

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



REPRODUCTION MODULE

CASE BASED LEARNING (CBL)

2nd YEAR MBBS - BATCH 50

Menorrhagia

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PGT Physiology

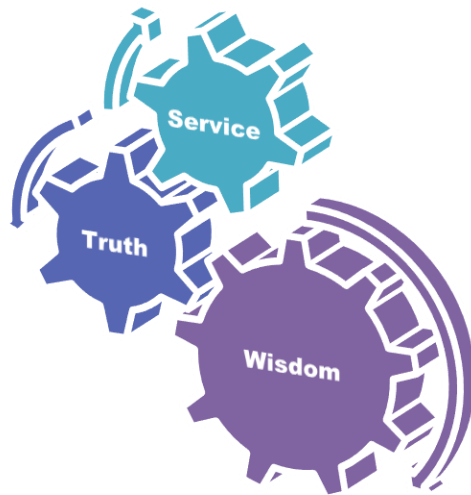
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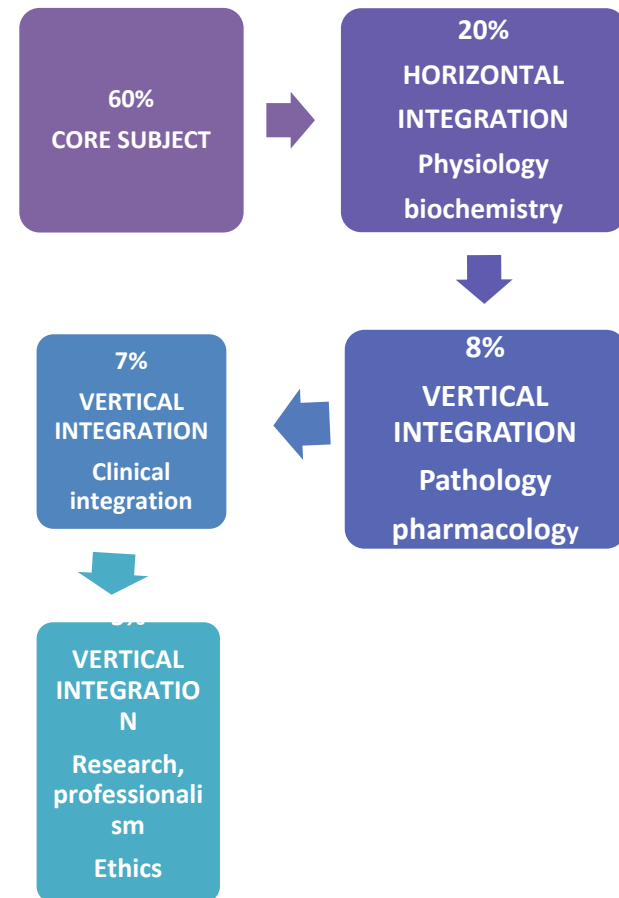
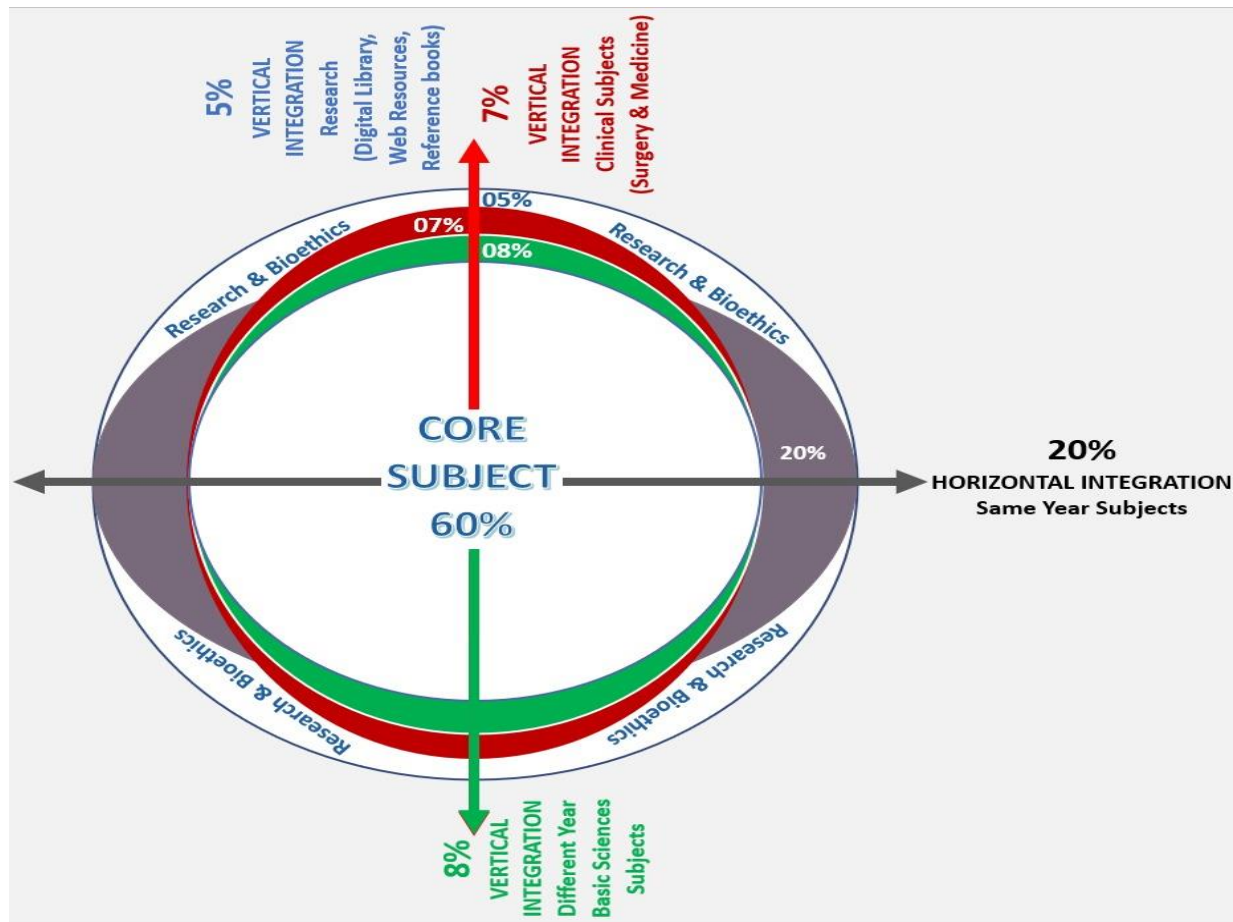
Motto



