Menstrual cycle

To understand menstrual problems a sound knowledge of the menstrual cycle is important. One menstrual cycle lasts from the start of one period until the day before the start of the next. The average length of a cycle is 28 days, but may be from 24-35 days is common. The entire duration of a menstrual cycle can be divided into four main phases:

1. Follicular or proliferative phase (from day 1 to 13)

2. Ovulation phase (day 14)

3. Luteal phase (from day 15 to 28)

4. Menstrual phase (from day 1 to 5)

Follicular phase

At this phase level of estrogen and progesterone is low, which stimulate pituitary gland to release FSH. FSH acts on the ovary to develop the follicle, which mature by 13th day. This mature follicle secretes estrogen.

Changes of follicular or proliferative phase

1. Ovaries follicles develop. One follicle becomes mature.

2. Uterus lining thickens (proliferates).

3. Vagina tends to be drier with thicker mucus.

Ovulation phase

Occurs halfway through a cycle (14 days before the next period). The dominant follicle ruptures and an ovum is released into the fallopian tube. The follicle fills with blood after rupturing and there may be brief pain. The ovum travels along the fallopian tube into the uterus and may be fertilized if the woman is sexually active and not using contraception.

Secretory or luteal phase

Hormone changes: After ovulation, the ruptured follicle forms the corpus luteum (yellow body) and secretes progesterone and oestrogen.

Changes within the reproductive organs

1. Ovaries: Corpus luteum forms. If pregnancy does not occur the corpus luteum begins to degenerate 4 days prior to menstruation.

2. Uterus: Progesterone causes the lining of the uterus to alter so that it is ready to receive a fertilized ovum. The endometrium becomes oedematous, more vascular and the glandular component becomes coiled and tortuous.

3. Vagina: Mucus becomes thinner, more watery and slippery.

4. Other changes Progesterone may cause water retention, breast tenderness and mood changes.

Menstrual phase (period)

With degeneration of the corpus luteum, oestrogen and progesterone levels fall. This causes necrosis, bleeding and sloughing of the endometrium, resulting in menstruation.

Periods begin aged 11–16 years and continue until the menopause (usually 45–55 years). Bleeding can last from 1–8 days (average 5 days) and is generally heaviest in the first 2 days. Blood loss in each period is between 20–60 mL (>80 mL is abnormal and may lead to anaemia).

Summary of menstrual cycle

Release of FSH from pituitary (in response to low estrogen and progesterone)

↓

FSH causes maturation of follicle in ovary, mature follicle secrete estrogen

↓

Follicle release ovum in to fallopian tube

↓

The ruptured follicle forms the corpus luteum (yellow body) and secretes progesterone and oestrogen. If the ovum not fertilize then corpus luteum degenerates

↓

With degeneration of the corpus luteum, oestrogen and progesterone levels fall

↓

Menstruation starts

Common menstrual disorders

What is oligomenorrhoea?

Oligomenorrhoea: Infrequent periods (>35days between periods). Management same as amenorrhea.

What is hypomenorrhoea?

Hypomenorrhoea is extremely light (small amount) menstrual blood flow.

Amenorrhoea

Primary amenorrhoea: No menstruation by age 16 years when growth and sexual development is normal. Refer for specialist treatment. Causes are-developmental anomaly of the genital tract e.g. absent of uterus, chromosomal abnormality etc.

Secondary amenorrhoea: Absence of menstruation for ≥ 3 months in a previously menstruating woman.

Causes of secondary amenorrhoea (always consider the possibility of pregnancy; if not then consider other causes)

1. Physiological-excess exercise, anxiety e.g. exam, bereavement etc.

2. Weight loss/anorexia.

3. Chronic anovulation including PCOS.

4. Hyperprolactinemia

5. Hypothyroidism.

6. Cushing syndrome.

7. Pituitary tumor, empty sella, Sheehan's syndrome.

8. Use of contraceptive particularly injectable contraceptive.

9. Other drug includes-heroin, methadone, metoclopramide.

10. Post chemo and radiotherapy.

Approach to a patient with secondary amenorrhoea

1. History-following history should be taken

a) Weight change-weight loss may cause amenorrhoea.

b) Life crisis or upset-e.g. exams, bereavement

c) Level of exercise-high intensity athletes, e.g. gymnasts are frequently amenorrhoeic.

d) Hirsutism-may suggest PCOS or androgen-secreting tumour

e) Galactorrhoea-present in 30% cases of prolactinomas

f) Sweats and/or flushes (suggests menopause)

g) Cyclical pain-may suggest outflow obstruction

h) Family history of premature menopause or late menarche

i) Drug history-particularly contraceptives e.g. injectable progestogens. Other drugs include: heroin, methadone, metoclopramide.

j) Past history of chemo or radiotherapy or gynaecological surgery

2. Examination

a) General examination-secondary sexual characteristics, hirsutism

b) Weight and height-amenorrhoea is common if BMI < 19 kg/m2

c) External genitalia-structural abnormality, virilism

d) Vaginal examination-including cervical smear

e) Pelvic examination-ovarian masses, uterine size

f) Visual fields/retinal examination-for prolactinoma

3. Investigation

a) Serum prolactin

b) Thyroid function test-TSH, FT3, FT4

c) FSH/LH

d) Karyotype if phenotypical abnormality

e) Serum testosterone if LH high, hirsutism or virilism

f) USG of pelvis if structural abnormality or to confirm PCOS

Management of secondary amenorrhoea

1. According to the cause.

2. If amenorrhoea is due to contraceptive then

a) Stop injectable progestogens-periods usually return within a year.

b) Stop other hormonal methods- periods usually return within 3 months.

Menorrhagia

Menorrhagia (heavy periods) is defined as cyclical bleeding lasting for long time with excess loss of blood $\geq$ 80ml/month.

