

Ob
G

POCKET

EVERYTHING YOU NEED!

Department of Obstetrics and Gynecology
School of medicine



ABC

Gynecology

Obstetrics

Management

TABLE OF CONTENTS

-Table of contents	0
-Dean's words	1
-Preface	2
-ABC OF THE ROTATION	
- Academic staff	3
- Recommended resources	4
- Package lectures	5
- History taking	6
- Physical examination	9
- Key pregnancy details	12
- Dating the pregnancy	13
- Common presentations in obstetrics and gynecology	14
- Major instruments in OBS&GYNE	17
- Psychology and women	20
- GYNECOLOGY SECTION:	
- Tanner staging	21
- Menstrual cycle	22
- Menopause	23
- Abnormal uterine bleeding	24
- Fibroids	25
- PCOS	26
- Contraception	27
- OBSTETRICS SECTION:	
- Diagnosis of Pregnancy	29
- Physiological changes in pregnancy	30
- Antenatal care	31
- Safe and unsafe immunizations	32
- Hypertension in pregnancy	33
- DM in pregnancy	34
- Diagnostic ultrasound in obstetric practice	35
- The cardiotocograph (CTG)	37
- High risk pregnancies	40
- Abnormal fetal heart rate differentials	41
- Nonstress test (NST)	42
- Amniotic fluid index	43
- Biophysical profile	44
- Bishop Scoring Method	45
- Fetal head (anatomic characteristics)	46
- Maternal pelvis (anatomic characteristics)	47
- Labour	48
- The partogram	49
- Apgar Score	51

TABLE OF CONTENTS

- Cesarean section	52
- Analgesics in labour	53
<u>-MANAGEMENT SECTION:</u>	
- Hormonal replacement therapy	54
- Teratogenic drugs	55
- Medications frequently used during pregnancy	56
- Management of APH	57
- Management of PPH	58
- Common drugs	59
<u>-Credits</u>	60
<hr/>	
<u>-Notes</u>	61

DEAN'S WORDS

Dear students,

It's a great pleasure to write my simple words and express my feelings towards all of you, by issuing and creating a "pocket" for the 5th and 6th year students.

Medicine is a great human profession that we have to preserve it and to restore its strength and splendor. I believe that the most three important qualities, that if you possess will make you a great doctor are; having empathy, being a good listener, and being compassionate. I'm sure that you have always dreamt of a career in medicine and the reason is not for a small thing like money or prestige, but it's the satisfaction that you will make a difference in someone's life.

I do believe that this pocket "student guide" will be one of the most valuable addition to your numerous achievements; it will certainly help you understand and solve patients' problems and needs in easy and simple way.

I am so proud of all of you for this great innovation, looking forward to more wonderful achievements.

All the very best and support. God bless you!

Dean;

Prof. Nail Abdullah Obeidat.

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PREFACE

ObG pocket is an iconic brief guideline to obstetrics and gynecology rotation. It has been written to fulfill the requirements to pass the rotation with grades, knowledge and most importantly with love. This love started since day one for me and made me believe that obstetrics and gynecology as lovely and easy as it seems, it deserves to be collected and shared in your "pocket", so I was fully engaged while creating it.

During the process of writing this pocket, I've studied seven books (STEP 2 CK Lecture Notes Obstetrics and Gynecology, Gynecology by Ten Teachers, Obstetrics by Ten Teachers, Blueprints obstetrics-gynecology, Hacker & Moore's Essentials of Obstetrics and Gynecology, First Aid for the USMLE Step 1 and Psychological Aspects of Women's Health Care_ The Interface Between Psychiatry and Obstetrics and Gynecology), many of the package's lectures, summaries, my round's notes and PYQs, just to make sure it will be at the highest level of perfection in order to gain your satisfaction and benefit you.

I hope this pocket will be helpful in guiding you to the best place ever in the obstetrics and gynecology worlds. And remember that any correction, suggestion or change in its content would be very appreciated.

At the end, I'm honored to dedicate this work to every single woman on earth for being such an amazing creature “) ♥

**Maram Shehab
Jerash, December 19, 2020**



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ABC



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RECOMMENDED RESCOURCESES

Package	link	QR Code
5 th year package	nq.cl/7ew9r	
6 th year package	nq.cl/o8yi	

Book's name	link	QR Code	Edition	Notes
STEP 2 CK Lecture Notes Obstetrics and Gynecology	nq.cl/izis6		2017	Higley recommended
Gynecology by Ten Teachers	nq.cl/6sinw		20 th edition	
Obstetrics by Ten Teachers	nq.cl/k7uly		20 th edition	
Blueprints obstetrics- gynecology	nq.cl/2s3yl		7 th edition	
Hacker & Moore's Essentials of Obstetrics and Gynecology	nq.cl/xiyi		6 th edition	Residents mainly use it! :3

Videos	link	QR Code	Notes
Osmosis	nq.cl/1cow		If the mega link deletes: sign up in this website and you'll get free trial for 5 days to access all videos! osmosis.org/
Dr. Nadine YouTube channel	youtube.com/channel/UCCGjH-QAv3h56g-GJxub52Yg		She's an Egyptian doctor This is her website: nadine-alaa-sherif.weebly.com/ Check her summary!
Boards and beyond for reproductive system			

PACKAGE LECTURES

ABC

For 5th year

Hx taking	
Obstetric examination	
Obstetrics and gynecology morning sessions	
Obstetrics	Gynecology
Physiological Changes in pregnancy	Vaginal discharge- slides
Antenatal care	Pelvic inflammatory disease
Malpresentation (slides)	Urinary incontinence (slides)
Assisted Vaginal Delivery	Genital prolapse
Ectopic Pregnancy	Uterine Fibroid
Antepartum Hemorrhage	Endometriosis (slides)
Coagulation disorders (slides)	Infertility
Drugs in Pregnancy (slides)	Amenorrhea (slides)
Labour (slides)	Abnormal Uterine bleeding (slides)
Induction of labour (Handout)	Menopause (slides)
Abortion	Ovarian Cancer
Gestational trophoblastic neoplasia	Endometrial Cancer
Rhesus isoimmunization (slides)	Cervical cancer (slides)
Hypertensive disorders of pregnancy	Contraception (slides)
Preterm Labour & PROM (slides)	
Postpartum hemorrhage (slides)	
Anemia in pregnancy (slides)	
Medical problems in pregnancy (slides)	
Puerperium (slides)	
Analgesia and anesthesia in pregnancy (slides)	
Pelvic anatomy and mechanism of labour (slides)	
Multiple pregnancy	
Gestational diabetes	

For 6th year

Management of Obstetric emergencies	Management of Abdominal pain in pregnancy
Principles of Gynecological surgeries	Management of pelvic mass
Approach to fetal abnormalities	Management of abnormal vaginal bleeding
Management of infertile couple	Abnormal labour
Cesarean section	Management of early pregnancy bleeding
Management of abnormal pap smear	Recurrent miscarriages and thrombophilia
Management of obstetric hemorrhage (APH, PPH)	Management of severe PET & eclampsia

- Most common lectures
- Most common but in another color :3

HISTORY TAKING

ABC

1 Patient profile

- Name. •Age. •Occupation.
- Residence (how far from the hospital).
- Blood group. •Date of admission.
- LMP; sure or not (lactation/ COP)
- Marital Status:
 - Single.
 - Married:
 - Duration of marriage:
 - Partner profile:
Age blood group and occupation.
- G ___ P ___ + ___ .

2 Chief complaint

A brief statement of the general nature and duration of the main complaints (use the patient's own words).

3 History of presenting illness

Focus on the presenting complaint (e.g. menstrual problems, pain, subfertility, urinary incontinence, etc.).

4 Menstrual history

Explored in all patients except menopausal women

- Menarche.
- Cycle duration of bleeding.
- Length of full cycle
(days from day 1 of bleed to day 1 of next bleed).
- Amount of blood loss (how many tampons/ day).
- Pattern of bleeding: regular or irregular.
- First day of the LMP.
- History of dysmenorrhea, mittelschmerz.
- History of intermenstrual bleeding, spotting.

5 Menopausal history
If applicable

- Age at onset.
- History of postmenopausal V.bleeding.
- Associated symptoms
(Hot flashes/night sweats, vaginal dryness, abnormal bleeding, irritability, depression, mood changes).

History of hormone replacement therapy.

6 Gynecological symptoms:

- Any irregular bleeding?
- Any pelvic pain?
- Any problems with fertility?
- Any problems with continence?
- Any vaginal discharge?
- Previous infections and their treatment.

7 Sexual and contraceptive history

- History of postcoital bleeding.
- History of sexual dysfunction (e.g., dyspareunia, low libido)
- Contraceptive method or needs:
 - Current method type and duration.
 - Previous methods, complications, and reasons of discontinuation.

8 Medication and allergies

- Allergies: including to what and the reaction.
- Current/previous medications tried.

