

**The Impact of the Herbal Formula Qing Bao Zhu Yu Tang  
In the Treatment of Endometriosis**

**A Capstone Project**

**Doctor of Acupuncture and Oriental Medicine**

**By**

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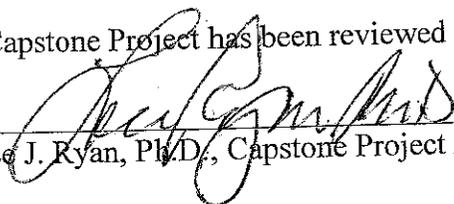
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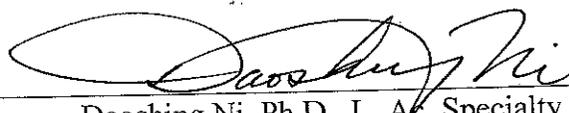
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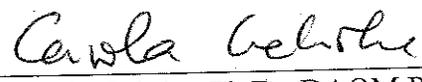
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### **Abstract**

Retrospective chart review research method was employed to review 120 charts of women who were treated for endometriosis using an herbal formulation known as Qing Bao Zhu Yu Tang. The pain effectiveness level survey rating for the entire sample of 120 patient charts shows that 116 patients (96.7 %) responded with indication of some level of effectiveness. From the total sample of 120 patients, the satisfaction survey shows that 111 patients (92.5 %) responded in the “satisfied” range. The cases were analyzed in three categories, as per the most common condition accompanying endometriosis. The three groups analyzed included those where endometriosis was associated with infertility (n=53), those with polycystic ovarian syndrome (PCOS) (n=7) and those with ovarian cysts (n=38). Data from the charts were analyzed in terms of the impact of the Qing Bao Zhu Yu Tang formula on endometriosis and the accompanying conditions. The results evidenced the positive impact of the formula. The results were discussed regarding implications for practice and recommendations were made for future related research.

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## Chapter One: Introduction

### Identification of the Problem

The prevailing theory about the development of endometriosis is that it occurs when menstrual blood backflows through the fallopian tubes, carrying with it endometrial cells that are then transplanted to ectopic sites, such as the peritoneal cavity, the ovaries, the uterosacral ligaments, or the pouch of Douglas, where they implant, proliferate and develop. It is a gynecological disorder with clinical symptoms of menstrual pain, pelvic pain and infertility, and is one of the most complex and least understood diseases. The pain of endometriosis is severe and debilitating and can cause significant health problems for women during their reproductive years.

The goal of this study is to discern and describe the nuances and effectiveness of *Qing Bao Zhu Yu Tang* on the condition of endometriosis. Endometriosis is the number one cause of infertility; 38% of women who are infertile and 70-80% of women with chronic pain (Ling, 1999) have endometriosis. More than 10 million women have endometriosis in the United States (Verkauf, 1987). Furthermore, in the U.S., annual healthcare costs and costs of productivity loss associated with endometriosis were estimated at \$22 billion in 2002 (Ballweg, 2004).

Ohm's Acupuncture and Herbal Clinic, Inc., Los Angeles, California has observed many women come for acupuncture and herb fertility treatments after hormone therapy derived from Western medicine failed them. Also, many patients who wish to get pregnant in the future, but refuse surgical methods, preferring alternative treatment instead, come to the clinic for treatments.

During the last 30 years, the Ohm Clinic has used clinic formula #134 (named *Qing Bao Zhu Yu Tang*) for the treatment of endometriosis and associated symptoms of menstrual pain, pelvic pain, and infertility. This study will thoroughly discuss the treatment of endometriosis from both a Western and Traditional Chinese Medicine perspective. Additionally, this study will discern and describe the nuances of the effectiveness of *Qing Bao Zhu Yu Tang* on endometriosis.

This research study will proceed with a literature review chapter that will explicate prior theory and research regarding endometriosis and its treatment. That chapter will be followed by a methods chapter that will detail the procedures used to carry out the current research study. The fourth chapter of this study will include the study results, and will be followed by a fifth chapter that will discuss the findings of the current study.

### **Glossary of Relevant Terms**

- Antinuclear antibodies: Anti-nuclear antibodies also known as anti-nuclear factor are auto antibodies directed against contents of the cell nucleus (Mosby Pocket Dictionary of Medicine, 2010).
- Apoptosis: Apoptosis is the process of programmed cell death (PCD) that may occur in multi-cellular organisms (Webster Medical Dictionary, 2008).
- Chronic inflammatory condition: A chronic inflammatory disease is a medical condition which is characterized by persistent inflammation (Mosby Pocket Dictionary of Medicine, 2010).
- Ectopic: Ectopic is a displacement or mal-position of an organ or other body part (Webster Medical Dictionary, 2008).

- Endometrial lesions: The term "radical endometriosis surgery" refers to an operation of the endometrial lesions with the aim of their complete removal (Webster Medical Dictionary, 2008).
- Endometriosis: Endometriosis is the endometrial fragments desquamated during menstruation and deposited into peritoneal cavity, implant, proliferate and develop into endometriotic lesions (Sampson, 1984).
- Estrogen: Estrogens or oestrogens are a group of compounds named for their importance in the estrous cycle of humans and other animals. They are the primary female sex hormones (Mosby's Medical Dictionary, 2010).
- Infertility: Infertility primarily refers to the biological inability of a person to contribute to conception. Infertility may also refer to the state of a woman who is unable to carry a pregnancy to full term (Webster Medical Dictionary, 2008).
- Pouch of Douglas: The recto-uterine pouch (or recto-uterine excavation, recto-vaginal, Ehrhardt-Cole Recess or Pouch of Douglas) is the extension of the peritoneal cavity between the rectum and back wall of the uterus in the female human body (Webster Medical Dictionary, 2008).
- Tumor Necrosis: Tumor necrosis factor (TNF, cachexin or cachectin formerly known as tumor necrosis factor-alpha or TNF- $\alpha$ ) is a cytokine involved in systemic inflammation and is a member of a group of cytokines that stimulate the acute phase reaction. It is produced chiefly by activated macrophages, although it can be produced by other cell types as well (Babaknia, A.S. et al 1993).
- Uterosacral ligaments: The uterosacral ligaments or recto-uterine ligament is belongs to the major ligaments of uterus (Webster Medical Dictionary, 2008).

## Chapter Two: Literature Review

### Overview

This literature review chapter will provide the scholarly foundation for the current research study on endometriosis. The chapter will begin by providing a thorough description of the condition of endometriosis, including consideration of its etiology, symptoms, and treatment; its incidence; and tests used to diagnose the condition. Consideration of both Western medicine and traditional Chinese treatments also will be engaged. The second section of this chapter will address the herbal formulas most commonly used in the traditional Chinese treatment of endometriosis. The last section of this chapter will integrate the literature reviewed and will directly lead to the current research study.

This literature review search engine included a web search in: *Pubmed*, *Google Scholar*, *Cochrane Review*, *Chinese Journal of Integrative Medicine*, *Journal of Chinese Medicine*, *Fertility and Sterility*, *Human Reproduction*, *American Journal of Obstetrics and Gynecology*, and *Shanghai Journal of Traditional Chinese Medicine*. The key searching words included: “Endometriosis,” “endometriosis treatment with Chinese Traditional Medicine” and “Nei Yi” (Endometriosis in Chinese words). The most helpful sites for information regarding Western Medicine prospective of endometriosis were the journals *Fertility Sterility* and *Human Reproduction*. Traditional Chinese Medicine or herb studies were available in *Shanghai Journal of Traditional Chinese Medicine* and *Chinese Journal of Integrate Medicine*, written in Chinese.

## **Description of Endometriosis**

Endometriosis is a disease or symptom of endometrial tissue transported to ectopic sites during menstrual back flow. The endometriosis description appeared 300 years ago by Von Rokitansky. In the year of 1984, Sampson's classic paper proposed that endometriosis is the endometrial fragments desquamated during menstruation and deposited into the peritoneal cavity, to implant, proliferate and develop into endometriotic lesions (Sampson, 1984). Sampson, in the year of 1921, also described a series of perforating hemorrhagic ovarian cysts he called "chocolate cysts," coining the term "endometriosis" to represent the peritoneal lesions he first envisioned as seedlings derived from disease in the ovary. The disease of endometriosis, is "due to menstrual dissemination of endometrial tissue into the peritoneal cavity," will probably forever be linked to John Sampson. In the year of 1992, Decherney described endometriosis as endometrial tissue that sheds and becomes attached to extra-uterine sites. In the year of 2003, Farquhar described an identical theory that the tissue of endometrial inner lining of the uterine wall moved outside the uterine cavity such as in the pelvis, ovaries, peritoneum, uterosacral ligaments, pouch of Douglas and recto-vaginal septum (Farquhar, 2003).

Our modern-day understanding of endometriosis began with Sampson and Farquhar; both theories describe menstrual backflow through the fallopian tubes containing endometrial cells that are then transplanted to ectopic sites (Sampson, 2002) and endometrial fragments desquamated during menstruation and deposited into the peritoneal cavity, where they implant, proliferate, and develop into endometriotic lesions (Farquhar, 2003). Despite the theories of Sampson and Farquhar, there is no single mechanism that can fully explain the cause of endometriosis. However, numerous lines of evidence support Sampson's theory of retrograde menstruation and implantation of viable endometrial tissue as the primary mechanism involved

in the pathogenesis of endometriosis. Another major theory of the pathogenesis of endometriosis is the spontaneous metaplastic change in mesothelial cells derive from the coelomic epithelium (located in the peritoneum and the pleura). Sampson describes, “Due to some specific irritation present in the cyst contents which stimulates the peritoneal endothelium to a metplasia with the development of endometrial tissue typical both structure and function.” A number of observations suggest that, at least in some cases, endometriosis results from spontaneous or induced coelomic metaplasia.

“The endometriosis remains an enigma. Despite the many years elapsing since its description by Sampson, it continues to defy research aimed at uncovering its etiology and the corresponding rational management that would result” (Ling, 1999). Ling in the year of 1999, describes that endometriosis is a manifestation of a more basic underlying disorder; it may not be a disease, but instead the result of a disease. “The further technological developments may be necessary in order to fully understand the cause and problem” (Ling, 1999).

### **Etiology of Endometriosis**

There a number of theories regarding the etiology of endometriosis. The major theories from current literature will be explicated in this section.

Retrograde menstrual is one of the most often cited causes of endometriosis. Endometriosis is the result of retrograde menstrual flow. When a woman is having her menstrual flow, she may be having retrograde menstrual flow; however, not all women with this difficulty have endometriosis (Sampson, 1927). Sampson, D’Hooghe and Farquhar, all suggested that the primary mechanism of endometriosis involves retrograde menstruation and implantation of the endometrial tissue to ectopic sites, which is now a widely accepted theory.

It also has been suggested that endometriosis might result from an inheritable immunodeficiency state (Babaknia, 1993). Gleicher & Pratt, in the year 1993, also describe endometriosis as being involved with immunologic abnormality. A similar theory of an immunological inflammatory etiology has been conjectured, as demonstrated by increased concentrations of activated macrophages, cytokines, T cells and B cells in endometriosis (D'Hooghe et al., 2003). Impaired immune response resulting in ineffective removal of refluxed menstrual debris may be a causation factor in the development of the disease of endometriosis. Macrophages defend a host by recognition, phagocytosis and destruction of offending microorganisms; they also serve as scavengers, helping to clear apoptotic cells and cellular debris. Macrophages are a normal inhabitant of the peritoneal fluid and their numbers and activity are much increased in women with endometriosis (Speroff, 2005); (Olive, 1985). Natural killer cells have receptors of immunoglobulin G (IgG) and kill IgG-bound cells in a process known as antibody-dependent cellular cytotoxicity. Natural killer cells also have killer activating and killer inhibitory receptors direct or inhibit cytotoxic activity. One of the mechanisms responsible appears to involve over expression of killer inhibitory receptors in both peripheral and peritoneal natural killer cells in women with endometriosis (Maeda, et al, 2002).