Vision; The Dream/Tomorrow

- To impart evidence based research oriented medical education
- To provide best possible patient care
- To inculcate the values of mutual respect and ethical practice of medicine

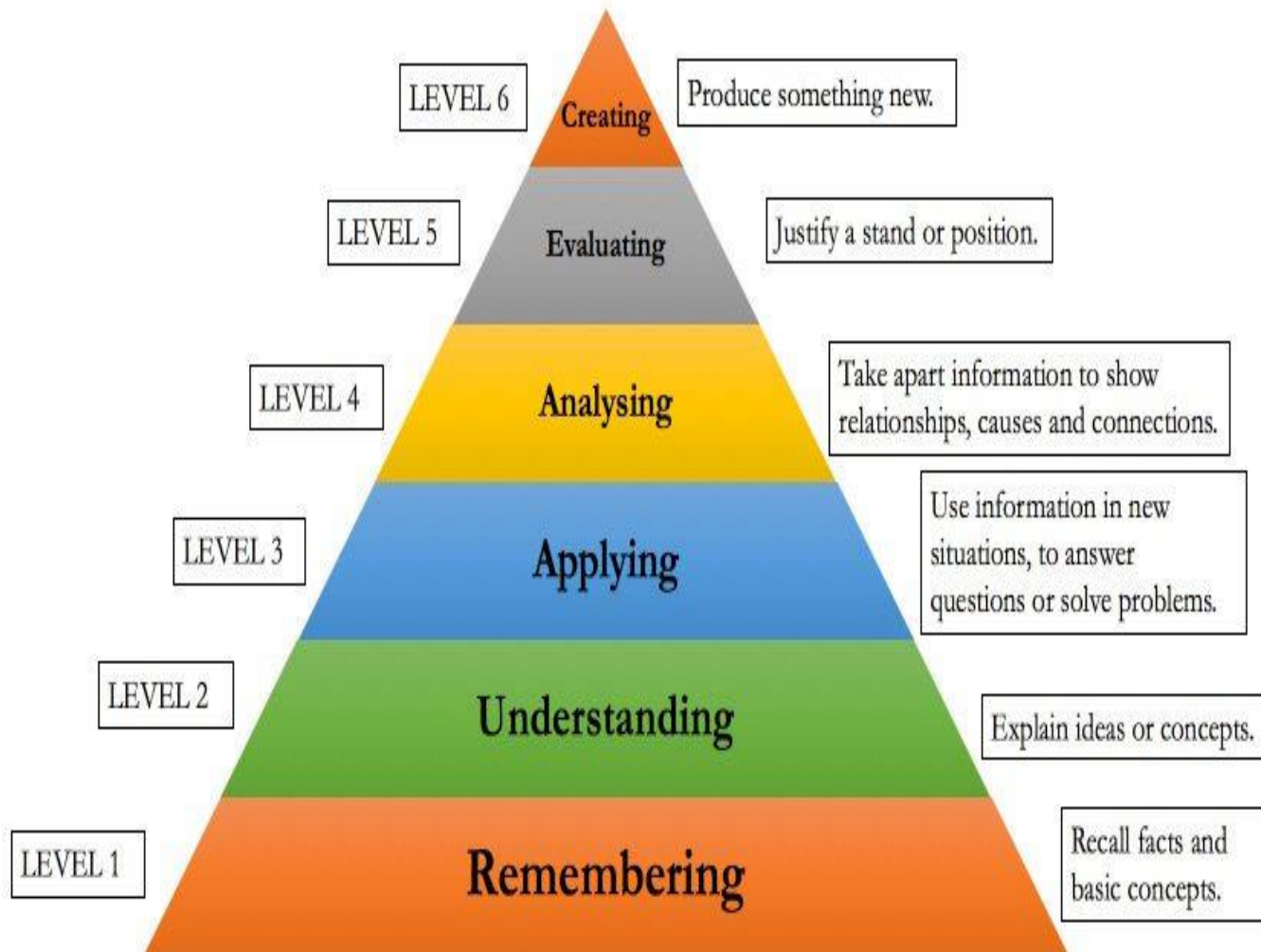
Professor Umar Model of Integrated Lecture



Bloom's Taxonomy : Domains of Learning

Sr. #	Domain of learning	Abbreviation	Levels of the domain	Meaning
1	cognition	C	C1	Recall / Remembering
2			C2	Understanding
3			C3	Applying / Problem solving
4	Psychomotor	P	P1	Imitation / copying
5			P2	Manipulation / Follows instructions
6			P3	Precision / Can perform accurately
7	Attitude	A	A1	Receiving / Learning
8			A2	Respond / Starts responding to the learned attitude
9			A3	Valuing / starts behaving according to the learned attitude

