Abnormal uterine bleeding

Menorrhagia

MENORRHAGIA {Syn: Hypermenorrhoea)

Definition

- Menorrhagia is defined as cyclic bleeding at normal intervals; the bleeding is either excessive in amount (> 80 ml) or duration (> 7 days) or both.

Causes

- Menorrhagia is a symptom of some underlying pathology — organic or functional.

1. Organic

a.Pelvic:

- Pelvic pathology

Due to congestion, increased surface area or hyperplasia of the endometrium.

- Fibroid uterus
- Adenomyosis
- Pelvic endometriosis

B.Systemic

- Liver dysfunction — failure to conjugate and thereby inactivates the oestrogens.
- Congestive cardiac failure
- Severe hypertension

c.Endocrinal

- Hypothyroidism
- Hyperthyroidism

d.Haematological

- Idiopathic thrombocytopenic purpura
- Leukaemia
- von Willebrand's disease
- Platelet deficiency

e.Emotional upset

Common causes of menorrhagia

- Dysfunctional uterine bleeding
- Fibroid uterus
- Adenomyosis
- Chronic tubo-ovarian mass

DIAGNOSIS :

- Long duration of flow,
- passage of big clots,
- use of increased number of thick sanitary pads,
- pallor and low level of haemoglobin give an idea about the correct diagnosis and magnitude

TREATMENT:

The definitive treatment is appropriate to the cause for menorrhagia.

POLYMENORRHOEA:(Epimenorrhoea)

Definition

- Polymenorrhoea is defined as cyclic bleeding where the cycle is reduced to an arbitrary limit of less than 21 days and remains constant at that frequency.
- If the frequent cycle is associated with

Causes :

1.**Dysfunctional**

- It is seen predominantly during adolescence, preceding menopause and following delivery and abortion.
- Hyperstimulation of the ovary by the pituitary hormones may be the responsible factor.

- **Treatment** :

Persistent dysfunctional type is to be treated by hormone .

METRORRHAGIA

Definition :

- Metrorrhagia is defined as irregular, acyclic bleeding from the uterus.
- Amount of bleeding is variable.
- Then again, irregular bleeding in the form of contact bleeding or intermenstrual bleeding in an otherwise normal cycle is also included in metrorrhagia.
- In fact, it is mostly related to surface lesion in the uterus .

Causes of acyclic bleeding

- DUB — usually during adolescence, following childbirth and abortion and preceding menopause
- Submucous fibroid
- Uterine polyp
- Carcinoma cervix and endometrial carcinoma

Causes of intermenstrual bleeding

- Urethral caruncle
- Ovular bleeding
- Breakthrough bleeding in pill use
- IUCD in utero
- Decubitus ulcer

Treatment

- Treatment is directed to the underlying pathology.
- **Malignancy is to be excluded prior to any definitive treatment.**

OLIGOMENORRHOEA

Definition

- Menstrual bleeding occurring **more than 35 days** apart and which remains constant at that frequency is called oligomenorrhoea.

Causes

- Age-related
- Weight-related
- Stress and exercise related
- Endocrine disorders
- Androgen producing tumours
- Tubercular endometritis
- Drugs:
  - phenothiazines
  - Cimetidine

HYPOMENORRHOEA

Definition :

When the menstrual bleeding is unduly scanty and lasts for less than 2 days, it is called hypo-menorrhoea.

Causes

- The causes may be local

DYSFUNCTIONAL UTERINE BLEEDING (DUB)

Definition

- DUB is defined as a state of abnormal uterine bleeding without any clinically detectable organic, systemic and iatrogenic cause.
- Heavy menstrual bleeding (HMB) is defined as a bleeding that interferes with woman's

Incidence

- incidence of 10 per cent amongst new patients attending the out-patient seems logical.
- The bleeding may be abnormal in frequency, amount or duration or combination of any three.
- Currently DUB is defined as a state of abnormal uterine bleeding following anovulation due to dysfunction of hypothalamo-pituitary-ovarian axis

Pathophysiology

The physiological mechanism of haemostasis in normal menstruation are :

(1) Platelet adhesion formation.

