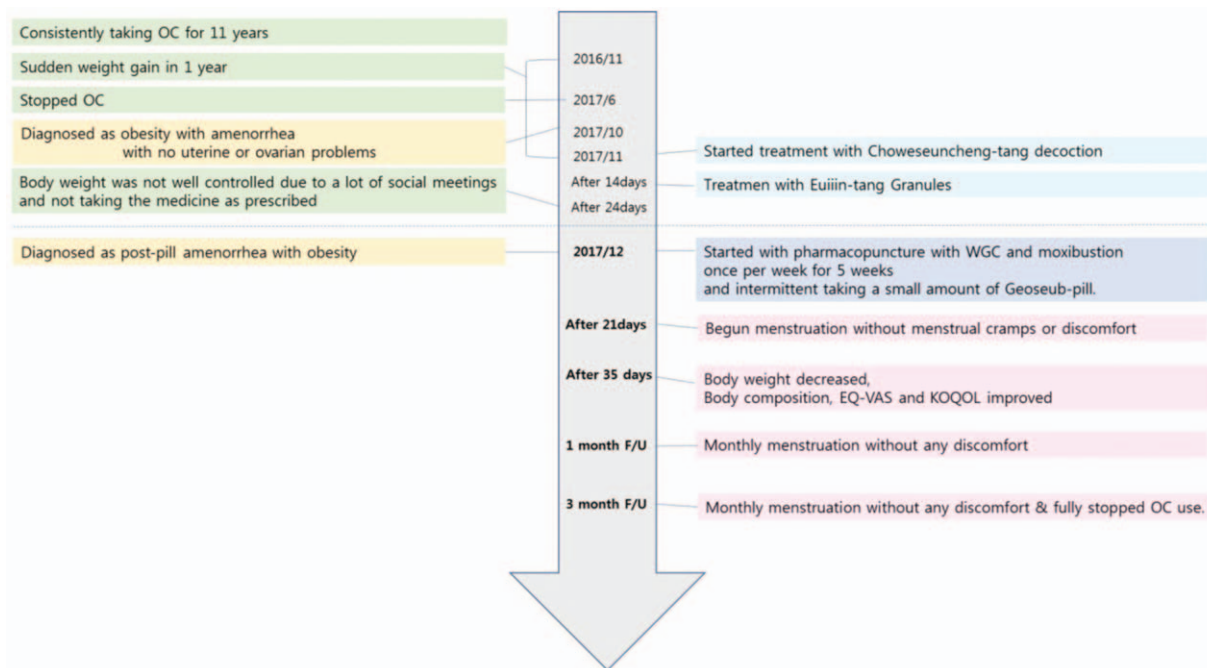


Figure 1. Timeline of the patient. EQ-VAS = EuroQoL visual analog scale, KOQOL = Korean version of obesity-related quality of life, OC = oral contraceptives, WGC = wild ginseng complex.

than 6 months, or if amenorrhea lasts more than 3 months for postpill women who are considering pregnancy.^[6,7] In this case study, the subject was suffering from amenorrhea for longer than 6 months with concerns of possible infertility.

In CAM, there are various treatment methods, such as herbal medicines, acupuncture, pharmacopuncture, electroacupuncture, moxibustion, and cupping. The acupuncture treatment method involves needling on the meridian points. Pharmacopuncture, which is an acupuncture method, involves injecting pharmaceutical agents, such as herbal medicines, into acupuncture points or fat areas, based on pharmacology and meridian theories. In TKM, pharmacopuncture therapy is a preferred method for effective treatment of various diseases, including obesity.^[14] Pharmacopuncture with WGC is commonly used to treat obesity. It has been shown to have antiobesity and antiinflammatory effects in 3T3-L1 adipocytes and RAW264.7 macrophages when a high-fat diet is induced in obese mice.^[19] The benefits of this treatment have also been clinically studied in female patients with obesity; there were improvements in the regulation of cholesterol, insulin, and leptin.^[15–18] Moxibustion is a heat therapy technique that involves burning an herb called Mugwort to promote healing; it has been used throughout Asia for thousands of years, alone or in combination with other treatment methods. The purpose of moxibustion is to stimulate the flow of qi and blood, and to maintain general health. Moxibustion at CV4 in the lower abdomen can be excellent for patients who have lost their strength, either through age or infirmity, and strengthens both yin and yang.^[14]

There are many reports regarding the antiobesity effect of WGC pharmacopuncture^[15–18] and the therapeutic effect of moxibustion on female reproductive problems,^[20,21] respectively. However, the effects of combined WGC pharmacopuncture and moxibustion at CV4 on postpill amenorrhea with obesity have not been reported. Therefore, in this case report, we have described the therapeutic effects of pharmacopuncture with WGC and moxibustion for amenorrhea in an obese postpill female patient. After 3 treatments of pharmacopuncture and moxibustion, she began menstruation without menstrual cramps or discomfort. After 5 treatments, obesity and QOL were improved. At 1- and 3-month F/U, we confirmed that she had monthly menstruation without any discomfort, and had stopped OC usage.