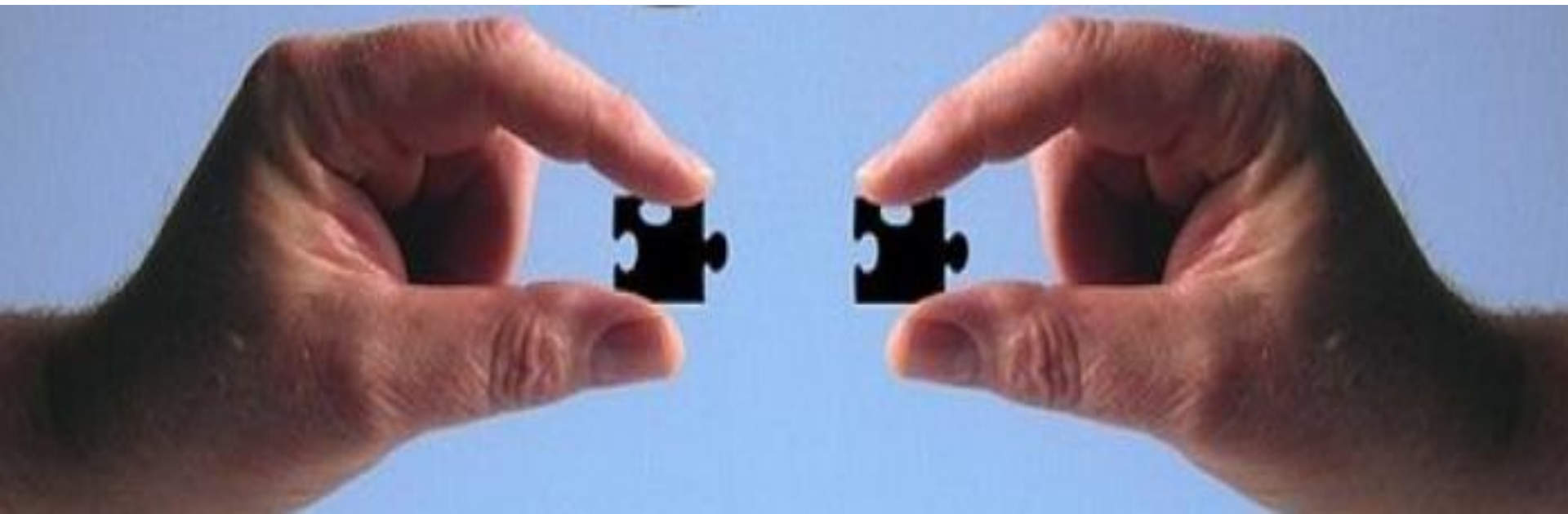
Diagrammatic Representation Of Blooms Taxonomy



Learning Objectives

Sr. #	Learning Objective	Domain of Learning
1	To summarize the etiologies of abnormal uterine bleeding	C2
2	To describe the epidemiology of abnormal uterine bleeding	C1
3	To review the role of the interprofessional team in collaborating to treat women with abnormal uterine bleeding	C2
4.	To explain the causes of abnormal uterine bleeding related to the structure of the uterus versus the clotting pathway and the disruption of the hypothalamic-pituitary-ovarian axis	C2