Sexual intercourse during the menstrual cycle increases the risk of endometriosis. Intercourse during menses might increase tubal activity and increase the backflow of the menstrual cycle through the tubes, and thus increase the risk of endometriosis (Babaknia, 1980). Elizabeth Ohm describes that sexual intercourse during menses might result in endometrial tissue that sheds and moves through a man's open orifice of the penis, becoming attached to the urinary bladder or abdominal wall in the man, resulting in a severe headache in the man (Elizabeth Ohm, 2005, unpublished note).

Endometriosis and Antinuclear Antibodies (ANA) in the blood of women without clinical symptoms of autoimmune disease is described. ANA in the title of 1:40 and more was detected in 63% women with endometriosis, 70.4% women with idiopathic infertility, 3.3% of women with hypothalamic-pituitary dysfunction, and 5.6% of healthy non-pregnant women (Malinowski et al., 1995).

The predisposition to endometriosis may be carried in the genes of certain families. (Kao et al., 2002) in the Department of Gynecology and Obstetrics at Stanford University researched global gene profiling in human endometrium during the window of implantation. They reported that the numerous genes and gene families are not heretofore recognized in human endometrium or associated with the implantation process (Kao et al., 2002). Endometriosis is six to seven times more prevalent among the first degree relatives of affected women than in the general population (Simpson et al., 1980). Endometriosis may also be inherently abnormal in ways that predispose to ectopic implantation and propagation or may result from genetic errors, making some women more likely than others to develop the condition. If researchers can find a specific gene or genes related to endometriosis, genetic testing might allow healthcare providers to detect endometriosis much earlier, or even prevent it from happening at all (Dharmananda et al., 2005). Researchers are studying the role of the immune system in either stimulating, or reacting to endometriosis.

The estrogen hormone, which is involved in the female reproductive cycle, promotes the growth of endometriosis. There is substantial evidence that both estrogen production and metabolism are altered in endometriosis in ways that promote the disease (Gurates, 2003; Zeitoun, 1999). The estrogen and estradiol are inter converted by the actions of 17 beta-hydroxysteroid dehydrogenase (17 BHSD), which exists in two forms: type 1 converts estrone to

estradiol (the more potent estrogen) and 17 BHS type 2 converted by a separate gene that catalyzes the reverse reaction. Abnormal aromatase activity further stimulated by local estrogen-induced PGE<sub>2</sub> production, normal 17B HSD type 1 expression, and absent 17 B HSD type 2 activity due to absent PR(progesterone receptor)-B expression combine to yield increased local estrogen concentrations that can help to establish and promote the disease of endometriosis (Halme, et al., 1983).

Endometriosis may be developed based on immune factors, such as impaired immune recognition and clearance of ectopic endometrial cells, inflammatory activity in peritoneal fluid, and formation of auto-antibodies. Or, it may be influenced by the quantity and quality of endometrial cells in the peritoneal fluid. Patients with endometriosis may have various biological active factors. For example, a concentration of tumor necrosis (the death of a tissue or of an organ) factor alpha (TNF-alpha) and interleukin-6 (IL-6) in peritoneal fluids from the patient were significantly higher than that of patients with endometriosis. Increased levels of IL-6 in the peritoneal fluid of patients with active red endometriosis might be related to endometriosis-associated infertility (Iwabe et al., 2002). Alternatively, a woman's immune system may not remove the menstrual fluid in the pelvic cavity properly, or the chemicals made by areas of endometriosis may irritate or promote growth of more areas. Endometriosis is described as a disease of the endocrine system, the body's glands, hormones, and other secretions (Kitawaki, 2002). Lymphocytes mediate the acquired immune response; the two types of T-cells: cytotoxic/suppressor T-cells (involved in the cellular immune response) and T-cells (involved in the humoral immune response) are increased in the peritoneal fluid of women with endometriosis and stroma of ectopic endometrium (Hill, 1988).

Cytokine and growth factors are a large family of soluble proteins and glycoproteins secreted by leukocytes and other cells into the extracellular environment where they act on the same or nearby cells. Cytokine and growth factors promote implantation and growth of ectopic endometrium by facilitating its attachment to the peritoneal surface and the stimulating proliferation and angiogenesis. Interleukin-1 is a cytokine involved in inflammatory and immune responses and is secreted by activated monocytes and macrophages, interleukin-1 promote the development of endometriosis by stimulating the release of angiogenic factors (interleukin-6, interleukin-8) and helping endometrial cells that enter the peritoneal cavity (Arici et al., 1996).

Apoptosis plays a critical role in maintaining tissue homeostasis and represents a normal function to eliminate excess or dysfunctional cells (Harada et al., 2004). Accumulated evidence suggests that apoptosis helps to maintain cellular homeostasis during the menstrual cycle by eliminating senescent cells from the functional layer of the uterine endometrium during the late secretory and menstrual phase of the cycle. The resistance to apoptosis can improve the survival of endometrial cells entering the peritoneal cavity and also help to explain why ectopic endometrium is resistant to macrophage-mediated immune surveillance and clearance (Speroff, 2005). Ectopic endometrium from women with endometriosis reportedly has some fundamental differences compared with normal endometrium from women without endometriosis. The differences could contribute to the survival of regurgitating endometrial cells into the peritoneal cavity and the development of endometriosis. One mechanism that recently gained much interest is the finding that apoptosis appeared in ectopic and ectopic endometrium of patients with endometriosis (Harada et al., 2004). Another hypothesis proposes that the bloodstream carries endometrial cells to other sites in the body and a faulty immune response also may contribute to the development of endometriosis (Speroff, 2005).

Other research focuses on determining whether environmental agents, such as exposure to man-made chemicals, cause endometriosis. Additional research is trying to understand what factors, if any, influence the course of the disease. Shriver (2006), states that we don't yet have answers as to the causes of endometriosis.

Protein expression of ectopic endometriums from women with and without endometriosis has been studied (Rai et al., 2010). The proteomic analysis revealed molecular dysregulation of more than 70 proteins in the proliferative phase of the ectopic endometrium in stage IV and the secretory phase of stage II, III, and IV endometriosis. Immunoblot and immune histochemical analyses confirmed the observed changes in eight representative proteins (Rai et al., 2010).

In summary, there are many factors of endometriosis discussed since the work of Sampson (1927) and D'Hooghe et al. (2003), but the cause of endometriosis still remains uncertain. It is possible that many factors are involved in the development of endometriosis.

### **Prevalence of Endometriosis**

Dharmananda estimated that at least 5 million women in the U.S. alone have a symptomatic manifestation of endometriosis, and the worldwide level may be about 100 million. During laparoscopic evaluations of American women with a variety of gynecological disorders (mainly pain and infertility), it has been found that up to 40% have one or more endometrial cysts. It appears that the incidence of endometriosis is rapidly increasing and that doctors are more frequently taking the steps to diagnose it (Dharmananda, 2002).

In 1987 Verkauf estimated 70-80% of woman with chronic pain have endometriosis pain (Ling FW, 1999). Among the 70-80%, 38% are infertile (Verkauf, 1987). It is estimated that more than 10 million women in the United States have endometriosis. Annual healthcare costs

and costs of productivity loss associated with endometriosis in the U.S. were estimated at \$22 billion in 2002 (Ballweg, 2004). Dharmananda estimated that at least 5 million women in the U.S. alone have a symptomatic manifestation of endometriosis, and the worldwide level may be about 100 million. During laparoscopic evaluations of U.S. women with a variety of gynecological disorders (mainly pain and infertility) it has been found that up to 40% have one or more endometrial cysts (Dharmananda, 2002).

Endometriosis is more prevalent in women who have a regular cycle than in women who have an irregular cycle. Another interesting characteristic is that patients with endometriosis have a shorter interval between their periods (less than 27 days). Severe menstrual cramps are also seen much more frequently in women with endometriosis (Babaknia, 1988).

The prevalence of endometriosis among asymptomatic women ranges from two percent to 22%, while in women with dysmenorrhea, the incidence of endometriosis is 40% to 60% (Farquhar, 2003). Approximately ten percent of women of reproductive age in the U.S. are diagnosed with endometriosis (Wheeler, 1989).

Endometriosis affects an estimated one in ten women during their reproductive years (the years between starting their first menstrual period and reaching menopause). Infertility occurs in about 30 to 40% of women with endometriosis. Endometriosis contributes to 400,000 hysterectomies per year. A woman with a sister or mother with endometriosis is six times more likely to develop endometriosis than is a woman without this family history (Ballweg, 2004).

Endometriosis has been reported only in the reproductive ages, which means right after the start of the menstrual cycle until menopause or the immediate post-menopausal years. Practitioners believe that ovarian function is necessary for the development and maintenance of endometrial implants. The disease is normally not seen before age 15 or after menopause. In

recent years, practitioners have seen more patients with endometriosis below the age of 20 (Cao, 2002).

The chance of having endometriosis is four times greater in patients with severe menstrual cramps, as compared to women with mild menstrual cramps (Cao, 2002). In a recent study of 140 patients aged 10.5 years to 19 years who were complaining of severe pelvic pain, 47 percent had documented endometriosis at laparoscopy as the sole reason for their pelvic pain (Cao, 2002). Furthermore, patients with a prolonged menstrual flow are apt to have endometriosis. It also has been found that the risk of developing endometriosis is 2.5 times greater for women whose menstrual flow is longer than a week than for women who have a menstrual flow lasting less than a week (Cao, 2002). It has been suggested that the total bulk of endometrial cells cast into the peritoneal cavity may be a factor. Women with a greater number of menstrual days (a factor of days of flow and cycle interval) had twice the risk of developing endometriosis (Babaknia, 1988).

### **Symptoms (Clinical Manifestations) of Endometriosis**

The clinical symptoms of endometriosis are variable and unpredictable in both presentation and course. The most common symptom of endometriosis is pelvic pain, which occurs in 13% to 33% of women with infertility (D'Hooghe et al., 2003). The pain may be felt before, during, or after menstruation, during ovulation, in the bowel during menstruation, when passing urine, during or after sexual intercourse, and/or in the lower back region. Other symptoms may include diarrhea or constipation in connection with menstruation, abdominal bloating, heavy or irregular bleeding, and/or fatigue. The pain associated with endometriosis has been attributed to 3 primary mechanisms: the first, the action of inflammatory cytokines in the

peritoneal cavity, the second, the direct and indirect effects of focal bleeding from endometriotic implants, and the third is irritation or direct infiltration of nerves in the pelvic floor (Speroff, 2005). The other well-known symptom associated with endometriosis is infertility (Farquhar, 2007; Ling, 1999; Maars, 1991). It is estimated that 30-40% of women with endometriosis are sub-fertile. A significant number of women with endometriosis remain asymptomatic (Farquhar, 2003). The infertility associated with endometriosis has been attributed to 3 primary mechanisms; the first is distorted adnexal anatomy that inhibits or prevents ovum capture after ovulation, the second is interference with oocyte development of early embryogenesis, and the third is reduced endometrial receptivity (Speroff, 2005).