Causes of menorrhagia

1. Fibroids

2. Congenital uterine abnormality e.g. bicornuate uterus

3. Pelvic infection

4. Endometriosis

5. Systemic disease-DM, hypothyroidism, hyperthyroidism

6. Endometrial/cervical polyps

7. Presence of IUCD

8. Endometrial carcinoma

9. Bleeding tendency-aplastic anaemia, ITP, acute leukaemia etc.

10. Hormone producing tumours

History

1. Duration-long duration (e.g. from menarche) may be due to congenital anomaly, short duration may be from pelvic infection, fibroid, endometrial carcinoma.

2. Fever, abdominal pain- pelvic infection.

3. Weight gain, somnolence- hypothyroidism; weight loss, palpitation, sleeplessness-thyrotoxicosis.

4. Purpura, echymosis, bruise- aplastic anaemia, ITP, acute leukaemia.

Examination

1. General examination-anaemia is common; blood pressure may be low, purpura, bony tenderness, lymphadenopathy.

2. Abdominal examination-usually normal.

3. PV examination-is very important to determine the cause of menorrhagia e.g. cervical polyp, fibroid uterus etc.

Investigation

1. CBC with PBF-Hb% usually reduce; PBF may reveal blast cell (acute leukaemia)

2. Thyroid function test-S. TSH, FT3, FT4.

3. Coagulation screening-BT, CT, platelet count

4. USG of whole abdomen

5. Hysteroscopy

Management-according to cause

Medical therapy for menorrhagia may include:

1. NSAIDs: NSAIDs such as mefenamic acid 500 mg TDS, ibuprofen or naproxen sodium, help reduce menstrual blood loss. NSAIDs have the added benefit of relieving painful menstrual cramps (dysmenorrhoea).

2. Tranexamic acid: Tranexamic acid 1gm TDS helps reduce menstrual blood loss and only needs to be taken at the time of the bleeding.

3. Oral contraceptives: oral contraceptives can help regulate menstrual cycles and reduce episodes of excessive or prolonged menstrual bleeding.

4. Oral progesterone: The hormone progesterone can help correct hormonal imbalance and reduce menorrhagia.

5. Hormonal IUD: This intrauterine device releases a type of progestin called levonorgestrel, which makes the uterine lining thin and decreases menstrual blood flow and cramping.

Surgical intervention

1. Dilation and curettage (D&C)

2. Myomectomy (in case of fibroid)

3. Endometrial resection

4. Endometrial ablation

5. Uterine artery embolization

6. Hysterectomy

Management of very heavy bleeding

1. Resuscitate as necessary-admit if shocked; IV tranexamic acid or D & C in the acute situation can reduce haemorrhage by 75–80%.

2. Reduce/stop bleeding with progestogen, e.g. norethisterone 5 mg TDS for 10 days. Effective in 24-48 hours. A lighter bleed follows on stopping. Alternatively consider tranexamic acid (1gm TDS for 4 days) to reduce bleeding.

3. Correct anaemia and refer for Gynecology assessment.

4. Endometrial resection

5. Endometrial ablation

6. Uterine artery embolization

7. Hysterectomy

DUB/Intermenstrual bleeding (IMB)

Vaginal bleeding at any time during the menstrual cycle other than menstruation.

Causes

1. May be physiological or related to use of combined hormonal contraceptive.

2. Endometrial polyps

3. Uterine fibroids

4. Endometrial hyperplasia or cancer

5. Endometritis

6. Cervical, vulval or vaginal cancer

Post coital bleeding

Non-menstrual bleeding occurring during or after sexual intercourse.

Causes of post coital bleeding (PCB)

1. Cervical cancer.

2. Infections of the lower genital tract

3. Cervical ectropion and polyps

4. Trauma and

5. Vaginal/vulval lesions

Approach to a patient with post coital bleeding and DUB/intermenstrual bleeding

1. Details history should be taken

a) Duration-long duration may be due to endometrial polyp, uterine fibroid etc. Short duration may be from trauma, infection of the lower genital tract etc.

b) Amount of blood-usually profuse bleeding occurs due to fibroid, uterine polyp, cancer etc. Bleeding due to trauma and infection of the lower genital tract is usually mild.

c) Fever-may be present in case of infection of the lower genital tract.

d) Anorexia, weight loss-may be due to cancer.

2.Examination

a) General examination-may reveal anaemia, features of weight loss, elevated temperature etc.

b) Local examination-is the mainstay of diagnosis. Careful local and pervaginal examination should be done.

3. Investigation

a) CBC- anaemia, neutrophilic leucocytosis, high ESR may be present. High ESR usually indicate presence of infection or malignancy.

b) High vaginal swab for C/S-to confirm local infection and proper selection of antibiotic.

c) USG of lower abdomen

d) Transvaginal ultrasonogram- if any suspicious lesion and transabdominal USG cannot confirm the diagnosis.

Management

1. According to the cause e.g.

a) In case of infection-antibiotic.

b) In case of fibroid-surgery etc.

Cyclical mastalgia

Criteria of cyclical mastalgia

1. Breast pain typically presents in the premenstrual period (usually 1 week prior to onset of menstration).

2. It most frequently affects both breasts and is usually worse in the upper outer quadrant.

Management

1. Reassurance

2. Analgesic- paracetamol and NSAIDs such as ibuprofen may be considered for pain relief.

3. Danazol is effective in relieving breast pain in more than 90% of cases and is the only US FDA (Food and Drug Administration) approved drug for the treatment of cyclical breast pain. Dose and duration: 100-400 mg/day in 2 divided doses for 3-6 months.

Postponing menstruation

1. Norethisterone 5 mg TDS starting 3 days before the anticipated onset of menstruation. Menstruation will occur 2–3 days after stopping the norethisterone. Contraindications to norethisterone include pregnancy and severe disturbances of liver function.

