

History & Physical Examination Summery For Obstetrics & Gynecology



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ABNORMAL UTERINE BLEEDING

A 32 years old presented with excessive uterine bleeding for the last 4 months. How to manage this patient?

Etiologic Factors

Genital Tract	Systemic
Inflammatory (PID, cervicitis, endometritis)	Bleeding disorder
Benign growths (fibroids, polyps)	Anticoagulants
Malignancy (endometrial cancer, cervical, functional ovarian cancer)	Thyroid disease
Iatrogenic (IUCD, oral contraceptives, tamoxifen)	DM
Pregnancy-related (abortion, ectopic, GTD)	
Dysfunctional uterine bleeding (DUB)	

History

Profile (age, parity, marital status & work)

History of present illness & Gynecologic history

Analysis of previous normal cycle: duration, regularity, duration of menstrual flow, no. & size of pads, soaked, presence of clots, associated dysmenorrhea & its type

Analysis of the abnormal bleeding

Pattern

Amount, color, clots

Severity (number & size of pads, soaked, symptoms of anemia, impact on life)

Associated post-coital bleeding

Associated symptoms: pelvic mass, symptoms of cancer & metastases

Possibility & symptoms of pregnancy

History of PID or STD

Taking contraceptives or IUD

Last Pap smear

Symptoms of fibroid (urinary symptoms, constipation, mass)

History of fibroid, endometriosis, malignancy

Symptoms of thyroid disease

Obese or not

Past history

DM, thyroid disease or bleeding disorder

HTN

History of breast diseases

Drug history

Anticoagulants or Tamoxifen

Family history

Endometrial cancer, breast cancer, colon cancer

Cervical or ovarian cancers

Examination

General (ill or well, signs of anemia, obesity, weight change)

Neck examination (thyroid)

Breast examination

Abdominal examination (masses & ascites)

Pelvic examination

 Inspection of the vulva & perineum (masses, fissures)

 Speculum examination (vaginal or cervical polyps, ulcers or masses)

 Bimanual examination (uterine or adnexal masses)

 Lymph nodes examination (supraclavicular & inguinal)

Investigations

CBC (Hb)

Pregnancy test (if relevant)

U/S (fibroids, endometrial hypertrophy or cancer)

Pap smear

Hysteroscopic guided endometrial sampling

What are the different patterns of abnormal uterine bleeding?

Oligomenorrhea: infrequent, irregular bleeding usually at intervals > 40 days

Polymenorrhea: frequent but regular bleeding usually at intervals of 21 days or less

Menorrhagia: excessive bleeding in amount (> 80 ml) and/or duration (> 7 days) at regular intervals

Metrorrhagia (inter-menstrual bleeding): irregular but not excessive bleeding

Menometrorrhagia: irregular bleeding that is excessive in amount and/or duration

What is DUB?

Abnormal uterine bleeding associated with anovulatory cycles without the presence of organic disease, a diagnosis of exclusion

What is the characteristic pattern of primary dysmenorrhea?

 Usually begins with the onset of menstruation, then gradually decreases

 Duration of 12-72 hours

 Usually in the lower abdomen, mainly in the midline

 Often colicky in nature

 Maybe associated with back pain, nausea, malaise, headache, fatigue or diarrhea

What are the common causes of secondary dysmenorrhea?

 Chronic PID

 Endometriosis

 Adenomyosis

What is the management for abnormal uterine bleeding?

- Correction of the anemia
- Treating the underlying cause

What are the treatment options for DUB?

Pharmacologic

- Non-hormonal
 - Mefenamic acid
 - Tranexamic acid
- Hormonal
 - COCPs
 - IUS
 - Danazol, GnRH analogs (not used now)

Surgical

- Endometrial ablation (recurrence is a problem)
 - Contraindications: fertility desired, endometrial hyperplasia or cancer, fibroids
- Hysterectomy (100% cure rate)

FIBROIDS

Benign smooth muscle tumors of the myometrium

20% of women over 35 years

Peak of symptoms: 35-45 years

These tumors have greater concentrations of estrogen & progesterone receptors

The most common indication for hysterectomy

Risk Factors

Age (more than 35)

Black race (9 times more common than whites)

Nulliparity or infertility

Obesity

Anatomical Sites

- Intramural
- Subserosal
- Pedunculated
- Submucosal
- Interligamentary
- Parasitic

Presentation of Uncomplicated Fibroids

- Bleeding (menorrhagia) & Anemia
- Pain (dysmenorrhea)
- Pressure symptoms (urine frequency, urgency, incontinence, constipation, pain on defecation)
- Infertility
- Abortion
- Polycythemia (rare)

Complicated Fibroids

- Torsion of Pedunculated fibroids
- Hemorrhage
- Infection
- Hyaline degeneration
- Cystic degeneration
- Red degeneration (necrobiosis) – during pregnancy, presents like acute abdomen and abortion
- Calcification
- Malignant transformation

How can fibroids prevent the ability to achieve a term pregnancy?

- Causing infertility
Bilateral cornual fibroids cause tubal obstruction
Submucosal fibroids may prevent implantation
- Causing abortion
Interfering with normal placentation, implantation & adherence to myometrium
- Causing preterm labor
Irritation of the myometrium causing preterm uterine contractions

What other complications in pregnancy are related to fibroids?

- Dystocia
- Increased rate of C/S
- Increased risk for uterine inversion
- Red degeneration

How does pregnancy affect fibroids?

Majority of fibroids do not grow or may shrink during pregnancy, but some increase in size

When leiomyosarcoma is suspected?

Rapid growth of a fibroid, large size initially, symptomatic
0.1-1.0% of cases
More common between 50-60 years

Investigations

- U/S
- MRI & CT
- Hysteroscopy & Biopsy
- Hysterosalpingogram (HSG)

Management

Conservative (serial examinations annually, unless rapidly enlarging)
Hormonal (GnRH analogs)
Surgical

Indications for Conservative management

- Small tumor
- Asymptomatic
- Slowly growing
- During pregnancy
- Near menopause

Indications for treatment with GnRH analogs

- Treatment of large fibroids prior to resection
- In peri-menopausal state
- Immediate surgery is contraindicated

What are the benefits of use of GnRH analogs before surgery?

- Reduction in menstrual blood loss until surgery so improving anemia
- Reduction of operative blood loss
- Decreased need for hysterectomy
- If hysterectomy is to be done, vaginal hysterectomy can be done instead of abdominal

What are the side effects of GnRH analogs?

Menopausal symptoms

Osteoporosis (if used for > 6 months)

Indications for Surgical management

Severe blood loss

Symptomatic

Large tumor or rapidly growing (doubling in < 6 months)

If the fibroid is a factor for infertility or recurrent abortions

Types of surgeries & the choice between them

Myomectomy or hysterectomy (others like uterine artery embolization)

The choice depends upon patient's desire for fertility, severity of symptoms & size

GENITAL PROLAPSE

A 52 years old female came to your clinic complaining of a lump or something protruding through the vagina. How to manage this patient?

History

Profile (age, marital status, parity, working or not)

History of lump

Duration

Always present or goes in

Aggravated by long-time standing and mostly appearing at the end of the day

Relieved by lying down

Impact on social & sexual life

Associated symptoms:

Uterine prolapse: back pain

Cystocele: incontinence, lower urinary symptoms, inability to empty the bladder, the patient needs to reduce it manually to empty the bladder

Rectocele: constipation, incomplete rectal evacuation, the patient needs to reduce it manually to empty the rectum

Procidentia: ulceration, blood staining or purulent vaginal discharge

Risk factors:

Multiparity with vaginal deliveries & long labors

Increased intra-abdominal pressure (chronic cough, constipation, masses)

Menopause

Pelvic surgeries

Gynecologic history (menopause & HRT, surgeries, previous prolapse)

Past history (chronic cough or constipation, previous surgeries)

Social history (smoking)

Examination

Inspection of the vulva with cough & straining to demonstrate prolapse or incontinence

Speculum examination

Rectal examination to differentiate between rectocele & enterocele

Investigations

Urine analysis

Renal U/S & IVU

Cystometry

How prolapse can be prevented?