Endometriosis is often experienced as pelvic pain during ovulation, a sharp pain deep in the pelvis during intercourse, or pain during bowel movements or urination. A woman may experience occasional heavy periods (menorrhagia) or bleeding between periods (Farquhar, 2003). Severity of pain isn't necessarily a reliable indicator of the extent of the condition. Some women with mild endometriosis have intense pain, while others with more severe scarring may have little pain or even no pain at all (Kerrigan, 2008).

### **Endometriosis Complications**

The main complication of endometriosis is impaired fertility. Approximately one-third to one-half of women who have endometriosis is difficulty getting pregnant. The longer a woman has endometriosis, the greater her chance of becoming infertile (D'Hooghe et al., 2003).

Endometriosis can produce adhesions that can trap the egg near the ovary. It may inhibit the mobility of the fallopian tube and impair its ability to pick up the egg. In most cases, however, endometriosis very likely interferes with conception in more complex ways (Marrs, 1991).

Despite these possible complications, many women with endometriosis are still able to conceive. It may take them a little longer to get pregnant, but most women with mild to moderate endometriosis can become pregnant. During pregnancy, most women have no signs or symptoms of endometriosis.

### **Classification of Endometriosis**

The stages are classified according to the following: Stage 1 is minimal, Stage 2 is mild, Stage 3 is moderate and Stage 4 is severe endometriosis. The stage of endometriosis is based on the location, amount, depth and size of the endometrial implants. Such criteria include: the extent of the spread of the implants, the involvement of pelvic structures in the disease, the extent of pelvic adhesions and the blockage of the fallopian tubes

The American Society for Reproductive Medicine (ASRM) classification, which is the most commonly used system, was revised for the third time in 1996 (See Appendix B), however, it still has limitations (Mattler et al., 2003). The value of the ASRM revised system is in uniform recording of operative findings and perhaps in being able to compare the results of various therapy approaches.

### **Tests and Diagnosis of Endometriosis**

- **Biopsy.** A procedure in which tissue samples are removed (with a needle or during surgery) from the body (often during a laparoscopy) for examination under a microscope, to determine if cancer or other abnormal cells are present.

- **Computed tomography (CT scan).** A non-invasive procedure that takes cross-sectional images of internal organs; to detect any abnormalities that may not show up on an ordinary X-ray.
- **Magnetic resonance imaging (MRI).** A non-invasive procedure that produces a two-dimensional view of an internal organ or structure.
- **Ultrasound.** A diagnostic imaging technique which uses high-frequency sound waves to create an image of the internal organs.

To diagnose endometriosis and other conditions that can cause pelvic pain, the patient needs to describe the symptoms, including the location of pain and when it occurs. The following section summarizes tests which check for physical clues of endometriosis. A pelvic exam can be used. However, it often is not possible to feel small areas of endometrial implantation, unless they have caused a cyst to form. An ultrasound is a useful tool for identifying cysts associated with endometriosis (Mayoclinic.com, May 30, 2009). However, ultrasound imaging won't definitively signify whether or not one has endometriosis.

The only way to identify, for certain, that a patient has endometriosis is to look inside her abdomen (direct visualization) for signs of endometrial tissue. This is accomplished during a laparoscopy, which is a minor surgical procedure. For several decades laparoscopy has been the gold standard for the diagnosis of endometriosis (Brosens, I.A. & Brosens, J.J., 2000). A definite diagnosis of endometriosis only can be made through histology of lesions removed at surgery. Neither serum makers nor imaging studies have been able to supplant diagnostic laparoscopy for the diagnosis of endometriosis.

*Cancer antigen 125 (CA-125)* is another blood test often used to detect tumor markers for certain cancers, but it's also used to detect a certain protein found in the blood of women with

endometriosis. *CA-125* commonly reveals an elevation in such blood protein in women with advanced endometriosis. In one study, the sensitivity and specificity of serum *CA-125* for the diagnosis of endometriosis were 61.1% and 87.5%, respectively. Elevated *CA-125* (>35 U/ml) was noted in 65 out of 75 cases (86.7%) with advanced endometriosis, but in only 15 out of 56 patients (26.8%) with minimal and mild endometriosis (Chen et al., 1998).

All practitioners and researchers are not 100% certain in making a diagnosis of endometriosis. (Mattler et al., 2003; Stratton et al., 2003) stated that the definite diagnosis of endometriosis only can be made through histology of lesions removed at surgery. Neither serum makers nor imaging studies have been able to supplant diagnostic laparoscopy for the diagnosis of endometriosis.

The NICHD (National Institute Children and Human Development) researches endometriosis markers. These markers are substances made by or in response to endometriosis that healthcare providers can measure in the blood or urine. If markers are found, healthcare providers could diagnose endometriosis by testing a woman's blood or urine, which might reduce the need for surgery (Shriver, 2006).

### **Western Medical Treatment for Endometriosis**

The treatment for endometriosis may include: watchful waiting, non-steroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen or other over-the counter analgesics, hormone therapy including : Gonadotropin-releasing hormone agonist (GnRH agonist), which stops ovarian hormone production, creating a sort of "medical menopause"; danazol, a synthetic derivative of testosterone (a male hormone); oral contraceptives, with combined estrogen and

progestin (a synthetic form of progesterone) hormones, prevent ovulation and reduce menstrual flow and Progestin alone.

Surgical techniques which may be used to treat endometriosis include:

- **Hysterectomy.** Surgery to remove the uterus and possibly the ovaries.
- **Laparoscopy (also used to help diagnose endometriosis).** A minor surgical procedure in which a laparoscope, a thin tube with a lens and a light, is inserted into an incision in the abdominal wall. Using the laparoscope to see into the pelvic area, the physician can often remove the endometrial growth.
- **Laparotomy.** A more extensive surgery to remove as much of the displaced endometrium as possible without damaging healthy tissue.

The treatment of endometriosis depends on the severity of a patient's signs and symptoms, as well as on whether there is hope to become pregnant. Most women take over-the-counter pain relievers, such as ibuprofen (e.g., Advil and Motrin) to help ease painful menstrual cramps. Some patients receive steroid treatment because endometriosis is a chronic inflammatory condition (Vercellini et al., 2009). Hormonal contraceptives, such as birth control pills, patches, and the vaginal ring help control the hormones responsible for the buildup of endometrial tissue each month. The action of these drugs prevents menstruation and lower estrogen level, causing endometrial implants shrink. These drugs create a side effect of menopause hot flushes and vaginal dryness. They can force endometriosis into remission during the time of treatment and sometimes for months or years afterward.

Danazol is a drug that blocks the production of ovarian-stimulating hormones, preventing menstruation and the symptoms of endometriosis. It suppresses the growth of the endometrium. However, danazol causes unwanted side effects, such as acne and facial hair.

Medroxyprogesterone (Depo-Provera) is an injectable drug that relieves the signs and symptoms of endometriosis by halting menstruation and the growth of endometrial implants. Its side effects are weight gain, decreased bone production, and depressed mood.

Aromatase inhibitors, known for their effectiveness in treating breast cancer, are also useful in treating endometriosis. Aromatase inhibitors work by blocking the conversion of hormones such as androstenedione and testosterone into estrogen and by blocking the production of estrogen from endometrial implants themselves. This deprives endometriosis of the estrogen it needs to grow. Early studies suggest that aromatase inhibitors are at least as good as other hormonal approaches and may be better tolerated (Mayoclinic.com May, 2009).

Hormonal therapies aren't a permanent fix for endometriosis. It's possible that women could experience a recurrence of symptoms after stopping treatment. Medical suppressive therapies, such as oral contraceptives (OCs) or gonadotropin-releasing hormone (GnRH) agonists are ineffective in the long run, according to a 2007 Cochrane review (Huges et al., 2007). Drug therapy for endometriosis is often unsatisfactory.

### **Advanced Research Regarding the Treatment of Endometriosis**

Combining an oral contraceptive pill, oral or depot medroxyprogesterone acetate, and the levonorgestrel intrauterine system is as effective as the gonadotrophin releasing hormone (GnRH) analogues (Farquhar, 2007; Wheeler, 1989). Both continuous progestagens and anti-progestagens are effective therapies in the treatment of painful symptoms associated with endometriosis (Prentice, 2000).

Gonadotrophin-releasing hormone analogues, danazol, and gestrinone should be used when progestins and oral contraceptives fail, are not tolerated, or are contra-indicated (Vercellini

et al., 2009). Medical treatment of endometriosis relies on drugs that suppress ovarian steroids and induce a hypoestrogenic state that causes atrophy of ectopic endometrium. Gonadotrophin-releasing hormone (GnRH) analogues, danazol, progestogens, and oestrogen-progestin combinations have all proven effective in relieving pain and reducing the extent of endometriotic implants (Fedele & Berlanda, 2004).

The efficacy of most of these methods in reducing endometriosis-associated pain is well established. The choice of which to use depends largely on patient preference after an appropriate discussion of risks, side effects, and cost. Typically, oral contraceptives and NSAIDs are first-line therapy because of their low cost and mild side effects. Because of its greater potential for suppressing endometrial development, consideration should be given to prescribing a low-dose monophasic oral contraceptive continuously. If adequate relief is not obtained or if side effects prove intolerable, consideration should be given to the use of progestins (oral, intramuscular, or IUD) or a GnRH agonist with immediate add-back therapy (Mahutte & Arici, 2003).

Endometriosis can be treated through surgery as well. The following sections summarize the most commonly used surgical interventions for endometriosis. For minimal or mild endometriosis, surgical ablation using laparoscopic laser treatment, bipolar coagulation of endometriotic deposits, or excision of the deposits has been shown to be more effective than expectant management ([www.MayoClinic.com](http://www.MayoClinic.com), 2009). Laparoscopic surgery is a conservative surgery for endometriosis. A laser, small surgical instruments, or a cautery that destroys tissue with heat is used. In severe cases of endometriosis, a total hysterectomy and the removal of both ovaries may be the best treatment. Either type of surgery is typically considered a last resort, especially for women still in their reproductive years.

### **Western Medicine's Success in Treating Endometriosis**

Studies on Western medical treatment for endometriosis reveal that drug therapy is often unsatisfactory. Most of the current drug therapy is aimed at altering the hormones—for example, by giving the testosterone derivatives danazol or methyl testosterone, giving progesterone and related progestogens, or using Buserelin, Goserelin, Lupron, or other Gn-RH antagonists (that cause ovarian inhibition). One can also use analgesics that block prostaglandins to relieve severe dysmenorrhea. Surgical removal or aspiration of endometrial cysts usually provides only temporary benefits and may cause secondary problems, including persistent abdominal pain due to adhesions. Therefore, alternative treatments are of interest to those who suffer from endometriosis. The experience of Chinese doctors is instructive, as Chinese medical treatments have been reported to be highly successful and several of them can be obtained in the West (Flower et al., 1980). Therefore, the traditional Chinese medical perspective will be described next.