2. Combined oral contraceptive (COC): Those who are already on combined OCP they should not interrupt (e.g. start another packet without break). Menstruation will occur after the second packet is finished.

Dysmenorrhoea

Dysmenorrhoea is abdominal pain with menstruation. There are two types of dysmenorrhoea: "primary" and "secondary".

Primary dysmenorrhea	Secondary dysmenorrhoea
Primary dysmenorrhoea is common menstrual cramps that are recurrent (come back) and is not due to other diseases.	Secondary dysmenorrhoea is pain that is caused by any underlying cause such as endometriosis, adenomyosis, uterine fibroids, or infection.
Pain usually begins 1 or 2 days before or when menstrual bleeding starts, last for 12 to 72 hours and is felt in the lower abdomen, back, or thighs.	Pain from secondary dysmenorrhea usually begins earlier in the menstrual cycle and lasts longer than primary dysmenorrhoea.
Pain can range from mild to severe.	Usually severe

The pain can be accompanied by nausea and vomiting, fatigue and even diarrhoea.	The pain is not typically accompanied by nausea, vomiting, fatigue, or diarrhoea.
With the increasing age pain of dysmenorrhoea become less painful and may stop entirely if the woman has a baby.	Not such, progressive if not treated.

Management

Primary dysmenorrhoea

1. Reassurance

2. NSAID

3. NSAIDs and combination oral contraceptives are the most commonly used therapeutic modalities for the management of primary dysmenorrhoea.

Secondary dysmenorrhoea

Involves correction of the underlying cause. Specific measures (medical or surgical) may be required to treat pelvic pathologic conditions (e.g. endometriosis) and to ameliorate the associated dysmenorrhoea. Periodic use of analgesic agents as adjunctive therapy may be beneficial.

Premenstrual syndrome

Premenstrual syndrome (PMS) is a diverse constellation of cyclic physical and emotional symptoms, occurring monthly during the luteal phase of the menstrual cycle (ovulation to menstruation). These changes resolve or decrease significantly during the period.

Diagnostic tools

1. Symptoms >100 symptoms described. The most common are

    a) Psychological-mood swings, nervous tension and/or irritability (when severe, termed as premenstrual dysphoric disorder-PMDD).

    b) Physical-abdominal bloating, weight, breast tenderness, headache.

    c) Behavioural- reduce visuospatial and cognitive ability, increase chance of accidents.

2. Ask the patient to keep a diary to establish cyclical nature over >2 months.

3. Investigation usually not necessary. May require to exclude any underlying cause.

Management

A) If mild/moderate symptoms—try lifestyle/dietary modification first. Those includes

1. Make allowances on days when symptoms are likely to be worst

2. Wear loose clothes if feeling bloated

3. Ensure adequate sleep and take regular exercise

4. Eat regularly- small, frequent meals may help; avoid sweet

5. Snacks between meals; make sure diet is low in fat/salt, caffeine, alcohol, and contains plenty of fruit/vegetables and complex carbohydrate (e.g. bread, pasta, rice, potatoes)

6. Decrease fluid intake or eat diuretic foods (e.g. strawberries, watermelon, aubergines, prunes, figs, parsley) to ease fluid retention.

B) Consider drug therapy or CBT-if symptoms are severe or do not respond to diet/lifestyle measures.

1) Hormonal drugs

a) Combine oral pill (COC)-first line treatment given cyclically or continuously.

b) Low dose oestrogen- second-line treatment.

c) GnRH analogues-reserved for specialist care. Usually given in combination with add-on HRT.

2) Antidepressants-SSRI is the first line treatment that can be given continuously or just in the luteal phase (days 15–28). Those drugs decrease physical as well as psychological symptoms.

a) Fluoxetine has been studied in the most detail and is effective in doses as small as 5 mg and up to 20 mg per day.

b) Paroxetine 5 to 30 mg/day and

c) Sertraline 25 to 150 mg/day are probably equally as effective.

d) Diuretic- spironolactone is effective for bloating/breast tenderness.

e) NSAID- particularly helpful for premenstrual pain and to decrease menstrual bleeding

f) Surgery-hysterectomy with oophorectomy is curative. Most women require HRT/ testosterone replacement afterwards.

g) Complementary therapy-pyridoxin 25 to 100 mg/day, vit-E 400 to 600 IU/day, calcium and magnesium daily during the luteal phase.

C) Refer to a Gynecologist-if symptoms are severe or primary care management is ineffective.

N:B: Wait for at least 3 to 6 months for switching from any treatment option

What is menopause?

Menopause is defined as the point in time when menstrual cycles permanently cease due to the natural depletion of ovarian oocytes from aging. The diagnosis is typically made retrospectively after the woman has missed menses for 12 consecutive months. It marks the permanent end of fertility and the average age of menopause is 51 years.

How to confirm the diagnosis of menopause?

1. >12 months amenorrhoea with no other cause.

2. Elevated follicle stimulating hormone (FSH) and low estrogen are consistent with menopause. (FSH >30IU/L on 2 occasions >1 month apart suggests the woman is postmenopausal.)

Period changes: Changes in menstrual pattern common in the years before the menopause

1. Typically cycle shortens after 40 years by up to 7-10 days. Cycle then lengthens periods may occur at 2-3 months intervals until stopping.

2. Dysfunctional uterine bleeding is common leading up to the menopause but investigate if very heavy, painful, irregular, intermenstrual or post-coital bleeding.

3. Late menstruation (>54 years) investigate as increase risk of malignancy.

Symptoms of menopause

Immediate symptoms

Psychological symptoms

Psychological changes such as mood swings, insomnia, depression and difficulty in concentrating are common.

Flushes and sweats

80% have hot flushes during the menopause. Low estrogen can result in vasomotor instability (such as hot flushes and night sweats).