Preventing pelvic floor injuries:

- Avoiding prolonged labor, bearing down before full dilatation & difficult instrumental deliveries

- Postnatal pelvic exercises

- Family planning

Avoiding & treating causes of increased intra-abdominal pressure such as obesity, smoking, chronic cough & constipation

HRT after menopause

Treatment

Treat UTIs, cause of increased intra-abdominal pressure & give HRT

Pessaries

Surgical options

- Uterine prolapse (vaginal hysterectomy, Manchester or sacrohysteropexy)

- Vaginal prolapse (anterior colporrhaphy, posterior colpoperineorrhaphy, resection of enterocele sac or abdominal sacrocolpopexy in vault prolapse)

- LeFort's operation

INFERTILITY

A 31 years old female, married for 7 years with no ability to conceive. How to manage this patient?

History

Female History

Profile (Age & Parity)

Ovulatory Factors

- Menstrual cycle: length of the cycle & duration of menses, regularity, dysmenorrhea, mid-cycle pain, changes in vaginal discharge at mid-cycle, breast tenderness or mood changes before menstruation, inter-menstrual bleeding, any abnormality (menorrhagia, polymenorrhea, metrorrhagia, oligomenorrhea, amenorrhea)
- Symptoms related to PCO: hirsutism, balding, acnes, obesity
- Symptoms related to increased prolactin: galactorrhea, headaches or visual problems, taking antipsychotic drugs or dopamine
- Symptoms of thyroid disease: hair loss, weight gain or loss, cold or heat intolerance or palpitations
- Symptoms related to menopause suggesting premature ovarian failure: hot flashes, vaginal dryness, mood changes, decreased libido or pathological fractures
- Excessive stress, dieting or aggressive exercises

Tubal Factors

- Previous pelvic surgery, including sterilization surgery
- History of PID
- Previous ectopic pregnancy
- History of ruptured appendicitis
- History of septic abortion

Cervical Factors

- History of cone biopsy, LEEP or cryosurgery to the cervix
- History of traumatic or instrumental delivery

Uterine Factors

- History of fibroids or endometriosis (& ask about their symptoms)
- History of D&C or E&C
- History of congenital anomalies in the uterus

Investigations

- Investigations & their results (hormonal, HSG, laparoscopy)

Male History

- Profile (Age & work)
- Fathered a previous child
- Testicular surgery, injury, varicocele or infection (post-pubertal mumps orchitis)
- Surgery for hernia repair
- History of STD
- Chemotherapy or radiation
- IHD & ischemic vascular diseases
- Neurological injury or DM
- Penile problem like impotence or hypospadias
- Smoking or alcohol intake
- Done any investigations like semen analysis

Coital History

- Frequency of intercourse
- Timing & relation to ovulation
- Use of lubricants (could be spermicidal)
- Dyspareunia (superficial or deep)
- Smoking, alcohol, drugs

Examination

Female Examination

Ovulatory factors	Signs of androgen excess (PCO): hirsutism, acne, balding Signs of hyperthyroidism Signs of hypothyroidism Obesity Signs of increased prolactin: galactorrhea, abnormal visual fields Syndromes (Turner)
Tubal factors	Pelvic tenderness Scars Fixed uterus & adnexa may suggest adhesions
Uterine factors	Pelvic mass Irregular uterus (fibroid or congenital anomalies)
Cervical factors	Motion tenderness (cervicitis) Evidence of a previous trauma or surgical procedure Atrophy of the cervix & vagina

Male Examination

- General look: abnormal hair, gynecoid appearance, gynecomastia
- Testes: size, absent undescended, varicocele, tenderness (infection)
- Penile abnormalities

Male Investigations

Semen analysis

- 48 hours abstinence & examination within 2 hours
- Normal: > 2 ml volume, > 20 million sperm/ml, > 50% forward motility, > 40% normal morphology

Female Investigations

Ovulatory

- Basal body temperature
- Progesterone level (days 21-23)
- Endometrial biopsy

Uterine

- HSG

Tubal

- HSG & Laparoscopy

Cervical

- Post-coital test

What is the treatment of choice for Male infertility?

Intrauterine Insemination (IUI)

What are the indications for IUI?

Male factor

Cervical factor

Use of donor sperms

What abnormalities can be revealed by HSG?

Congenital anomalies

Fibroids

Adhesions

Tubal patency

Salpingitis isthmica nodosa

What are the contraindications for HSG?

PID

Allergy to the dye

What are the possible complications of HSG?

Dye embolization

Peritonism

Salpingitis

What abnormalities can be revealed by laparoscopy?

Endometriosis

Adhesions

Tubal disease

How post-coital test is done?

- 24-48 hours abstinence of intercourse & intercourse around 2 days of ovulation
- Cervical mucus should be examined within 12 hours
- Spinnbarkeit test: stretchable mucus 6-10 cm between two glass slides is normal
- > 20 sperms / high power field should be visualized, otherwise antibodies are suspected

What diagnostic evaluation is needed to define which type of ovulatory disease may be present?

LH & FSH

Hypogonadotropic state: hypothalamic or pituitary disorder

Hypergonadotropic state: ovulatory

What is the treatment of choice for cases of ovulatory dysfunction due to hypothalamic or pituitary disorder?

Human menopausal gonadotropin (hMG)

What are the complications of hMG?

Multiple gestations

Hyperstimulation syndrome

Mild (ovarian enlargement, weight gain & abdominal distension)

Severe (ovaries > 10 cm, weight gain > 20 pounds, ascites, hypoperfusion)

Can be prevented or minimized by periodic measurement of serum estradiol & U/S monitoring of the size & no. of follicles

What is the treatment of choice for PCO?

Metformin & Clomiphene citrate (androgen antagonist)

What are the other indications for Clomiphene citrate?

Luteal phase defect

ART

What side complications may be seen?

Multiple gestations

Corpus Luteal cyst

Menopausal symptoms

What are the treatment options for tubal disease?

Surgery (tubal recanalization)

IVF

MENOPAUSE & HRT

- Menopause: absent menstruation due to cessation of ovarian activity for > 12 months
- Climacteric: a transitional period leading to menopause in which ovarian activity decreases
- Age range: 48-55 years, median age: 50-52 years
- Average perimenopausal period: 4 years

A 53 years old female came to you complaining of amenorrhea of 1 year duration. She asks you to give her HRT. How to manage this patient?

History

Gynecologic history

Symptoms of menopause and their impact on life and sexual activity

General symptoms: vasomotor symptoms (hot flashes, night sweats), insomnia, depression, anxiety, short-term memory loss

Genital symptoms: vaginal dryness & dyspareunia, decreased libido

Urinary symptoms: irritative symptoms, stress incontinence

Skeletal symptoms: pathological fractures (hip or wrist), shortening (compressive spinal fractures), pain in these sites

History of abnormal uterine bleeding

Last Pap smear or endometrial biopsy (if any)

Gynecologic cancers

History of fibroids or endometriosis

Done any gynecologic surgery

Past history

HTN, IHD, CVA, DVT or PE

DM

Being or malignant breast disease & Mammograms results

Liver disease

Family history

HTN, IHD, CVA or DM

Osteoporosis

Breast cancer

Gynecologic malignancies

Examination

General (obesity or weight changes, BP measurement, neck masses)

Breast examination

Chest examination to assess heart status

Abdominal examination looking for any masses

Pelvic examination (atrophic changes in vagina, cervical smear, bimanual examination for masses)

Estrogen Regimens

- Oral estrogen (estradiol valerate 1 or 2 mg, conjugated estrogen 0.625 mg, estrone 1.25 mg)
- Transdermal estrogen (50 µg)
- Subcutaneous implantation (for patients undergone hysterectomy)
- Tibolone (a steroid with estrogenic, progestogenic & androgenic activities)
2.5 mg, given 1 year after menopause to improve symptoms and prevention of bone loss
Usually well-tolerated
May be associated with increased libido

Progestogens

- To oppose estrogen to prevent risk of endometrial cancer
- Not necessary in women who had undergone hysterectomy
- 12 days per month
- Side effects of progesterone

Contraindications to HRT

Absolute Contraindications	Relative Contraindications
Present or suspected pregnancy	Presence of fibroids
Suspicion of breast or endometrial cancer	Past history of benign breast disease
Acute active liver disease	Unconfirmed VTE
Uncontrolled HTN	Chronic stable liver disease
Confirmed VTE	Migraine

Local Estrogen

- Cream, Pessaries or vaginal tablets
- Women complaining mainly of genitourinary symptoms
- When HRT is contraindicated

Management & Follow-Up

- Warning the patient about the **start-up symptoms** (breast tenderness, nipple sensitivity, weight gain, calf cramps & increased appetite), which may persist for up to 3 months
- Regular breast examination
- Regular BP measurements
- Regular pelvic examination, especially with abnormal bleeding

What are the risk factors for Osteoporosis?

