

# Luteal Phase Defect

Randine Lewis, Ph.D., Lic.Ac.

The luteal phase of the menstrual cycle spans from ovulation at mid-cycle until menstruation. The luteal phase should last for at least 12 to 14 days. A luteal phase which is less than 10 days will have difficulty producing an environment favorable for implantation.

The luteal phase derives its name from the fact that the luteinized cells from the collapsed follicle undergo a structural transformation in response to increased vascularization, a process known as luteinization. Thereafter these two cell types produce progesterone; one of which is dependent on the secretion of luteinizing hormone. Progesterone is secreted to prepare the uterine lining for implantation. The ovary also secretes other hormones as well - inhibin, relaxin, and 17-hydroxyprogesterone.

The endometrium, meanwhile, under the influence of estrogen during the proliferative phase, develops progesterone receptors. Progesterone then causes the uterine lining to become secretory in nature. The most important aspect here is that there is a window of implantation, where certain proteins appear on the epithelial cells of the endometrial lining and then disappear. When they are gone, the period of endometrial receptivity has passed. If these factors are not present, implantation will not occur. Many factors affect this window of implantation. Mucinous substances are secreted by glands within the endometrium during this same time period in women without implantation problems. These factors cannot be effectively treated with just a pill or hormonal supplementation. A biopsy may reveal the presence of these defects, but doesn't tell us how it occurred, why it happened, or what to do about it.

When a pregnancy occurs, and the developing blastocyst burrows into the uterine lining, the embryo will secrete hCG, which stimulates the ovary to produce more progesterone. This process is called luteal rescue. If this process happens too late or if pregnancy does not occur, LH stimulation decreases, progesterone levels decrease and uterine prostaglandins are released. This causes the corpus luteum to shrivel. The uterine lining, because of lack of progesterone stimulation, is shed.

This series of events begins not in the luteal or secretory phase but in the follicular or proliferative phase, early in the cycle. This synchronized process is orchestrated by all of the reproductive hormones, and each of the factors necessary for implantation, known and unknown, are initiated by another process. No event in reproductive medicine is an isolated occurrence, but as with all other physiologic processes, each event is interdependent on the proper workings of the entire reproductive system. This much we know about the immediate state of the endometrium. There is much more which we don't know, which includes the hormonal relationships, stress effects, and underlying pathological imbalances. This is where other modalities of healing can reveal their striking impact.

Most infertility specialists consider a luteal phase defect to be an insufficiency of progesterone production. This is certainly a major aspect of this dysfunction; however, if this were the only element to consider, the administration of exogenous progesterone would cure the defect. Anyone who has been diagnosed with this defect and treated with progesterone realizes the immense frustration in trying to treat this deficiency. Some studies have also demonstrated impaired folliculogenesis in women with luteal phase defects, and surely luteal phase defects indicate defective follicular development; other studies have implicated impairment in the levels of FSH or LH to be causative. They probably all play a role in different degrees in each individual woman with this presentation.

Luteal phase defect also includes a definition that the events signaling endometrial development are out of

sync with the rest of the hormonal cycle, and the uterine lining actually lags behind the hormonal queues. Therefore if an egg was released and fertilized, the blastocyst would find the endometrium unreceptive for implantation, and it would pass on through undetected.

It is generally agreed upon that progesterone has a hyperthermal effect, which raises the basal body temperature at least four-tenths of one degree to one full degree fahrenheit after ovulation. The temperatures and thus the progesterone levels should remain elevated for fourteen days after ovulation. Progesterone levels peak during the middle of the luteal phase, about one week after ovulation. If the corpus luteum is not producing adequate quantities of progesterone, or if the uterine lining is not properly prepared for the role of progesterone, spotting may occur, the basal body temperature may drop, or the period may come early.

### **The Eastern View**

Shifting to an Eastern paradigm and using the basal body temperature chart as a prototype of the hormonal system, Phase I is the menstrual, blood, or zero (hormonal resting) stage. Phase II is the follicular, estrogen dominated yin stage. During the ovulatory stage, yin reaches its apogee and transforms into yang, only if qi, blood, yin and yang are optimally functioning. Phase III is the luteal phase, governed by the yang hormone progesterone. This phase can thrive only if the previous phases have fulfilled their particular roles.

Most luteal phase defects include a diagnosis of low progesterone. Since this hormone is governed by the kidney yang and the spleen qi, these two elements almost always need supplementation.

However, Chinese medicine views this process beyond what is happening in the immediate luteal phase. The other phases need to be in harmony; adequate substrate needs to be present; and no obstruction - mechanical, anatomical or energetic, may be present if the luteal phase is to be in sync. Hence, there can be many reasons for luteal phase insufficiency: not enough yin to transform into yang, obstructed blood, liver qi stagnation, or not enough kidney yang or spleen qi to hold the luteal phase. This is where the correct pattern discrimination makes the difference in treatment outcome.

Most often the basal body temperature chart will reveal the manifestation of the disharmony during the luteal phase temperature.