Genital tract problems

Genital tract atrophy (such as vaginal dryness, painful intercourse and urinary incontinence). Lower androgen levels can contribute to the loss of sex drive.

Later medical problems

The lower reproductive hormones associated with menopause will increase the risk of osteoporosis, bone fractures and cardiovascular disease (such as myocardial infarction and stroke).

Management of menopausal symptoms

Non-pharmacological

1. Low intensity exercise (e.g. yoga, deep breathing).

2. Avoiding trigger foods/drinks (e.g. spicy foods, caffeine, alcohol).

3. Diet rich in calcium, if require supplementation of vitamin D and calcium.

Pharmacological treatment

1. HRT consists of estrogen, progesterone and possibly testosterone may help alleviate or reduce the menopausal symptoms. This is particularly important to prevent osteoporosis in premature menopause (menopause before 40 years of age). However, it is recommended to use the lowest possible dose for the shortest duration possible to reduce the risks of breast cancer, blood clots, myocardial infarction and stroke.
2. For vasomotor instability include low dose SSRI antidepressants (such as fluoxetine, paroxetine, citalopram and sertraline), gabapentin and clonidine.

3. For osteoporosis bisphosphonates (such as alendronate, risedronate and ibandronate) or selective estrogen receptor modulators (such as raloxifene).
4. Sexual dysfunction: Vaginal dryness and atrophy are common. Manage with vaginal lubricants or topical oestrogen. Loss of libido (especially after surgical removal of the ovaries) responds to administration of androgen (e.g. testosterone) with HRT, until libido is reestablished.

Premature menopause

Menopause in a woman <40 years old. Associated with increase all cause mortality and increase risk of osteoporosis and cardiovascular disease.

Causes

1. Idiopathic
2. Post surgery- hysterectomy, bilateral oophorectomy (it cause instant menopause) hysterectomy without oophorectomy can also induce premature ovarian failure.
3. Infection-TB, mumps
4. Autoimmune endocrine disease e.g. DM, hypothyroidism, Addison's disease.
5. Post radiotherapy and/or chemotherapy

Management

Usually HRT is recommended until the average age of menopause (51 years).

Hormone replacement therapy

Short term use of HRT is used for relief of symptoms related to oestrogen deficiency peri and postmenopausally.

Drugs use for HRT

1. For women without a uterus-give oestrogen alone, unless past history of endometriosis.
2. For women with an intact uterus-progestogen is needed for the last 12-14 days of the cycle or IUS to prevent endometrial proliferation

3. Alternatively, use a continuous oestrogen/progestogen preparation (although not in the perimenopause or <12 months after last menstrual period)

4. Tibolone-oestrogenic, progestogenic and weak androgenic action. Use in the same way as continuous combined HRT.

Topical vaginal preparations

Oestrogen pessaries, creams or rings for vaginal dryness/atrophic vaginitis. Licence limits use 3-6 months if uterus is present although commonly used for longer. Consider prescribing a progestogen if given for longer periods or higher doses are used.

Indication of HRT

1. Early menopause

2. Hysterectomy before menopause even if ovaries are conserved.

3. Second-line treatment of osteoporosis

Contraindication of HRT

1. History of hormone dependent cancer e.g. ovarian cancer, breast cancer.

2. Thromboembolic disease (including AF)

3. Liver disease where LFTs have failed to return to normal. (If past history of liver disease, gall stones, or taking liver enzyme inducing drugs, consider transdermal therapy).

Dose and duration of use

Start with a low dose and review the patient after 3 months, continue until age 51 years.

Side effects of HRT

1. Oestrogen related fluid retention, breast enlargement and tenderness, nausea, headache.

2. Progestogen related-headache, increase weight, bloating and depression (decrease by changing to a preparation with a less androgenic progestogen e.g. dydrogesterone or medroxyprogesterone).

Points to be noted before starting HRT

1. Reason to start HRT. Why does the woman want to start HRT? What are her expectations of treatment? Has she had a hysterectomy? If not, ask about bleeding pattern. Investigate abnormal bleeding prior to starting HRT.

2. Any history/risk factor of osteoporosis, DVT, CVD, family history of breast cancer

3. Contraceptive requirement HRT does not provide contraception. If <50 years, CHC (combine hormonal contraceptive) may provide contraception and alleviate menopausal symptoms).

4. Drug history-previous experience of HRT; levothyroxine (may need to increase dose of levothyroxine when start HRT-check TFTs); steroids (HRT decrease effectiveness of steroids); antiepileptics (increase elimination of oestrogen).

5. Examination-check BP, weight, breasts (check no lumps; demonstrate breast self-examination techniques); smear is up to date; consider examination for prolapse/vaginal abnormalities if symptoms.

How to follow up patient getting HRT

1. Review every 6-12 months (initially after 3 months) and if any problems.

2. Check BP, weight, breast, symptoms and bleeding pattern.

3. Reassess risks and benefits.

4. HRT is needed for <5 years for vasomotor symptoms.

5. When stopping, withdrawal flushes may be distressing-stop in cold weather, reduce the dose to half for the first month, then gradually stop.

Reasons to stop HRT immediately

1. Serious neurological effects e.g. severe headache, first fit

2. Severe chest pain

3. Sudden breathlessness/cough with blood stained sputum

4. Unexplained severe pain in calf

5. Severe upper abdominal pain

6. Hepatitis, jaundice, liver enlargement

7. BP >160mm Hg systolic and/or >95mm Hg diastolic

8. Detection of a risk factor e.g. DVT, stroke

9. Prolonged immobility after surgery or leg injury

Vulval itching (pruritus vulvae)

Causes:

1. Infection (e.g. candida, HSV, warts, thread worms, pubic lice, scabies)

2. Atrophic vulvitis

3. Vulval dystrophy

4. Vulval carcinoma

5. Poor hygiene

6. Skin conditions (e.g. eczema).

7. Iron deficiency.

Management

1. Treatment of the cause.

Vaginal discharge

All women have some vaginal discharge. Physiological discharge varies considerably and is affected by the menstrual cycle.