- Menopause
- White race
- Sedentary life style
- Smoking
- Family history

What is the risk for fractures?

- 25% of women >70 years experience spinal fractures
- 20% of all experience hip fractures

What are the prevention & treatment options for osteoporosis?

Weight-bearing exercise

Calcium

Vitamin D

Medications

- Bisphosphonates (e.g. Alendronate) – causes GI upset

- HRT

- Selective estrogen receptor modulators (SERMs) (e.g. Raloxifene)

 - May increase risk for DVT, associated menopausal symptoms

- Calcitonin – may cause nasal irritation if inhaled

- Parathyroid hormone (e.g. Teripratide)

POSTMENOPAUSAL BLEEDING

A 57 years old female presented to you with vaginal bleeding of 2 months duration. How to manage this patient?

History

Profile (age, marital status & parity)

Gynecologic History

Menopausal or not, duration of menopause, symptoms, on HRT or not

Assessment of the bleeding

Onset & Duration

Amount & Color

Presence of Clots

Relation to intercourse

Associated symptoms (pain, mass, vaginal discharge, back pain, weight loss)

Severity (symptoms of anemia, impact on life)

Contraceptive history

Previous history of fibroids, gynecologic surgery

Last Pap smear & results

Any investigations done

Drug History

Anticoagulants or Tamoxifen

Past History

DM, thyroid disease, HTN or coagulation problems

Personal history of cancer (endometrial, cervical, breast, ovarian, colon)

Family History

Endometrial, ovarian, breast or colon cancer

Examination

General (weight changes or obesity, signs of anemia, signs of malignancy)

Neck examination (thyroid)

Breast examination

Abdominal examination (masses or ascites)

Pelvic examination

Inspection of vulva and perineum (masses, fissures, hemorrhoids)

Speculum examination (vaginal or cervical polyps or ulcers, signs of atrophic changes – pale mucosa, fissures, ulcers, bleeding, absent rugae)

Bimanual examination (uterine or adnexal masses)

Lymph node examination (inguinal or supraclavicular)

Investigations

U/S (to assess for masses, endometrial thickness < or > 4 mm)

CBC (Hb level)

Pap smear

Endometrial sampling under hysteroscopic guidance

ENDOMETRIAL CANCER

An estrogen-dependent overgrowth of the endometrium
The most common malignancy of the female genital tract

Risk Factors

- Unopposed estrogen
- Obesity
- PCO
- Estrogen-secreting tumors (granulosa-cell ovarian cancer)
- Nulliparity
- Early menarche / late menopause
- Endometrial hyperplasia
- Tamoxifen
- DM & HTN (cofactors)

Presentation

- Postmenopausal bleeding
- Intermenstrual bleeding
- Abnormal Pap smear (AGCUS)

Diagnosis

- U/S for endometrial sampling
- Pap smear & endocervical curettage
- Endometrial sampling guided by hysteroscopy
- Chest X-ray
- Pelvic CT scan

Endometrial Hyperplasia

- Simple without atypia: 1% risk for cancer
- Complex without atypia: 3% risk for cancer
- Simple with atypia: 9% risk for cancer, treated by hysterectomy
- Complex with atypia: 30% risk for cancer, treated like cancer

Histological subtypes of endometrial cancer

- Adenocarcinoma (endometrioid) – 75-80%
- Papillary serous
- Sarcomas

Papillary serous tumors

- Not related to elevated estrogen
- More common in blacks
- Late presentation & poor prognosis

Staging for Endometrial cancer

Stage	Description	5-year-survival
I	IA – limited to endometrium	90%
	IB – invasion < half of myometrium	
	IC – invasion > half of myometrium	
II	IIA – endocervical glands only	70%
	IIB – invasion of cervical stroma	
III	IIIA – invasion of serosa +/- adnexal +/- positive peritoneal cytology	40%
	IIIB – invasion of vagina	
	IIIC – metastases to pelvic/para-aortic lymph nodes	
IV	IVA – invasion of bladder +/- bowel	10%
	IVB – distant invasion including intra-abdominal or inguinal nodes	

Basic treatment for all stages

- Total abdominal hysterectomy (TAH)
- Bilateral salpingo-oophorectomy (BSO)
- Nodal sampling
- Peritoneal washings

Adjuvant Treatments

- Stage I & II: intra-cavity radiation
- Stage III & IV:
 - External radiation
 - Hormonal therapy (progesterone)
 - Chemotherapy (Doxorubicin, Cisplatin)

PRIMARY AMENORRHEA

Primary Amenorrhea

No period by age 14 and no growth of secondary sexual characteristics

No period by age 16 regardless of secondary sexual characteristics

Secondary Amenorrhea

Cessation of regular menstruation for > 3 consecutive cycles or > 6 consecutive months

A 16 years old female is complaining of amenorrhea. How to manage this patient?

History

Profile (age & work)

Ask about previous cycles to determine type of amenorrhea

(Important to ask about sexual intercourse pregnancy which is not applicable to our society in this case)

Cyclical pain and hematoma formation (imperforate hymen or transverse vaginal septum)

Abnormally short stature

Absent secondary sexual characteristics (pubic hair, axillary hair, breast development)

Virilization symptoms (male-type hair growth, ambiguous genitalia)

Symptoms of increased prolactin (galactorrhea, headaches, visual problems, or taking anti-psychotics or dopamine-like agents)

Symptoms of hypothyroidism (hair loss, cold intolerance, weight gain, constipation)

History of excessive exercising, anorexia & excessive weight loss, anosmia or stress

Family history of similar problem

Examination

General: general look, abnormal hair growth, stature, dysmorphic features (epicanthal folds, high-arched palate, webbed neck, neck mass)

Breast: developed or not, wide spaced nipples, shield-like chest, galactorrhea

Genitalia: ambiguous genitalia, imperforate hymen, tender pelvic mass (hematoma)

Tanner staging:

	Breast	Pubic Hair
1	Pre-adolescent, elevated papillae	None
2	Breast bud & papillae slightly elevated	Sparse, long, slightly pigmented
3	Further enlargement of breast mound, increased palpable glandular tissue	Darker, coarse, curly
4	Areola & papilla project above breast	Adult-type hair, no spread to medial thigh
5	Papillae projected, mature	Adult-type hair with spread to medial thigh, inverse triangle distribution