For instance, in one form of luteal phase insufficiency, the temperatures may go along during the follicular phase as normal, the fertile cervical fluid appears, and in all appearance ovulation has occurred. The fertility monitor says ovulation has occurred. However, the temperatures do not rise dramatically. The woman might be particularly fatigued around ovulation. She may sweat spontaneously during the luteal phase. She may be prone to abdominal cramping and loose stools. She has a history of low blood pressure, and she can always tell she is going to get her period because her stools become looser and more profuse. She bleeds heavily, but the blood is somewhat thin and watery and appears almost pink in color. Her energy is especially low during her period. According to the diagnostics of Traditional Chinese Medicine, this woman fits the category of "Spleen Qi Vacuity". Therefore, the only way to correct this defect is to supplement her spleen qi. We could give her progesterone supplements or Angelica (a.k.a. Tang Kuei or Dang Gui, an herb which supplements and invigorates the blood and regulates menstruation) all day long, and she would likely get no response. However, if she made some minor dietary modifications and supplemented her diet with herbs such as Ginseng, Atractylodes, Dioscoreae, and Astragalus; her luteal phase defect should correct itself and she will be able to conceive. She should avoid too many raw foods like cold salads. She should not eat too many sweets or refined carbohydrates. This includes white bread and rice cakes, or any boxed or packaged noodles. Anything that is converted to glucose too quickly after ingestion becomes sugar as far as the body is concerned, and damages the spleen. This diet regulates blood sugar levels, as well. The best diet would be organic vegetables, light amounts of protein, but not those

that have been hormonally treated, and some fruits, but not fruit juices. Complex carbohydrates and whole grain breads are fine.

If the basal body temperature chart raises, lowers, and raises again, it indicates dysfunction of the corpus luteum functioning. The Traditional Chinese Medical diagnosis might support that there is an insufficiency of the spleen qi to support the yang of the kidney.

### **Kidney Yang Vacuity**

Kidney yang vacuity is another commonly seen luteal phase defect. In this case the temperatures stay low during the follicular phase as they should. The woman in fact always feels cold. Her feet are especially cold at night. Mid-cycle vaginal discharge appears on schedule, and is even profuse in amount. Ovulation occurs, but she has almost no sexual desire, so intercourse feels like a chore. Her basal body temperatures never rise very much. The pre-ovulatory and post-ovulatory baselines differ only by about two-tenths of a degree. Her back is almost always weak and sometimes feels sore. She sleeps well, but has to wake up to urinate at least one or two times per night. Sometimes she spots about a week before her period is due. She can usually tell that she is not pregnant, and that her period is coming because her back aches more than usual. Her bowel movements become somewhat loose the day she starts bleeding, too.

Diagnostically, this woman most closely resembles the kidney yang vacuity scenario in Chinese gynecological diagnosis. She also has some symptoms of spleen qi vacuity, but since the kidney yang is depleted, it will sometimes "borrow" from the spleen energies; therefore, overlapping symptoms are common. Some methods by which kidney yang vacuity can be improved upon is to diminish activities which tax the kidney system - the Oriental philosophy would be to reduce the amount of caffeine or any stimulants, natural or otherwise, including herbal pick-ups like Ma Huang. Don't drink alcohol or smoke cigarettes. Don't inject any type of nicotine, including patches. (Nicotine is ten times higher in the uterine fluid than in the blood. Second-hand smoke impairs fertility almost as much as smoking cigarettes yourself.) Don't over-exercise or overwork. Get enough sleep. Eat nourishing foods that tonify the kidney system like black beans and legumes. Kelp, parsley, tofu, raspberries, walnuts, wild rice, spirulina, and wheat germ and wheat grass are very tonifying to the kidneys and rich in vitamin B6. Vitamin B6 is helpful in luteal phase defect, as it will boost progesterone levels, and lower elevated prolactin levels. String beans, mulberry, millet and (non-hormonally treated) organ meats are helpful as well. Chestnuts, black sesame seeds, lycium fruit, aduki beans, gelatin, chestnuts and corn all benefit the kidneys as well. Beneficial herbs include Eucommia, Epimedium, Radix Dipsaci, Semen Cuscutae, Radix Morinda, and Fructus Psoraleae. Rhizoma Cimicifugae (Black Cohosh) raises the yang qi during the luteal phase as well. Psoralea corylifolia tonifies the yang when there is a concomitant spleen qi deficiency. Helonias root (False Unicorn) is considered a uterine restorative, which also stimulates hormonal precursors to trigger progesterone release. It moderates menstruation, and improves progesterone production.

Modern "infertility diets" recommend the consumption of yams during the first half of the menstrual cycle to help improve progesterone during the second half. It is said to act like a natural form of Clomid, which is estrogenic and anti-estrogenic in nature, and produces more stimulation to the ovary so more follicles are produced. Please be aware that if you have any impairment in your glucose tolerance, or if you have any endocrinologic manifestation of polycystic ovarian syndrome, excess yam consumption can actually delay or prevent ovulation. Fertility diets cannot be ascribed across the board. Individual physiology is too complex.