9 Past medical history

- Any Previous gynecological problems
(including diseases of the breast).
- Any serious illnesses or operations with dates.
- History of Hospitalization.
- History of Exposure to Radiation.
- History of Blood Transfusion.

10 Family history

Significant autoimmune disease, BRCA related cancers and thrombophilia.

11 Mammogram screening:
explored in all patients

Date of last mammogram, its outcome and any previous abnormalities, or treatments.

12 Cervical screening:
Explored in all patients

Date of last smear, its outcome and any previous abnormalities, colposcopy or treatments.

13 Social history

- Diet and weight. •Smoking (type and amount of tobacco used).
- Alcohol. •Recent jobs. •Level of education.

HISTORY TAKING/ OBSTETRIC!

ABC

1

Obstetric symptoms

- Nausea and vomiting.
- Reduced fetal movements.
- Vaginal bleeding.
- Abdominal pain.
- Vaginal discharge or loss of fluid.
- Headache, visual disturbance, epigastric pain and edema.
- Pruritis.

2

Current pregnancy

- Planned pregnancy or not?
- Gestational age of the pregnancy.
- Accurate estimation of gestation and estimated date of delivery (EDD).
- Singleton or multiple gestation.
- Beginning of prenatal care (use of folate, regular OB/GYN visits)
- Prenatal diagnostic results (previous ultrasound findings)
- Screenings for Down's syndrome, Rhesus status and the presence of any antibodies, Hepatitis B, HIV and syphilis.
- The planned mode of delivery.
- Medical illness during pregnancy (clarify what type of illness and if the patient is still receiving any treatment).

3

Previous obstetric history

- Number of children with their genders, ages and birthweights, mode of delivery and any complications.
- Types of anesthesia previously used and complications.
- Number of miscarriages and gestation at which they occurred.
- Any terminations of pregnancy with record of gestational age and any complications.
- Assisted reproductive techniques for any previous pregnancies.

4

Vaccination history

- Flu vaccination.
- MMR vaccination.
- Whooping cough vaccination.
- Hepatitis B vaccination (if at risk).

5

Psychiatric history

- Postpartum blues or depression.
- Depression unrelated to pregnancy.
- Major psychiatric illness.

HISTORY TAKING/ SYSTEMIC REVIEW

ABC

General symptoms

- Fever
- Night sweat
- Weight change
- Appetite change
- Fatigue
- Malaise

Urinary symptoms

- Renal pain
- Stream of micturition
- Dysuria
- Color and amount of the Urine
- Frequency
- Urgency
- Nocturnal

Hematological symptoms

- Pallor
- Recurrent fever
- WBC count and differential
- Bleeding tendency

Endocrinological symptoms

- Sweating
- Heat/ cold intolerance

Dermatological Symptoms

- Rash
- Pain
- Itching
- Swelling
- Bleeding
- Change in Hair/Nails
- Ulcers

Cardiovascular symptoms

- Chest pain
- SOB
- Palpitations
- Dyspnea
- Pre-syncope
- Syncope
- Orthopnea
- PND
- Intermittent claudication
- Peripheral edema

Respiratory symptoms

- Dyspnea
- Cough
- Sputum
- Wheeze
- Sneeze
- Stridor
- Epistaxis
- Nasal discharge
- Hemoptysis
- Pleuritic chest pain

Gastrointestinal symptoms

- Nausea or vomiting
- Heartburn
- Dyspepsia or dysphagia
- Abdominal pain
- Abdominal distension
- Jaundice
- Hematemesis
- Changes in bowel habit: constipation, diarrhea, steatorrhea, melaena, hemochezia
- Anal pain, discharge or itching

Neurological Symptoms:

- Headache
- Sleep Defect
- Blurred vision, changes in color vision, sudden loss of vision, floaters
- Motor or sensory disturbance: muscle weakness, numbness, paresthesia
- Level of Consciousness
- Confusion

Musculoskeletal symptoms

- Muscle Pain
- Limitation Of movement
- Bone Pain
- Muscle wasting
- Swelling
- Deformities

PHYSICAL EXAMINATION

ABC

First steps!	<ul style="list-style-type: none"> • Introduce yourself and take permission • Ensure patient privacy. • Hygiene and light. • Confirm the patient's name and age. 	
	Exposure	From the nipples to the symphysis pubis. For social reasons: symphysis pubis to xiphisternum.
	Position	Most comfortable for the patient.
General Examination	Well or ill looking.	
	Level of consciousness: Active, conscious, hypoactive, lethargic, coma.	
	Any tubes or devices attached.	
	Vitals and BMI.	
Abdominal examination	Hands: scars, swelling, skin color, muscle wasting, splinter hemorrhages, nail pitting, clubbing and onycholysis, etc.	
	Face: central cyanosis (lips and tongue), jaundice (sclera) and xanthelasma.	
	<ul style="list-style-type: none"> • The patient should empty her bladder before the abdominal examination for comfort. • If a urine infection or pregnancy is suspected, a sample should be tested. 	
	Inspection	<ul style="list-style-type: none"> • At the foot of the bed: <ul style="list-style-type: none"> - Symmetry of the abdomen. - The contour of the abdomen. - The movement with respiration. - Umbilicus (normally, centrally inverted). • At the right side: <ul style="list-style-type: none"> - Obvious distension or mass. - The presence of surgical scars; the common areas for them are: <ul style="list-style-type: none"> = Suprapubic (caesarean section, laparotomy for ectopic pregnancy or ovarian masses). = Sub-umbilical (laparoscopy). = Right iliac fossa (appendicectomy). = Right upper quadrant (cholecystectomy). - Striae gravidarum (stretch marks)/ linea nigra. - Visible pulsation/ peristalsis. • Inspect hernial orifices (ask the patient to raise her head or cough and any hernias or divarication of the rectus muscles will be evident.)
	Palpation	<ul style="list-style-type: none"> • Ask the patient if she has any abdominal pain to avoid examining the area of pain until the end of palpation. • EYE CONTACT with the patient. • Superficial and deep palpation: <ul style="list-style-type: none"> - Start from the xiphisternum. - Describe the abdomen (soft, lax, tender, rigid). - Look for superficial and deep masses. • Organomegaly: liver, spleen and kidneys. • Palpate the hernial orifices (ask the patient to raise her head or cough). • Palpate the lymph nodes. <p style="text-align: center;">{signs of peritonism (i.e. guarding and rebound tenderness)}</p>
	Percussion	<ul style="list-style-type: none"> • General percussion (9 regions of the abdomen). • Shifting dullness. • Transmitted thrills. • Percuss the bladder (an enlarged bladder due to urinary retention will be dull).
Auscultation	<ul style="list-style-type: none"> • Bowel sounds. • Aorta. • Renal arteries. • Bruits. • LIVER: venous hum and friction rubs. • SPLEEN: friction rub. 	

PHYSICAL EXAMINATION

Pelvic examination	<ul style="list-style-type: none"> • Obtain the patient's verbal consent and a female chaperone should be present for any intimate examination. • Routine pelvic examination during antenatal visits is not necessary. However, there are circumstances in which a vaginal examination is necessary. These include: <ul style="list-style-type: none"> - Excessive or offensive discharge. - Vaginal bleeding (in the known absence of a placenta previa). - To perform a cervical smear. - To confirm potential rupture of membranes. - To confirm and assess the extent of female genital mutilation (FGM) in women. 	
	Inspection	Position: The patient in the dorsal position, the hips flexed and abducted and knees flexed.
		A sterile speculum maybe inserted into the vagina to obtain a clearer view of part of the vagina or pelvic organs.
		Inspect the external genitalia and surrounding skin, including the perianal area for: <ul style="list-style-type: none"> • Skin discoloration. • Lumps. • Scars from previous episiotomy. • Deficient perineum or prolapse. • Female genital mutilation (FGM) should be described. • The patient is asked to cough or bear down to enable signs of a prolapse or stress incontinence.
Bimanual examination	<ul style="list-style-type: none"> • Palpate the cervix for: any irregularity, hardness or tenderness. • Palpate the fundus: size, shape, position, mobility, consistency and tenderness. <p>The normal uterus is pear-shaped and about 9 cm in length. It is usually anteverted with the angle of the axis falling forward. and normally freely mobile and non-tender.</p> <ul style="list-style-type: none"> • Palpate the adnexa (tubes and ovaries) on each side. <ul style="list-style-type: none"> - Unusual to be able to feel normal ovaries. - Any swelling or tenderness. • Palpate the posterior fornix: identify the uterosacral ligaments, which may be tender or scarred in women with endometriosis. 	
Rectal examination	Can be useful in addition to a vaginal examination to differentiate between an enterocele and a rectocele or to palpate the uterosacral ligaments more thoroughly.	
	An alternative to a vaginal examination in children and in adults who have never had sex, if ultrasound is not available as an investigation. It is less sensitive than a vaginal examination and can be quite uncomfortable, but it will help pick up a pelvic mass.	