Investigations

Pregnancy test

TSH, T3

Prolactin

Etiology

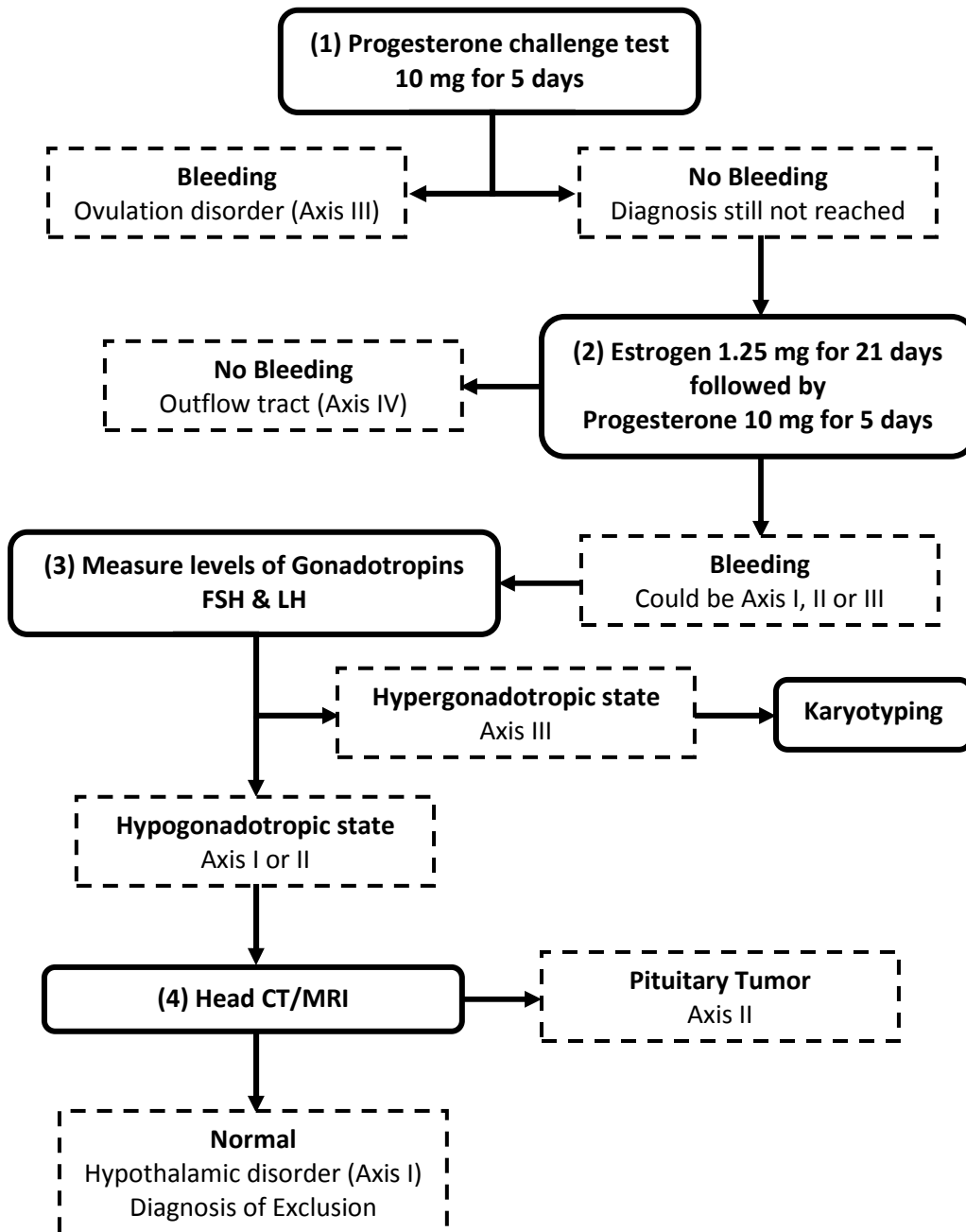
Axis I: Hypothalamus

Axis II: Pituitary

Axis III: Ovaries

Axis IV: Uterus & outflow tract

Algorithm for Diagnosis (if diagnosis can't be reached by simple hormonal assay)



Why Karyotyping is important for ovarian cases of amenorrhea?

Because of risk of XY mosaic type of Turner syndrome in which case Y chromosome predisposes to gonadal malignancy “Gonadoblastoma”

Etiologic Factors for Primary & Secondary Amenorrhea Depending on Axis

Axis	Primary Amenorrhea	Secondary Amenorrhea
Outflow tract & Uterus IV	Imperforate hymen Trans-vaginal septum Müllerian agenesis (Mayer-Rokitansky-Küster-Hauser syndrome) Androgen insensitivity syndrome	Asherman syndrome
Ovaries III	Gonadal dysgenesis (Turner) Gonadal Agenesis	Premature ovarian failure
Pituitary II	Pituitary adenoma Empty sella syndrome Sheehan syndrome (mostly secondary)	Pituitary adenoma Sheehan syndrome
Hypothalamus I	Kallman syndrome Excessive stress, weight loss, exercise	Excessive stress, weight loss, exercise

What long-term health concerns affect women with amenorrhea due to Axis I, II or III?

Osteoporosis, she needs HRT

URINE INCONTINENCE

A 53 years old female patient presented to you complaining of urinary incontinence for 4 months duration. How to manage this patient?

History

Profile (age, marital status, parity & working or not)

Analysis of the incontinence:

Onset & frequency

Severity

Size & number of pads

Impact on social & sexual lives & on work

Is it related to coughing, sneezing or laughing?

Is it related to urgency?

Lower urinary symptoms (frequency, nocturia, dysuria, urgency, hematuria, hesitancy, feeling of incomplete emptying)

Fluid intake (amount & frequency)

Menopause or pre-menopause, symptoms of menopause, taking any HRT or contraceptives

History of vaginal deliveries

History of prolapse or feeling of masses or bulges in the vagina

Obesity

Feeling of any abdominal masses or distension

Past history (DM, neurological disease, spinal trauma, respiratory disease, chronic constipation, previous surgeries for incontinence or prolapse or pelvic surgeries)

Drug history (diuretics, TCA, Ca-channel blockers)

Examination

Abdominal (masses)

Pelvic

Let the patient confirm her story about incontinence (stress by coughing)

Vaginal examination (atrophic changes & prolapse)

Assess tone of pelvic floor & anal sphincter

Look for any masses

Neurologic

Investigations

Urine analysis & culture

Q-tip test

Cystometry

Cystoscopy

Treatment

Behavioral (Kegel's exercises)

Pharmacological (tropical estrogen, antispasmodics, anticholinergics)

Surgical

Surgeries

ANTEPARTUM HEMORRHAGE

Vaginal bleeding after 24 weeks of gestation

A 27 years old female, pregnant at 33 weeks of gestation presented to the ER with vaginal bleeding. How to manage her?

History

Profile (age, parity, gestational age, blood group)

History of present pregnancy

LMP & EDD

Diagnosis of pregnancy

U/S findings (multiple or singleton, anomalies, position of placenta)

History of present illness

Analysis of bleeding

Amount

Color

Clots

Severity of symptoms (shock, oliguria)

Associated symptoms (pain, labor contractions,

Risk factors for Abruption

Multiparity

Trauma

Over-distension (polyhydramnios, multiple gestations)

ECV

Rupture of membranes

HTN or PET

Smoking

Risk factors for Placenta previa

Multiparity

Multiple gestations

Previous previa

Previous C/S

Increased age

Examination

General (signs of shock) & Vital signs (pulse is more important than BP)

Obstetric (tenderness, high fundus or not, presentation, lie & engagement, presence of contractions)

Investigations

Blood for grouping, cross-match & Hb

U/S (assessment for retro-placental clot or placenta previa, position & lie)

Management

2 large IV canula and Resuscitation with fluids and/or blood (Packed RBCs or FFP)

Give steroids for lung maturity

Anti-D (father +, mother - & indirect coombs test is negative)

Observe for PPH

PLACENTA PREVIA

Low-lying placenta after 24 weeks of gestation
1/250 of deliveries
20% of APH

Presentation

70% painless vaginal bleeding
20% vaginal bleeding with contractions
10% incidental
Abdomen is soft-lax
Mal-presentation is common

Risk Factors

- Previous placenta previa (recurrence rate 4-8%)
- Multiple gestation
- Multiparity
- Increased maternal age
- Previous C/S

Maternal Complications

- Increased maternal mortality rate
- Postpartum hemorrhage (PPH)
- Sepsis
- Higher risk anesthesia & surgery
- Air embolism

Fetal Complications

- Prematurity: increased perinatal mortality rate, IUGR
- Mal-presentation
- Cord compression
- Congenital malformations

Diagnosis

- Abdominal U/S (95%), trans-vaginal U/S (100%)
- Double set-up examination (old)
- Digital vaginal examination (PV) is contraindicated

Management

- Resuscitation and blood grouping & cross match
- Give steroids for lung maturity
- Assess fetal well-being
- Give Anti-D
- Deliver by C/S
- Observe for PPH

PLACENTAL ABRUPTION

Premature separation of an abnormally implanted placenta after 20 weeks gestation
0.5-1.5% of pregnancies

Presentation

- Vaginal bleeding (concealed, revealed or combined)
- Abdominal pain
- Uterine contractions
- Abdomen is usually tender
- Normal lie & presentation
- Signs of DIC

Risk Factors

- Previous placental abruption (recurrence rate 4.4-67%)
- PET
- Trauma
- Polyhydramnios with sudden decompression due to ruptured membranes
- Multiple gestations
- High parity
- Short cord
- Smoking
- Folic acid deficiency

Maternal Complications

- Shock & acute renal failure
- DIC
- Increased maternal mortality rate

Fetal Risks

- Fetal distress
- Prematurity: increased perinatal mortality rate, IUGR
- Congenital malformations

Diagnosis

- U/S
- Coagulation profile (DIC)

Management

- Resuscitation and blood grouping & cross match
- DIC treatment: fresh frozen plasma
- Assess fetal well-being
- Give steroids for lung maturity
- Give Anti-D
- Definitive treatment is delivery
- Observe for PPH

EARLY PREGNANCY BLEEDING

A 23 years old female, presented to you with vaginal bleeding of 3 hours duration after 4 weeks of amenorrhea. How to manage this patient?