1. Before ovulation- mucus is clearer, wetter, stretchy and slippery.

2. After ovulation- mucus is thicker and stickier.

When to consider abnormal vaginal discharge?

1. Amount increases than normal.

2. Associated with itching, sore and per vaginal bleeding.

3. Foul smelling.

Causes of ‘abnormal’ discharge-5 causes account for 95% cases

1. Excessive normal secretions

2. Bacterial vaginosis (BV)

3. Candida albicans

4. Cervicitis (gonococcal, chlamydial or herpetic)

5. Trichomonas vaginalis (TV)

History-ask about

1. Symptoms-vaginal discharge (itchy, offensive, colour, duration), vulval soreness and irritation, lower abdominal pain, dyspareunia, heavy periods, intermenstrual bleeding, fever, vulval pain.

2. Sexual history-recent sexual contact with new partner, multiple partners, presence of symptoms in partner, worries about STIs.

3. Medical history-pregnancy, diabetes mellitus, recent antibiotics.

Examination

1. Abdominal, pelvic and vaginal speculum examination.

2. Look for tenderness on lower abdominal or bimanual palpation, cervical erosion/contact bleeding, discharge, foreign bodies, warts or ulcers.

Investigation

1. Check pH of secretions with narrow range pH paper.

-If >4.5 then BV or TV is likely;

-If pH is ≤4.5 then physiological discharge and candida infection.

2. High vaginal swab for microbiological examination and C/S.

3. Endocervical swabs for gonorrhoea and Chlamydia.

4. Viral swab if herpes is suspected

5. Self taken vulvovaginal swab if examination is declined.

Management- according to the cause. (Commonly in practice vaginal suppository containing metronidazole, neomycin, nystat and polymyxin B is used).

Vaginal candidiasis

Diagnostic tools

1. Itching in vulva

2. Superficial dyspareunia and/or thick, creamy, non-offensive discharge.

3. Examination: discharge and sore vulva which may be cracked/fissured.

4. Investigation is usually unnecessary. If infection persists or recurs-send swab from the anterior fornix for staining and C/S.

Management

Only treat if symptomatic

1. Try clotrimazole pessaries-cure rate ~90%

2. Alternative is oral fluconazole 150mg stat, repeated after 3 days if severe infection.

Recurrent infection

1. Advise loose, cotton underwear and avoidance of soaps, perfumes or disinfectants in the bath.

2. Consider vulval emollients to treat associated dermatitis.

3. If ≥4 documented episodes (≥2 confirmed with microbiology) in a year, treat with fluconazole 150 mg repeat after 3 days- such 3 doses then 150mg weekly for 6 months.

Bacterial vaginosis (BV)

Vaginal flora is changed from Lactobacillus species to anaerobes. Develops PID and endometritis following abortion or birth.

Diagnostic tools

1. Presentation-grey/white, thin, fishy-smelling, offensive discharge with no vulval soreness.

2. On examination, the cervix looks normal.

3. Investigation-pH of secretions is >4.5. HVS for microbiology, C/S may confirm diagnosis but treat without swab if no examination is carried out, or pH is >4.5 and typical clinical picture.

Management-without treatment, 50% remit spontaneously.

1. Metronidazole 400 mg bd for 5-7 days or 2g single dose.

2. Clindamycin 2% cream 5 gram at night per vaginally for 1week.

3. Recurrent infection-suppressive therapy using metronidazole 400 mg BD for 6 days to cover each period.

Cervicitis

Usually caused by Chlamydia (50%), gonococcus and HSV.

Diagnostic tools

1. Symptoms- vaginal discharge, intermenstrual/post-coital bleeding and/or pain.

2. On examination-speculum examination shows mucopurulent discharge and inflamed, friable cervix.

3. Investigation- vaginal discharge for C/S.

Management

1. Use of barrier during intercourse

2. Maintain personal hygiene

3. Empirical antibiotic doxycycline 100 mg BD, change according to C/S report.

Ovarian cyst

A) Functional cyst - functional cysts are usually harmless, rarely cause pain, and often disappear within two or three menstrual cycles.

1. Follicular cyst – during mid menstrual cycle, follicle burst and release ovum then it travels down the fallopian tube. A follicular cyst begins when the follicle doesn't rupture or release its ovum, but continues to grow.

2. Corpus luteum cyst - when a follicle releases its ovum, it begins producing estrogen and progesterone for conception. This follicle is now called the corpus luteum. Sometimes, fluid accumulates inside the follicle, causing the corpus luteum to grow into a cyst.

B) PCOS (discuss below)

C) Other cyst

1. Dermoid cysts (teratoma)- these contain tissue, such as hair, skin or teeth, because they form from embryonic cells. They're rarely cancerous.

2. Cystadenomas- these develop on the surface of an ovary and might be filled with a watery or a mucous material.

3. Endometriomas- develop as a result of endometriosis. Some of the tissue can attach to ovary and form a growth.

Polycystic ovarian syndrome (PCOS)

Polycystic ovary syndrome (PCOS) is a hormonal disorder common among women of reproductive age. Women with PCOS may have infrquent or prolonged menstrual periods or excess male hormone (androgen) levels.

Symptoms and signs-may be asymptomatic or have ≥1 of:

1. Menstrual irregularity-oligomenorrhoea/amenorrhoea (affects 67%-more common if BMI ≥30kg/m2), dysfunctional uterine bleeding

2. Acne

3. Hirsutism

4. Infertility

5. Central obesity

6. Male pattern baldness

Investigations

1. USG of abdomen- defined as the presence of ≥12 follicles in each ovary measuring 2-9 mm in diameter and/or ovarian volume >10 cm3.