(2) Formation of platelet plug with fibrin to seal the bleeding vessels.

(3) Localised vaso constriction.

(4) Regeneration of endometrium.

Biochemical mechanism involved are :

In increased endometrial ratio of PGF2α/PGE2.

- PGF2α causes vasoconstriction and reduces bleeding.
- Progesterone increases the level of PGF2α from arachidonic acid.
- Levels of endothelin which is a powerful vasoconstrictor is also increased.
- In anovulatory DUB there is decreased synthesis of PGF2α and the ratio of $PGF_2\alpha/PGE_2$ is low.
- Anovulatory cycles are usually not associated with

- The endometrial abnormalities may be primary or secondary to incoordination in the hypothalamo- pituitary-ovarian axis.

- Emotional influences, worries, anxieties or sexual problems sometimes are enough to disturb the normal hormonal balance.

The abnormal bleeding may be associated with or without ovulation and accordingly grouped into :

- **Ovular bleeding**
- **Anovular bleeding**

Ovular bleeding

a.Polymenorrhoea or polymenorrhagia:

- The condition usually occurs following childbirth and abortion, during adolescence and premenopausal period and in pelvic inflammatory disease.
- The follicular development is speeded up with resulting shortening of the follicular phase.
- This is probably due to hyperstimulation of the follicular growth by FSH.
- Rarely, the luteal phase may be shortened due to premature lysis of the corpus luteum. Sometimes, it is related to stress

b. Oligomenorrhoea:

- Primary ovular oligomenorrhoea is rare.
- It may be met in adolescence and preceding menopause.
- The disturbance may be due to ovarian unresponsiveness to FSH or secondary to pituitary dysfunction.
- There is undue prolongation of the proliferative phase with normal secretory phase.

Functional menorrhagia:

Ovular menorrhagia is quite uncommon.

Two varieties are found:

- Irregular shedding of the endometrium.
- Irregular ripening of the endometrium

Irregular shedding of the endometrium

- The abnormality is usually met in extremes of reproductive period.
- Normally, regeneration of the endometrium is completed by the end of third day of menstruation.

The possible explanations are:

- Incomplete withdrawal of LH even on 26th day of cycle incomplete atrophy of the corpus luteum persistent secretion of progesterone.
- Persistent LH -» inhibition of FSH -» suppresses ripening of the follicle in the next cycle -> less oestrogen -» less regeneration.
- Endometrial sampling performed after 5th or 6th

Irregular ripening of the endometrium

- There is poor formation and inadequate function of the corpus luteum.
- Secretion of both oestrogen and progesterone is inadequate to support the endometrial growth.
- As such, slight bleeding occurs and continues prior to the start of proper flow.
- The endocrine profile in the luteal phase shows persistent low level of urinary pregnanediol level of less than 3 mg or plasma progesterone level less than 5 ng/ml

Anovular bleeding

a.Menorrhagia

- Anovular bleeding is usually excessive.
- In the absence of growth limiting progesterone due to anovulation, the endometrial growth is under the influence of oestrogen throughout the cycle.
- There is inadequate structural stromal support and the endometrium remains fragile.
- Thus, with the withdrawal of oestrogen due to negative feedback action of FSH, the endometrial shedding

b.Cystic glandular hyperplasia *(Syn:Metropathiahaetnorrhagica,Schroeder's disease*)

- This type of abnormal bleeding is usually met in premenopausal women.
- The basic fault may lie in the ovaries or may be due to disturbance of the rhythmic secretion of the gonadotrophins.
- There is slow increase in secretion of oestrogen but no negative feedback inhibition of FSH.