History

History of Present Pregnancy

LMP

Sure dates or not (regular, contraceptives or lactating)

Symptoms of pregnancy

Diagnosis of pregnancy

Any previous vaginal bleeding in this pregnancy

History of Present Illness

Analysis of bleeding

Amount, color, clots

Severity (symptoms of shock)

Associated symptoms (pain, passage of POC, shoulder-tip pain, bathroom sign)

Risk factors for Ectopic pregnancy

Previous ectopic

Pelvic surgery

PID

Pregnancy on top of an IUD or progestin-only pills

Ovulation induction or IVF

Past Obstetric history

Previous abortions (type, GA, D&C)

Previous ectopic

Gynecologic history

History of infertility

Contraceptive history

History of fibroids

Examination

General examination & Vital signs

Vaginal examination

Cervical motion tenderness

Assessment of the cervix (open or not)

Any visible source of bleeding

Work-up

Blood grouping & cross match for resuscitation

Monitor vitals

CBC (Hb)

Level of β -hCG

U/S (sac presence, size, correlation with β -hCG, fetal heart)

ECTOPIC PREGNANCY

Pregnancy outside the endometrial cavity

95-97% in the fallopian tubes (ampulla then isthmus)

A common cause of maternal mortality in 1st trimester

Presentation: acute (20%), sub-acute (75%), silent (5%)

Important Risk Factors

Previous ectopic

Pelvic surgery

PID

Pregnancy on top of an IUD or progestin-only pills

Ovulation induction or IVF

Presentation

- Classic triad (abdominal pain, vaginal bleeding, amenorrhea)
- Shock
- Sepsis
- Shoulder-tip pain (lying supine)
- Bathroom sign (blood in the pouch of Douglas)
- O/E: abdominal tenderness, adnexal mass, cervical excitation (unilateral), normal-sized uterus
- (If D&C was done: **Arias Stella** is pathognomonic)

Investigations

- Serial β hCG (no doubling after 48 hours)
- Level of β hCG with U/S – Discriminatory zone
 - Sac is visible at β hCG = 1500-2000 with trans-vaginal U/S
 - Sac is visible at β hCG = 5000-6000 with abdominal U/S
- U/S (extra-uterine sac, blood in the peritoneum or pouch of Douglas)
- Culdocentesis (blood in the pouch of Douglas, not done any more)
- Laparoscope (definitive diagnosis)

Management

- Resuscitation, blood grouping & cross-match
- Expectant management with serial β hCG levels
- Surgical management (laparoscopy or laparotomy)
- Medical management

Surgical Treatment

- Linear Salpingostomy (linear incision, removal of sac & incision closes by secondary intention or it may be sutured)
- Segmental resection (removal of the affected part of the tube)
- Salpingectomy (removal of the whole affected tube)

Indications for Laparotomy

Profuse hemorrhage

Certain locations of the ectopic (abdominal, cornual, interstitial, ovarian)

Inadequate visualization or exposure with laparoscope

Medical treatment

Methotrexate (50 mg single dose IM) & Folic acid

When Medical treatment can be used?

Minimal symptoms (no shock)

Sac < 4 cm

No fetal heart activity

β hCG < 1500

ABORTION

Expulsion of products of conception (POC) before age of viability
15% of all pregnancies

Causes of 1st Trimester Abortion

- Chromosomal abnormalities (50-70%)
- Multiple gestation
- Blighted ovum
- Parental balanced translocation
- Infections
- Endocrine abnormalities (DM, thyroid dysfunction, PCOS, corpus luteal insufficiency)
- Uterine anomalies (septated uterus)
- Asherman's syndrome
- Sub-mucous fibroid
- Trauma
- Anti-cardiolipin antibodies, anti-phospholipids syndrome, SLE
- Rh isoimmunization

Causes of 2nd Trimester Abortion

- Multiple gestation
- Cervical incompetence
- Infections
- PROM
- Uterine anomalies
- Sub-mucous fibroid

Threatened, Inevitable & Incomplete Abortion

	Threatened Abortion	Inevitable Abortion	Incomplete Abortion
History	Mild vaginal bleeding, may(not) be followed by mild abdominal pain	Heavy vaginal bleeding with no POC, followed by severe abdominal pain	Heavy vaginal bleeding with POC, followed by severe abdominal pain
Examination	Good general condition Closed cervix Fundal height compatible	Bad general condition Dilated cervix Fundal height compatible	Bad general condition Dilated cervix Uterus small for date
U/S	Fetal heart – present Diagnosis depends on U/S	Fetal heart – variable Clinical diagnosis	Fetal heart – absent Clinical diagnosis
Management	Reassurance Advice (decrease activity, avoid intercourse) Hormones (progesterone) Anti-D	For both conditions: Resuscitation Oxytocic drugs (ergometrine, oxytocin, prostaglandin) E & C Post-abortion management	

Complete Abortion

- Heavy vaginal bleeding with passage of POC followed by severe abdominal pain, and everything has stopped
- O/E: closed cervix, uterus small for date
- U/S: empty uterus or with retained POC
- Management:

Empty Uterus	Retained POC
Conservative management with explanation Post-abortion management	E & C Post-abortion management

Missed Abortion

- Silent abortion, death of the fetus before 24 weeks, remaining inside the uterus
- Incidental finding usually
- Presentation:
 - Mild vaginal bleeding
 - Loss of symptoms of pregnancy
 - Stop of fetal movements after 20 weeks
- O/E: fundal height is compatible or small for date, closed cervix
- U/S: essential for diagnosis
 - 2 scans, 7 days apart at least, embryo > 7 weeks, no fetal heart
- Investigations: Hb, blood grouping and cross-match, coagulation profile (DIC)

- Management:

Conservative Management

Leave the dead fetus inside the uterus until expelled by itself
 Psychological trauma
 More risk of DIC

Active Management

Evacuation of the uterus
 Decreases psychological trauma
 Decreased risk for DIC

- Evacuation is either medical or surgical

Medical Evacuation

Can be done at any gestation
 Longer time, no anesthesia, no complications of surgery, preferred

Surgical Evacuation

Only done < 12 weeks
 Shorter time, GA, surgical complications
 D & C

- **Medical Evacuation**
 Misoprostol (Cytotec, vaginally or orally)
 200 µg, 2 tablets/3 hours, maximum 5 doses daily
- Post-abortion management

Septic Abortion

- Incomplete abortion complicated by infection
- Features of incomplete abortion & pelvic infection, may be complicated by DIC
- Causative organisms: E. coli, Bacteroides, strep or staph
- Could be mild (80%), moderate (15%) or severe (5%)
- Investigations (resuscitation, endocervical swab for culture & sensitivity, coagulation profile for DIC)
- IV antibiotics (Cephalosporins & Metronidazole)
- D & C, after 12 hours of antibiotics
- Post-abortion management

Post-Abortion Management

- Support to the patient from the staff and family
- Anti-D
- Explanation & Counseling:
 - Why did it happen? No obvious cause most of the time, chromosomal abnormalities
 - Not to feel guilty? Sexual intercourse or bed rest are not related
 - Can it happen again? Yes, 80% rate of successful pregnancies
 - When can we try again? Wait 2-3 months
 - Use of contraceptives: start immediately after the abortion

Complications

- Hemorrhage & DIC, increased maternal mortality rate
- Infection, may lead to adhesions and infertility
- Rh-isoimmunization
- Surgical complications: uterine perforation, cervical injury
- Psychological trauma

ABNORMAL EXAMINATION: LARGE FOR DATE

A 23 years old, G1P0, 32 weeks of GA. On examination, fundal height was 37 cm. How to manage this patient?