2. S. testosterone-increase >2.5 nmol/L. (if >4.8 nmol/L, exclude other causes of androgen hypersecretion, e.g. tumour, Cushing's syndrome).

3. FBS, 2HABF.

PCOS requires the presence of two of the following three features:

1. Menstrual irregularity- oligomenorrhoea and/or anovulation.

2. Clinical or biochemical androgen excess.

3. Multiple cysts in the ovaries.

Management

Non-pharmacological

1. Weight loss

2. Daily exercise

Pharmacological

1. If oligomenorrhoeic consider progestogens to induce a withdrawal bleed every 2-3 months to decrease risk of endometrial hyperplasia.

2. Consider the combine oral contraceptive (COC) pill to regulate menstruation; COC pills with anti-androgen (e.g. co cyprindiol) may decrease acne/hirsutism.

3. Clomifene can be used to induce ovulation.

4. Metformin may be helpful for insulin sensitivity and menstrual disturbance. Also used for infertility if clomifene has failed.

5. Hirsutism- cosmetic measures such as shaving, bleaching, waxing electrolysis and laser treatment are effective for small areas. Eflornithine cream may reduce hair growth when applied daily to affected areas of the face. If all above fails then antiandrogen therapy.

Dyspareunia

It may be superficial (felt around the introitus) or deep (felt deep inside). There is a psychological element in most cases (a vicious cycle of pain leading to fear of intercourse which exacerbates symptoms). Address both physical and psychological aspects.

Superficial dyspareunia

Causes:

1. Vulval vulvitis-atrophic, infective (candida, HSV); dystrophy; neoplasm; lichen sclerosus; lichen planus; vulvodynia.

2. Vaginal vaginismus; lack of lubrication; vaginitis-atrophic, infective; congenital-imperforate hymen, atresia; surgery e.g. painful episiotomy scar; contracture-atrophy or after surgery/radiotherapy.

3. Urethral urethritis, urethral caruncle, urethral diverticulum.

Examine-if possible but do not insist.

Treatment of superficial dyspareunia

1. Treat the cause.

2. If no specific cause then try lidocaine gel.

Deep dyspareunia

Causes:

1. Endometriosis

2. Pelvic inflammatory disease

3. Retroverted uterus

4. Ovarian mass (rarely ovarian cancer)

Management

1. Treat the cause.

2. If no specific cause or cause is untreatable, pain can be reduced by limiting penetration.

PID

PID is an infection of upper genital tract includes the uterus, ovaries, fallopian tubes and cervix. It's usually caused by a sexually transmitted infection (STI) like chlamydia or gonorrhea.

Symptoms

PID often doesn't cause any obvious symptoms. Most women have mild symptoms that may include 1 or more of the following:

1. Pain in lower abdomen

2. Discomfort or pain during sex that's felt deep inside the pelvis

3. Fever

4. Pain during urination

5. Bleeding between periods and after sex

6. Unusual vaginal discharge, especially if it's yellow or green

Fitz-Hugh-Curtis (FHC) syndrome

It occurs in 5% to 10% of cases of PID. It is associated with symptoms of pleuritic right upper quadrant abdominal pain referred to the corresponding shoulder or perihepatitis with mild liver function test abnormalities. FHC syndrome is secondary to either gonococcal or chlamydial infection spreading from the fallopian tubes along the paracolic gutters to the upper abdomen. A prompt response to antibiotics and the recognition of concurrent PID help distinguish FHC syndrome from cholecystitis.

Physical examination

1. Lower abdominal and pelvic tenderness remains the most consistent finding in PID.

2. Swelling of the adnexa or a true adnexal mass is noted in 10% of PID patients

3. Rebound lower abdominal tenderness suggesting pelvic peritonitis occurs in only 25% of PID patients.

Investigation

1. CBC, RBS, Urine R/E

2. Gram stain of the endocervical secretions

3. High vaginal swab for C/S

4. VDRL, TPHA

5. Ultrasound evaluation is of limited value in diagnosing acute PID. However, it is 95% accurate for detecting pelvic abscesses and can help monitor response to medical therapy.

6. Laparoscopy or laparotomy provides immediate and accurate diagnosis.

Management

1) Supportive measures

a) Bed rest, sexual abstinence (until the results of pelvic examination become normal), hydration and analgesics should be encouraged.

b) An IUD should be removed after antibiotic therapy has been initiated. Contraceptive counseling should be offered at the time of IUD removal.

2) Antibiotic

Usually combination antibiotic is used e.g. ofloxacin, 400 mg PO BD for 14 days, PLUS metronidazole, 500 mg PO BD for 14 days. Or ceftriaxone, 250 mg IM once PLUS doxycycline, 100 mg PO BD for 14 days.

Lower abdominal pain

Common causes of lower abdominal pain in woman

1. UTI

2. Dysmenorrhoea

3. Fibroid

4. Ovarian cyst

5. PID

6. Abortion

7. Ectopic pregnancy

Approach to patient with lower abdominal pain

History

1. Duration-short duration usually due to abortion, PID, ovarian cyst, UTI, ectopic pregnancy. Long duration in dysmenorrhoea, fibroid etc.

2. Relation with cycle-occurs in case of dysmenorrhoea, fibroid.

3. History of amenorrhoea- ectopic pregnancy, abortion.

4. Associated with menorrhagia-fibroid.

5. Associated with fever, frequency, dysuria-UTI.

Examination

1. Temperature- elevated in UTI, PID.

2. Lower abdominal tenderness- PID, fibroid, ectopic pregnancy.

Investigation

1. Urine R/M/E and C/S.

2. USG of whole abdomen

Management

1. According to the cause.

Fibroid uterus

Fibroids are benign tumors of the uterus and are composed mainly of smooth muscle with some fibrous connective tissue elements. They are estrogen dependent and may grow during estrogen replacement therapy or during pregnancy and usually shrink after menopause.