### **Endometriosis from a Traditional Chinese Medicine Perspective**

Traditional Chinese Medicine does not recognize endometriosis as a disease, but instead as symptoms. It is referred to as menstrual pain due to accumulation of menstrual blood in the lower abdominal cavity (Classic *Fu Ren Kyu Pang*). The primary pattern, or mechanism, that causes endometriosis is blood stasis. Blood stasis can be caused by emotional disturbance, chronic illness, exposure to cold temperatures, surgery, and genital infections. When the pattern of disease is blood stasis, the objective of the treatment is to invigorate blood and remove stasis, using both acupuncture and Chinese herbal medicine. In addition to blood stasis, there are often other disease-causing factors which are part of the patterns of endometriosis. Cold, heat,

deficiency, or excess patterns are frequently part of the mix, and are differentiated based on the clinical manifestations associated with each case of endometriosis. In the Classic *Fu Ren Kyu Pang*, endometriosis is referred to as menstrual pain due to accumulation of menstrual blood in the lower abdominal cavity (Classic *Fu Ren Kyu Pang*). This early theory is not so different from the Western understanding of endometriosis by Sampson (1927) and D'Hooghe et al. (2003); both suggest the widely accepted theory that the primary mechanism of endometriosis is involved from retrograde menstruation and implantation of the endometrial tissue in ectopic sites.

Traditional Chinese Medicine classifies endometriosis into unique categories of stagnation and obstruction: Qi Stagnation and Blood Stasis, Qi Deficiency and Blood Stasis, Heat Obstruction and Blood Stasis, Cold Retention and Blood Stasis, Kidney Deficiency and Blood Stasis. Endometriosis is also known one of abdominal Masses are called Ji, Ju (Zheng Jia). The term appears in the *Classic of Difficulties*, which clearly distinguishes two types:

1. Ji (Zheng): Ji (Zheng) indicates actual abdominal masses which are immovable because it arises from a Yin organ, is associated with pain, its location is fixed and the masses are due to blood stagnation. It is stated in *The Golden Cabinet* by Zhang Zhong Jing, “Ji masses arise from the Yin organs and they cannot be removed” (Maciocia, 2004).
2. Ju (Jia): Ju (Jia) indicates abdominal masses which come and go, do not have a fixed location and are movable. If there is an associated pain, it comes and goes and changes location. Such masses are due to stagnation of qi, and they are easier to treat (Fu Ren Kyu Bang; Maciocia, 2004). Another name for abdominal masses is Zheng Jia. Zheng is equivalent to Ji, while Jia represents Ju. The terms Zheng Jia and Ji Ju are used when referring to abdominal masses in woman, but they do occur in men, as well. It is stated in

the Simple Questions in Chapter 60 of *Huang Di Nei Jing Classics* that Ji Ju refers to non-substantial masses from qi stagnation.

3. Emotional dispositions, such as anger, repression or frustration, cause the formation of abdominal masses due to liver qi stagnation, leading to stasis of liver blood. Liver blood circulates and nourishes a woman's genital area and uterus. Any interruption of the free flow of liver qi eventually causes blood stasis in the uterus (Maciocia, 2004).
4. The excessive ingestion of raw foods may lead to the formation of cold in the lower abdomen. Cold nature interferes with the circulation of qi and, especially, blood; it may lead to stasis of blood (Maciocia, 2004).
5. Eating greasy foods excessively impairs the spleen and may lead to the formation of dampness and phlegm lodged in the lower abdomen and creating abdominal masses. The interaction between phlegm retention and stasis of blood may lead to or aggravate the other (Maciocia, 2004).
6. Cold invades the lower abdomen and impairs the circulation of blood leading to stasis of blood. Ji masses are due to Cold (The Spiritual Axis Chapter 66). Dampness may invade the channels of the legs and then creep up them to settle in the lower abdomen, and later on transforms into phlegm and may cause abdominal masses (Maciocia, 2004). The pathology of endometriosis is characterized by stagnation of qi or stasis of blood. The qi stagnation being non-substantial and the blood stagnation is substantial masses. In addition to stagnation, there may also be phlegm. Masses from phlegm feel soft on palpation and have a fixed location without pain. Additionally, blood stagnation may cause blood stasis and become hard and fixed with or without pain (Maciocia, 2004).

Western medical doctors may recommend surgical removal or aspiration of endometrial cysts, which usually provides only temporary benefits and may cause secondary problems, including persistent abdominal pain due to adhesions. Therefore, alternative treatments are of interest to those who suffer from endometriosis. The experience of Chinese doctors is instructive, as Chinese medical treatments have been reported to be highly successful and several of them can be obtained in the West (Flower et al., 2009).

### **Treatment of Endometriosis in Traditional Chinese Medicine**

In 1980, researchers at the Obstetrics and Gynecology Hospital in China published the first report of a large-scale clinical trial of Chinese herbs for endometriosis (Shao et al., 1980). The 156 patients were divided into three groups according to syndrome, and given one of three possible treatments:

Group one was given a combination of sparganium, zedoaria, gleditsia spine, cyperus, bupleurum, tang-kuei, bulrush (typha), and pteropus in decoction, plus an “endometriosis powder” made with earthworm, tabanus, centipede, and leech. Bulrush and pteropus together represent an ancient two herb combination widely used for treating severe abdominal pain; the Chinese name for the combination means “the formula for returning the smile.” Sparganium and zedoaria is a modern combination given for the treatment of lumps due to blood stasis; the pair is commonly found in tumor formulas. Bupleurum, cyperus, and tang-kuei are traditionally used to treat blood stasis that is caused by an underlying syndrome of qi stagnation, that is, a disorder in the circulation usually caused by emotional factors. Gleditsia spine is used to treat swellings. The insects and leech in the endometriosis powder disperse stagnant blood and relieve pain. In all,

this is a very logical combination if one applies the traditional thinking about disease treatment with the modern knowledge that endometriosis involves abdominal cysts.

Group two was given a similar combination, but the bupleurum, cyperus, and tang-kuei were replaced by codonopsis, astragalus, and cimicifuga. These three ingredients treat a condition known as “sinking qi,” secondary to qi deficiency, which often produces symptoms of distended pain in the lower abdomen, and sometimes manifests as prolapse of the organs. In both of these groups, the formula would be modified further with additions or deletions according to specific symptoms.

Group three received an intravenous drip of salvia extract daily. This rather inconvenient therapy delivers an extract of an herb currently used for normalizing blood circulation. Intravenous salvia extract is used for several other diseases, notably cardiovascular diseases and hepatitis, both of which involve blood circulation disorders. The individuals in this treatment group would usually also receive some herbs in decoction. Each of the groups received the treatment for two to three menstrual cycles. In this study 128 of the women (82%) had their symptoms mostly or entirely alleviated, while 28 of the women (18%) had either no effect or the benefits of the treatment were lost soon after stopping use of the herbs. Considerable laboratory analysis was also done, investigating the condition of the blood contents before and after treatment and in different phases of the menstrual cycle, but while the results were suggestive, not enough of the women were analyzed by these means to draw firm conclusions (Shao et al., 1980).

### **Formulas for Treatment of Endometriosis in Chinese Medicine**

Tao Hong Si Wu Tang is a renowned blood stasis-relieving formula. Four-Substance Decoction with Safflower and Persica Seed is used to treat blood deficiency and blood stasis.

The origin of this pattern is either a constitutional weakness, or a history of surgical procedures. The traditional prescription can be “updated” for the treatment of endometriosis but more often uses for the short menstrual cycle (Bensky, 2005).

Ge Xia Zhu Yu Tang, which translates to *Driving Out Blood Stasis Below the Diaphragm Decoction*, is a stagnation/stasis-relieving formula. It is a formula from the famous physician Wang Qing Ren, who practiced in the latter part of the 19<sup>th</sup> century and expounded upon the theory of blood stasis for the treatment of endometriosis. The traditional prescription can be “updated” for the treatment of endometriosis, but is more frequently used for fullness and distension in the epigastric region (Bensky, 2005).

Xue Fu Zhu Yu Tang is a formula from the famous physician Wang Qing Ren, and pertains to the theory of heat obstruction and blood stasis for the treatment of endometriosis. The theory is that qi stagnation occurs first, followed by stagnation of blood. This traditional prescription can be “updated” for the treatment of endometriosis (Bensky, 2005). Modern day use of this formula is for cardiovascular diseases.

Shao Fu Zhu Yu Tang is another formula by Wang Qing Ren, developed in the latter part of the 19<sup>th</sup> century. Shao Fu Zhu Yu Tang, which translates to *The Decoction for Driving Out Blood Stasis from the Lower Abdomen*, is used when a blood stagnation syndrome, such as endometriosis, is caused by a cold syndrome, which may be caused by environmental factors or diet (Bensky, 2005). Shao Fu Zhu Yu Tang was used for 60 endometriosis patients; the result showed 97.5 % improvement (Cao et al, 1983; Lin et al, 1988).

Tao Ren Cheng Qi Tang is a formulation for treating acute abdominal pain based on the purgative and blood vitalizing herbs. This formula is used for conditions in which a heat syndrome causes the blood to escape and cause obstruction. The author of this analysis cited

treating a woman with a diagnosis of endometriosis, or “nodules on the posterior uterine wall,” with this formula; after three months the woman was relieved of symptoms and became pregnant (Bensky, 2005).

Another formula often used in the treatment of endometriosis, Dai Deying, was studied in 1982 at the Shanghai College of Traditional Chinese Medicine. The basic formula for patients with endometriosis having dysmenorrhea was bupleurum, red peony, moutan, salvia, corydalis, melia, cyperus, saussurea, patrinia, prunella, rubus, oyster shell, bulrush, and pteropus. They studied 30 cases of endometriosis, and found the effective rate was given as 80%, almost identical to that claimed (82%) in the earlier study (Dharmananda, 2002).

Nei Yi Fang (Endometriosis Formula) was used with 43 cases of endometriosis in Shanghai, by workers at the First People’s Hospital and at the Hangkou District Hospital. The formulas were modified according to specific symptoms that were present. The effectiveness rate was 88%, with four of the women getting pregnant (Cao et al, 1982).

Shixiao Guijie Tang is a further formulation cited in the literature as an herbal treatment for endometriosis. Chaozhou Hospital issued a report in 1990 on treatment of 30 women with endometriosis, using Shixiao Guijie Tang, which is composed primarily of bulrush, pteropus, calamus gum, san-chi, and tang-kuei. This formula contains none of the qi-regulating herbs or kidney tonic herbs, but includes only the blood-vitalizing therapies. It was reported that 12 cases were cured, 16 cases showed improvement, and two cases did not respond. This treatment had a high “cure” rate (40%) and effective rate (93%) (Itmonline.org). The herb functions as an auto-immune-suppressive anti-inflammatory.

In review of the endometriosis work by Tang (1990) with excerpts published in the *International Journal of Oriental Medicine* in 1992, the formula of tripterygium had been used in

treating endometriosis, with an effective rate of 80%. It functions as an immune-suppressive anti-inflammatory, acting much like prednisone. Its success suggests that the autoimmune hypothesis for endometriosis is correct. The herb formula was able to “thin the blood” reducing the abnormally high viscosity and RBC electrophoretic time. It acts to reduce excess populations of immunoglobulins, C3 (complement protein), and T8 cells in peripheral blood. (Dharmananda, 2009)

The Shanghai College of Traditional Chinese Medicine affiliated hospital reported in 1991 an apparently successful treatment for endometriosis with the use of Neiyi Wan #1 (Endometriosis pill) three herbs, using turtle shell, vinegar-treated rhubarb, and succinum. The study involved 76 cases of endometriosis, with 61 “effectively treated,” a rate of 80%.