Differential Diagnosis

Wrong dates
Multiple gestations
Polyhydramnios
Fibroid
Macrosomia
Full bladder

History

History of Present Pregnancy

LMP & history of previous menstrual cycles

Diagnosis of pregnancy & U/S findings

Singleton or multiple, fetal anomalies, previous assessment of amniotic fluid

Any history of vaginal bleeding, abdominal pain, preterm labor

Risk Factors

Multiple gestations Multipara, increased age, black race, family history, ovulation induction

Polyhydramnios DM, multiple gestations, fetal anomalies

Macrosomia DM, previous macrosomia, obesity, prolonged pregnancy, Multipara

DM Age > 30, family history, previous macrosomia, obesity, PET, non-gestational DM

Examination (In addition to incompatible fundal height)

Multiple gestations Multiple fetal poles, different fetal hearts, presentation of 1st one

Polyhydramnios Difficult to feel fetal parts or to listen to fetal heart, tense abdomen, fluid thrill

Fibroid Asymmetric uterus, pelvic mass

Investigations

U/S Singleton or multiple

AFI

HC, AC, FL (age & size)

Glucose tolerance test

POLYHYDRAMNIOS

Amniotic fluid > 2000 ml or AFI > 25

Etiology

Idiopathic (40%)

Maternal (DM)

Feto-maternal (multiple gestations, chorioangiomas, erythroblastosis)

Fetal

Chromosomal anomalies (2/3)

Respiratory (cystic adenomatoid lungs)

CNS (anencephaly, encephalocele, meningocele)

GI (esophageal atresia, tracheo-esophageal fistula, duodenal atresia)

Others (clefts, cystic hygroma or other neck masses)

History

Usually gradual, but maybe acute if between 24 & 30 weeks

Symptoms:

Discomfort & dyspnea

Indigestion

Increase in edema, varicose veins or hemorrhoids

Abdominal pain

Examination

Large for GA

Difficult to palpate the fetus or listen to fetal heart

Tense abdomen

Fluid thrill

Complications

Cord presentation, compression or prolapse

Placental abruption

Malpresentation

Preterm labor

Postpartum hemorrhage

Increased perinatal mortality rate

Management

Fetal U/S looking for a cause

Glucose tolerance test looking for DM

Indomethacin can be beneficial if no cause was found

Therapeutic amniocentesis in severe cases

GESTATIONAL DIABETES

Gestational diabetes: glucose intolerance in pregnancy that returns back to normal after 6 weeks postpartum

	Normal	Glucose Intolerance	Diabetic
Fasting blood glucose	< 6 mmol/l	6 =< Glucose <= 7.9	>= 8
Modified OGTT (75 g)	< 9	9 =< Glucose <= 10.9	>= 11

Risk Factors

- Age (above 30)
- Family history (one 1st-degree or two 2nd-degree)
- Past obstetric history of: gestational diabetes, IUFD, recurrent abortions, large babies > 4.5 kg, babies with congenital malformations
- Obesity
- Polyhydramnios
- Recurrent infections (UTI or fungal infections)
- Hypertension
- Glycosuria

Maternal Complications

- Complications related to diabetes & its management: DKA, hypoglycemia, progression of vascular-end organ disease (retinopathy but not nephropathy), recurrent infections
- Polyhydramnios
- PET

Fetal Complications

- Macrosomia (traumatic delivery – shoulder dystocia)
- Delayed organ maturity (RDS)
- CNS mal-formations: neural tube defects, anencephaly, encephalocele
- CVS malformations: ASD, VSD, transposition of great vessels, aortic coarctation
- Caudal regression syndrome (sacral agenesis – pathognomonic of diabetes)
- Anal atresia
- Renal agenesis
- Two-vessels cord

Screening

- 24-28 weeks of gestation
- 50-g load of glucose & measure glucose after 1 hour
- More than 7.8 mmol/l continue to modified OGTT (75-g)

Management

Goal: keep fasting blood glucose below 6 mmol/l, Hb_{A1c} < 6%

Diet, Exercise & Insulin

Insulin Dosage:

- 1st trimester = 0.6 * weight
- 2nd trimester = 0.7 * weight
- 3rd trimester = 0.8 * weight
- 2/3 in the morning (2/3 of them: intermediate, 1/3: short-acting)
- 1/3 in the evening (1/2 of them: intermediate, 1/2: short-acting)

Management during labor

Insulin by infusion 1-2 units/hour with 5% dextrose

Target glucose is 100 mg/dl

Delivery between 38-40 weeks

MULTIPLE GESTATIONS

Types

Dizygotic: fertilization of two ova, 2/3 of twins

Monozygotic: fertilization of one ovum, 1/3 of twins

Factors that increase incidence for dizygotic twins

- Race (blacks > whites)
- Parity
- Maternal age
- Family history (mother being part of a twin)
- Ovulation induction

Factors that increase incidence for monozygotic twins

- Incidence is constant

Placentation

- In dizygotic twins the placenta is always dichorionic–diamniotic
- In monozygotic, placentation depends on the time of fertilization

Fertilization	4 days	8 days	13 days
Dichorionic	Monochorionic	Monochorionic	Conjoined
Diamniotic	Diamniotic	Monoamniotic	Twins
30%	70%	1%	1/600

Presentation

- History: ovulation induction, family history, more severe symptoms of pregnancy, rapid weight gain
- Examination: large for GA, two fetal heart tones, multiple fetal poles
- Labs: elevated MSAFP
- U/S

Complications

- Increased rate of all pregnancy complications except post-term delivery
- Increased risk of perinatal mortality due to preterm delivery & prematurity
- Mortality rate is 2-3 times higher in monochorionic compared to dichorionic twins:
 - Twin-twin transfusion syndrome (TTTS)
 - Cord accidents (50% of monochorionic twins)
 - Conjoined twins
- Low birth weight (50% < 2500 g) & IUGR (40%)
- Anomalies
- TTTS
- Increased risk for operative deliveries
- APH & PPH

Preterm labor

- The most common contributor to prematurity
- 50% of twins deliver preterm
- Bed rest may prevent preterm labor
- Cervical cerclage can be used only in cases of cervical incompetence
- Tocolytics can be used like in singleton

TTTS

- Shunting of blood through AV malformations in the placenta
- Occurs in monochorionic diamniotic twins (5-10%)
- Donor twin is small, anemic & may have oligohydramnios
- Recipient twin is large, polycythemic & may have polyhydramnios
- Mortality rate is > 50%

Delivery of Twins

- Continuous fetal monitoring is needed
- Mode of delivery depends on presentation:
 - Vertex-vertex: can be delivered vaginally
 - Breech-vertex: C/S
 - Vertex-nonvertex:
 - Deliver vertex twin vaginally
 - Turn nonvertex twin to vertex and deliver vaginally
 - Vaginal breech, deliver of 2nd twin if criteria for vaginal breech are met
 - Breech extraction
 - C/S of both twins

POSTPARTUM HEMORRHAGE

A 29 years old patient, delivered through vaginal delivery 3 hours ago and she is now complaining of vaginal bleeding estimated to be around 1000 ml. How to manage this patient?

History

Profile (age, parity, blood group)

History of present illness

 Analysis of bleeding

 Amount, color, clots, duration

 Severity (symptoms of shock)

 Risk factors

 Over-distension (multiple gestations, polyhydramnios, macrosomia)

 Grand multiparity (>5)

 Prolonged or precipitous labor

 Augmentation of labor by oxytocin

 Antepartum hemorrhage (abruption or previa)

 Mg sulphate

 Infection (chorioamnionitis)

 Anesthesia (halothane)

 Fibroids

 Instrumental delivery, macrosomia or precipitous labor (for traumatic causes)

 Previous C/S (retained placental tissue or uterine rupture)

Examination

General examination & Vital signs

Fundal height (above umbilicus indicates uterine atony)

Examination of placenta (missing parts indicated retained placental tissue)

Speculum examination (lacerations indicate traumatic delivery)

Examination of the bleeding (absence of clots indicated a coagulopathy)

Management

Resuscitation (2 large IV canula, packed RBCs or FFP)

Bimanual compression & massage of the uterus

Oxytocic drugs (oxytocin, ergometrine, hemabate, carboprost or misopistol)

Intensive monitoring

Exploration

Surgical management (uterine artery ligation or hysterectomy)

POSTETERM PREGNANCY

Post-date pregnancy: prolonged pregnancy beyond 40 completed weeks to 41⁺⁶ weeks

Post-term pregnancy: prolonged pregnancy beyond 42 completed weeks

Etiology

Usually it's a physiological continuation of pregnancy

Rare causes:

Anencephaly	Placental sulphatase enzyme deficiency
Fetal adrenal hypoplasia	Absent fetal pituitary
Obesity & excessive weight gain	

A 31 years old G1P0, 41 weeks of gestation, how to manage her?