Horizontal Integration



Monthly Endometrial Cycle

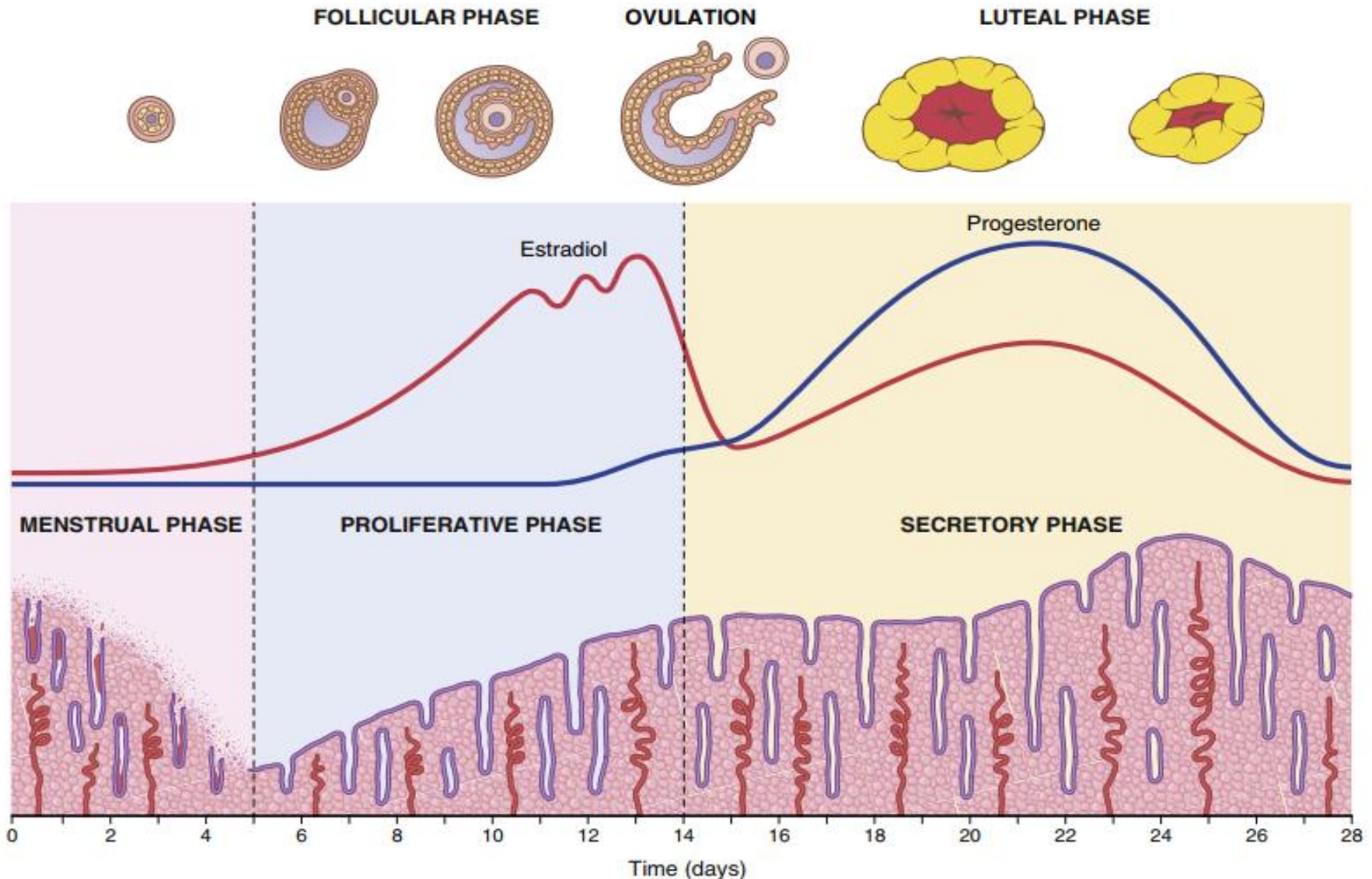
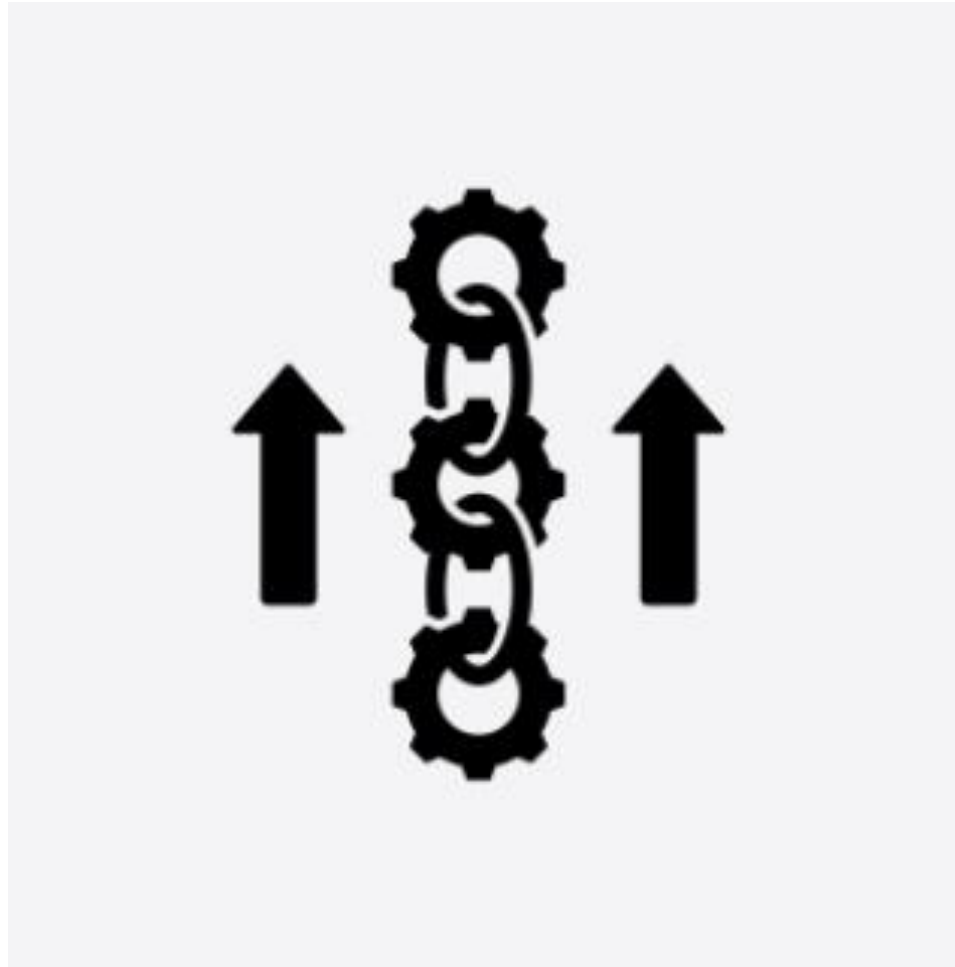


Figure 82-9. Phases of endometrial growth and menstruation during each monthly female sexual cycle.

Vertical Integration



Case Scenario

- A 38 years lady, presented to her primary care physician's with the complaints of tiredness, weakness along with heavy menstrual bleeding, which lasts for 10-12 days, for the past six months. She reported soaking through a super tampon and change of pad every hour for the first three days of her periods, and passing several large clots during this time.

Case Scenario (Contd..)

- **History:** She denied any significant medical history, including thyroid disorders or bleeding disorders or history of abnormal uterine bleeding. She is not taking any medications, and has no known allergies. She has regular menstrual cycles of 28 days, and her last menstrual period was two weeks ago. She is not using any hormonal contraception, and has no history of recent pelvic infections, surgeries, or pregnancies.



Case Scenario (Contd..)

- **Physical Examination:** Vital signs are within normal limits.
- **Pelvic examination:** Cervix appears healthy and normal in size and shape, with no palpable masses or tenderness. The uterus is slightly enlarged and globular in shape, with no palpable masses or tenderness.
- The remainder of the physical examination is unremarkable.

Discussion Questions

1. What is the likely **diagnosis** for her symptoms?
2. What are the **possible causes** of this condition and how would you differentiate between them?
3. What **diagnostic tests** would you order to further evaluate her symptoms?
4. What are the **potential complications** of this condition and how would you monitor for them?



Discussion Questions (Contd..)

5. What **treatment options** are available for this clinical condition and how would you counsel Sarah about each option?
6. What are the potential **benefits and risks** of **hormonal and non-hormonal treatment** options?
7. How would you manage Sarah's symptoms in the short-term and what is the role of **long-term follow-up care**?



Discussion Questions (Contd..)

- 8. How would you ensure that Sarah is **fully informed and involved** in the decision-making process for her care?



Core Knowledge[®]










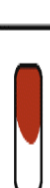











Abnormal Uterine Bleeding

‘Abnormal uterine bleeding is a broad term that describes irregularities in the menstrual cycle involving frequency, regularity, duration, and volume of flow outside of pregnancy.’






















Abnormal Uterine Bleeding

- Up to one-third of women will experience abnormal uterine bleeding in their life, with irregularities most commonly occurring at menarche and perimenopause.
- A normal menstrual cycle has a frequency of 24 to 38 days and lasts 2 to 7, with 5 to 80 milliliters of blood loss. Variations in any of these 4 parameters constitute abnormal uterine bleeding.
















A

TOILETS	Score	TOWELS	TYPE	Score	TAMPONS	TYPE	Score in ml
	1ml		Day time	1ml	DATE	BRAND	
	3ml		Night time	1ml		Regular	0.5
	5ml		Day time	2ml		Super	1.0
			Night time	3ml		Super Plus	1.0
			Day time	3ml		Regular	1.0
			Night time	6ml		Super	1.5
			Day time	4ml		Super Plus	2.0
			Night time	10ml			
			Day time	5ml			
			Night time	15ml			

B

NAPKIN	TYPE	Score (mL of blood)	TAMPON	TYPE	Score (mL of blood)
	BRAND	Kotex		BRAND	Tampax
	Day time	1		Regular	0.5
	Night time	1		Super	1
	Day time	2		Super Plus	1
	Night time	3		Regular	1
	Day time	3		Super	1.5
	Night time	6		Super Plus	2
	Day time	4		Regular	1.5
	Night time	10		Super	3
	Day time	5		Super Plus	6
	Night time	15		Regular	4
				Super	8
				Super Plus	12

C

ALWAYS ULTRA NORMAL UNDERSIDE OF TOWEL	ALWAYS ULTRA LONG UNDERSIDE OF TOWEL	ALWAYS ULTRA NIGHT UNDERSIDE OF TOWEL
1  0.5ml	1  0.5ml	1  0.5ml
2  1.5ml	2  1.5ml	2  2ml
3  4ml	3  3.5ml	3  4.5ml
4  6.5ml	4  6.5ml	4  8ml
5  12.5ml	5  12.5ml	5  14ml



Causes of Abnormal Uterine Bleeding

- **PALM-COEIN** is a useful acronym provided by the International Federation of Obstetrics and Gynecology (FIGO) to classify the underlying etiologies of abnormal uterine bleeding.



Causes

- P: Polyp
- A: Adenomyosis
- L: Leiomyoma
- M: Malignancy and hyperplasia
- C: Coagulopathy
- O: Ovulatory dysfunction
- E: Endometrial disorders
- I: Iatrogenic
- N: Not otherwise classified

Pathophysiology of Abnormal Uterine Bleeding

- The uterine and ovarian arteries supply blood to the uterus. These arteries become the arcuate arteries; then they send off radial branches which supply blood to the two layers of the endometrium, the functionalis and basalis layers.
- Progesterone levels fall at the end of the menstrual cycle, leading to enzymatic breakdown of the functionalis layer of the endometrium. This breakdown leads to blood loss and sloughing, which makes up **menstruation**.

Pathophysiology

- Functioning platelets, thrombin, and vasoconstriction of the arteries to the endometrium control blood loss.
- Any derangement in the structure of the uterus (such as leiomyoma, polyps, adenomyosis, malignancy, or hyperplasia), derangements to the clotting pathways (coagulopathies or iatrogenically), or disruption of the hypothalamic-pituitary-ovarian axis (through ovulatory/endocrine disorders or iatrogenically) can affect menstruation and leads to abnormal uterine bleeding.

Descriptive Terms for Abnormal Uterine Bleeding (AUB)

Previously, descriptive terms were used to describe AUB, including:

Menorrhagia: Regular but heavy menses

Metrorrhagia: Bleeding in between regular menses

Polymenorrhea: Regular bleeding more often than 21 days

Oligomenorrhea: Bleeding at a frequency of greater than 35 days.

Descriptive Term	Bleeding pattern
• Menorrhagia or (hypermenorrhea)	prolonged (> 7 days) / or excessive (>80 ml) uterine bleeding occurring at regular intervals.
• Metrorrhagia	irregular or a cyclic bleeding (intermittent or continuous)
• Menometrorrhagia	irregular or a cyclic bleeding and of excessive amount
• Menostaxis	regular periods but prolonged duration
• Polymenorrhea or (Epimenorrhea)	frequent menstruation (<21 days), at regular intervals
• Polymenorrhagia	frequent heavy periods
• Intermenstual bleeding (commonly called "spotting")	uterine bleeding of variable amounts occurring between regular menstrual periods.
• Breakthrough bleeding	spotting or mild bleeding during the intermenstrual period or during hormonal therapy
• Hypomenorrhea	scanty menstruation
• Oligomenorrhea	infrequent menstruation (>35 days)

Menorrhagia

‘A medical term for abnormally heavy or prolonged bleeding’

- **Menstrual flow of $> 80\text{ml/cycle}$.**



Causes

- Hormonal Imbalance
- Dysfunctioning Ovaries
- Uterine Fibroids
- Polyps
- Adenomyosis
- Intrauterine Device

Hormonal Imbalance

- Hormonal imbalance between estrogen and progesterone causes the endometrium to develop in excess and eventually sheds by way of heavy menstrual bleeding.



Dysfunctioning ovaries

- Anovulation leads to imbalance of progesterone levels, which may result in menorrhagia.



Signs and Symptoms

- Soaking through one or more sanitary pads
- Needs to use double sanitary protection
- Needs to wake up
- Bleeding longer than a week
- Passing blood clots
- Restricted daily activities
- Symptoms of anemia like fatigue, tiredness and shortness of breath



Complications

- Iron deficiency anemia
- Dysmenorrhea (pain during menses)

Diagnostic tests

- **Blood test** to evaluate anemia, thyroid disorders or other blood clotting abnormalities.
- **Pap smear test:** cells from cervix are collected and test for infection, inflammation and any cancerous changes.
- **Endometrial biopsy:** small piece of uterine tissue is taken to check the thickness of endometrium



Diagnostic Tests (Contd..)

- **Ultrasound scan:** rule out abnormalities in uterus.
- **Hysteroscopy:** visualising the uterus by inserting a tiny camera through vagina and cervix to see the inside of the uterus.

Treatment

- **Iron supplements:** In case of iron deficiency anemia.
- **Nonsteroidal anti-inflammatory drugs:** helps to relieve painful menstrual cramps and also reduce menstrual blood loss.
- **Tranexamic acid:** prevents the blood clots from breaking down too quickly.
- **Combined oral contraceptive pills:** stabilize the endometrium

Bioethics



BIO-ETHICS

CULTURAL
PRIZE

PUBLIC
MORALITY



How Bioethics can be applied in the previous scenario?





Ethical Considerations

- **Confidentiality:** Maintain the patient's confidentiality throughout the diagnostic and treatment process.
- **Cultural Sensitivity:** Be aware of and sensitive to cultural, religious, or personal beliefs that may impact the patient's healthcare decisions.
- **Patient Preferences:** Respect the patient's values, beliefs, and preferences. Engage in shared decision-making to choose the most appropriate course of action.

Family Medicine



How family physician would be involved in the previous scenario?





Role of Family Physician

1. Initial Evaluation

- **Comprehensive History:** a detailed medical history, menstrual history, and any relevant personal and family medical history.
- **Physical Examination:** A thorough physical examination would be conducted.

2. Diagnostic Workup

- **Basic Laboratory Tests:** complete blood count (CBC), thyroid function tests, and possibly hormonal assays.
- **Imaging and Referrals:** pelvic ultrasound to visualize the uterus and ovaries.



Contd..

3. Management Plan

- **Medical Management:**
 - Hormonal Treatments
 - Non-Hormonal Treatments
- **Surgical Management**
- **Lifestyle and Supportive Measures:** iron supplements, dietary adjustments, and lifestyle changes.

4. Ongoing Monitoring and Follow-Up

- **Regular Follow-Ups:** regular follow-up appointments to monitor the patient's response to treatment.
- **Symptom Tracking:** Encouraging the patient to keep a menstrual diary to track bleeding patterns.

Research



Suggested research article

Go to: ☒

Introduction

Abnormal uterine bleeding (AUB) is a broad term that describes irregularities in the menstrual cycle involving frequency, regularity, duration, and volume of flow outside of pregnancy. Up to one-third of women will experience abnormal uterine bleeding in their life, with irregularities most commonly occurring at menarche and perimenopause. A normal menstrual cycle has a frequency of 24 to 38 days and lasts 2 to 7 days, with 5 to 80 milliliters of blood loss. Variations in any of these 4 parameters constitute abnormal uterine bleeding. Older terms such as oligomenorrhea, menorrhagia, and dysfunctional uterine bleeding should be discarded in favor of using simple terms to describe the nature of abnormal uterine bleeding. Revisions to the terminology were first published in 2007, followed by updates from the International Federation of Obstetrics and Gynecology (FIGO) in 2011 and 2018. The FIGO systems first define abnormal uterine bleeding, then give an acronym for common etiologies. These descriptions apply to chronic, nongestational AUB. In 2018, the committee added intermenstrual bleeding and defined irregular bleeding as outside the 75th percentile.[1]

Abnormal uterine bleeding can also be divided into acute versus chronic. Acute AUB is excessive bleeding that requires immediate intervention to prevent further blood loss. Acute AUB can occur on its own or superimposed on chronic AUB, which refers to irregularities in menstrual bleeding for most of the previous 6 months.[2]

- 1) <https://www.ncbi.nlm.nih.gov/books/NBK532913/>

Crux of Suggested Research Article

- Abnormal uterine bleeding (AUB) encompasses irregularities in menstrual cycle frequency, regularity, duration, and volume, affecting up to one-third of women, especially at menarche and perimenopause.
- Normal cycles occur every 24 to 38 days, lasting 2 to 7 days with 5 to 80 ml of blood loss.
- Updated terminology from FIGO categorizes AUB by cause and differentiates between acute and chronic AUB.
- Acute AUB necessitates immediate intervention, while chronic AUB involves irregular bleeding for most of the previous six months.

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