# Luteal phase defect by histological dating of endometrium among fertile women and unexplained infertile women :

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The luteal phase of the human menstrual cycle reflects the functional lifespan of the corpus luteum (Baird et al., 1975). The corpus luteum is formed in response to the mid-cycle surge of luteinizing hormone from the remnants of the follicle following ovulation. It is the endocrine gland with the shortest lifespan , normally 14 ± 2 days, unless pregnancy occurs. The most important function of the corpus luteum is progesterone secretion .The LPD was defined by Jones (1949, 1975) as a defect of corpus luteum progesterone output either in amount or duration which results in inadequate stimulation of the endometrium for the implantation of the blastocyst. To be of clinical significance, LPD must be present in repeated cycles.Recently, attention has been focused on particular clinical situations in which the luteal phase defect occurs more frequently. These include hyperprolactinaemia, endometriosis, delayed ovulation, ovulation induction, proximal menstrual cycles after discontinuation of Danazol, the first 1 - 3 cycles after abortion, a full-term delivery or stopping the oral contraceptive,older women over the age of 35, administration of synthetic progestins, and aspiration of the pre-ovulatory follicle for oocyte recovery .The authers reported a problem incountered in diagnosing LPD as well as evaluating the reliability of the available diagnostic testes for this condition (Jordon et al, 1994, Soules et al ,1988 , Zhonghua ,1990 , (Annos et al, 1980; Rosenfeld et al ,1980; Balasch et al ,1982) .In light of the discomfort and inconvenience with the multiple endometrial biopsies needed to confirm the diagnosis of Luteal phase defect , investigators have attempted to identify alternative markers for the diagnosisof LPD including clinical presentation, BBT, serum progesterone assay, follicular size , endometrial markers and endometrial biopsy .Endometrial biopsy is taken using the Pipelle aspirator which is made of a clear, flexible ploypropylene sheath with an inner plunger. The device is well tolerated by patients and is easy to use. No external suction if required; the device is disposable. The Pipelle enables quick sampling of the endometrium (5-15 seconds of operating time), and the entire procedure can be accomplished within 10-15 minutes. A large meta-analysis examining the various devices for endometrial sampling reported the Pipelle to be the most sensitive technique (Bayer and DeCherney , 1993 ). The ideal time for taking endometrial biopsy depends upon the information that the infertility specialist is seeking . The optimal time to obtain an endometrial sample for confirmation of ovulation is on day 21-22. Timing of the procedure is critical when

evaluating luteal phase defects commonly associated with infertility (Apgar and Newkick ,1997 ) . It is important for the sampling device to reach the fundus to obtain an adequate sample for an accurate histologic examination .Current treatments for presumed luteal phase defect in infertile patients are empiric and reflect the hypothesis that progesterone insufficiency is causal . Treatment, therefore, involves the adminstration of vaginal micronized progesterone (400-600mg/day) or intramuscular progesterone (50-100mg/day) beginning 3 day after documentation of an LH surge. After ART with protocols involving a GnRH agonist , supplementation via vaginal adminstration may be preferred .Other treatment include ovulation induction , bromocryptine clomiphene citrate combination with progesterone or estrogen . etc .There is no complete agreement as to the exact incidence of LPD causing infertility or repeated abortions .The term LPD includes two different conditions:(i) corpus luteum defect due to known cause, and(ii) unexplained LPD (discrepancy between endometrial chronology and histology). This latter condition is the most frequently found in the evaluation of the infertile patient.On the other hand, one should be aware of conflicting data on proposed aetiologic factors for LPD. By using endometrial biopsy as the diagnostic technique, the reported incidences for LPD in infertility were between 3.5 and 20%( Jones and Pourmand, 1962, Nash, 1982). The incidence is higher (23-60%) when only paitents with repeated abortions are considered (Tho et al,1979,Grant et al ,1959).Luteal phase defect has been proposed as a cause of non receptive endometrial environment. LPD may result in an aberrant molecular profile within the endometrium , which in turn can adversely affect endometrial receptivity to blastocyst implantation . Integrins belong to a family of cell adhesion molecules that are present on virtually all cells. The temporal and spatial expression of these important proteins on the human endometrium suggests that certain integrins may participate in the cascade of molecular events leading to successful Implantation .This prospective controlled study aimed to compare luteal phase defect based on endometrial dating among fertile women and females with unexplained infertility which resulted that :• There is N.S. difference among fertile and infertile women reguarding age of the patients, gravidity, length of follicular phase, maximum preovulatory follicular diameter, luteal phase length .• There is 14.3 % of LPD on the first biopsy has in-phase endometrium on repeat biopsy .• The prevalence of LPD is higher among infertile women than fertile group although the difference is non significant .• Among infertile women with and without LPD there is no significant difference reguarding age of the patients, duration of infertility , length of follicular phase , maximum preovulatory follicular diameter , luteal phase length . prevalence of LPD among women with primary infertility is higher than secondary infertility although the difference is non significant .So we concluded that :1) - Luteal phase defect is diagnosed if two consecutive endometrial biopsies are found to be out of phase .2) - Timed endometrial biopsy followed by histological dating of the endometrium failed to discriminate between fertile women and unexplained infertile women and. It provides no clinically useful informations as a screening test for infertile couples.