Symptoms

1. Abnormal bleeding-fibroids will usually cause menorrhagia rather than metrorrhagia.

2. Pain is not characteristic of fibroid, although it can be present in up to one third of patients.

3. Pelvic heaviness in case of large fibroid.

4. Infertility may be a presenting complaint

5. Abortion may be also due to fibroid.

Physical examination

1. On bimanual examination, the uterus is distorted by one or more smooth, spherical, firm masses. The uterine size is estimated in weeks, corresponding to the pregnant uterus of the same size.

Investigation

1. CBC- Hb usually reduce due to excess PV bleeding.

2. USG of abdomen usually identify fibroid and differentiate between a uterine and ovarian mass.

3. Hysteroscopy may aid in the diagnosis and treatment of submucous fibroids.

Management

Depends on the

1. Patient's symptoms

2. Age

3. Parity

4. Desire for future pregnancies and

5. The size of the fibroid.

Management options are

1. Asymptomatic fibroid may be followed by annual examinations.

2. After menopause, the fibroid usually shrink and they never grow.

3. Normally, the treatment would be a hysterectomy or myomectomy may be done to preserve fertility.

Indication of surgery -fibroid causing

a) Abdominal pain

b) Abnormal bleeding that is uncontrolled by hormone management

c) Large fibroid causing pressure to pelvic organs or a rapid change in size.

d) Size alone is not an adequate indication for treatment though surgical intervention has been recommended routinely when a uterus reaches a 12- to 14 week size.

e) Rapid growth or any growth after menopause, is cause for hysterectomy to rule out sarcoma.

Cervical polyps

Develop from the endocervix and protrude into the vagina through the external os.

Diagnostic tools

1. Symptoms- usually asymptomatic, patient may have vaginal discharge, intermenstrual, postmenopausal and/or post-coital bleeding.

2. On PV examination- smooth, fingerlike growths on the cervix that appear red or purple.

Treatment

1. Cauterize base with silver nitrate stick if possible. Frequently recur. If postmenopausal, intermenstrual or post-coital bleeding, refer to specialist to exclude other pathology.

Genital prolapse

Genital organs (e.g. uterus) herniate into the vagina due to poor pelvic muscle tone and weakness of pelvic ligaments. Some terms are use according to the organ involved.

Cystocoele- bladder bulges into the vagina.

Urethrocoele- urethra bulges into the vagina.

Rectocoele- rectum bulges into the vagina.

Enterocoele- loops of intestine bulge into the vagina.

Uterine- uterus descends into the vagina.

Risk factors are- multiparous woman, menopause, chronic cough and straining, congenital connective tissue disorders.

Uterine prolapse is classified by degree. The most dependent portion of the prolapse is assessed whilst straining:

1. 1st degree prolapse–the cervix remains in the vagina.

2. 2nd degree prolapse–the cervix protrudes from vagina

on coughing/straining.

3. 3rd degree prolapse (procidentia)–the uterus lies outside the vagina and may ulcerate.

Diagnostic tools

1. Symptoms- feeling of ‘something coming down’ the vagina or a ‘lump’ in vagina particularly during coughing, straining etc. Symptoms exacerbated by standing for a long time, coughing, or straining. Other symptoms depending on structures involved- stress incotinence, difficulty defecating, recurrent cystitis, and/or frequency of micturition. In severe cases renal failure may occur due to ureteric kinking.

2. Examination- abdominal examination to exclude pelvic masses. Then in left lateral position with Sims speculum, ask the patient to bear down and watch the vaginal walls.

3. Investigation- diagnosis is clinical. Investigation usually requires to exclude other causes.

Management

Choice of treatment depends on patient preference, general health, degree of prolapse, severity of symptoms and wish to preserve fertility and sexual activity. Option includes:

1. Lifestyle measures- reduction of weight, smoking cessation

2. General measures- treatment of co-existing conditions exacerbating prolapse e.g. chronic cough due to COPD or asthma, constipation, menopause/atrophic vaginitis.

3. Physiotherapy- pelvic floor exercises

4. Ring pessary- useful for those too frail for surgery, women who have symptoms but do not want surgery or as a temporary measure whilst awaiting surgery. Change pessary every 3-6 months. Self pessaries may be useful for women who cannot retain a ring pessary.

5. Surgery-Surgical options include repair operations (anterior or posterior colporrhaphy), colpo-vaginal suspension, and hysterectomy (vaginal or abdominal). Indication of surgery

a) Symptoms are severe

b) Has incontinence and

c) Recurrent UTI.

Contraceptive

Those may be emergency contraceptive or routine contraceptive. Routine contraceptive may be also classified as

1. Temporary contraceptive-those are barrier (condom), OCP, POP (progesterone only pill), injectable contraceptive, implant, IUCD.

2. Permanent contraceptive- vasectomy, tubal ligation. OCP (oral contraceptive pill)

Emergency contraception

1. Levonorgestrel 1.5 mg oral stat. can be taken ≤72 hours (3 days) after unprotective sexual intercourse but effective for up to 96 hours (4 days). Can be used more than once if >1 episode of unprotective sex in a single cycle. Available AT OTC and on prescription. There is no evidence that treatment with levonorgestrel harms the fetus if pregnant.

2. Progesterone receptor modulator (ulipristal acetate 30 mg stat) can be used ≤120 hours (5 days) after unprotective sexual exposure. Only use one time per cycle.

Advise to return if abdominal pain, next period is overdue or abnormally light/heavy, or if needs further contraceptive advice.

Possible pitfalls

1. Vomiting <3 hours after taking oral emergency contraception-give a replacement dose.

2. Enzyme inducing drugs (e.g. antiepileptics)-efficacy of oral emergency contraception may be reduced. Consider a copper IUCD or increase dose of levonorgestrel to 3 mg.