### **Continuing Efforts**

Along similar lines, workers at the Xuzhou Medical College (21) gave endometriosis patients a basic formula of aconite, evodia, fennel, dipsacus, dioscorea, tang-kuei, saliva, corydalis, cnidium, and persica. This formulation would be modified for various syndromes, including the use of epimedium and cinnamon bark for kidney yang deficiency, rehmannia and ligustrum for kidney yin deficiency, pteropus and bulrush for pain. Of 54 women treated by this method, 25 were reported cured, and 26 others showed improvement, with a total effective rate of 94%.

A report from the Heilongjiang College of Traditional Chinese Medicine affiliated hospital in Harbin in 1992, once again showed that blood-vitalizing herbs were the key ingredient. The study involved 64 patients who were treated with a decoction of salvia, pteropus, sparganium, zedoaria, cyperus, corydalis, and loranthus. Modifications were made as deemed

necessary, and treatment was generally continued for two to three menstrual cycles, without interruption. It was reported that 18 were cured (28%), 26 markedly improved, 16 patients improved, and 4 did not respond. Blood and plasma viscosity levels and red blood cell electrophoretic time were noted to be high in women with endometriosis before treatment compared to normal values, and these were reduced to near normal levels after treatment (Dharmananda, 2009).

English language information about Chinese medical treatment of endometriosis first appeared in 1983, and there have been reports in journals and books appearing regularly since about 1988. The Institute for Traditional Medicine has mentioned this literature and received reports about the experience of treating endometriosis patients in the early 1990's. The two endometriosis studies were organized by Arthur Shattuck, an acupuncturist and herb specialist.

In the first study (1992), 17 patients participated, all had endometriosis confirmed by laparoscopy, and the total effective rate was 75%. Neiyi Wan #1 was produced in tablet form (Turtle Shell Tablets, Seven Forests) for evaluation in the United States in 1993. Initial reports from ITM's An Hao Natural Health Care Clinic in Portland, Oregon were favorable. Arthur Shattuck initiated a treatment program involving four sites in 1993 (two in Wisconsin and two in Illinois), using the Linderia 15 and Corydalis 5, plus Turtle Shell Tablets in some patients, 14 clients under care all described a decrease in symptoms during the initial treatment period. He found that many people discontinued treatment after getting some relief, so that while the benefits were obvious, the full research project was not completed (Dharmananda, 2009).

In review of Western Medicine theories about the causation of endometriosis, as indicated in the articles summarized prior, theories include: the involvement of hormones, the immune system of the body, inherited immune deficiency, menstrual blood containing

endometrial cells flowing back through the fallopian tubes, apoptosis which helps maintain cellular homeostasis during the menstrual cycle, protein expression, sexual intercourse during menstrual period, immunologic abnormalities and antinuclear antibodies (ANA) in the blood of women.

In Traditional Chinese Medicine, endometriosis is not recognized as a disease; it is a symptom, referred to as menstrual pain due to accumulation of menstrual blood in the lower abdominal cavity (Classic *Fu Ren Kyu Pang*). The endometriosis theories include: the involvement of blood stasis, blood stagnation, qi stagnations, phlegm damp accumulation. The definitive cause of endometriosis remains uncertain in Western Medicine, but Traditional Chinese Medicine theory recognizes endometriosis not as a disease, but as symptoms referred and linked to *Tong Jing* (painful menstruation). That is Zhang Zhong Jing's theory of "menstrual blood accumulation in the lower abdomen causes blood stasis" as described in Classic *Fu Ren Kyu Bang*.

Despite the successes with and convenience of *Tao Ren Si Wu Tang*, *Ke Xia Zhu Yu Tang*, *Xue Fu Zhu Yu Tang*, *Shao Fu Zhu Yu Tang*, *Tao Ren Cheng Qi Tang* and *Nei Yin Wan*, complex formulas in decoction form continued. In part, this may reflect the discomfort that traditional practitioners have with giving patients a simple formula that is not designed for the patient's specific underlying syndrome (Dharmananda, 2009). Therefore the formula below is designed for the treatment of endometriosis, regardless of their etiology and pathology.

The prescription that I used for the last 40 years at Ohm's Clinic is formula #134 named "Qing Bao Zhu Yu Tang." I have used this formula for the treatment of endometriosis and the associated symptoms of menstrual pain, pelvic pain, infertility, complications of ovarian cysts

and others associated problems. It is the objective of this study to discern and describe the nuances of the effectiveness of “Qing Bao Zhu Yu Tang” in the treatment of endometriosis.

### **Qing Bao Zhu Yu Tang Formula**

The translated meaning of the Qing Bao Zhu Yu Tang formula is simply “Clean and Drive out Blood Stasis from Uterus.” The Qing Bao Zhu Yu Tang formula contains: Flos Lonicerae Japonic (Jin Yin Hua), Semen Coicis Lachryma-Jobi (Yi Yi Ren), Herba Cum Racice Patriniae (Bai Jiang Cao), Radix Dipsaci Asoeri (Xu Dan), Rhizoma Cyperi Rotundi(Xiang Fu Zi), Spica Pruncelle Vulgaris(Xia Ku Cao), Thallus Algae(Kun Bu), Radix Niuxi (Niu Xi), Radix Angelicae Sinensis (Dang Gui), Radix Paeoniae Rubrae(Chi Shao Yao), Rhizoma Sparagnii Stoloniferi (San Ling), Rhizoma Curcumae Ezhu (E-Zhu), Radix Ligustici Chuanxiong (Chuan Xiong), Cortex Moutan Radicis (Mu Dan Pi), Rhizoma Corydallis Yanhusuo (Yan Hu Suo), Excrementum Troglodyteri Seu Peromi(Wu Ling Zhi), Fructus Cragrantis (Shan Zha), Massa Fermentata (Shen Qu), Fructus Hordei Vulgaris Germinantus (Mai Ya), Fructus Immaturus Citri Aurantii (Zhi Ke), Radix Glycyrrhizae (Gan Cao).

The chart below describes the formula Qing Bao Zhu Yu Tang, including each herb’s function (Bensky, 2003) and pharmaceutical effect (Chen, 2004).

### **The Function and Pharmacological Effect of Herbs in Qing Bao Zhu Yu Tang**

Herb Contents (Pinyin Name)	Function of herbs	Pharmacological effect & chemical composition
Flos Lonicerae Japonic (Jin Yin Hua)	Clear heat and relieve fire toxicity, Clear damp heat	Antibacterial, inhibit bacteria, salmonella, antiviral effect
Semen Coicis Lachryma-Jobi (Yi Yi Ren)	Clear heat expels pus, clear damp heat, treats plantar warts	Effect on neoplastic cells, also effect on striated muscle, treats mayoma.

Herba Cum Racice Patriniae (Bai Jiang Cao)	Clear heat, relieves toxicity, expels pus, dispels blood stasis & stops pain	Treat mumps, suppurative abscesses, remove internal abscess & remove pain
Radix Dipsaci Asoeri (Xu Dan)	Promote blood, alleviates pain, strengthens bones, reduce swelling & abscess	Beta-sitosterol, hedragenin, uroaldehyde, urilic acid & vitamin E effects
Rhizoma Cyperi Rotundi (Xiang Fu Zi)	Regulate menstruation & alleviates pain, spread qi	Volatile oil contains estrogen like substance, beta-pinene etc
Spica Prunelle Vulgaris (Xia Ku Cao)	Clear heat & dissipates nodules, lipoma, neck lumps	Increase secretion of ACTH, Glucocorticoid, antibiotic effect, effect on lipoma.
Thallus Algae (Kun Bu)	Reduce phlegm, swelling, softens hardness, promotes urination, regulate water circulation.	Effects to cardio vascular, hypoglycemic, serum cholesterol and triglyceride. Contains algin, laminine, iron, potassium, iodine.
Radix Niuxi (Niu Xi)	Dispels blood stasis, invigorates blood, direct fire down & clear damp heat in the lower burner	Effect on uterus causes uterine dilation, cardiovascular effect by inhibit peripheral vasodilation
Radix Angelicae Sinensis (Dang Gui)	Invigorate & harmonize blood, reduce swelling, expels pus, generate flesh and alleviates pain	Relaxes uterus, anti platelet, antibiotic, phagocytic, anti- inflammatory by secretion of acetylsalicylic acid.
Radix Paeoniae Rubrae (Chi Shao Yao)	Invigorate blood, dispels blood stasis, clear liver fire, cools blood	Vasodilator effect , anti- inflammatory, antibiotic and effect on CNS from strychnine
Rhizoma Sparagnii Stoloniferi (San Ling)	Forcefully break up blood stasis, dissolve accumulation of severe abdominal pain and distension	Anti-neoplastic, inhibit aggregation of platelets and prolong thrombin time
Rhizoma Curcumae Ezhu (E-Zhu)	Break up blood stasis, remove masses, activate circulation and relieves pain.	Anti-neoplastic, antibiotic, hematological function. Treat sarcoma and cervical cancer
Radix Ligustici Chuanxiong (Chuan Xiong)	Invigorate blood and promotes the movement of qi. Remove stagnation of qi & blood stasis	Hypertonic barbiturate effect. Antibacterial, antifungal and antihypertensive effect.
Cortex Moutan Radicis (Mu Dan Pi)	Invigorate blood & cools blood. Dispels stasis, drain pus, reduces swelling, clear fire from deficiency	Inhibitory staphylococcus, bacillus. Reduce permeability of the capillaries & has hypnotic and tranquilizing effect.
Rhizoma Corydallis Yanhusuo (Yan Hu Suo)	Remove pain due to blood stasis such as menstrual pain, promotes qi and invigorate the blood	Analgesic effect as morphine of corydaline. Hypnotic sedative, acts to cortex of grey mater.
Excrementum Trogloteri Seu Peromi (Wu Ling Zhi)	Disperse blood stasis & alleviate pain, transform stasis and stops bleeding, childhood nutritional	Relieves muscle spasm of smooth muscle. Contains vitamin A, uric acid, urea, resin

	impairment with focal distention.	
Fructus Cragrantis (Shan Zha)	Remove meat stagnation from alcoholism. Transforms blood stasis and dissipate clumps. Stops diarrhea	Remove Glycoprotein, antihypertensive, antibiotic effects. Contains tartaric acid
Massa Fermentata (Shen Qu)	Reduce food stagnation of alcoholism, epigastric fullness	Gastro-intestinal effect release enzyme to facilitate digestion of starches and carbohydrate, yeast.
Fructus Hordei Vulgaris Germinantus (Mai Ya)	Reduce food stagnation & facilitate stomach qi flow, inhibit lactation	Uses for hyper lactic hormone, contains amylase, maltose, Invertase, dextrin. Treat hepatitis
Fructus Immaturus Citri Aurantii (Zhi Ke)	Relives distension, break up stagnation, resolve accumulation	Contains Naringin. Effects to cardiovascular, respiratory (synephrine), antiplatelet, and antineoplastic(nobiletin)
Radix Glycyrrhizae (Gan Cao).	Clear heat & relieves fire toxicity. Moderate spasm and alleviates pain, tonifies spleen & arguments the qi. Moistens Lung & stops coughing	Effects as Mineralocorticoid, glucocorticoid. Treat Addison's disease by excretion of 17-ketosteroids. Treat diabetes insipidus, chronic bronchial asthma, detoxifying effect.

The value of this formula is that it not only invigorates the blood and transforms stasis from the wei, qi, ying, and xue at all four levels, but it also invigorates blood without consuming it and dispels blood stasis while encouraging the generation of new blood. The formula is contraindicated during pregnancy and during excessive menstrual bleeding. The book of Nei Jing states, "If the qi circulates, then the blood will circulate."