- As there is no ovulation, the endometrium is under the influence of oestrogen without being opposed by growth limiting progesterone for a prolonged period.
- After a variable period, however, the oestrogen level falls resulting in endometrial shedding with heavy bleeding.
- Bleeding also occurs when the endometrial growth have outgrown their blood supply.
- Due to increased endometrial thickness, tissue breakdown continues for a long time.
- Bleeding is heavy as there is no vasoconstrictor effect of

Changes in the uterus :

- There is variable degree of myohyperplasia with symmetrical enlargement of the uterus to a size of about 8-10 weeks due to simultaneous hypertrophy of muscles .
- The endometrial changes are classical.
- On naked eye examination, the endometrium looks thick, congested and often polypoidal (multiple polyposis).

Microscopically

- There is marked hyperplasia of all the endometrial components.
- There is however, intense cystic glandular hypertrophy rather than hyperplasia with marked disparity in sizes.
- Some of the glands are small, others are large giving the appearance of "Swiss cheese" pattern (small and large holes of Swiss cheese made in Switzerland).
- The glands are empty and lined by columnar epithelium.

Changes in the ovary :

- Cystic changes maybe observed involving one or both the ovaries.
- The cyst may be single or multiple and the fluid contains oestrogen.
- The cyst is of follicular type. There is no

Atrophy of the endometrium:

- This type of abnormality is commonly met in postmenopausal women but may occur in reproductive period as final involutionary state of a previous metropathia.
- The bleeding occurs from the rupture of the dilated capillaries beneath the atrophic surface epithelium.

Endometrial pattern in DUB

- In majority (60 %), the endometrium is normal secretory in every aspect.
- In about 30 per cent, the endometrium is hyperplastic and in the remaining, there are evidences of irregular shedding, irregular

- **Investigations**

The investigation aims at .

- To confirm the menstrual abnormality as stated by the patient.
- To exclude the systemic, iatrogenic and 'organic' pelvic pathology.

History .

- Confirmed that the bleeding is through the vagina and not from the urethra or rectum.
- statement of excessive bleeding is assessed by number of pads used, passage of clots (size and number) and duration of bleeding.
- If ambiguity is found from the estimated haemoglobin percentage, it is better to assess the blood loss by admitting the patient during period.

- Nature of menstrual abnormality is then to be enquired — cyclic or acyclic, its relation to puberty, pregnancy events and last normal cycle.
- Any emotional upset or psychosexual problem should be elicited tactfully.
- Use of steroidal contraceptives or IUCD insertion should be enquired.
- History of abnormal bleeding from the injury site, epistaxis, gum bleeding or that suggestive of PID should be enquired.
- Estimation of menstrual blood loss either directly by

Internal examination :

- Bimanual examination including speculum examination should be done in all cases except in virgins where rectal examination is to be done to exclude palpable pelvic pathology.
- If vaginal examination is required in virgins, it

Special investigations

Blood values

- Haemoglobin estimation is done in every case.
- Serum feritin test is not done as a routine.
- In pubertal menorrhagia not responding to usual therapy, platelet count, prothrombin time, bleeding time, partial thromboplastin time are to be estimated

- **Ultrasound and Colour Doppler** findings of endometrial hyperplasia are :

(i) Endometrial thickness >12 mm.

(ii) Hyperechoic and regular outline,

(iii)Angiogenesis and neovascular signal study.

- **Transvaginalsonography (TVS)** is also very sensitive to detect any anatomical abnormality (fibroid, adenomyosis) of the uterus, endometrium md adnexae.

Hysteroscopy

- is done for better evaluation of endometrial lesion and to take biopsy from the offending site under direct vision.
- The frequent findings of polyp and submucous fibroid are often missed by blind curettage.
- **Hysteroscopy and directed biopsy** (H and B)

Endometrial sampling can be done as an outpatient basis.

- Pipelle sampler is easy to use.
- As it is a blind procedure, intrauterine pathology (polyps, submucous fibroids) can not be detected.

Laparoscopy — to exclude unsuspected pelvic

Diagnostic uterine curettage (D & C)

Diagnostic uterine curettage is indicated in DUB —

(1) To exclude the organic lesions in the endometrium (incomplete abortion, endometrial polyp, tubercular endometritis or endometrial carcinoma).