History

Profile (age, gravidity & parity)

LMP, GA & EDD

Regular history of present pregnancy

Look for any indication for induction (see below)

Look for any contraindication for induction (see below)

Examination

Obstetric examination: lie, presentation & engagement

Vaginal examination: position, Bishop Score & pelvic adequacy

Investigations

U/S To assess fetal age, well-being & biophysical profile, growth & AFV
Should be done at 40, 41 & 42 weeks

Daily kick chart

CTG Every 3 days to assess fetal well-being

Delivery

- Uncomplicated cases, delivery is at 41 weeks + 3-7 days
- Induction of labor is the 1st choice or C/S if there was any contraindication to induction
- Observe for shoulder dystocia & meconium aspiration

Complications of Prolonged Pregnancy

- Increased perinatal mortality rate (placental insufficiency & fetal hypoxia)
- Meconium aspiration syndrome
- Oligohydramnios & cord compression
- Prolonged labor due to large size, ossified skull & so decreased moulding
- Shoulder dystocia
 - Associated cervical cord injury
 - Brachial plexus injury
 - Phrenic nerve injury
- Maternal complications, like vaginal & cervical lacerations and uterine rupture

INDUCTION OF LABOR

10-20% of all pregnancies

Indications

Postdate & post-term	PET, DM
PROM	Chorioamnionitis
IUGR, IUFD	Fetal anomalies
Rh-isoimmunization	Placental abruption

Contraindications

Absolute	Relative
Previous classical C/S	Severe PET
Previous 2 C/S	Breech presentation
Previous C/S with recurrent cause	Multiple gestations
Abnormal CTG – Fetal distress	Grand multiparity
Transverse or oblique lie	Polyhydramnios
Contracted pelvis	Still not engaged
Placenta previa	
Active genital herpes infection	
Tumor occupying the pelvis / cervical cancer	
Previous successful pelvic floor repair or incontinence surgery	

Bishop Score

	0	1	2	3
Cervical Dilatation	Closed	1-2 cm	3-4 cm	>= 5 cm
Cervical Length	> 2 cm	2-1 cm	1-0.5 cm	< 0.5 cm
Cervical Consistency	Firm	Medium	Soft	
Cervical Position	Posterior	Central	Anterior	
Station	-3	-2	-1-0	+1 or more

- Unfavorable score is < 7, start with prostaglandin followed by ARM +/- oxytocin
- Favorable score is >7, start with ARM +/- oxytocin

Steps should be taken before induction

- History (assess GA & any contraindication for induction)
- Obstetric examination (lie, presentation & engagement)
- Vaginal examination (Bishop score, pelvic adequacy & position)
- U/S (GA, fetal wellbeing, weight, AFV, placenta)
- CTG

Complications of Induction

- Failure & increased risk for C/S
- Uterine hyperstimulation and risk for rupture & fetal distress
- Prolonged labor & increased risk for instrumental delivery, C/S & PPH
- More painful so requiring more analgesia
- Prematurity
- Infection

Prostaglandin

- PGE2 (prostin): vaginal pessary 3 mg or intra-cervical gel 0.5 mg
- PGE1 (cytotec): vaginal tablet 25 µg
- Dose can be repeated every 4-6 hours for a maximum of 3 doses
- If cervix becomes favorable start ARM
- If remains unfavorable after 3 doses, repeat in next morning if no urge to deliver
- Complications:
Uterine hyperstimulation
Diarrhea & hyperthermia (rare)

ARM

- Indicated with favorable cervix
- Acts through Ferguson reflex
- Complications:
Cord prolapse & compression (if not engaged, so controlled ARM is advised)
Abruptio (sudden decompression)
Infection (prolonged rupture before delivery)

Oxytocin

- Indicated if effective uterine contractions are not reached after 1-2 hours of ARM
- Effective contractions (3-4 contractions, each lasting 50-60 seconds in 10 minutes)
- 10 units are diluted in 500 ml N/S (20 mU/ml)
- Start by 2 mU/min, doubling every 30 min until effective contractions are reached
- Maximum dose for Multipara is 32 mU/min & 64 mU/min for Primigravida
- Complications:
Uterine hyperstimulation
Hypertension
Neonatal jaundice
Water intoxication
- After effective contractions are reached for 30 min, reduce dose to minimum dose required to maintain these contractions

Management during Induction

- Explanation & support
- Good selection of method
- Proper doses of PG or oxytocin
- Monitoring of labor (fetal wellbeing, uterine activity, progress of labor, maternal wellbeing)
- Adequate analgesia (epidural)
- Management of uterine hyperstimulation & fetal distress

Management of Uterine Hyperstimulation & Fetal Distress

- Immediately:
 - Stop oxytocin infusion
 - Give oxygen by mask
 - Turn patient on her side
 - Give rapid infusion of 250-500 ml N/S
- If persisted, give Terbutaline 0.25 mg bolus IV
- If persisted despite all measures, go for emergency C/S
- If controlled, you can restart oxytocin at low doses
- Persistent fetal distress:
 - Scalp blood sampling to measure fetal pH
 - If pH is > 7.25 this excludes hypoxia & acidosis, continue with vaginal delivery
 - If pH is < 7.2, go for emergency C/S
 - If pH is between 7.25 & 7.2, repeat after 30 min, if becoming > 7.25 continue with vaginal delivery, but if persisted or worsened go for emergency C/S

PRETERM LABOR

Definitions

- **Preterm Labor:** labor contractions with progressive cervical change, between 24⁺⁰ and 36⁺⁶ weeks of gestation
- **Cervical Incompetence:** cervical dilation in the absence of contractions before term
- **Labor Contractions:** regular uterine contractions, with contractions lasting at least 30 seconds, at least 2 contractions in a 10-minutes period, persistence of this contraction pattern for at least 30 minutes and progressive cervical change

Variants

- **Mildly Preterm:** from 32⁺⁰ to 36⁺⁶ weeks of gestation
- **Very Preterm:** from 28⁺⁰ to 31⁺⁶ weeks of gestation
- **Extremely Preterm:** from 24⁺⁰ to 26⁺⁶ weeks of gestation

Incidence

6-10%, it was not changing in the last ten years

Causes

- **Infection** (ascending vaginal infection, chorioamnionitis)
- **Over-distension** (multiple gestation, polyhydramnios)
- **Antepartum** hemorrhage (APH)
- **Intercurrent** illness (UTI, other systemic infections)
- **Cervical incompetence**
- **Idiopathic**

Non-Modifiable Risk Factors

Major	Minor
<ul style="list-style-type: none">• Last birth preterm: 20%• Last 2 births preterm: 40%• Twin gestation: 50%• Uterine abnormalities, e.g. fibroids• Cervical damage (cone biopsy, repeated dilatation)• Recurrent antepartum hemorrhage• Intercurrent illness• Surgery	<ul style="list-style-type: none">• Teenagers having second or subsequent babies• Parity (=0 or >5)• Ethnicity (black race)• Poor socioeconomic status• Education (not beyond secondary)

Modifiable Risk Factors

- Smoking (2 times increased risk)
- Drug abuse (cocaine)
- BMI < 20 (underweight)
- Inter-pregnancy interval < 1 year

History

Age, Gravidity, Parity & Blood group
LMP & EDD to determine GA
Singleton or multiple
Analysis of the contractions
Associated abdominal pain, back pain, rupture of membranes, vaginal bleeding or fever
Any change in fetal movements
History of previous preterm labor (in this pregnancy or previous)
Known U/S findings in this pregnancy (multiple gestation, placenta previa, fetal anomalies, uterine anomalies & GA by U/S)
Risk assessment
DM or HTN

Differential Diagnosis

- Placental abruption
- Chorioamnionitis
- Complicated fibroid (red degeneration)
- UTI or Gastroenteritis
- Constipation