Pharmacopuncture can be thought of as a terminal method (rapid insertion/removal acupuncture), where needle acupuncture therapy is inserted into the acupuncture point very quickly and pulled out very quickly to provide a weak stimulus; it is most commonly applied to children, those with physical weaknesses, and mentally stressed patients.^[14] The patient in this case had a fear of a strong stimulus by acupuncture and refused to maintain the needle in place for longer than 10 minutes. Therefore, pharmacopuncture with WGC was selected. To minimize fear of needle insertion and discomfort after treatment, a dose corresponding to 20% of the usual dose was selected, along with only 5 acupoints. This method provided satisfaction with regard to therapeutic method and effect.

Wild ginseng, a main active component of WGC, is a representative herb used to strongly tonify source qi in traditional medicines, which may be related to its effect on amenorrhea; it has been reported to have many pharmacologic effects, such as anticancer properties, antiinflammatory properties, and antidiabetic activities.^[22] Previous studies have shown that *Bovis Calculus*, *Ursi Fel*, and *Moschus* have various positive effects,

such as hepaprotection, antiinflammatory properties, antioxidant properties, immune regulation, anticancer properties, and antiobesity effects.^[22] Therefore, the antiobesity effects of pharmacopuncture with WGC may be derived from the effects of each component of the herb.

Moxibustion involves warm stimulation at acupoints. Physiologic effects of warm stimulation include promotion of blood circulation through enzyme activation, mental stability through autonomic regulation, relaxation of muscle contraction, restoration of intestinal motility, and excretion of cellular waste and lactic acid through perspiration.^[14,23] This mechanism is believed to be effective for the treatment of amenorrhea and abdominal obesity. Acupoints used in this treatment (ST28, SP14, and CV4) are inferior to the navel points on the meridians of the stomach, spleen, and concept vessels, which can improve deficiency and cold of the lower energizer, including the womb, and modulate the qi movement pattern of the lower energizer.^[14] The choice of acupoints was likely to have a positive effect on the treatment.

Ephedrae herba is frequently prescribed for obesity management in TKM. The main components are ephedrine alkaloids, which can have serious adverse side effects, such as heart attack, stroke, or sudden death. In TKM, we follow the Safety Guidelines for use of *E herba* in obesity treatment, which state that the dosage should be within 4.5 to 7.5 g per day for up to 6 months for generally healthy individuals.^[24] In this study, we also selected herbal formulations, including *E herba*, under 7.5 g per day. At 1st, it was used to improve obesity and general conditions, but the patient intermittently used the herbal formulations and her life management was not performed properly; thus, the therapeutic effect was minimal. During the treatment period and the 1-month F/U period, herbal formulation, including 3.5 g of *E herba*, was prescribed only occasionally to prevent overeating. It seemed to provide a good secondary treatment method because the patient's menstrual cycle and BW were almost maintained through the 3-month F/U.

In the treatment of obesity, the most reasonable method should be chosen to extract as much fat as possible without removing muscle.^[25] BMR indicates the minimum energy required to sustain vital functions; it has been reported that fat mass stored in the body can decrease as a result of increased BMR through effective treatment of obesity.^[26] According to World Health Organization guidelines, WHR is a superior indicator of abdominal obesity, compared with BMI, especially for Asian population.^[27,28] Therefore, to evaluate obesity, we analyzed body composition using SMM, BFM, BMI, WHR, and BMR, in addition to BW. After 5 treatments comprising pharmacopuncture with a small amount of WGC and moxibustion, we observed improvement in amenorrhea and obesity, with corresponding reductions in BW, BMI, WHR, and BFM, as well as increases in SMM, BMR, and protein. These results indicate that pharmacopuncture with WGC and moxibustion at CV4 are beneficial for the improvement of postpill amenorrhea with obesity.

The EQ-VAS is a useful tool for measuring the perception of QOL for an overall assessment of an individual's health condition.^[29] KOQOL, a representative indicator of the QOL related to obesity in Koreans, was evaluated in 4 areas: psychosocial health, physical and work efficiency, sexual attractiveness, and relationship with food, on the basis of reliability and confirmative factor analysis.^[30,31] In this case report, we confirmed improved QOL by using EQ-VAS score and KOQOL.

In summary, this report describes the treatment of an obese patient with postpill amenorrhea who did not perform good self-management and did not achieve effectiveness by general herbal medicine. Despite the small number of treatments, we confirmed patient satisfaction through the improvement of amenorrhea and obesity without loss of muscle mass. Although this report only describes a single case, our study indicates that pharmacopuncture with WGC can be used as a new alternative treatment method for postpill amenorrhea, as well as amenorrhea with abdominal obesity. In future studies, we plan to perform a clinical trial with a larger sample size, conduct F/U appointments over a longer period of time, and use various evaluation methods to verify the long-term therapeutic effects of the combination of WGC pharmacopuncture and moxibustion.

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