(2) To determine the functional state of the endometrium.

(3) To have incidental therapeutic benefit.

- In adolescent DUB, it is rarely needed only if bleeding fails to stop or is severe in nature .
- During childbearing period (20-40 years), it should be done, if the bleeding is acyclic. Risk of endometrial carcinoma in this age group is verylow.

TIME SCHEDULE FOR UTERINE CURETTAGE

Cyclic	• Menorrhagia	5-6 days prior to period
	• Irregular shedding	5-6 days after the period starts
	• Irregular ripening	Soon after the period starts

During postmenopausal period, it is **mandatory**

to exclude endometrial malignancy.

Thin plastic endometrial tissue samplers (pipellae) are available .

It helps to obtain adequate endometrial sample for histological examination

MANAGEMENT

management protocols have been grouped accordingly.

- Pubertal and adolescent menorrhagia < 20 years .
- Reproductive period (20-40 years).
- Premenopausal (> 40 years).

1.Reproductive period

- ♦ General
- ♦ Medical
- ♦ Surgery

a. GENERAL -.

Rest.

Assurance and sympathetic handling

diet, haematinics and blood transfusion.

Clinically evident systemic or endocrinal

abnormalities should be investigated and

b.MEDICAL MANAGEMENT OF DUB

- **Hormones**
- **Progestins:**

The common preparations used are norethisterone acetate and medroxyprogesterone acetate .

The preparations are used:

- Cyclic therapy
- Continuous therapy

To stop bleeding and regulate the cycle:

- Norethisterone preparations (5 mg tab) are used thrice daily till bleeding stops which it

Cyclic therapy

- 5th-25th day course
- 15th-25th day course.

5th to 25th day course :

- **In ovular bleeding** — Any low dose combined oral pills are effective when given from 5th to 25th day of cycle for 3 consecutive cycles.
- It causes endometrial atrophy.
- It is more effctive as compared to progesterone therapy as it suppress the hypothalamopituitary axis more effectively.
- Normal menstruation is expected to resume with restoration of normally functioning pituitary-ovarian-endometrial axis.

In anovular bleeding

- Cyclic progestogen preparation of medroxyprogesterone acetate (MPA) 10 mg or norethisterone 5 mg is used from 5th to 25th day of cycle for 3 cycles.

15th to 25th day course

- **In ovular bleeding,** where the patient wants pregnancy or in cases of irregular shedding or irregular ripening of the endometrium, dydrogesterone 1 tab (10 mg) daily or twice a day from 15th to 25th day may cure the state.
- This regimen is less effective than 5th to 25th

Continuous progestins:

- Progestins also inhibit pituitary gonadotropin secretion and ovarian hormone production.
- Medroxyprogesterone acetate 10 mg thrice daily is given and treatment is usually continued for at least for 90 days.
- Various continuous preparations may be used. Oral , long-acting intramuscular injections, DMPA implants Progestogen only pill are effective to reduce menstrual blood loss. They may also result in oligomenorrhoea or amenorrhoea.

Oestrogen:

- In situations where the bleeding is acute and severe, conjugated oestrogen 25 mg is given IV.
- It helps with rapid growth of the denuded endometrium and promotes platelet adhesiveness.
- It controls bleeding by process of healing.
- It may be repeated every four hours till the bleeding is controlled, when oral therapy is started.
- Once the bleeding stops, progestin (MPA 10 mg a day) is to be added.
- COC is used for long term treatment.
- Proliferation of endometrium, increase in the level of

Intrauterine progestogen

- Levonorgestrel intrauterine system (LNGIUS) induces endometrial glandular atrophy, stromal decidualisation and endometrial cell inactivation .
- It is effective for 5 years. It has minimal systemic absorption.
- Reduction of blood loss is upto 97 per cent.
- It is considered as medical hysterectomy.
- In addition to its many other health benefits it is an effective

Danazol

- Danazol is suitable in cases with recurrent symptoms and in patients waiting for hysterectomy.
- The dose varies from 200-400 mg daily in 4 divided doses continuously for 3 months.
- A smaller dose tends to minimise the blood loss and a higher dose produces amenorrhoea .
- It reduces blood loss by 60 per cent. However, danazol

Mifepristone (RU 486):

- It is an anti-progesterone (19 nor steroid).
- It inhibits ovulation and induces amenorrhoea and reduces myoma size .