Methods of routine contraception

Combine oral contraceptive

Contraceptives containing an oestrogen and progestogen. The woman takes the entire packet starting on the first day of her cycle and then has a 7 days 'pillfree' break before starting the next packet.

Combine oral contraceptive should be avoided in following condition

1. Age ≥ 35 years

2. Smoking ≥15 cigarettes/day

3. BMI ≥30kg/m2-avoid if BMI ≥35kg/m2

4. DM

5. Hypertension

6. Venous thromboembolism (VTE) or past history of VTE

7. CVD including stroke/TIA, IHD, peripheral vascular disease, valvular heart disease, atrial fibrillation.

8. Migraine

9. Liver disease

10. Cancer (particularly current breast cancer or past history of breast cancer)

11. Pregnancy related issues-avoid if history of pruritus in pregnancy, cholestatic jaundice, chorea or pemphigoid gestationis

12. During postpartum and breastfeeding.

Advantages of combine oral pill

1. Improvement in acne

2. Improvement of menstrual pain and bleeding

3. Reduce menopausal symptoms

4. Decrease risk of ovarian, bowel and endometrial cancer that persists after combined contraception has stopped.

5. No evidence of increase of weight.

Disadvantages of combine oral pill

1. Increase risk of venous thromboembolism (VTE)

2. Increase risk of ischaemic stroke

3. Small increase of breast and cervical cancer risk

4. Mood changes

When to stop combine oral pill immediately?

1. Sudden severe chest pain (IHD)

2. Sudden breathlessness (or cough with blood stained sputum)

3. Unexplained swelling or severe pain in calf of one leg (suspected VTE)

4. Acute abdominal pain

5. Hepatitis, jaundice, liver enlargement

6. BP >160/95mmHg

7. Prolonged immobility after surgery or leg injury

8. Detection of a risk factor/contraindication

9. Serious neurological effects including:

a) Unusual severe, prolonged headache

b) Sudden dysphasia, partial or complete loss of vision, disturbance of hearing, or other perceptual disorders.

c) Bad fainting attack or unexplained collapse

d) First unexplained epileptic seizure

e) Weakness, motor disturbances, or numbness affecting one side or one part of body.

What to do if anyone missed combine oral pill?

1. If 1 pill is missed (taken >24 hours late anywhere in the pack). Take the missed pill as soon as possible even if that means taking 2 pills in one day. Continue taking the rest of the pack as usual. No additional contraception is needed. Take the 7 days break as normal.

2. If ≥2 pills are missed (pills are >48 hours late at any 1 time, anywhere in the pack). Take the most recent missed pill as soon as possible even if that means taking 2 pills in 1 day. Leave any earlier missed pills. Continue taking the rest of the pack as usual. Use extra contraceptive precautions or abstain from sexual intercourse for next 7 days.

Progestogen only contraceptives

Progestogen only contraceptives thicken cervical mucus, reduce endometrial receptivity and inhibit ovulation. They reduce the risk of pelvic infection and can be used when oestrogen is contraindicated.

Who are the suitable candidates of progestogen only pill (POP or ‘minipill’)

Oral POPs are a suitable alternative for women for whom oestrogen containing pills are contraindicated:

1. Older women

2. Heavy smokers

3. Women with past history/predisposition to venous thromboembolism

4. Patients with hypertension, valvular heart disease, DM or migraine

5. Breast feeding women <6 months postpartum.

Reasons not to prescribe progestogen only contraception

1. Current breast cancer

2. Liver disease-active viral hepatitis; severe decompensated cirrhosis, or liver tumour (benign or malignant)

3. If newly diagnosis of ischaemic heart disease, stroke/TIA

4. Migraine with aura when taking progestogen only contraception

5. Avoid if SLE with antiphospholipid antibodies

What to do if anybody missed POP?

If a pill is missed or delayed >3 hours, continue taking the POP at the usual time and use additional barrier methods for 2 days.

Injectable hormonal contraceptive

Beneficial effect and efficacy are same as that of oral contraceptive pills but patient compliance is good (cannot take it daily). Fertility return is slightly delayed after discontinuation of use. Drug interactions are same as with oral hormonal pills.

Usually provide contraception for 2 to 3 months depending on type of contraceptive use.

1. Depot medroxy progesterone acetate 150 mg injection to be given deep IM every three months. Next injection may be delayed up to 2 weeks.

2. Norethisterone enanthate 200 mg injection to be given deep IM every 2 months. Next injection may be delayed up to 1 week.

Indication

1. It can be given in women where oestrogens are contraindicated like sickle cell disease, seizure disorders etc.

2. Age >35 years who smoke

3. Can be given in breastfeeding females after first 6 weeks.

4. In non breastfeeding females, injections can be safely given immediately postpartum.

Absolute contraindications

1. Pregnancy.

2. Unexplained genital bleeding.

3. Severe coagulation disorder.

4. Previous sex steroid induced liver adenoma, active liver disease.

5. Breastfeeding during initial 6 weeks.

6. Current or history of thromboembolic disease, cerebrovascular disease, coronary artery disease.

7. Current or past breast cancer

8. Diabetes >20 years or with vascular disease

9. Uncontrolled hypertension (BP >180/110)

Common side effects

1. Irregular bleeding

2. Breast tenderness

3. Weight gain

4. Depression

5. Headache

6. Dizziness and

7. Abdominal pain.

IUCD

Advantages

1. Effect lasts for ≥5 years

2. No systemic effects

Disadvantages

1. Heavy periods

2. Problems with insertion or retrieval

3. No protection from pelvic inflammatory disease or ectopic pregnancy

Barrier methods (condoms, diaphragm)

Advantage

1. Barrier to transmission of STIs

Disadvantages

1. User dependent

2. Allergy