PHYSICAL EXAMINATION

ABC

Obstetric examination	<p>Position: Semi-recumbent position. PS: In late pregnancy women should never lie completely flat; the semi-prone position or a left lateral tilt will avoid aortocaval compression.</p>			
	<p>Exposure: From the nipples to the symphysis pubis but for social reasons from symphysis pubis to xiphisternum.</p>			
	Inspection	<ul style="list-style-type: none"> Assess the shape of the uterus and note any asymmetry. Look for fetal movements (Important in ectopic pregnancy, placental abruption) Note any signs of pregnancy such as striae gravidarum (stretch marks) or linea nigra. Look for scars. 		
	Palpation	<p>The purpose of palpating the pregnant abdomen is to assess:</p> <ul style="list-style-type: none"> The number of babies. The size of the baby. The lie of the baby. The presentation of the baby. Whether the baby is engaged or not. <p>Start from the right iliac fossa and in an counterclockwise fashion around the abdomen</p>		
	Symphysis–fundal height (SFH)	<table border="0"> <tr> <td> <p>A large SFH raises the possibility of:</p> <ul style="list-style-type: none"> A multiple pregnancy. Macrosomia. Polyhydramnios. </td> <td> <p>A small SFH raises the possibility of:</p> <ul style="list-style-type: none"> FGR. Oligohydramnios. </td> </tr> </table>	<p>A large SFH raises the possibility of:</p> <ul style="list-style-type: none"> A multiple pregnancy. Macrosomia. Polyhydramnios. 	<p>A small SFH raises the possibility of:</p> <ul style="list-style-type: none"> FGR. Oligohydramnios.
	<p>A large SFH raises the possibility of:</p> <ul style="list-style-type: none"> A multiple pregnancy. Macrosomia. Polyhydramnios. 	<p>A small SFH raises the possibility of:</p> <ul style="list-style-type: none"> FGR. Oligohydramnios. 		
	Leopold maneuvers	<ul style="list-style-type: none"> First grip (Fundal grip): Palpating the fundus to determine which part of the fetus occupies the fundus. The head is round and hard, whereas the breech is irregular and soft. Second grip (Umbilical Grip): - Palpating either side of the abdomen to determine on which side the fetal back lies. The fetal back is linear and firm, whereas the extremities have multiple parts. - If you want to examine the right side, you have to hold the left side. Third grip (First pelvic grip/ Pawlick's maneuver): Grasping the presenting part between the thumb and third finger just above the pubic symphysis to determine the presenting part. Fourth grip (Second pelvic grip): Palpating for the brow and the occiput of the fetus to determine fetal head position when the fetus is in a vertex presentation, The fingers of both hands are moved gently down the sides of the uterus toward the pubis. <p>First, second and third grip face the patient's face, but in fourth grip face the patient's feet</p>		
	Auscultation	<p>If the fetus has been active during your examination and the mother reports that the baby is active, it is not necessary to auscultate the fetal heart. Mothers do like to hear the heartbeat though and therefore using a hand-held device can allow the mother to hear the heart beat :3</p>		
	Summarize the findings	<p>This patient is having a singleton pregnancy, in a longitudinal lie, in a cephalic presentation, the back is on the right, fundal height is consistent with GA, with no significant findings.</p>		
Finish	<ul style="list-style-type: none"> Cover the patient and thank her for her cooperation. 			

KEY PREGNANCY DETAILS

Gestational age, gravidity and parity should be included at the beginning of your presentation of a patient's history.

- **Gravidity (G)** is the number of times a woman has been pregnant, regardless of the outcome (e.g. G2).
- **Parity (P)** is the total number of times a woman has given birth to a child with a gestational age of 24 weeks or more, regardless of whether the child was born alive or not (stillbirth).

If the patient is pregnant you should mention the gravida and para, but if she's not, just mention the parity

Example of gravidity and parity calculation:

A patient is currently 26 weeks pregnant and already has two children of her own. She reports having a miscarriage at 10 weeks and a stillbirth at 28 weeks: **G5P3**

G5:

The patient's gravidity is 5 because she has had 5 pregnancies in total.

P3:

The patient's parity would be 3 because she has had 3 pregnancies which resulted in the birth of a child with a gestational age of greater than 24 weeks (one of which was a stillbirth).

DATING THE PREGNANCY

ABC

Pregnancy has been historically dated from the last menstrual period (LMP), not the date of conception. The median duration of pregnancy is 280 days (40 weeks) and assuming that:

- The cycle length is 28 days.
- Ovulation occurs generally on the 14th day of the cycle.
- The cycle was a normal cycle (i.e. not straight after stopping the oral contraceptive pill or soon after a previous pregnancy).

You can:

1- CALCULATE AN ETIMATED DATE OF DELEVIRAY:

The EDD is calculated by taking the date of the LMP, counting forward by 9 months and adding 7 days (LMP+3 months + 7 days). If the cycle is longer than 28 days, add the difference between the cycle length and 28 to compensate.

Many apps have been developed to do the calculations! :3

Try this one for fun: <https://play.google.com/store/apps/details?id=com.quartertone.medcalc.obwheel>

It is important to define the EDD at the booking visit, as accurate dating is important in later pregnancy for assessing fetal growth. In addition, accurate dating reduces the risk of premature elective deliveries, such as induction of labour for post-mature pregnancies and elective caesarean sections.

2- CALCULATE THE GESTATIONAL AGE:

The gestational age is calculated by considering that:

- Every 3 months = 13 weeks.
- Every 6 months = 26 weeks.
- Every 1 months = 4weeks + 2days.

COMMON PRESENTATIONS IN GYNECOLOGY

Presentation	Clinical picture (examples)	Investigations	Differential diagnosis
Missed menses/amenorrhea	Nausea, breast engorgement.	Elevated b-hCG	Pregnancy
	Hirsutism, acne, virilization of genitalia, central adiposity, enlarged adnexa	Insulin resistance, elevated androgens, low sex hormone binding globulin (SHBG)	Polycystic ovarian syndrome
	Absent uterus and cervix on bimanual examination, ambiguous genitalia	46, XY	Müllerian agenesis
	Menopause before the age 40 years, vasomotor symptoms	May have elevated inhibin B, elevated FSH, low estradiol	Premature ovarian failure
	History of using metoclopramide or antipsychotics	Elevated prolactin	Hyperprolactinemia
	Cold intolerance, weight gain, constipation, depression	Elevated TSH Low T3, T4	Hypothyroidism
Pelvic pain	Acute onset of pelvic pain in a menstruating woman is an ectopic pregnancy until proven otherwise. Ovarian torsion should be ruled out as well.		
	Fever, tenderness of abdomen, dyspareunia, nodules along uterosacral ligaments/ pouch of Douglas on bimanual examination.	"Chocolate cyst" of ovary	Endometriosis
	Early satiety, ascites, adnexal mass	Abnormal ovaries on US	Ovarian cancer
	Diaphoretic, anxious, vaginal bleeding	Empty uterus on ultrasound with elevated b-hCG (lower-than-expected rise)	Ectopic pregnancy
	Fever, tenderness of abdomen, Cervical motion tenderness (Chandelier sign)	Scarring and adhesion formation between the structures of the pelvis	PID Pelvic abscess
	fever, chills, dysuria, urgency, frequency, costovertebral angle tenderness	Pyuria, bacteriuria, elevated WBC count, WBC casts	Acute pyelonephritis
Vaginal discharge	Milky nonadherent discharge, "fishy" smell ↑with KOH	Wet-Prep Findings: clue cells	Bacterial vaginosis
	Thick, white clumpy discharge ("cottage cheese appearance"); can have a "fishy" smell	Wet-Prep Findings: Pseudohyphae, budding yeast	Vulvovaginal candidiasis
	Greenish-yellow, frothy, bubbly discharge, strawberry cervix	Wet-Prep Findings: Motile trichomonads	Trichomoniasis
Irregular menses/abnormal uterine bleeding	Postmenopausal bleeding is endometrial cancer until proven otherwise.		
	Enlarged uterus, dysmenorrhea, heavy menses, pressure symptoms, infertility, abortion	Uterine masses	Leiomyoma (Fibroids)
	Lacerations of vulva and vagina, hematoma in vagina	-	Trauma
	Palmar erythema, jaundice, spider angiomas, Ascites, abdominal distention, caput medusae	Elevated liver enzymes	Liver disease
Vaginal bulging	Pelvic pressure and/or heaviness and/or discomfort, backache, urinary frequency/urgency/ incontinence, constipation, painful defecation	-	Prolapse
Involuntary leakage of urine	Associated with sneezing, coughing, laughing, or with activities	Urodynamics: detrusal filling pressure < 15 cm H ₂ O	Stress incontinence
	Associated with urgency, frequency, nocturia	Urodynamics: detrusal filling pressure > 15 cm H ₂ O	Urge incontinence
	continuous urinary leakage or dribbling and <u>incomplete bladder emptying</u>	Urodynamics: - No desire at 150 ml. - No sensation of fullness at 600 ml.	Overflow incontinence
	Painless and <u>continuous</u> loss of urine, usually after pelvic surgery, pelvic radiation, or obstetric trauma	Fistula visualized by cystourethroscopy	Urinary fistula

