



Histopathological Study of Endometrial & Corpus Luteum Disparity

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Abstract

The human corpus luteum, a temporary endocrine gland derived from the ovulated follicle, is a major source of steroid hormones, producing up to 40 mg of progesterone per day.⁽¹⁾ It is abruptly formed from the remnants of the preovulatory follicle, and it undergoes continuous change and studied as early, middle, and late luteal phases in ovulatory cycle.⁽²⁾ The pattern of progesterone production throughout the luteal phase determines menstrual cyclicity & endometrial receptivity for successful implantation, and is essential for maintenance of early pregnancy.⁽¹⁾ The breach in the mechanism leads to endometrial & corpus luteal disparity.

Keywords: Endometrium; Corpus luteum; Progesterone.

Introduction

Endometrium is a dynamic, hormonally sensitive and responsive tissue which constantly and rhythmically undergoes changes in the active reproductive life. DUB is the term used for bleeding not attributable to underlying organic pathology and therefore synonyms with AUB resulting from either derangement in the magnitude and/ or duration of estrogen and progesterone effects on the endometrium. Many uterine lesions can produce bleeding and these should be excluded before making a diagnosis of DUB. In about 95 % of cases DUB is due to the late maturation of the hypothalamic–pituitary–ovarian axis. Anovulation is considered the most common cause.⁽³⁾ However, other causes as pregnancy complications, coagulation disorders,

systemic diseases, and anatomical lesions of the uterus should be excluded. The pathophysiology of the disease is related to the lack of maturation of the positive feedback, which results in anovulation, excess estrogen secretion, abnormal endometrial hyperplasia, and profuse bleeding, leading to endometrium apoptosis.⁽³⁾ Main causes of DUB are anovulatory cycle, inadequate luteal phase and irregular shedding. In anovulatory cycle ovulation does not occur so endometrium are in proliferative phase.

Methods

The retrospective study of panhysterectomy specimens received in the Department of pathology SAIMS, Indore from 1 January 2011 to 31 August 2012 were examined. A total of 370

specimens were taken into considerations. The specimen was fixed, processed, sectioned and performed Hematoxylin and Eosin stain for the microscopic examination of specimens; Endometrial phases were noted & Other associated microscopic findings were also noted. Correlation of histopathological phases of endometrium with corpus luteum phases in panhysterectomy specimens were done in these cases.

Results

A total of 370 panhystrectomy specimens were received. In this endometrium patterns were studied. Secretory phase were found to be in 187 cases, among these cases corpus luteum were found to be in 36 cases and rest found to be without corpus luteum. Proliferative phase were found in 136 cases, among these cases corpus luteum were found in 43 cases which is not a normal finding as shown in Table 1.

Among the associated finding chronic cervicitis were in maximum number of cases followed by adenomyosis and leiomyoma as shown in Table 2.

Table 1 showing Histopathological study of endometrium

Findings of endometrium	Number of cases
Secretory phase with corpus luteum	36
Secretory phase without corpus luteum	151
Proliferative phase with corpus luteum	43
Proliferative phase without corpus luteum	93
Retrogressive cystic changes	21
Autolysed	17
Cystoglandular hyperplasia	06
Endometrial adenocarcinoma	02
Chronic endometritis	01
Total	370

Table 2 Showing Associated findings in Panhystrectomy specimen.

Associated findings	Number of cases
Chronic cervicitis	276
Adenomyosis	142
Leiomyoma	101
Cervical erosion	28
Endometrial polyp	08
Cervical polyp	07
Cervical cancer	02

Conclusions

Secretory phase with Corpus luteum is a normal phenomenon. Secretory phase without corpus luteum can be explained on the basis of extrensic progesterone given to the patients before surgery. Normally with the presence of Corpus luteum in the ovaries, endometrium is expected to be in secretory phase, but in our study 43 cases of endometrium in proliferative phase with Corpus luteum in the ovary were found .

If a normally developed corpus luteum fails to regress at the correct time (Persistent corpus luteum), Histologically this condition is characterized by a diverse admixture of endometrial fragments in various stages of regression and dissociation still evident days after menstruation has started.

Unusual results like presence of corpus luteum with proliferative endometrium were seen in 43 cases.

The possible causes of proliferative phase with corpus luteum were:

- 1) Failure of endometrium to respond to progesterone stimulation even in the presence of adequate follicle development & a corpus luteum that persists for the appropriate length of time . In such situations the receptors for progesterone are either not developed or the concentration is less than required for the proper functioning of the endometrium. Even though enough hormones would be produced, the endometrium will not respond appropriately & thus making it insensitive & non-receptive.⁽⁴⁾
- 2) Defective corpus luteum leads to diminished production of progesterone both in amount & in duration resulting in inadequate stimulation of endometrium⁽⁵⁾ Progesterone is essential for the secretory transformation of human endometria.⁽⁶⁾
- 3) Poor follicular development as a result of the secretion of low levels of FSH originating from a defect in the hypothalamus or pituitary. Poor follicle formation leads to poor corpus luteum quality.

Infertility or recurrent miscarriage is presumed to be caused by too little progesterone being produced by the corpus luteum. This reduced progesterone in turn, adversely affects endometrial maturation & results in subfertility, infertility & pregnancy wastage ⁽⁷⁾. The study of hormonal status & monitoring the development of the follicle is insufficient for investigating an infertile woman. As follicular rupture had occurred in our study, but endometrium was in proliferative phase.

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