The actions of the Qing Bao Zhu Yu Tang formula can be described as follows:

- Invigorates the blood, break up and dissolve blood stasis
- Clear heat and expel damp, pus and toxicity
- Dispels blood stasis, dissipates nodules such as lumps or nodules
- Disperses qi stagnation and regulate liver qi
- Alleviates pain

- Promote the circulation of blood
- Thins blood viscosity
- Generates new blood
- Helps digestion and dissolve glycol-protein

### **Analysis of Formula Qing Bao Zhu Yu Tang in Integration of Pharmaceutical Function**

The following provides details regarding the function of the elements of the Qing Bao Zhu Yu Tang formula, divided into six groups according to pharmaceutical functions in Western Medicine theory:

- **Group One:** Group One clears heat and expels dampness, pus, and fire toxicity. The herbs in this group are Flos Lonicerae Japonica (Jin Yin Hua), Semen Coicis Lachrymans (Yi Yi Ren), Herba Cum Radice Patriniae (Bai Jiang Cao), Radix Glycyrrhizae Uralensis (Gan Cao). These four herbs work as group, backing up the theory of an immunological inflammatory etiology has been conjectured, as demonstrated by increased concentrations of activated macrophages, cytokines, T cells and B cells in endometriosis (D' Hooghe et al., 2003) and inflammatory activity in Peritoneal Fluid (Vercellini et al., 2009) stated “endometriosis is a chronic inflammatory conditions” (Dharamanda, 2009) also mentioned the herb tripterygium (Wu Ling Zhi) had been used as an immune-suppressive anti-inflammatory, acting much like prednisone. Radix Glycyrrhizae Uralensis (Gan Cao) contains digoxin and corticosteroid (Chen & Chen, 2004).
- **Group Two:** Group Two clears heat and dissipates nodules or lumps. This group consists of the herbs Spica Prunellae Vulgaris (Xia Ku Cao) and Thallus Algae (Kun Bu).

These herbs function as apoptosis and help to maintain cellular homeostasis during the menstrual cycle by eliminating senescent cells from the functional layer of the uterine endometrium during the late secretory and menstrual phase of the cycle. Apoptosis plays a critical role in maintaining tissue homeostasis and represents a normal function to eliminate excess or dysfunctional cells (Harada et al., 2004).

- **Group Three:** Group Three breaks up blood stasis and dissolves accumulation by Excrementum Trogopteri Seu Peromi (Wu Ling Zhi), Rhizoma Sparagnii Stoloniferi (San Ling), Rhizoma Curcumae Ezhu (E-Zhu), Cortex Moutan Radicis (Mu Dan Pi), Radix Niuxi (Niu Xi), Radix Dipsaci Asoeri (Xu Duan). Harada, 2004 stated the herb has the function of clearing ectopic endometrial cells and helps contain of concentration of tumor necrosis (the death of a tissue or of an organ) factor alpha (TNF-alpha) and interleukin-6 (IL-6) in peritoneal fluids (Harada et al., 2004). Rhizoma Curcumae Ezhu (E Zhu) shows TNF-alpha in study in vitro (Jang et al., 2001).
- **Group Four:** Group Four regulates liver qi stagnation, invigorates blood and expels blood stasis. The herbs Rhizoma Cyperi Rotundi (Xiang Fu Zi), Rhizoma Corydallis Yanhusuo (Yan Hu Suo), and Fructus Immaturus Citri Aurantii (Zhi Ke) remove blood stasis and promote blood circulation by removing stasis (Shao, 1980).
- **Group Five:** Group Five generates fresh new blood and invigorates blood by removing blood stasis. These herbs, Angelicae Sinensis (Dang Gui), Radix Paeoniae Rubrae (Chi Shao Yao), Radix Ligustici Chuanxiong (Chuan Xiong), help the immune system and aid in generating fresh new blood. These herbs are generating liver blood and normalize function of hormone secretion. Therefore, endometriosis is described as a disease of the endocrine system, the body's glands, hormones, and other secretions (Kitawaki, 2002).

Radix Paeoniae Rubrae (Chi Shao Yao) has an anticoagulant (warfarin) function (Wong & Chen, 2003) and Angelicae Sinensis (Dang Gui) stimulated MCF-7 cells and function of Warfarin (Amato et al., 2002; Hu et al., 2005). These herbs also able to thin the blood, reducing the abnormally high viscosity and RBC electrophoretic time of endometriosis patients.

- **Group Six:** Group Six is comprised of digestive herbs such as Fructus Cragrantis (Shan Zha), Massa Fermentata (Shen Qu), Fructus Hordei Vulgaris Germinantus (Mai Ya). These herbs reduce food stagnation and help aid the digestion of Gluco-protein, present in the menstrual clots. Biomedical researchers investigated protein expression analysis of ectopic endometrium from women with and without endometriosis and found more than 70 proteins confirmed by changes in eight representative proteins (Rai et al., 2010).

### **Indications of the Use of Qing Bao Zhu Yu Tang**

For blood stasis accumulating in the lower abdomen characterized by palpable masses which may or may not be painful, lower abdominal pain without palpable masses, lower abdominal distention during menstruation, or frequent menstruation (3-4 times per month) in which bleeding is due to blood stagnation and blood stasis. This formula is specially designed for the prevention and treatment of endometriosis. The formula can also be used to treat patients with diagnoses of ovarian cysts, obstruction of fallopian tubes, inflammation of the uterus, vaginal discharges, appendicitis, ruptured ovarian cyst, polycystic ovarian syndrome, uterus cancer, dysmenorrheal, amenorrhea, uterus fibrosis, uterus myoma, high platelet count, thinning blood viscosity. It is also used for the prevention of habitual miscarriage and for the prevention of endometriosis.

## **Literature Review Integration**

Today, approximately 5 million women in the U.S. alone have a symptomatic manifestation of endometriosis, and the worldwide level may be about 100 million. During laparoscopic evaluations of U.S. women with a variety of gynecological disorders (mainly pain and infertility) it has been found that up to 40% have one or more endometrial cysts. It appears that the incidence of endometriosis is rapidly increasing and that doctors are more frequently taking the steps to diagnose it (NIH, 2002; Speroff, 2005). Drug therapy for endometriosis is often unsatisfactory, and surgical removal or aspiration of endometrial cysts usually provides only temporary benefits and may cause secondary problems, including persistent abdominal pain due to adhesions (Cottreaul et al., 2006).

Endometriosis treatment using hormonal therapies is most often not a permanent solution. (Cottreaul et al., 2006). It's possible that a patient could experience a recurrence of symptoms after stopping treatment. Conservative surgery removes endometrial growths, and the resulting scar tissue and adhesions without removing reproductive organs are the cause of infertility. However, the procedure of additional conservative surgery can remove scars and adhesions (Mayo Clinic, May 2009).

Forty years of clinical experience using Qing Bao Zhu Yu Tang at the Ohm Clinic shows high effectiveness with no recurrence of endometriosis, and it has been shown that the formula prevents endometriosis as well. Every woman who has endometriosis should be encouraged to use the formula Qing Bao Zhu Yu Tang, according to her clinical symptoms and diagnosis. The use of the Qing Bao Zhu Yu Tang formula should be considered the treatment of choice for endometriosis.

There have been many studies that have examined the Western Medical treatment of endometriosis via methods such as combining an oral contraceptive pill, oral or depot medroxyprogesterone acetate, and the levonorgestrel intrauterine system; this combination is as effective as the gonadotrophin releasing hormone (GnRH) analogues (Farquhar, 2007; Wheeler, 1989). Progestagens and anti-progestagens are also effective therapies in the treatment of painful symptoms associated with endometriosis (Prentice, 2000). Gonadotrophin-releasing hormone analogues, danazol, and gestrinone should be used when progestins and oral contraceptives fail, are not tolerated, or are contra-indicated (Vercellini et al., 2009). Medical treatment of endometriosis relies on drugs that suppress ovarian steroids and induce a hypoestrogenic state that causes atrophy of ectopic endometrium. Gonadotrophin-releasing hormone (GnRH) analogues, danazol, progestogens, and oestrogen-progestin combinations have all proven effective in relieving pain and reducing the extent of endometriotic implants (Fedele & Berlanda, 2004).

Studies on Western medical treatments for endometriosis reveal that drug therapy is often unsatisfactory. Most of the current drug therapy is aimed at altering the hormones—for example, by giving the testosterone derivatives danazol or methyl testosterone, giving progesterone and related progestogens, or using Buserelin, Goserelin, Lupron, or other Gn-RH antagonists (that cause ovarian inhibition). One can also use analgesics that block prostaglandins to relieve severe dysmenorrhea. Surgical removal or aspiration of endometrial cysts usually provides only temporary benefits and may cause secondary problems, including persistent abdominal pain due to adhesions. Therefore, alternative treatments are of interest to those who suffer from endometriosis. The experience of Chinese doctors is instructive, as Chinese medical treatments have been reported to be highly successful and several of them can be obtained in the West

(Flower et al., 1980). Therefore, the traditional Chinese medical perspective will be described next.

Additionally, there have been many accounts of the use of herbal formulas in the treatment of endometriosis. (Flower et al., 2009). There have been no published studies which have examined the impact of the Qing Bao Zhu Yu Tang formula specifically for the treatment of endometriosis. The current study used chart review method to obtain data from the 120 patients with the diagnosis of endometriosis. Charts were reviewed and data were systematically gathered from patients that had been treated with Qing Bao Zhu Yu Tang or a modification of that formula.

## **Chapter Three: Method**

### **Research Objective Restatement**

The current study had as its objective the examination of the impact of the Qing Bao Zhu Yu Tang formula in the treatment of endometriosis.

### **Designation of Methodology**

This research will engage a qualitative study method. Qualitative method is appropriate in this case since this study is preliminary and groundbreaking research that will uncover factors and variables that may be investigated in the future in more controlled research studies. The goal of the current study is to discern the impact and effectiveness of “Qing Bao Zhu Yu Tang” in the treatment of endometriosis. Qualitative method via chart review will allow for the discernment and description of the nuances of the treatment process. Retrospective chart review method (Gearing, Mian, Barber & Ickowicz, 2006), a recognized qualitative procedure, was chosen as the best means for achieving the research objective of the current study. The method was originally developed and published as a means for gathering research data in the discipline of adolescent psychiatry. However, as a qualitative method, it is easily adapted for use in other disciplines. The authors cite the wealth of relevant data that can be garnered from patient clinical charts, especially physician and nursing notes and other chart documentation. The authors provide a systemic research method to accomplish that task (Gearing et al., 2006).

## **Retrospective Chart Review Method**

Retrospective chart review method involves specific procedures that include nine steps that maximize the benefits of data extracted from charts while simultaneously minimizing risks of bias as well as limitations. The steps include:

1. Conception—definition of the research problem
2. Literature review
3. Proposal Development
4. Development of a data abstraction instrument
5. Data abstraction protocols
6. Data abstraction
7. Identification of the sample of charts
8. Consideration of human subjects research ethics
9. Pilot study (Gearing et al., 2006)

## **Chart Selection**

The sample used in the current study may be described as a “convenience sample.” A convenience sample is not based on random or probability selection. Nonetheless, a convenience sample has the potential to provide good representation of the population. Non- probability sampling is used because of the very specific inclusion/exclusion criteria and the location of the current study limit the availability of data to clinical charts from Ohm’s Acupuncture and Herb Clinic Inc. The study began with an analysis of 275 charts of patients who suffered and sought treatment for endometriosis from May 2008 to December 2010 at Ohm’s Clinic. All charts of female patients who sought treatment for endometriosis were screened for inclusion in the study.