Examination

- General Examination: signs of shock or infection
- Abdominal Examination: looking for intensity of uterine contractions (labor) , presence of tenderness (abruption or chorioamnionitis) and fundal height (ruptured membranes)
- Speculum Examination: pooling of amniotic fluid, blood or discharge & assessment of the cervix
- Digital Pelvic examination is contraindicated (may stimulate prostaglandin release or introduce and infection)

Investigations

- Bedside fibronectin (normally it is absent in vaginal secretions between 23 & 34 weeks, it has a higher predictive value compared to pelvic digital examination)
- Measurement of cervical length using TV/US
- U/S assessment of the presentation and lie
- Assessment of fetal well-being
- High vaginal swab
- Repeat vaginal examination every 1-4 hours according to severity

Management Options

- Hydration & Bed rest
- Tocolytics
- Steroids
- Transfer to high-risk facilities

PROM

PROM: rupture of membranes before onset of labor

Preterm PROM: PROM before 37 completed weeks

Prolonged PROM: ruptured membranes for more than 18 hours

Causes

Same as those of preterm labor

Presentation

- Gush of fluid
- Decreased fetal movements
- Dizziness
- Fever

Examination

- Look for: fever, increased pulse rate, abdominal tenderness, small for date (oligohydramnios)
- Speculum: pooling of amniotic fluids in the posterior vagina, amniotic fluid passing through the cervix & cervical dilatation

Investigations

- Nitrazine test (amniotic fluid is alkaline, so the kit will become black, positive test)
False positives are not uncommon, due to blood, semen or urine
High negative predictive value
- High vaginal swab (group B strep.)
- Maternal well-being (Regular vital signs, CBC, ESR, CRP)
- Fetal well-being (CTG, increased FHR may suggest an intra-uterine infection)
- U/S (oligohydramnios, lie & presentation)
- Amniocentesis (Gram stain, microscopy & culture)
May induce labor
Maybe technically difficult if amniotic fluid was significantly decreased

MANAGEMENT

Tocolytics

Contraindications

IUGR, IUFD
Fetal distress
Oligohydramnios
Chorioamnionitis
Rupture of membranes
Fetal congenital anomalies
Active stage of labor

Sympathomimetic Agents

Ritodrine (FDA-approved) Terbutaline
They act through smooth muscle relaxation

- **Side Effects**

Tachycardia, palpitations, tremors, nervousness & restlessness
Pulmonary edema Hypokalemia
Insulin release Hyperglycemia
Lactic acidosis

- **Contraindications**

Maternal heart disease (can cause acute cardiopulmonary compromise)
Uncontrolled HTN Pulmonary HTN
Hyperthyroidism Diabetes

Calcium Channel Blockers (Nifedipine)

They act through smooth muscle relaxation by reducing cytoplasmic free calcium

- **Side Effects**

Headache, dizziness & hypotension

NSAIDs (Indomethacin – Indocin™)

These are inhibitors of prostaglandin synthetase activity so inhibiting prostaglandin-induced uterine contractions

- **Side Effects**

Premature closure of ductus arteriosus
Fetal nephrotoxicity

Magnesium Sulphate

Stabilizes smooth muscles cellular membranes by calcium antagonism

- **Indications**

1st line in obviously progressive labor, especially at an early gestation

2nd line with failed oral tocolytics

When other tocolytics are contraindicated

- **Side Effects**

Decreased to absent DTR

Pulmonary edema

Heart block

Drowsiness

(Not seen with normal KFT and administration rates of 2 g/hour or less)

- **Antagonist**

1 g of calcium gluconate IV

Steroids

- Decrease risk of neonatal morbidity and mortality due to prematurity by reducing risk of RDS & IVH
- Best is two injections 24-48 hours of betamethasone between 28-34 weeks of gestation
- No evidence of fetal side effects
- Low if any maternal side effects:
 - Pulmonary edema (especially when used with tocolytics)
 - Increased risk of infection especially in preterm PROM (controversial)
 - Abnormal glucose control in diabetics

Antibiotics

- No need in uncomplicated preterm labor
- 10-day course of erythromycin led to improved neonatal outcomes after prolonged PROM
- Intrapartum antibiotics unless GBS status is known to be negative
- Complications: intra-uterine infection, UTI or neonatal sepsis

Fetal Monitoring

- It is important to determine the presentation and lie based on U/S studies
- Continuous fetal monitoring
 - Difficult to interpret hearts of extremely premature infants
 - Steroids may lead to decreased fetal activity and heart beat variability

Mode of Delivery

- Cephalic presentation: vaginal delivery has the same outcome as C/S
- Breech presentation: C/S is advised, because of risk of entrapment of the head in a poorly-dilated cervix

MANAGEMENT FOR HIGH-RISK PATIENTS

Management of High-Risk Asymptomatic Women

- Early U/S scan to determine the GA
- Treatment of both bacterial vaginosis and asymptomatic bacteriuria
- Intrapartum prophylaxis against GBS
- Cervical length measurement
 - 11-20 mm length carries a 4% chance of preterm delivery
 - 10 mm length carries a 15% chance of preterm delivery
- **Cervical cerclage** is an option if significant cervical shortening was found before 24 weeks
- Fetal fibronectin

Cervical Cerclage

- Indicated with cases of 2nd trimester abortions or very preterm deliveries
- It is usually performed between 12-14 weeks
 - Risk of 1st trimester abortion has passed
 - Initial assessment of fetal well-being can be performed with nuchal translucency
- Two types of technique: McDonald & Shirodkar

McDonald	Shirodkar
Low cervical	High cervical
Risk of infection	Lower risk of infection
No anesthesia needed for removal	Anesthesia is needed when removed

- Removal of the sutures:
 - 37 weeks
 - When the patient presents in labor
 - Rupture of the membranes
- A third type: abdominal cerclage (rarely done)

RH ISOIMMUNIZATION

Rh antigens: D, d, C, c, E, e

Most important (D), DD (+), Dd (+), dd (-)

Critical volume: minimum volume of blood that can cause Rh isoimmunization: 0.25 ml

Causes of Rh Isoimmunization (feto-maternal hemorrhage)

- Delivery & C/S
- Abortion
- Ectopic pregnancy
- Antepartum hemorrhage (placenta previa, placental abruption)
- Postpartum hemorrhage
- Amniocentesis & chorionic membrane biopsy
- External cephalic version
- Manual removal of the placenta
- Silent feto-maternal hemorrhage (the most serious)

Factors that determine isoimmunization

- Volume of blood (↑)
- Inborn ability of the mother to respond (↓)
- ABO incompatibility (↓)
- Strength of the Rh antigen (↑)

Fetal Complications

- Hemolysis
- Jaundice & kernicterus
- Hydrops fetalis: generalized edema of the fetus

Kleihauer-Betke Test

- Acid dye on maternal blood, staining of fetal cells & counting them under microscope
- 20 fetal cells = 1 ml of bleeding = needs 100 IU of anti-D
- We usually use **1500 IU** in all cases

When to give Anti-D?

- Mother is Rh(-) and father is Rh (+) (we don't check for the father usually)
- Indirect Coombs test is (-)

Prophylaxis

- Administration on 28, 34 & 36 weeks of gestation
- Administration with any cause of feto-maternal hemorrhage (within 72 hours)

Management of Immunized cases

Indirect Coombs test is (+) so we do amniocentesis to determine the severity
Liley's chart (unconjugated bilirubin level & gestational age after 27 weeks)

Zone III (severe)

GA < 34 weeks: intra-uterine transfusions

GA > 34 weeks: deliver immediately

Zone II (moderate)

GA < 34 weeks: repeat amniocentesis in 1-2 weeks

GA 34-37 weeks: deliver at 35-37 weeks

GA > 37 weeks: deliver immediately

Zone I (mild)

GA < 34 weeks: repeat amniocentesis in 3 weeks

GA > 34 weeks: deliver at term

After Delivery – The Neonate

- Severity is assessed by (direct Coombs test, Rh type, blood group, Hb)
- Severe case: exchange transfusion
- Mild case: phototherapy & correction of acidosis

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الأمنيات بالتوفيق والنجاح

لجنة الطب البشري



فكرة تحيا على نبض قلوبكم