COMMON PRESENTATIONS IN OBSTETRIC

ABC






Presentation	Clinical picture (examples)	Investigations	Differential diagnosis
Vaginal bleeding early in pregnancy	shoulder tip pain, bathroom sign, diaphoretic, anxious	Empty uterus on ultrasound with elevated b-hCG (lower-than-expected rise)	Ectopic pregnancy
	Fever (septic), ↓fetal movement		Abortion
	Hyperemesis gravidarum, Respiratory distress hypertension if GA < 20 weeks	"Honeycombed" uterus or "clusters of grapes", "snowstorm" on ultrasound	Molar pregnancy
Vaginal bleeding late in pregnancy	Sudden painless bleeding, history of multiparity, previous C-section, a "preview" of the placenta which is visible through cervix	Low-lying placenta on ultrasound	Placenta previa
	Painful bleeding, abnormal contractions/increased uterine tone, maternal shock, history of smoking, hypertension, preeclampsia	CTG may reveal evidence of fetal distress	Placenta abruption
	triad of membrane rupture, painless vaginal bleeding, fetal bradycardia (< 100 beats/min)	-	Vasa previa
	Sudden onset of intense abdominal pain, abnormal abdominal contour, cessation of uterine contractions, disappearance of fetal heart tones, and regression of the presenting fetal part	-	Uterine rupture
Postpartum hemorrhage 4T's	Over distended uterus, fatigue of uterus (prolonged labour, multiparity), drugs (NSAIDs, nitrite, MgSO ₄ , anesthetic drugs), history of chorioamnionitis	-	Uterine atony
	The use of forceps and vacuum, macrosomic baby	If episiotomy is done during labour	Trauma (lacerations, incisions)
	Previous C/S, uterine surgeries, trauma to uterus, history of ECV Fever, discharge, abdominal pain	Tissue appeared when D&C is done!	Retained tissue
	Pre-existing (ITP & TTP) or acquired	-	Thromboembolism
Contraction-like pain	Effacement and dilatation of the cervix, loss of a 'show' (a blood-stained plug of mucus passed from the cervix), spontaneous rupture of the membranes (SROM)	-	Labour
	Fetal head is not engaged, slow or arrests the process of labour, severe moulding and caput formation, hematuria.	-	Cephalopelvic disproportion
	Thick or tenacious, dark green, fresh meconium staining to the amniotic fluid, prolonged labour	Abnormal CTG, A blood with pH < 7.20 of fetal blood sampling from his scalp.	Fetal distress (compromise)
	Footling breech fetus, dilated cervix with umbilical cord protruding	Abnormal CTG	Prolapsed umbilical cord
Leakage of vaginal fluid	Happened before week 37, pooling on speculum	Positive nitrazine, fern and tampon tests	Preterm rupture of the membranes
	Before the onset of labour, pooling on speculum		Premature rupture of the membranes

COMMON PRESENTATIONS IN OBSTETRIC






Presentation	Clinical picture (examples)	Investigations	Differential diagnosis
Pregnant lady in labour	Macrosomic baby, Turtle sign	-	Shoulder dystocia
	Exhausted mother, distressed fetus, pathological bandl's ring on the abdomen, dry vagina, caput succedaneum	-	Obstructed labour
Decrease fetal movement	The baby isn't growing properly, the mother's abdomen will be small, associated with preeclampsia, smoking, preterm labour or anemia	Abnormal placenta on ultrasound	Placental insufficiency
	Leaking of the amniotic fluid, low maternal weight gain, Abdominal discomfort, sudden drop of fetal heart rate	Low amniotic fluid on ultrasound, small for gestational age	Oligohydramnios
	Maternal smoking, underweight prior to pregnancy, preeclampsia, twin pregnancies, infections, placental insufficiency, malabsorption, diabetes, renal disease	On ultrasound, the baby's estimated weight with IUGR is below the 10th percentile or less than that of 90% of babies of the same gestational age	IUGR
	Fever, chills, hypotension, maternal and fetal tachycardia, uterine tenderness, diaphoresis	Positive bacterial cultures of amniotic fluid, elevated WBCs and C-reactive protein levels of the mother's blood	Chorioamnionitis
	Thick or tenacious, dark green, fresh meconium staining to the amniotic fluid, prolonged labour	Abnormal CTG, A blood with pH < 7.20 of fetal blood sampling from his scalp.	Fetal compromise
Persistent vomiting	Continuously nauseous, loss of appetite, becoming dehydrated, feeling light-headed or dizzy, losing more than 10 pounds or 5 percent of your body weight due to nausea or vomiting	-	Hyperemesis gravidarum (early)
	Jaundice, nausea, anorexia, abdominal pain or discomfort, fatigue, malaise, myalgia, dark urine	Urine bilirubin and urobilinogen, total and direct serum bilirubin, ALT and/or AST, alkaline phosphatase	Hepatitis

INSTRUMENTS

ABC








The instrument	Uses	Picture
Cusco's speculum (bivalve)	The two-bladed, or bivalve, speculum is the most common type of instruments that gynecologists use to examine the vagina and cervix. Because of the limited opening only few procedures like taking of Pap smear, insertion and removal of Copper T can be done	
Sims speculum	Sims' speculum is inserted into the vagina to retract the posterior vaginal wall. It gives more exposure of the vaginal walls than Cosco's Speculum and therefore is preferred for gynecological surgeries.	
Hegar's Dilator	It's for the dilatation of the cervix and could be used during both laparoscopic and open surgeries to find the correct planes to enter into either posterior or anterior fornix with minimal blood loss and with ease.	
Uterine Curette	It's used for scraping endometrial cavity to obtain a sample for histopathology Dilation & curettage/ Evacuation & curettage.	
Uterine sound	It's used for measuring uterocervical length, length of the cervix, to feel for any pathology inside the cavity like fibroid, adhesions and to feel for the misplaced IUCD.	

INSTRUMENTS

The instrument	Uses	Picture
Tenaculum	It's used for grasping the cervix in procedures like hysterosalpingography and hysteroscopy.	
Allis' Forceps	It's used for grasping tough structures like rectus sheath or fascia in operations like tubectomy, LSCS (lower segment caesarean section) and abdominal hysterectomy.	
Foerster sponge forceps	It's used for removing the placenta	
Punch biopsy forceps	It's used to take biopsy from the cervix	
Cytobrush	A plastic tool used to obtain cells from the cervix during the procedure of a pap smear	

INSTRUMENTS

ABC

The Instrument	Uses	Picture
Wrigley's Forceps	It's obstetric forceps for outlet forceps delivery.	
Simpson's forceps	It's used in molding of the fetus situations, usually in the first vaginal delivery	
Ayre's Spatula	It's used for taking Pap Smear for screening of carcinoma of the cervix	
Episiotomy Scissors/ perineorrhaphy	It's used for episiotomy	
Amniocentesis needle	It's used to drain a little amount of amniotic fluid	
Amniotic hook	It's used to artificially rupture the membranes and may cause cord prolapse/compression and/ or chorioamnionitis.	
Vacuum extractor	It uses a cup whether metal or plastic (flexible or semirigid) that is applied to the fetal's vertex.	

PSYCHOLOGY AND WOMEN

The mind and body are connected in ways that science is only beginning to understand, which shows many significant unique anatomical, physiological and biological characteristics of the women's brains. They interact with her soul and mental health in a magical way in order to allow her to adapt to her distinct role in life.

More importantly the woman has always something going on in her body; many of these physiological changes are associated with her mental health! For example, the miracle of pregnancy and the transformation of women into mothers has fascinated people from antiquity to the present. However once conception has occurred, there are three distinct psychological phases that most women pass through during their pregnancies. These stages roughly correspond to the three trimesters of pregnancy and appear to be triggered by various psychological, biological, and cultural influences.

The first stage of pregnancy usually begins when the woman realizes she is pregnant and lasts until she experiences quickening (fetal movements), at approximately 4 months. During this stage, as new and often uncomfortable physical symptoms develop in the expectant mother, ambivalence about the pregnancy is common. Ultimately, in a wanted pregnancy, the fundamental task of this first stage is the acceptance of the pregnancy. Women struggling with this task may show behavioral signs, such as denial of the pregnancy or unusual reactions to bodily changes.

The second psychological phase of pregnancy was historically thought to be initiated by quickening and the undeniable realization that a living creature exists within her. With the advent of fetal ultrasound, the progression into this next phase of development may be accelerated for some women. Regardless, with the reduction or disappearance of many unpleasant physical symptoms, the second trimester of a woman's pregnancy is a time of relative peace and fulfillment. The most important tasks for a woman in this stage are initiating an emotional affiliation with, or attachment to, the fetus and recognizing the fetus as a separate individual contained within her.