Patients' charts were selected for data collection in the current study according to the inclusion and exclusion criteria detailed in the sections below.

**Inclusion Criteria:**

- Women
- Age 18 years old to 45 years old
- Must have intact uterus
- Seen as a patient at the Ohm's Acupuncture Clinic at 3434 West 6<sup>th</sup> Street Suite 300 Los Angeles California 90020 for the treatment of endometriosis between May of 2008 to December of 2010.

**Exclusion Criteria**

- Women who have no uterus
- Age of 46 years and older
- All men are excluded from this study.

**Data Recording Form**

The clinical Charts comprised of the intake form completed by patients at Ohm's clinic, patient's history of treatment, doctor's notes, diagnosis of traditional Chinese medicine, treatment principle regarding each patient, as well as any laboratory test data available in the charts. Data collection is based on the researcher ascertaining the nuances of the treatment process, the outcome of the treatments as well as the patients' reports of satisfaction with the treatment. A two page data collection instrument was developed by the researcher to capture data relevant to the objectives of the current study. The form that was developed included a patient identification number with no patient names, age of the patient, TCM, Western and other

diagnoses, indication of the treatment phase as well as other clinical and observational data. A copy of the data collection instrument is included in Appendix C.

### **Procedures**

Retrospective chart review method was followed as per the nine steps detailed above (Gearing et al., 2006). Prior to initiating the study the researcher conducted several informal pilot studies involving between five and twenty chart reviews. Using the data collection instrument detailed above, the researcher pulled and examined approximately 275 charts with 120 files meeting the inclusion criteria of the current study. All charts were reviewed in the office of Ohm's Clinic between February 2011 and July 2011. The data were analyzed to discern patterns and nuances that are indicative of the effectiveness of the treatment of endometriosis using the "Qing Bao Zhu Yu Tang" formula.

Patients who seek help for illnesses are likely to present truthful, honest, valid and reliable information at intake, as well as when they report their status after each treatment. Clinical laboratory test data are scientific and unbiased and thus have high validity. The observations of the practitioners of Doctors Elizabeth Ohm and Dr. Han Kwang Ohm, who assisted with data collection in this study, represent their best professional observations as per standard practice procedures.

The "Qing Bao Zhu Yu Tang" treatment is seen to be effective and the significance of this study will include providing other women a highly cost-effective method of treating endometriosis.

### **Human Subjects Ethical Considerations**

No data collection of confidential patient information will be entered into the dataset. Since the study involves only retrospective review of patient charts, the procedure for

recruitment and participation is not applicable in this study. The study will involve the method of retrospective chart analysis.

In order to preserve participant confidentiality during the study the charts did not leave the office. No patient names were recorded or used in the transcribed data. Only the number of the patient chart was used for data recording and review. The study data and records were maintained in a secure manner during the study. Each chart was removed from the locked file only for the time when the researcher examined it. Each file removed for data collection was returned to the locked file cabinet immediately after the data were recorded.

The current study was approved by the IRB (Institution Review Board) of Yo San University. A copy of the IRB approval letter is included in Appendix A of this document.

## Chapter Four: Results

### Data Overview

Of the 275 female charts reviewed, 120 charts were yielded with the diagnosis of endometriosis. Using chart review method data from the 120 patients with the diagnosis of endometriosis, charts were reviewed and data were systematically gathered from the charts. Each of the 120 patients had been treated with Qing Bao Zhu Yu Tang or a modification of that formula. In the process of treating the patients for endometriosis eighteen different categories of associated symptoms were observed. Four of the categories of associated symptoms were considered primary because of the number of cases observed. The four categories include women whose endometriosis was also associated with infertility, polycystic ovarian syndrome (PCOS), vaginal discharge, and ovarian cysts. For each of the four categories between seven and fifty-three cases were observed. This chapter will proceed by analyzing the data that were observed from three of the four primary groups—Infertility, Ovarian Cysts and PCOS. Because it's a common and non-specific symptom, data regarding the fourth group, the Vaginal Discharge group, were not included in the statistical analyses conducted in this study. The data report included the age of each patient, as well as the “phases” or length of time that they took the Qing Bao Zhu Yu Tang formula. Patients categorized as Phase One patients took the formula for 10 days; Phase Two patients took the formula for 20 days; Phase Three patients took the formula for 30 days and Phase Four patients took the formula for 40 days. The data are reported regarding

the original Qing Bao Zhu Yu Tang formula, for the Qing Bao Zhu Yu Tang modified formula as well as for those patients who took both the original as well as the modified Qing Bao Zhu Yu Tang formula.

### Frequency Distributions for the Study Variables

1. Demographic Data-Age: From the full sample of 120 cases of the age distribution observed the mean age 36.51, SD 7.33, minimum age of 19 year, Maximum age of 45 year. The pain effectiveness survey observed mean number 3.87, SD 1.06 from the scale of minimum 1 to maximum 5. The satisfaction survey observed mean number 3.91, SD 0.88 from the scale of minimum 1 to maximum 5.

2. Formula taken for 10 days and formula taken longer than 10 days:

The frequency distributions for formula taken 10 days from the full sample of 120 cases yielded 72 cases (60%); 48 cases (40%) took the formula longer than ten days.

T-Tests were computed to discern if there were differences between those who took the formula for ten days, and those who took the formula longer than ten days.

**Table 2** T Test data regarding formula by number days taken

	TENDAYS	N	Mean	SD	t	df	p-value
PAINEFFECT	10 days	72	3.74	1.05	-1.664	118	.099
	> 10 days	48	4.06	1.06			
SATISFACTION	10 days	72	3.82	0.84	-1.361	118	.176
	> 10 days	48	4.04	0.92			

There was no significant difference between those who took the formula for ten days compared to those who took the formula for longer than ten days. However, there was a trend ( $p < .10$ ) in the expected direction for the reduction in pain to be greater for those who took the formula for longer than ten days.

3. Formula taken alone with no modification to the formula vs. the formula taken with any modification: For the formula taken alone with no modification 87 cases were observed (72.5%); for the formula taken with any modification there were 33 cases (27.5 %) (See Table 3).

**Table 3:** T-Tests Comparing Those Taking the Formula Alone with Those Taking the Formula with Modifications

	FORMULA ALONE	N	Mean	SD	t	df	p-value
PAIN EFFECT	Formula alone, no modification	87	3.83	1.12	-.654	118	.515
	Formula with any modification	33	3.97	0.88			
SATISFACTION	Formula alone, no modification	87	3.86	0.92	-.935	118	.351
	Formula with any modification	33	4.03	0.77			

*No significant differences found*

4. Pain effectiveness study variance:

From the full sample of 120 cases the pain effectiveness survey response range was from 0% to 100 %; 4 cases (3.3%) responded at the 0% effectiveness level; 12 cases (10%)

responded at the 30 % effectiveness level; 16 patients (13.3 %) responded at the 50% effectiveness level; 52 patients (43.3 %) responded at the 70% effectiveness level; 36 patients (30%) responded at the 100 % effectiveness level. The overall effectiveness rating for the entire sample of 120 patient charts shows that 116 patients (96.7 %) responded with indication of some level of effectiveness.

5. Satisfaction study variances:

From the full sample of 120 cases the satisfaction survey yielded a response range from “not satisfied” to “very satisfied” using a rating of 1 for “not satisfied” up to a rating of 5 for “very satisfied. The results yielded 2 patients (1.7%) indicating a rating of “not satisfied.” There were 7 patients (5.8 %) indicating “not satisfied- but it was worth try.” There were 19 patients (15.8%) who indicated “moderately satisfied,” and 64 patients (53.3 %) who indicated “satisfied,” as well as 28 patients (23.3 %) who indicated that “very satisfied.” Overall from the total sample of 120 patients, 9 patients (7.5 %) responded in the “not satisfied” range, and 111 patients (92.5 %) responded in the “satisfied” range.

**Table 4:** Pearson Correlations—Pain Effect and Satisfaction

(n=120)

		PAINEFFECT	SATISFACTION
AGE	r	.017	-.049
	p-value	.850	.597
PAIN EFFECT	r		0.852
	p-value		< .001

There is no significant relationship observed between age and the reduction in pain or level of satisfaction with treatment. There is a highly significant relationship between the reduction in pain and level of satisfaction with treatment ( $r=0.852$ ,  $p < .001$ )

6. For the four designated study variable subgroups the following frequency distributions were manifested:
  - 1) Ovarian Cysts study variable: From the full sample of 120 cases, 38 cases (31.7%) had ovarian cysts observed. All of those cases (100%) reported that they were helped by the formula. Of the 120 cases, 82 patients (68.3%) had no ovarian cysts.
  - 2) Infertility study variable: From the full sample of 120 cases, 30 (25%) reported that they were trying to get pregnant, and that the formula helped them to achieve that goal. Of the 120 cases, 23 (19.2%) reported that they were trying to get pregnant, and that the formula did not help. Overall, from the 53 cases trying to get pregnant, 44.2% had a diagnosis of infertility.
  - 3) Vaginal discharge study variable: From the full sample of 120 cases, 19 (15.8%) had vaginal discharge and reported that the formula helped to relieve that symptom. Of the 120 cases, 101(84.2 %) did not have vaginal discharge.
  - 4) PCOS study variable: From the full sample of 120 cases, 7 (5.8%) had a diagnosis of PCOS, and reported that the formula helped. Of the 120 cases 113 (94.2 %) had no PCOS diagnosis.

**Table 5:** Frequency Distributions of Four Subgroups: Infertility, Ovarian Cyst, PCOS, and Vaginal Discharge

	Had ovarian cyst and formula helped	
10 days	17	44.7%
> 10 days	21	55.3%
Total	38	100.0%
	Had ovarian cyst and formula helped	
Formula alone, no modification	21	55.3%
Formula with any modification	17	44.7%
Total	38	100.0%
	Had PCOS and formula helped	
10 days	3	42.9%
> 10 days	4	57.1%
Total	7	100.0%
	Had PCOS and formula helped	
Formula alone, no modification	6	85.7%
Formula with any modification	1	14.3%
Total	7	100.0%
	Had vaginal discharge and formula helped	

10 days	11	57.9%
> 10 days	8	42.1%
Total	19	100.0%
Had vaginal discharges and formula helped		
Formula alone, no modification	11	57.9%
Formula with any modification	8	42.1%
Total	19	100.0%

**Comparisons for those trying to get Pregnant (table 5 continued)**

			Trying to get pregnant and formula helped	Trying to get pregnant and formula did not help	Total
Length of time	10 days	Count	20	17	37
		%	54.1%	45.9%	100.0%
	> 10 days	Count	10	6	16
		%	62.5%	37.5%	100.0%
Total		Count	30	23	53
		%	56.6%	43.4%	100.0%

**Pearson Chi-square = 0.32, df = 1, p = .569 – no significant difference found**

			Trying to get pregnant and formula helped	Trying to get pregnant and formula did not help	Total
Protocol	Formula alone, no modification	Count	25	19	44
		%	56.8%	43.2%	100.0%
	Formula with any modification	Count	5	4	9
		%	55.6%	44.4%	100.0%
Total		Count	30	23	53
		%	56.6%	43.4%	100.0%

### **Fisher's Exact Test**

Results of Fisher's Exact Test yielded a 1.00 value. Slightly more of those who were trying to get pregnant were helped by taking the formula (56.6%) compared to those who were trying to get pregnant but were not helped (43.4%) by the formula. However, no significant differences were found based on how long the formula was taken (ten days vs. longer), or on whether or not modifications were added to the formula.