GnRH agonists :

- The subtherapeutic doses reduce the blood loss whereas in therapeutic doses produce amenorrhoea.
- It is valuable as short-term use in severe DUB, particularly if the woman is infertile and wants pregnancy.
- The drugs are used subcutaneously or intranasally.

NON HORMONAL MANAGEMENT

Anti-fibrinolytic agents (Tranexamic acid)

- It reduces menstrual blood loss by 50 per cent.
- It counteracts the endometrial fibrinolytic system.
- It is particularly helpful in IUCD induced menorrhagia.

Prostaglandin synthetase inhibitors:

Mefenamic acid is much effective in women aged more than 35 years and in cases of ovulatory DUB.

The dose is 150-600 mg orally in divided doses during the bleeding phase.

The fenamates inhibit the synthesis of prostaglandins and interfere with the binding of PGE2 to its receptor.

NSAIDS can reduce menstrual blood loss by 25-40 per cent.

Improvement of dysmenorrhoeaheadache, or nausea are the

- **Desmopressin** — is a synthetic analogue of arginine — vasopressin.
- It is especially indicated in cases with von Willebrand's disease and factor VIII deficiency.
- It is given IV (0.3 pg/kg) or intranasally.

3.SURGICAL MANAGEMENT OF DUB

- Uterine curettage
- Endometrial ablation/resection
- Hysterectomy

A.Uterine curettage

- It is done predominantly as a diagnostic tool for elderly women
- it has got haemostatic and therapeutic effect by removing the necrosed and unhealthy endometrium.
- It should be done following ultrasonography for detection of endometrial pathology.
- The indication is an urgent one, if the bleeding is acyclic and where endometrial pathology is suspected.

B.Endometrial ablation/resectson

- Indications are :
- (a) Failed medical treatment
- (b) women do not wish to preserve menstrual or reproductive function
- (c) uterus — normal size or no bigger than 10 weeks pregnancy size
- (d), small

- **Laser ablation** of the endometrium using the Nd: YAG laser through hysteroscope is an alternative to hysterectomy.
- It is employed as an elective alternative to hysterectomy or when hysterectomy has been medically contraindicated.
- Tissue destruction (coagulation, vaporisation and

- **Uterine thermal balloon** for destruction of endometrium
- Endometrium is destroyed using a thermal balloon with hot normal saline (87°C) for 8-10 minutes.
- No dilatation of the cervical canal is needed. This procedure is suitable for women who are

- **Microwave endometrial ablation** is simple and carried out as an outpatient procedure.
- Microwave electromagnetic heat energy causes ablation of the endometrium.
- Endometrial tissue upto a depth of 6 mm is ablated.

- **Novasure**: Endometrial ablation is done using a bipolar radio frequency mounted on an expandable frame.
- This creates a confluent lesion on the entire endometrial surface.
- Radio frequency energy vaporises or coagulates the endometrium upto the myometrium.
- The procedure is quick, simple and safe. Women with uterine cavity < 4 cm, PID, caesarean delivery are contraindicated.

Uterine artery embolisation is commonly done in women with large uterine fibroid (> 3 cm) with heavy bleeding.

Particles are injected to block uterine artery under local anaesthesia.

This shrinks fibroids. The procedure is safe and

- **Hysterectomy** is not recommended as a first line therapy for heavy menstrual bleeding (HMB) or DUB.
- Presence of endometrial hyperplasia and atypia on endometrial histology, is an indication for hysterectomy.
- The decision can be made easily as the patient is approaching 40.

COMPLICATIONS OF MENSTRUAL IRREGULARITIES

- difficulty getting pregnant,
- anemia and
- infertility.