During the final stage, expectant mothers again focus on bodily sensations, and appearance may become an increasing concern. At this time in the pregnancy, anxiety about the delivery increases, fears tend to group around several themes. The worry about the health of the baby often ranks the highest, pain and loss of control during delivery are other major concerns.

Pregnancy is considered an important topic to be studied during this rotation. However, menarche, menstrual cycle, menopause, gynecologic disorders, surgeries, infertility and many more topics are also highly associated with mental health changes that need to be taken into consideration as well. It's not easy to understand the all of these issues, but it's our duty to always educate ourselves about women mental health and its association with her life stages!

Please read books and papers about this topic, such as (Psychological Aspects of Women's Health Care/ The Interface Between Psychiatry and Obstetrics and Gynecology) for better understanding and always be kind with women that surround you ")!

TANNER STAGING

- The first physical signs of puberty are breast budding and this occurs 2–3 years before menarche.
- The appearance of pubic hair is dependent on the secretion of adrenal androgens and is usually after thelarche.
- Pubertal development was described by Tanner and the stages of breast and pubic hair development are often referred to as **Tanner stages**:



<u>Stage I</u>	<u>Stage II</u>	<u>Stage III</u>	<u>Stage IV</u>	<u>Stage V</u>
Pre-pubertal	8 - 11.5 year	11.5 - 13 years	13 – 15 years	usually > 15 years
<ul style="list-style-type: none">•No sexual hair.•Flat-appearing chest with raised nipple.	<ul style="list-style-type: none">•Pubic hair appears (pubarche).•Breast bud forms (thelarche).	<ul style="list-style-type: none">•Coarsening of pubic hair.•Breast enlarges, mound forms.	<ul style="list-style-type: none">•Coarse hair across pubis, sparing thigh.•Brest enlarges, raised areola, mound on mound	<ul style="list-style-type: none">•Coarse hair cross pubis and medial thigh.•Adult breast contour, areola flattens.

- Tanner stage is assigned independently to genitalia, pubic hair, and breast (e.g. a girl can have Tanner stage 2 genitalia, Tanner stage 3 pubic hair).

MENSTRUAL CYCLE

Ovarian cycle:

1- Follicular phase:

- Can vary in length.
- FSH & LH are released and stimulate a group of follicles (follicular growth is fastest during 2nd week).

2- Ovulation:

- It happens at 36 hours after the LH surge, or at 12 hours after the LH peak.
- All hormones increase (FSH, LH, Progesterone, Estrogen, Androgen (increase libido)).

3- Luteal phase:

- Duration: 14 days.

Uterine cycle:

1- Proliferative phase:

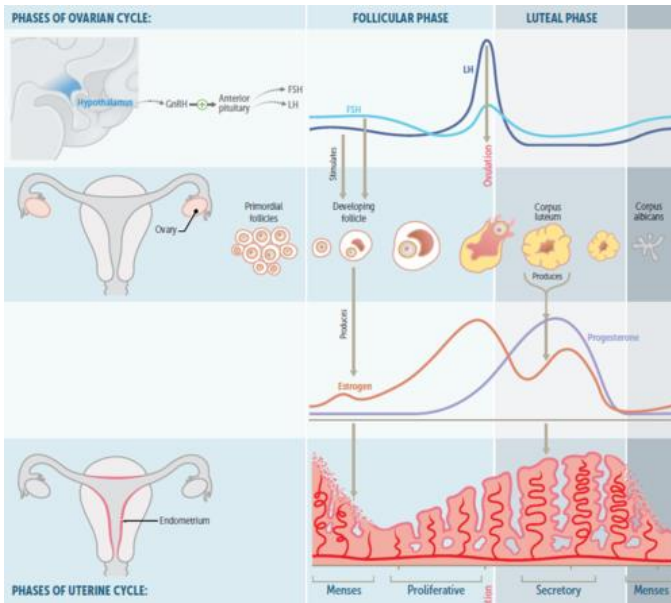
- Estrogen stimulates endometrial proliferation, majorly elevated in the follicular phase.

2- Secretory phase.

- Progesterone maintains the endometrium to support implantation, majorly elevated in luteal phase.

3- Menstruation:

- Menstruation= ovulation day + 14 days.



MENOPAUSE

GYNECOLOGY

- It's amenorrhoea for 12 months after the age of 40.
- Hormonal changes: ↓ estrogen, ↑↑ FSH, ↑ LH, ↑ GnRH
- It could be:
 - **Physiological:**
 - Decrease in estrogen production due to age; which will lead to a decline in the number of ovarian follicles.
 - Average age at onset is 51 years (earlier in smokers).
 - Usually preceded by 4- 5 years of abnormal menstrual cycles.
 - **Pathological:**
 - Premature ovarian insufficiency.
 - Iatrogenic menopause:
 - * After medical treatments such as GnRH agonists. And cancer treatment.
 - * After surgeries such as BSO.

Menopausal Symptoms and Long-Term Effects (Mnemonic: FSH > 40 IU/L)	
Remember that an FSH level >40 IU/L is the blood test to confirm menopause	
F	Flushes, forgetful (Alzheimer disease)
S	Sweats at night, sad (depression) stroke, skeletal changes (accelerated bone loss leading to osteoporosis), skin changes, sexual dysfunction
H	Headaches, heart disease
I	Insomnia
U	Urinary symptoms (stress and urge incontinence), urogenital atrophy (loss of pelvic floor muscles)
L	Libido decreases

ABNORMAL UTERINE BLEEDING

Abnormal uterine bleeding (AUB) is classified using the **PALM-COEIN system**;

- **PALM** is the acronym for the structural causes of AUB, which stands for polyp, adenomyosis, leiomyoma, malignancy and hyperplasia.
- **COEIN** is the acronym for the nonstructural causes of AUB, which stands for coagulopathy, ovulatory dysfunction, endometrial, iatrogenic, and not otherwise classified.

Category	Examples
Iatrogenic	<ul style="list-style-type: none">• IUS• Oral contraceptive pills (both combination of estrogen and progestin, and progestin alone)• Other hormonal contraception (such as patches, rings, injections, and implants)• Antiplatelet medications• Anticoagulant medications
Hematologic	<ul style="list-style-type: none">• Von Willebrand disease• Leukemia• Thrombocytopenia
Infection	<ul style="list-style-type: none">• Cervicitis• Pelvic inflammatory disease• Endometritis
Malignancy	<ul style="list-style-type: none">• Cervical cancer• Uterine cancer• Endometrial hyperplasia with atypia
Benign growths	<ul style="list-style-type: none">• Leiomyoma• Endometrial hyperplasia without atypia• Uterine and endocervical polyps• Adenomyosis
Systemic disease	<ul style="list-style-type: none">• Thyroid disease• Renal disease• Liver disease• Polycystic ovarian syndrome

FIBROIDS






GYNECOLOGY

Definition	The most common benign tumors of the female genital tract. They are estrogen-dependent tumors of the uterine smooth muscle which also contain fibrous tissue.	
Gross appearance	a well-demarcated, firm, whorled tumor.	
Classifications	<ul style="list-style-type: none"> •Intramural fibroids. •Submucosal fibroids. •Subserosal fibroids. •Cervical fibroids. 	
Risk factors	<ul style="list-style-type: none"> •Age >35 years. •Estrogen (it enlarges in the 1st trimester of pregnancy and shrinks in puerperium and menopause). •Black race. •Nulliparity. •Family history. 	
Clinical presentation	<ul style="list-style-type: none"> •Mostly asymptomatic. •Symptoms related to the location and the size of the tumor: <ul style="list-style-type: none"> -Bleeding: <ul style="list-style-type: none"> Menorrhagia or severe anemia (due to erosion of the submucosa) -Abdominal pain. -Pressure symptoms: <ul style="list-style-type: none"> *Compress the bladder: urgency, frequency, incontinence . *Compress the colon: constipation, difficult defecation, rectal pain. *Compress the small bowel: abdominal pain. •Firm mass arising from the pelvis on physical examination. •Enlarged, firm, smooth or irregular, non-tender uterus palpable by bimanual examination. •Hypo-echoic masses and different acoustic shadows of the uterus on US. 	
Complications	<ul style="list-style-type: none"> •Birth canal obstruction. •Subfertility. •Spontaneous miscarriage. •IUGR. •PPH. •Torsion of pedicle (pain/ ischemia). •Infections. 	
Treatment	Conservative	If the patient is asymptomatic or near menopause
	Medical treatment (LHRH analogues)	If the patient is contraindicated for the surgery or refusing it or in order to shrink the fibroid before surgery!
	Surgery	If the patient is symptomatic which means that the fibroids are rapidly growing which may complicate pregnancy. Types of surgeries: <ul style="list-style-type: none"> •Hysterectomy: DEFENITIVE •Myomectomy: <i>for young ladies</i>
	Embolism	Less invasive than myomectomy for young ladies who want to regain fertility






Definition	A syndrome of ovarian dysfunction along with the cardinal features of hyperandrogenism and polycystic ovary morphology.	
Clinical features	<ul style="list-style-type: none"> •May be asymptomatic. •Oligomenorrhoea/amenorrhoea in up to 75% of patients, predominantly related to chronic anovulation. •Insulin resistance (Obesity, DM II, acanthosis nigricans). •Hirsutism. •Subfertility in up to 75% of women. •Obesity in at least 40% of patients. •Acne. •Labs: <ul style="list-style-type: none"> -Elevated testosterone levels. -Decreased SHBG. -Elevated LH levels and LH/FSH ratio. -Increased fasting insulin levels. 	
Diagnosis	<p>Patients must have two out of the three features below:</p> <ul style="list-style-type: none"> •Amenorrhoea/oligomenorrhoea. •Clinical or biochemical hyperandrogenism. •Polycystic ovaries on ultrasound: <p>The ultrasound criteria for the diagnosis of a polycystic ovary are eight or more subcapsular follicular cysts <10 mm in diameter and increased ovarian stroma. While these findings support a diagnosis of PCOS, they are not by themselves sufficient to identify the syndrome.</p>	
Treatment	Oligomenorrhoea/Amenorrhoea	<ul style="list-style-type: none"> •Progesterone <ul style="list-style-type: none"> -Induce regular menstruation -Antagonize estrogen effect & ↓ risk of endometrial CA. •COCP (young & not want to get pregnant): regulating the period
	Infertility	<ul style="list-style-type: none"> •Clomiphene citrate, if didn't help then: •GnRH or combination of Metformin and Clomiphene. •Metformin: increase ovulation rate and insulin sensitivity.
	Hirsutism	<ul style="list-style-type: none"> •Eflornithine cream, Cyproterone acetate. •Metformin, GnRH analogues with low-dose HRT. •Laser or electrolysis.
	Obesity	<ul style="list-style-type: none"> •Losing weight by dietary changes •Orlistat and Metformin.
Long term sequelae (DM & CVD), so modifying their lifestyle is mandatory!		

CONTRACEPTION

GYN ECOLOGY

Method		Note	Picture
Natural methods	<p>Periodic abstinence</p> <p>The failure rate in typical use is estimated to be approximately 25%</p>	<p>This method requires:</p> <ul style="list-style-type: none"> •Instruction on the physiology of menstruation and conception and on methods of determining ovulation. •Having regular, predictable menstrual cycles. 	----- ----- ----- ----- ----- ----- ----- -----
	<p>Coitus interruptus</p> <p>The failure rate in typical use is 19% during the first year</p>	<p>withdrawal of the penis from the vagina before ejaculation so most of the semen is deposited outside of the female reproductive tract with the intent of preventing fertilization.</p>	----- ----- ----- ----- ----- ----- ----- -----
	<p>Lactational amenorrhea</p>	<p>Continuation of exclusive breastfeeding</p>	----- ----- ----- ----- ----- ----- ----- -----
B A	<p>Female condom</p> <p>Effectiveness: 79-95%</p>	<p>A pouch made of synthetic nitrile that has a flexible ring at each end. One ring is silicon based and lubricated. It's inserted into the depth of the vagina, and the other ring stays outside the vagina near the introitus</p>	
	<p>Male condom</p>	<p>Latex sheaths placed over the erect penis before ejaculation</p>	
R R	<p>Diaphragm</p> <p>The effectiveness depends on the age of the user, experience with its use, continuity of use, and the use of spermicide.</p> <p>The typical-use failure rate within the first year is 20%</p>	<p>A dome-shaped shallow cup made of a soft silicone or latex sheet. Spermicidal gel, foam or cream is placed on the rim and on either side of the diaphragm, and it is placed into the vagina, so that it covers the cervix</p>	
I E	<p>Cervical cap</p> <p>Effectiveness depends on the parity of women due to the shape of the cervical os. With perfect use in the first year, the failure rate for nulliparous women is 9%, as opposed to 20% in parous women.</p>	<p>A small, soft, silicone cap that fits directly over the cervix and must be used with spermicidal gel, foam or cream</p>	
R S	<p>Spermicide</p>	<p>It includes vaginal creams, gels, films, suppositories, and foams; e.g. Nonoxynol-9 and octoxynol-9 which both disrupt the cell membranes of the spermatozoa and act as a mechanical barrier to the cervical canal. It must be inserted into the vagina prior to each coital act.</p>	

CONTRACEPTION

Method	Note	Picture	
Intrauterine devices	<p>Copper T IUD Effectiveness: - Failure rate: 1.26 % /year - Ectopic pregnancy rate: 0.25 %/year</p>	<p>Absolute contraindications:</p> <ul style="list-style-type: none"> •Known or suspected pregnancy. •Undiagnosed abnormal vaginal bleeding. •Acute cervical, uterine, or salpingeal infection. •Copper allergy or current breast cancer (for Mirena only). 	
	<p>Levonorgestrel IUD (Mirena) Effectiveness: - Failure rate: 0.09 % /year - Ectopic pregnancy rate: 0.02 %/year</p>	<p>Relative contraindications:</p> <ul style="list-style-type: none"> •Previous ectopic pregnancy. •History of STIs in the past 3 months. •Uterine anomaly or fibroid distorting the cavity. •Current menorrhagia or dysmenorrhea (for Copper T only) 	
Combination estrogen and progesterone	<p>Combined oral</p> <p>- COCP is highly effective 99.9% in preventing pregnancy. - 30% of women miss 3 or more pills in the 1st cycle of use. - 47% miss 1 or more pills</p>	<p>Absolute contraindications:</p> <ul style="list-style-type: none"> •Smokers older than 35 years. •Known or suspected pregnancy. •< 6 Wk postpartum if breastfeeding. •Ischemic heart disease. •Migraine headache with focal neurological symptoms. •Severe liver cirrhosis. <p>Relative contraindications:</p> <ul style="list-style-type: none"> •Uterine fibroids. •Hypertension and DM. 	
	<p>Transdermal patch (Ortho Evra)</p>	<ul style="list-style-type: none"> •Women apply one patch on the same day each week (patch change day) for three consecutive weeks followed by a 1-week patch-free period where they will have a withdrawal bleed. •It can be worn on the upper outer arm, abdomen, buttock, or back but not on the breasts. 	
	<p>Vaginal ring (NuvaRing) Effectiveness: 91-99%</p>	<ul style="list-style-type: none"> •The ring is placed in the vagina for 3 weeks (it is likely effective for 4 weeks) and is removed for 1 week to allow for a withdrawal bleed. This hormone-free period can be skipped to allow for continuous dosing, typically for 3 months 	
Progesterone-only methods	<p>Progestin-only pill (POPs)</p>	<ul style="list-style-type: none"> •They are taken every day of the cycle with no hormone-free days. •Cause irregular ovulatory cycles, breakthrough bleeding and acne. 	
	<p>Depo-Provera</p>	<ul style="list-style-type: none"> •Injection interval (every 12–14 weeks). •Both intramuscular and subcutaneous preparations. •May delay return of fertility after discontinuation. 	
	<p>Subdermal implant (Implanon/Nexplanon) Effectiveness: failure rate 0.1% / year</p>	<ul style="list-style-type: none"> •Inserted sub dermally 8 cm above the medical epicondyle, usually of the non-dominant arm under local anesthesia. •Fertility is restored immediately after removal. 	

DIAGNOSIS OF PREGNANCY

OBSTETRICS

1- Clinical approach

History taking and physical examination!

- SYMPTOMS OF PREGNANCY:

The most common symptoms in the early months of pregnancy are:

- Missed menses.
- Urinary frequency (most likely caused by the pressure of the enlarged uterus on the bladder).
- Breast engorgement.
- Nausea, tiredness, and easy fatigability.

A missed or abnormal menses in a previously normally menstruating, sexually active woman should be considered pregnancy until proven otherwise!

- SIGNS OF PREGNANCY:

1- Presumptive signs; skin and mucosal membrane changes:

- **Cyanosis** of the vulva, vagina, and cervix.
(related to the generalized engorgement of the pelvic organs and are, therefore, nonspecific).
- **Chadwick sign:** the dark discoloration of the vulva and vaginal.
- **Pigmentation** of the skin and abdominal striae (e.g. linea nigra), also nonspecific and unreliable signs.
- **Chloasma** (the mask of pregnancy): pigmentation under the eyes and it's an occasional side effect of hormonal contraceptives.

2- Probable signs; related to the detectable physical changes in the uterus:

- Early **uterine enlargement** tends to be in the anteroposterior diameter so that the uterus becomes globular.
- **Piskaçek sign:** slight enlargement of one cornu because of the asymmetric implantation of the ovum.
- **Hegar sign:** consistency of the uterus becomes softer, and it may be possible to palpate or to compress the connection between the cervix and fundus.

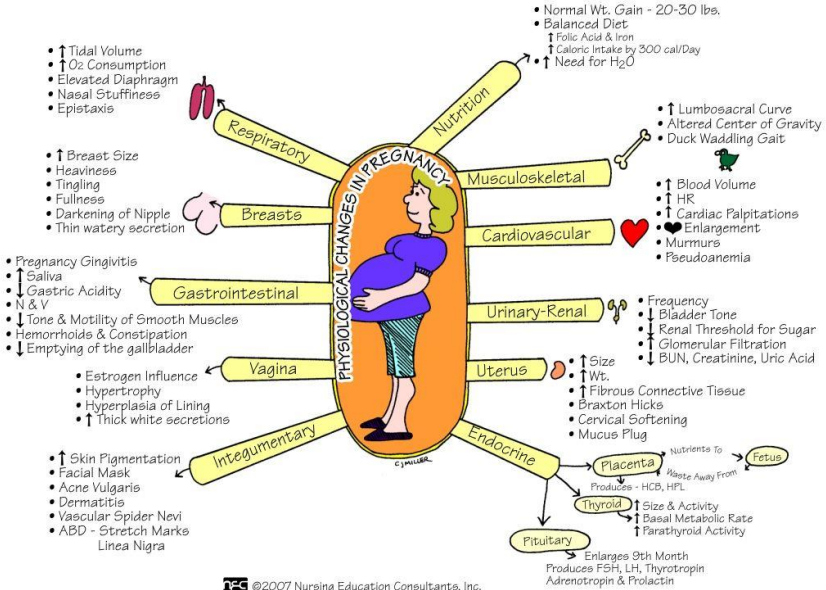
3- Positive signs; detection of a fetal heartbeat and the recognition of fetal movements.

2- INVESTIGATION OF PREGNANCY:

- Positive urine or serum b-human chorionic gonadotropin (b-hCG) testing.
- Diagnostic Ultrasonography.

PHYSIOLOGICAL CHANGES IN PREGNANCY

OBSTETRICS



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ANTENATAL CARE

OBSTETRICS

Pregnancy is a time of great uncertainty and stress and this is compounded by the many physical changes experienced by the woman during her pregnancy. So, she needs emotional and medical support for her baby and herself! And this is the main goal of antenatal care.

However these are some common laboratory and other diagnostic testing that are classified by GA:

GA	Lab testing	Other diagnostics	Clinical Reason
First prenatal visit	CBC		Anemia
	Blood type and Rh		Blood type and Rh
	Antibody screen		Alloimmunization
	HBSAg		Hepatitis B immunity
	Rubella titer		Rubella immunity
	Urine culture		Asymptomatic bacteriuria
		Pelvic ultrasound	Viability, number of gestations, dating
10week, 0d days and on	Cell-free DNA	TB skin test	TB (if the patient is at risk)
			Down syndrome
10weeks–13weeks, 6days	PAPP-A and HCGa	Nuchal translucency	Down syndrome
		Chorionic villus sampling	Chromosomal abnormalities
		Ultrasound measurements	Confirm EDD
15weeks–20weeks, 0days		Amniocentesis	Fetal aneuploidy, Chromosomal abnormalities
		“Triple screen” HCG, AFP, uE3	Fetal aneuploidy
		OGTT for high risk women	Gestational diabetes
		“Quad screen” HCG, AFP, uE3, inhibin A	Fetal aneuploidy
18weeks–22 weeks		Detailed anomaly scan	Fetal survey
24weeks – 28weeks	OGTT		Gestational diabetes
	Hgb and HCT		Anemia
	Antibody screen		Alloimmunization
35weeks – 37weeks	GBS		GBS colonization

- Each prenatal visit is an opportunity to provide screening, patient education, and anticipatory guidance.
- **Listening for FHTs** with a handheld Doppler is an expectation for all prenatal visits **after 12 weeks**.
- Never perform a digital exam on a gravid patient who presents with bleeding in the third trimester.
- Gravid patients who present in the second or third trimester with possible rupture of membranes need to have a sterile speculum exam prior to any other cervical manipulation.

SAFE AND UNSAFE IMMUNIZATIONS

Safe immunizations include antigens from killed or inactivated organisms:

- Influenza (all pregnant women in flu season).
- Hepatitis B (pre- and postexposure).
- Hepatitis A (pre- and postexposure).
- Pneumococcus (only high-risk women).
- Meningococcus (in unusual outbreaks).
- Typhoid (not routinely recommended).

Unsafe immunizations include antigens from live attenuated organisms:

- Measles.
- Mumps.
- Polio.
- Rubella.
- Yellow fever.
- Varicella.

HYPERTENSION IN PREGNANCY

•The hypertensive disorders of pregnancy are major contributors to maternal and perinatal morbidity and mortality.

•**Predisposing factors:**

- Age: PG <20, all women > 35
- Lower socio-economic status.
- Previous PE.
- Existing medical conditions: chronic hypertension, DM, SLE, antiphospholipid AS.
- Parity.
- Genetic predisposition: Recessive trait.
- Obesity.
- Obstetric complications: multiple and molar pregnancy, fetal hemolytic diseases (hydrops fetalis), polyhydramnios.

•**Complications:**

- Maternal:** renal failure, hepatic failure, CNS hemorrhage, stroke -pulmonary, edema-placental abruption and DIC.
- Fetal:** growth restriction, prematurity and perinatal death.

Diagnosis		Clinical picture	Treatment
Gestational hypertension		<ul style="list-style-type: none"> •BP > 140/90 mm Hg after 20th week of gestation: two readings apart with 6 hours. •No pre-existing hypertension. •No proteinuria or end-organ damage. •Resolves by 12 weeks postpartum. 	<ul style="list-style-type: none"> •Antihypertensives (Hydralazine, a -Methyldopa, Labetalol, Nifedipine). •Deliver at 37- 39 weeks.
Preeclampsia	M I L D	<ul style="list-style-type: none"> •BP ≥ 140/90 mmHg after 20 weeks of gestation: two readings 6 hours apart. •Proteinuria ≥ 1+ by urine dipstick or a total protein level ≥ 300 mg/24 hours. •No hypertension symptoms on the mother or the fetus. •No evidence of end-organ damage. 	<ul style="list-style-type: none"> •Antihypertensives. •IV magnesium sulfate (to prevent seizures). •Definitive treatment is delivery of fetus.
	S E V E R E	<ul style="list-style-type: none"> •BP ≥ 160/ 110 mmHg: two readings 6 hours apart. •Proteinuria ≥ 2+ by urine dipstick or a total protein level of 2 gm/24 hours. •Oliguria (<500ml/ 24 hours). •Cerebral/ visual disturbance. •Pulmonary edema/ SOB/ cyanosis. •Impaired liver function (elevated liver enzymes). •Fetal growth restriction! 	
Eclampsia		Preeclampsia +maternal seizures	<ul style="list-style-type: none"> •Antihypertensives. •IV magnesium sulfate. •Immediate delivery of fetus.
Chronic hypertension with superimposed preeclampsia		<ul style="list-style-type: none"> •New-onset proteinuria 300 mg/24 hours in hypertensive women but no proteinuria before 20th weeks of gestation. •Decreased fetal movement. 	<ul style="list-style-type: none"> •Antihypertensives. •IV magnesium sulfate. •Delivery of fetus (immediate delivery if complications have developed).
HELLP syndrome		Severe preeclampsia, hemolysis, elevated Liver enzymes, low platelets. Schistocytes on blood smear.	<ul style="list-style-type: none"> •Immediate delivery of fetus.

Definition:

Impaired glucose tolerance diagnosed during pregnancy; associated with an increased risk of maternal and fetal morbidity.

Pathophysiology:

The insulin requirement varies during pregnancy. In the first trimester, insulin sensitivity increases and there is a tendency towards hypoglycemia. In the second and third trimesters, hormonal changes trigger progressive insulin resistance that results in hyperglycemia, particularly after meals (postprandial).

Risk factors:

- Gestational diabetes in previous pregnancies.
- Recurrent pregnancy loss.
- At least one birth of a child diagnosed with fetal macrosomia.
- GDM in a 1st degree family members.

Clinical features:

Mothers are usually asymptomatic or may present with edema; warning signs include polyhydramnios or large-for-gestational age (> 90th percentile).

Management:

- Glycemic control:
 - Dietary modifications and regular exercise (walking).
 - Strict blood glucose monitoring (4x daily).
 - Insulin therapy if glycemic control is insufficient with dietary modifications.
 - Metformin and glyburide in patients who refuse insulin therapy.
- Regular ultrasound to evaluate fetal development.
- Consider inducing delivery at week 39–40 if glycemic control is poor or if complications occur.

Complications:

- Maternal: Gestational hypertension, preeclampsia, eclampsia, HELLP syndrome, urinary tract infection.
- Fetal: Diabetic fetopathy.