Clomiphene is often used to treat luteal phase defect because if more follicles are produced, there will be more corpus lutea and therefore, more progesterone produced. Wild yam (Radix Dioscoreae Oppositae) as an herbal tonic is categorized as a qi supplement, and is often used to treat gynecological disorders.

Women who are diagnosed, according to Traditional Chinese Medicine, with kidney yang or spleen qi vacuity will tend to respond more favorably to the administration of Clomiphene, just as they will respond favorably to wild yams. Those who fall into a different category of imbalance **will not** respond favorably to either. The administration of either may potentially do more harm than good.

Women who tend to have negative side effects while taking Clomid, such as headache, heat sensation, sweating, and irritability, will be much less likely to become pregnant on Clomid. Especially women diagnosed with liver qi stagnation and depressive heat will not become pregnant with Clomid. Women with severe premenstrual symptoms should not be given Clomid, as they most likely have adequate production of progesterone. Their systems cannot handle the intensification of qi in a confined space. It is like over-filling a bicycle tire. The internal pressure produces heat and a toxic environment which will not be conducive to implantation, regardless of the level of progesterone.

When a woman fitting this category is nonetheless prescribed Clomid, we would use Traditional Chinese Medicine in a most complementary nature, seeking to rectify the qi to reduce internal pressure and thus give the Clomid a chance to succeed.

There are many complex and interrelational endocrine factors that affect the luteal phase. If the follicular phase is deficient and there is not enough yin, it will not reach its apogee required for transformation into yang. In common medical terminology, there is not enough estrogen to prepare the cervix, trigger ovulation, or thicken the endometrium for implantation. There will be signs of yin vacuity (night sweats, vaginal dryness, heat flushes), and the cycle most often will be prolonged. This will be evident in the basal body temperature chart as consistently low temperatures with possible saw-tooth variations which indicate liver and/or heart fire.

Another common pattern seen in those with difficulty conceiving includes a horseshoe shaped hyperthermal phase, which most often is seen in a kidney yang vacuity pattern. As always, I treat based upon the actual diagnostic pattern presentation. If there are signs of kidney yang vacuity, I recommend kidney yang supplements.

## **Case History**

Mrs. M. came to my clinic with a chief complaint of inability to conceive after nine years of marriage. She had previously been diagnosed with "unexplained infertility", and possible "luteal phase defect". She had previously been given the ovulation induction agent, Clomiphene Citrate for a total of eight months without success. She and her husband had further gone onto hormonal injections and did four cycles of ovulation induction with intrauterine inseminations. After no success, they gathered up their savings and attempted one in-vitro fertilization procedure. She had a fair response to the medication, and produced quite a few mature follicles. Three were transferred into her uterus, but no pregnancy resulted. Eventually, Mr. And Mrs. M adopted a child.

After hearing one of my lectures, Mrs. M reluctantly called my clinic just to see if I thought there was any hope. (She was quite convinced there was none.) She did not want to get her hopes up, and didn't even tell her husband she was coming in for a consultation.

She had a history of very poor eating habits, and had bouts of abdominal cramping and diarrhea, which were diagnosed as irritable bowel syndrome. She was tired most of the time but blamed it on the fact that she had a small child at home. She did admit that she couldn't remember ever feeling energetic, though. Her intake history revealed symptoms of easy bruisability, hemorrhoids, premenstrual loose stools, and her menses were characterized as being light in amount and watery in consistency. She had low blood

pressure and also became light headed when she stood up fast.

Her pulse was fine and soggy in quality, and her tongue was pale and slightly swollen with teeth marks on the sides, and had a slimy coating.

I asked her if she would mind monitoring her basal body temperatures for a couple of months, and she brought me charts which she had previously kept many years ago. The luteal phase was definitely suspect, as they temperatures were slow to rise, came to a short peak, and slowly fell again for the last week of the cycle.

Based upon her medical history, signs and previous basal body temperature charts, I assessed her with a luteal phase defect due to spleen qi vacuity. I suggested that she clean up her diet a bit and not eat so many refined junk foods and avoid carbonated sodas as a first step. She wanted to take some vitamin supplements as well, and I suggested she make sure whatever supplements she chose included adequate amounts of vitamin B6. I gave her an herbal formula which included Radix Panacis Ginseng, Radix Astragali Membranacei, Sclerotium Poriae Cocos, and Rhizoma Atractylodes Macrocephalae to supplement her spleen qi and I gave her acupuncture treatments her twice per month, once before and once right after ovulation to boost her qi and focus it on the reproductive system during the time when it would be most effective. I directed her treatments on the conception meridian and the spleen/stomach channels, stimulating the following areas:

*Sanyinjiao* - an area three inches above the inner ankle behind the medial leg bone

*Zusanli* - below the knees, just lateral (to the outside of) the crest of the tibia bone, in the fleshy part of the anterior tibialis muscle

*Qihai* - two inches below the belly button, on the midline.

Her symptoms improved almost immediately, and within two months she became pregnant for the first time, naturally. She gave birth to a healthy baby girl nine months later.