Faculty of Medicine
Ain Shams University

IRREGULAR UTERINE BLEEDING

Essay

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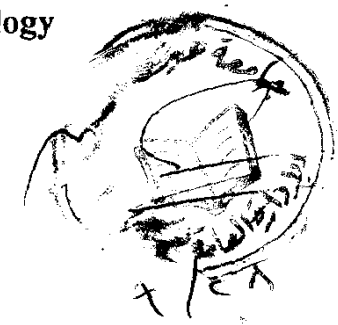

By
Abeer Bayomy Shoaib
(M.B.,B.Ch.) Ain Shams University

Supervised By

Prof. Dr. Mahmoud Medhat Abdel Hadi
Prof. of Obstetrics & Gynecology
Faculty of Medicine
Ain Shams University

Dr. Mohamed Adel El-Nazer
Assist. Prof. of Obstetrics and Gynecology
Faculty of Medicine
Ain Shams University

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INTRODUCTION

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Abnormal uterine bleeding is a symptom and not a disease which occurs in different forms. A rational approach and accurate diagnosis depends on recognizing its different types *(Tindall, 1987).*

A woman's bleeding pattern is determined to be normal when the average menstrual cycle has a duration of five days (with considerable variation among women) the interval has a range of 25 to 35 days and the average blood loss has a range of 30 to 100 ml/cycle *(Weingold, 1990).*

Although uterine bleeding is a normal physiologic episodic occurence for most women, its characteristics nevertheless, vary considerably. The broad range of normal variations causes difficulty in identifying abnormal patterns. To avoid the

problems of distinguishing between organic uterine bleeding caused by myomas, adenomyosis, endometrial polyps, endometrial hyperplasia and neoplasia, foreign body induced bleeding, infections or cervical polyps and other leasions and dysfunctional uterine bleeding in which no organic causes are found, the term "Abnormal uterine bleeding" has been used *(Wentz, 1988).*

Abnormal uterine bleeding may occur in various forms: **Menorrhagia**; prolongation of the menstrual flow often associated with an increase of flow *(Weingold, 1990).* **Polymenorrhea;** episodes of menstrual flow occuring at an interval less than 22 days apart. **Hypermenorrhea;** increase in the quantity of menstrual flow during a regular cycle of normal duration. **Metrorrhagia;** bleeding of any amount which occur irregularly between cycles or continously *(Tindall, 1987).* **Menometrorrhagia;** A pattern of total disturbance of the

menstrual cycle in which the flow is prolonged and is associated with additional irregular intermittent spotting between episodes of bleeding *(Weingold, l990).*

AIM OF THE WORK:

This study is done to give a review on irregular uterine bleeding and to revise recent articles published on the subject hoping to develop an updated protocol for the management of this serious problem.

FACTORS DETERMINING THE AMOUNT OF BLOOD LOSS IN MENSTRUATION

I. Estrogen and progesterone

Normal menstruation depends upon the combined cyclical secretion of estrogen and progesterone then the withdrawal of both of them just before the onset of menses.

2. Prostanoids:

There is much to suggest that the hormonal effects on the endometrium are mediated by the various prostanoids. An increase in estrogen and decrease in progesterone will stimulate the formation of prostaglandins and may also increase their concentration and prolong their action by inhibiting their degeneration. Dysfunctional uterine bleeding can thus result from some abnormality in prostaglandin metabolism which may occur primarily in the endometrium or may be secondary to

abnormality in estrogen-progesterone secretion *(Whitfield, 1986).*

Progesterone promotes the formation of the lysosomes of the endometrial cell and its withdrawal at menstruation allows the release of the phospholipase A_2 from the lysosomes initiating the arachidonic acid cascade and the formation and release of prostaglandins, prostacyclins and thromboxane. There is a certain ratio between prostacyclin and thromboxane which is a powerful platelet aggregator and vasoconstrictor. Disturbance of this ratio may contribute to the excessive menstrual blood loss in dysfunctional uterine bleeding *(Whitfield, 1986).*

Prostaglandins are increased in the endometrium and menstrual fluid of women suffering from menorrhagia. Since the rate limiting factor in the synthesis of prostaglandins is a supply of free arachidonic acid, one way in which prostaglandin

synthesis may be regulated is by modulating the activity of phospholipases. The activity of either phospholipase A_2 or phospholipase C or both may be increased in women with ovulatory menorrhagia. Phospholipase A_2 type I increases four-fold in activity during the secretory phase of the menstrual cycle. A second isoenzyme (phospholipase A_2 type 2) occurs in the endometrial stromal tissue. The activation of either of these isoenzymes may be necessary for the generation of arachidonic acid for prostaglandin synthesis. But in neither cases is there a marked increase in enzyme activity at menstruation *(Bonney et al., 1991).*

The pattern of phospholipase type II activity shows a small but significant increase in activity in the secretory phase of the cycle. The difference was more marked in the woman with menorrhagia because these women has significantly lower phospholipase A_2 type 2 activity in the proliferative phase than the control woman *(Bonney et al., 1991).*

It is possible that these women have a defect in endometrial regeneration and repair during the early proliferative phase which gives rise to menstrual irregularities later in the cycle.

3. Growth factors

Such as epidermal growth factors (E.G.F) or transforming growth factor α (T.G.F.α) may be implicated in regeneration and repair of the endometrium since these factors regulate endometrial arachidonic acid release, and prostaglandin synthesis by uterine tissues and arachidonic acid release by endometrial glands in vitro and therefore may also be more directly involved in menstruation *(Bonney et al., 1991).*

4. Other factors

Are responsible for the nature and amount of menstrual blood loss including the haemostatic platelet aggregation. Also constriction of the spiral arterioles and swelling of the endothelial cells are of the main haemostatic mechanisms. Re-

epithelialization of the basal layer of endometrium occurs which is coinciding with the cessation in menstrual flow and is probably dependent on the estrogen secreted from the new ovarian follicles *(Whitfield, 1986)*.

The high fibrinolytic activity of the endometrium promotes emptying of the uterus by liquifaction of the fibrin and sheded tissue. That is why menstrual blood doesn't clot. When menstrual loss is excessive, the flow of blood is too great for the amount of lysin available resulting in the passage of blood clots typical of menorrhagia *(Whitfield, 1986)*.

CLASSIFICATION OF IRREGULAR UTERINE BLEEDING

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According to age

1. **Adolescent bleeding,** which is almost always dysfunctional in origin
2. **Adult bleeding:** between 20-40 years most commonly due to benign tumour, pelvic inflammatory disease, or some complication of pregnancy.
3. **Premenopausal bleeding.** Over 40 years, commonly due to organic disease, but this period of life nevertheless has a high incidence of dysfunctional bleeding. Carcinoma of the cervix and endometrium should be excluded in all cases of perimenopausal bleeding *(Whitfield, 1986).*

Weingold (1990), classified abnormal uterine bleeding into: