Abnormal uterine bleeding

Definition:

Abnormal uterine bleeding; is any bleeding other than the normal menstruation.
Dysfunctional uterine bleeding: is an abnormal uterine bleeding in absence of underlying pelvic pathology or medical disease.

Scope of the problem

- AUB is the most common gynecologic complaint. It affects 10-30% of women in the reproductive years and up to 50% in the perimenopausal years.

Normal menses

- Menstruation is defined as a cyclic predictable vaginal bleeding.
- It has the following criteria:
  1. **Duration** of menstruation (period): it has an average duration of 3-5 days but may be as short as 2 days and as long as 7 days.
  2. **Frequency** of menstruation: every 3-5 weeks (21-35 days). The average duration of the cycle is 28 days. The days of the cycle is counted from the first day of the menstruation to the day before the following menstruation.
  3. **Volume** of menstruation: it is normally 5-80 ml (average 35 ml).
  4. **Regularity**: it is considered regular if the variation in the same woman is within 5 days.
- The period and the cycle are usually expressed as a 2 digits e.g. p/c= 5/30; where 5 is the period and 30 is the cycle.

Patterns of abnormal uterine bleeding

- **Menorrhagia** (=heavy menstrual bleeding=HMB): regular (cyclic) excessive (>80 ml) and prolonged (>7 days) vaginal bleeding.
- **Metrorrhagia**: irregular (=acyclic) vaginal bleeding that has normal amount but variable in duration (i.e. ± prolonged).
- **Menometrorrhagia**: irregular vaginal bleeding which is excessive in amount.
- **Polymenorrhea**: regular bleeding which is frequent (cycle < 21 days).
- **Oligomenorrhea**: irregular bleeding which is infrequent (cycle >35 days). The upper limit of this duration is 6 months after which the woman is considered amenorrhoeic.
- **Hypomenorrhea**: regular bleeding which is decreased in amount (< 5 ml) with or without decrease in duration.
- **Postcoital bleeding**: is vaginal bleeding after intercourse.
- **Intermenstrual bleeding:** is vaginal bleeding in between normal periods.
- **Postmenopausal bleeding** (PMB) is defined as vaginal bleeding occurring more than 12 months after the last menstrual period.

Causes of abnormal uterine bleeding

A. Pelvic pathology

1. Pregnancy complications: ectopic pregnancy, miscarriage, and gestational trophoblastic disease. Pregnancy complications must be considered in any women present with AUB regardless of the history (e.g. recent LMP, absent husband).
2. Benign lesions in the genital tract as uterine fibroid, adenomyosis, polyp (cervical or endometrial), cervical erosion.
3. Premalignant conditions in the genital tract as endometrial hyperplasia.
4. Malignant conditions in the genital tract: endometrial carcinoma, cancer cervix, cancer vagina, ovarian cancer.
5. Infection: cervicitis, acute and chronic Pelvic Inflammatory Disease (PID)
6. Foreign body: uterine (IUD) or vaginal foreign body in children.
7. Trauma: defloration injury (excessive bleeding following 1st coitus due to vaginal tears), or accidental sharp or blunt trauma.

B. Medical disorders

1. Thyroid: Hypothyroidism→ Anovulation→ menorrhagia& intermenstrual bleeding. (N.B. Hyperthyroidism → oligomenorrhea & amenorrhea)
2. Coagulation disorders: Von-Willebrand factor (VWF) deficiency, thrombocytopenia.
1. Hepatic disease.
2. Renal disease
3. Iatrogenic: exogenous hormones (oestrogens, Progestins, Tamoxifen) , warfarin.

Dysfunctional uterine bleeding (DUB): it is a diagnosis of exclusion. It has two types: ovulatory and anovulatory.

I. **Ovulatory bleeding (20 %):** it is regular and often associated with dysmenorrhea.

Patterns: may be polymenorrhea or menorrhagia.

Pathogenesis:

- **Polymenorrhea** accelerated growth of follicle with short follicular phase and shortening of the overall cycle (<21 days).
- **Menorrhagia** is due to defect in the endometrial balance of local vasoactive substances (higher PGE_2 and PGI_2 which are vasodilator versus $PGF_{2\alpha}$ and endothelins which are vasoconstrictor).

II. Anovulatory bleeding (80 %): it is irregular and painless.

Patterns may be Metrorrhagia, or Menometrorrhagia.

Pathogenesis: It is due to chronic anovulation.

Chronic anovulation is due to dysfunction of the hypothalamo-pituitary-ovarian axis:

- In the extremes of reproductive age is due to immaturity (in years following menarche) or aging (in years before menopause) of this axis.
- During the reproductive period (20-40 years) Polycystic Ovarian Syndrome (PCOS) may be the underlying cause.

The absence of ovulation means that follicle will continue to secrete estrogen. The persistent estrogen exposure (which is unopposed by progesterone) results in a thick endometrium which outgrows its blood supply and lastly undergoes breakdown. Focal

areas of the endometrium undergo breakdown and bleeding, as those areas heal under the effect of continued estrogen stimulation, others break down and bleed.

Assessment of abnormal uterine bleeding

Clinical

- History:
    - onset, course, and duration of AUB; amount of bleeding (flooding or blot clots denotes severe bleeding); pattern of bleeding (menorrhagia, metrorrhagia,…..etc.), sudden change in pattern; bleeding from other orifices; anticoagulant drugs; contraception; associated pain; dyspareunia; amenorrhea (LMP); response to medical treatment; the form of medical treatment; symptoms of anaemia (dizziness, headache, palpitation); symptoms suggestive of hypothyroidism (weight gain, cold intolerance, hair loss, constipation), symptoms suggestive of hyperthyroidism (weight loss, heat intolerance), or symptoms suggestive of metastasis.
- Examination:
    - General: pallor, cachexia, obesity, puffy eyes (hypothyroidism); exophthalmos (hyperthyroidism).
    - Vital signs: tachycardia in acute severe bleeding or acute PID; bradycardia in hypothyroidism); fever in acute PID.
    - Systemic examination: hirsutism (PCOS is the most common cause of hirsutism), cold periphery (hypothyroidism); goitre; peliviabdominal mass.
    - Local gynaecological examination: pelvic mass (uterine or adnexal); cervical or vagina masses.

Investigations

1. **Complete blood count** (anemia reflecting severity of AUB; thrombocytopenia may be the underlying aetiology; leukocytosis may indicate infection).
2. **Ultrasound**: both transabdominal and transvaginal May reveal:
    a. Uterine pathology (e.g. fibroid, adenomyosis, thick endometrium, intracavitary mass, cervical mass, pregnancy complications including miscarriage, ectopic, or molar pregnancy).
    b. Adnexal pathology: ovarian cyst or mass, tubo-ovarian abscess (PID).
3. **Pregnancy test**: to exclude pregnancy complications.
4. **Computed Tomography** (CT) and Magnetic Resonance Imaging (MRI): indicated if ultrasound is inconclusive as in virgins or if malignancy.
5. **Coagulation screen**: indicated if adolescent patient, family history, or bleeding from other orifices
6. **Thyroid function** tests: indicated if clinically suspected thyroid disease.
7. **Endometrial biopsy**: indicated if
    1) Postmenopausal bleeding
    2) Bleeding after the age of 45 years
    3) Intermenstrual bleedding
    4) AUB while using tamoxifen
    5) DUB which did not respond to medical treatment (combined hormonal and non-hormonal)

N.B. Endometrial biopsy may be taken by D&C or more accurately by hysteroscopy.

Treatment of AUB

I. If the clinical and usually ultrasound assessment reveal a cause, this cause is treated accordingly (e.g. evacuation for inevitable miscarriage, salpingectomy for ectopic pregnancy, myomectomy for fibroid, etc).
II. If the clinical and usually ultrasound assessment do not reveal any possible cause, the patient is considered as a case of DUB. DUB is managed as follows:

Medical treatment: it is the first line of treatment. It is effective in most of cases.

1. **Correction of anemia:** iron therapy
2. **Non-hormonal treatment:** it is taken by the patient only during bleeding
   a) Non-steroidal Anti-inflammatory Drugs (NSAIDs): They restore the balance of prostaglandins within the endometrium.
   b) Antifibrinolytics: as Tranexamic acid.
3. **Hormonal treatment:** it is given for a duration of 3-6 months
   a) Cyclic Progestogen
   b) Combined oral contraceptive pills (COCs).
   c) Hormone releasing IUD (Mirena): It is used if the patient requires contraception at the same time.
   d) GnRH is considered as the last line in hormonal treatment of AUB.

Surgical

- D&C is only a diagnostic tool.
- Hysterectomy: it is last resort in the management of DUB. It is indicated in women who fail to respond to medical treatment if they complete their family.