**Table 6:** Frequency Distributions for Study Variable—Length of Time Taking Formula

			Trying to get pregnant and formula helped	Trying to get pregnant and formula did not help	Total
TENDAYS	10 days	Count	20	17	37
		%	54.1%	45.9%	100.0%
	> 10 days	Count	10	6	16
		%	62.5%	37.5%	100.0%
Total		Count	30	23	53
		%	56.6%	43.4%	100.0%

Table 7 displays the data that emerged from the current study that were subjected to statistical analyses. While there were four categories of data collected, only data from three categories (the Infertility, PCOS and Ovarian Cyst groups) were subjected to statistical analysis. As indicated above, because the Vaginal Discharge group represents a very common and non-specific symptom, the data from that group were not included in the statistical analysis summarized in Table 7.

**Table 7:** Frequency Distribution for Formula Alone and Formula Modified

10 days		Frequency	Percent
	10 days	72	60.0
	> 10 days	48	40.0
	Total	120	100.0

<b>FORMULA ALONE</b>		<b>Frequency</b>	<b>Percent</b>
	Formula alone, no modification	87	72.5
	Formula with any modification	33	27.5
	Total	120	100.0
<b>PAIN EFFECT</b>		<b>Frequency</b>	<b>Percent</b>
	0%	4	3.3
	30%	12	10.0
	50%	16	13.3
	70%	52	43.3
	100%	36	30.0
	Total	120	100.0
<b>SATISFACTION</b>		<b>Frequency</b>	<b>Percent</b>
	Not satisfied	2	1.7
	2	7	5.8
	Moderately satisfied	19	15.8
	4	64	53.3
	Very Satisfied	28	23.3
	Total	120	100.0
<b>OVARIANCYST</b>		<b>Frequency</b>	<b>Percent</b>
	Had ovarian cyst and formula	38	31.7

	helped		
	NA	82	68.3
Total		120	100.0

<b>PREGNANCY</b>		<b>Frequency</b>	<b>Percent</b>
	Trying to get pregnant and formula helped	30	25.0
	Trying to get pregnant and formula did not help	23	19.2
	Total	53	44.2
	NA	67	55.8
Total		120	100.0
<b>PCOS</b>			
		Frequency	Percent
	Had PCOS and formula helped	7	5.8
	NA	113	94.2
Total		120	100.0

The sample included a total of 98 cases that constituted the three subgroups designated for analysis (Ovarian Cysts, PCOS and Infertility). Those 98 cases had an observed mean age of

36.57 years. For the infertility subgroup the mean age was 37.26 years. For the ovarian cyst subgroup the mean age was 38.84 years, and for the PCOS subgroup the mean age was 32.14.

**Endometriosis:** For the 120 cases observed, 87 were treated with the original formula alone, and 33 were treated with the modified formula. For those patients who were treated with the original formula for ten days, the largest number, 72, appears in phase 1 (ten days) followed by 48 in phase two (twenty days).

**Infertility:** Patients in the sample who also had a diagnosis of infertility constituted the largest group with 53 cases observed. Because these patients in this sub-group also had the diagnosis of infertility, and expressed a desire to become pregnant, additional data regarding full term pregnancy were gathered. Of the 53 cases, the review of charts manifested 30 cases that experienced a full term pregnancy. Of the thirty who experienced a full term pregnancy, 19 had taken the Qing Bao Zhu Yu Tang original formula for phase one. All of the other phases were low (not more than three). The data regarding the infertility sub-group are reported in Table 5.

**Ovarian Cysts:** Patients in this group had the accompanying condition of ovarian cysts. There were 38 cases in this subgroup, and for each of the 38 cases, chart review indicated verification of the resolution of the ovarian cysts. For these groups there were ten cases each at the Phase 1 and Phase 2 level. For the modified and the combined original and modified groups there were no more than 4 cases observed. See Table 5.

**PCOS:** There were seven cases where patients had the accompanying condition of polycystic ovarian syndrome (PCOS). For all seven of the cases the chart review manifested resolution of the PCOS condition. For this sub-group the highest number observed in any one phase was three in Phase 2. Because the number in this category was so small, it is difficult to make any definitive statements. See Table 5.

Chapter Five of this project will include a discussion regarding the implications of the observed data. The final chapter will also address the limitations of the current study as well as recommendations for future research.

## **Chapter Five: Discussion**

### **Implications for Practice**

Since the Qing Bao Zhu Yu Tang formula is new and not widely used in Traditional Chinese Medicine practice, the findings of the current study have implications for herbal formula practice and application, especially in terms of the impact of the formula on infertility, ovarian cysts, PCOS, the removal of blood stagnation and blood stasis, relieving menstrual pain during and before the menstrual period starts and uterine tract infections.

Infertility is the most common associated byproduct of endometriosis. Forty percent of endometriosis cases also include the presence of infertility. In the current study, 53 of the 120 endometriosis patients (44.2 %) also had infertility. In the current study with the use of the Qing Bao Zhu Yu Tang formula, 30 of the 53 (56%) patients were able to get pregnant. The results of the current study complement the work of Maars (1991), Ling (1999) and Farquhar (2007), by providing a preliminary systematic study showing that the effective treatment of endometriosis using herbals can result in pregnancy.

The condition of ovarian cysts was observed in 38 of 120 cases (31.7%) in the current study. Every one of the 38 cases reported improvement with treatment using the Qing Bao Zhu Yu Tang formula. The data observed in the current study are consistent with the data yielded in the study by Flower et al., (2010) which showed that 40% of endometriosis cases also manifested the condition of ovarian cysts. The data from the current study have strong implications for TCM practitioners who treat women with endometriosis with accompanying ovarian cysts.

Practitioners should give careful consideration to the use of the Qing Bao Zhu Yu Tang formula when dealing with similar cases. This is an area that has not been engaged in prior literature. As a result, the findings of the current study are groundbreaking in relation to the treatment of endometriosis cases when ovarian cysts are present.

While in the current study the number of cases of endometriosis that also included the condition of PCOS was small (n=7), the data show that each of those seven cases reported that the PCOS condition disappeared or was helped significantly by the treatment with the Qing Bao Zhu Yu Tang formula. Even though the numbers were small regarding the impact of the formula on the condition of PCOS, there is clear indication that further research is needed in this area. Further research is important in this area since PCOS is not only associated with infertility, but also with a higher incidence of insulin resistance (Type 2 Diabetes), no ovulation, amenorrhea and hyper-secretion of androgen (testosterone).

Because it is such a commonly occurring and often non-specific symptom, data regarding the symptom of vaginal discharge were not formally analyzed in the current study. However, in the current study, 19 charts of endometriosis patients also included the symptoms of excessive vaginal discharge. Again the implications of TCM theory is much more clear in treatment of endometriosis than Western Medicine. The Qing Bao Zhu Yu Tang formula provides a viable alternative for treating both non-specific and endometriosis related excessive vaginal discharge.

### **Limitations of the Current Study**

One limitation of the current study is the limited sample size used, as well as the geographic factor of the location of Ohm's clinic where all the charts review originated. Because all samples come from one location of Ohm's clinic, there is the possibility that those who

sought treatment at this clinic might not reflect the general population. However this factor is not likely since the patients seen at Ohm's clinic represent a wide range of ages, ethnicities and presenting problems.

Another limitation is that the current study was not a clinical trials study. There were no control, placebo or treatment groups to test the impact of the formula in order to discern differences regarding the effects of the herbal treatment among those groups. The use of clinical trial research, and especially clinical trial research that incorporates placebo and no treatment groups, introduces a number of ethical issues that are questionable and unable to be actualized in a private practice clinical setting.

### **Recommendations for Future Research**

Since the current study involved chart review method, the next step in the path of research would be to design and conduct single blind and possibly double blind studies regarding the use of the formula. Those studies should include placebo and no treatment groups to verify the effectiveness of the Qing Bao Zhu Yu Tang formula. Additional research needs to be done with further control for the factor of ethnicity. Further, more controlled clinical studies will be needed to clarify the clinical efficacy of natural medicinal herbs in the treatment of endometriosis-associated pain and investigate herb-herb and, the interaction of Traditional Chinese Medicine with hormones drug-herb interactions and other toxicities. It is critical to establish streamlined registration procedures for natural medicinal products, particularly herbal ones that have a long tradition of safe use.

## **Conclusions**

As a result of the current study the researcher concludes that the Qing Bao Zhu Yu Tang formula is effective in the treatment of endometriosis. The formula shows standardization more like in the field of Bio-medicine treatment. It is also effective in the treatment of infertility, PCOS and ovarian cysts, vaginal discharges. The formula also shows promise in the prevention of endometriosis, infertility, ovarian cysts and PCOS. Consistent with the findings of the current study, TCM practitioners who treat ob-gyn cases should consider using the Qing Bao Zhu Yu Tan formula.

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**Appendix A: IRB Approval Letter**

**Appendix B: American Society for Reproductive Medicine,  
Revised Classification of Endometriosis**

**American Society for Reproductive Medicine,  
Revised Classification of Endometriosis**

Stage I (Minimal): 1-5		Stage II (Mild): 6-15		
State III (Moderate): 16-40		Stage IV(Severe): > 40		
	Endometriosis	< 1 cm	1-3 cm	>3 cm
Peritoneum	Superficial	1	2	4
	Deep	2	4	6
Ovary	R Superficial	1	2	4
	Deep	4	16	20
	L Superficial	1	2	4
	Deep	4	16	20
Ovary	Adhesions	<1/3 Enclosure	1/3-2/3Enclosure	>1/3Enclosure
	Right Filmy	1	2	4
	Dense	4	8	16
	L Filmy	1	2	4
	Dense	4	8	16
Tube	Right Filmy	1	2	4
	Dense	4*	8*	16
	L Filmy	1	2	4
	Dense	4*	8*	16
Posterior Cul-de-sac obliteration		Partial	Complete	
		4	40	

\*If the fimbria at the end of the fallopian tube is completely enclosed, change the point assignment to 16. Denote appearance of superficial implant types are red [(R), red-pink, flame like, vesicular blobs, clear vesicles], white [(W), operations, peritoneal defects, yellow brown], or black [(B), black, hemosiderin deposits, blue]. Denote percent of total described as R\_\_%, W\_\_%, and B\_\_%. Total should equal 100%. Figure 1 is modified from the revised American Fertility Society classification of endometriosis.

## **Appendix C: Copy of Data Collection Instrument**

### Copy of Data Collection Instrument

• Was the patient treated for endometriosis with Chinese herbs		Yes	No
• Was the patient taking hormones		Yes	No
• Was the patient diagnosed of endometriosis previously?		Yes	No
• Did the patient had surgery previously		Yes	NO
• Is this treatment for recurrent condition		Yes	No
• Was the patient taking pain medication		Yes	No
• Write the name of pain medication			
• Modified Qing Bao Zhu Yu Tang	Formula alone	Yes	
	Modified according to constitution	Yes	
• Question about Pain		Pelvic pain	
	During sexual intercourse	Yes	No
	Before menstrual period	Yes	No
	During menstrual period	Yes	No
	After menstrual period	Yes	No
	During defecation	Yes	No