Prognosis:

- In most cases, gestational diabetes resolves after pregnancy.
- Increased risk of gestational diabetes recurring in subsequent pregnancies (~ 50%)
- Increased risk of developing type 2 diabetes mellitus (up to 50% over 10 years) → screen for DM 6–12 weeks postpartum (75 g 2-hour GTT); repeat every 3 years.

DIAGNOSTIC ULTRASOUND IN OBSTETRICS

OBSTETRICS



Ultrasound probe: Abdominal

Used after 12 weeks' of gestation.



Ultrasound probe: Transvaginal

- Used in early pregnancy, for examining the cervix later in pregnancy and for identifying the lower edge of the placenta.
- Used in women with significant amounts of abdominal adipose tissue through which abdominal ultrasound waves would need to travel, making visualization difficult.
- Used in the diagnosis of early pregnancy disorders, such as incomplete or missed miscarriage, blighted ovum and ectopic pregnancy.



Doppler ultrasound

Allows the assessment of the blood's velocity within fetal and placental vessels and provides indirect assessment of fetal and placental conditions.

DIAGNOSTIC ULTRASOUND IN OBSTETRICS

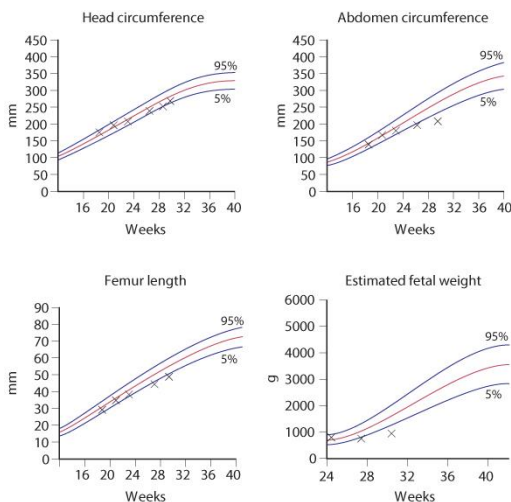
Antenatal tests of fetal wellbeing are now principally based on ultrasound techniques. The main uses are:

- **Diagnosis and confirmation of viability in early pregnancy:**

- The gestational sac can be visualized from as early as 4–5 weeks' of gestation.
- The yolk sac at about 5 weeks.
- The embryo can be observed and measured at 5–6 weeks' of gestation.
- Beating of the fetal heart can be visualized at about 6 weeks.

- **Determination of gestational age and assessment of fetal size and growth:**

Essentially, the earlier the measurement is made, the more accurate the prediction will be. Thus, an early CRL measurement (has an accuracy of prediction 6 +/- 5 days) will be preferred over a BPD measurement (has an accuracy of prediction 6 +/- 7 days) at 20 weeks.



- **Multiple pregnancy identification.**

- **Placental localization.**

- **Amniotic fluid assessment.**

- **Assessment of fetal wellbeing.**

- **Measurement of cervical length.**

- **Diagnosis of uterine and pelvic abnormalities during pregnancy (e.g. Ovarian cysts).**

- **Diagnosis of fetal abnormality:**

- Central Nervous System: Hydrocephalus, Anencephaly and Spina bifida.
- Face: Cleft lip and/or palate and Hypoplasia of the nose.
- Heart: Atrial and Ventricular septal defect, Tetralogy of Fallot and Arrhythmias.
- Lungs: Diaphragmatic hernia.
- Abdominal Wall: Bowel atresia or obstruction.
- Urinary System: Renal agenesis, Polycystic kidney disease and Hydronephrosis.
- Skeletal Dysplasia.

THE CARDIOTOCOGRAPH (CTG)

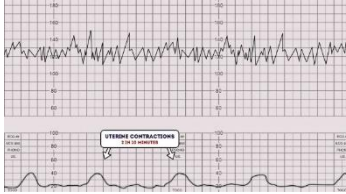
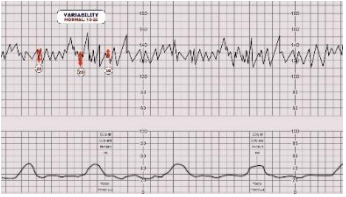
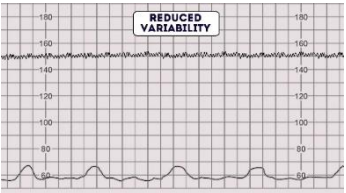
OBSTETRICS

Definition:

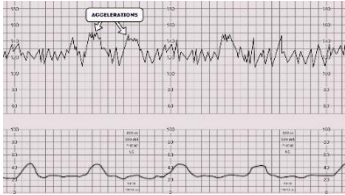
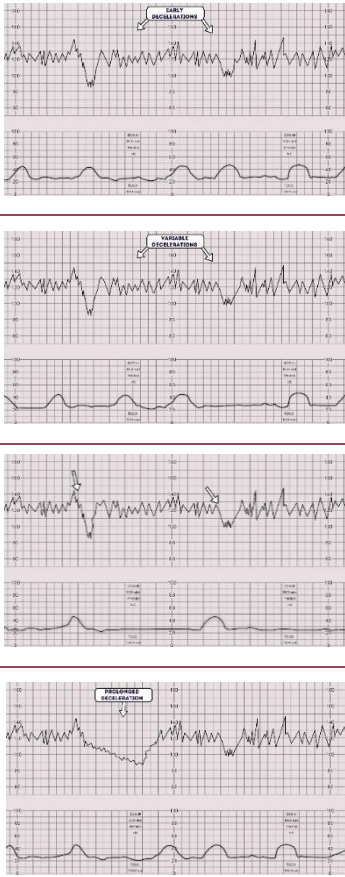
A continuous tracing of the fetal heart rate used to assess fetal wellbeing, along with an assessment of the uterine activity.

How to read a CTG

- To interpret a CTG you need a structured method of assessing its various characteristics. The most popular structure can be remembered using the acronym **DR C BRAVADO**
- Each big square on the example CTG chart is equal to one minute.

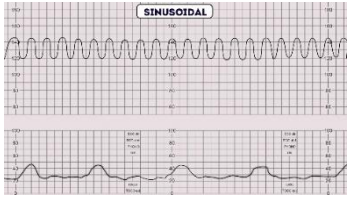
D	Define	Make sure you can define: •Name • Date •Time •GA •Calibration		
R	Risk	Determine if the pregnancy is high or low risk. This is important as it gives more context to the CTG reading (e.g. if the pregnancy categorized as high-risk, the threshold for intervention may be lower)		
C	Contractions	Number of contractions present in a 10-minute period	Comments: <ul style="list-style-type: none"> •Duration: How long do the contractions last? •Intensity: How strong are the contractions (assessed using palpation)? 	2 contractions in a 10-minute period "2 in 10" 
BRa	Baseline rate of the fetal heart	<ul style="list-style-type: none"> •Average heart rate of the fetus within a 10-minute window. •A normal fetal heart rate is between 110-160 bpm. 	Comments: <ul style="list-style-type: none"> •Fetal tachycardia. •Fetal bradycardia. 	-
V	Variability	<ul style="list-style-type: none"> •Variation of fetal heart rate from one beat to the next. •Normal variability is between 5-25 bpm. 	Comments: <ul style="list-style-type: none"> •Reassuring: 5 – 25 bp. •Non-reassuring: less than 5 bpm for 30-50 minutes OR more than 25 bpm for 15-25 minutes. •Abnormal: less than 5 bpm for more than 50 minutes OR more than 25 bpm for more than 25 minutes OR sinusoidal. 	
			Reduced variability can be caused by: <ul style="list-style-type: none"> •Fetal sleeping (40 min). •Fetal acidosis (due to hypoxia). •Fetal tachycardia •Prematurity. •Congenital heart abnormalities. 	

THE CARDIOTOCOGRAPH (CTG)

A	Accelerations	<ul style="list-style-type: none"> •Abrupt increase in the baseline fetal heart rate of greater than 15 bpm for greater than 15 seconds. •The presence of accelerations is reassuring because occurring alongside uterine contractions is a sign of a healthy fetus. 	<p>Comments</p> <ul style="list-style-type: none"> •Numbers of accelerations 	
D	Decelerations	<ul style="list-style-type: none"> •Abrupt decrease in the baseline fetal heart rate of greater than 15 bpm for greater than 15 seconds. 	<p>Comments</p> <ul style="list-style-type: none"> •Early deceleration: <ul style="list-style-type: none"> - Starts when the uterine contraction begins and recovers when the uterine contraction stops. - Considered to be physiological. •Variable deceleration: <ul style="list-style-type: none"> - Rapid fall in the baseline fetal heart rate with a variable recovery phase. - Usually caused by umbilical cord compression. •Late deceleration: <ul style="list-style-type: none"> - Begins at the peak of the uterine contraction and recovers after the contraction ends. - Indicates that there is insufficient blood flow to the uterus and placenta. As a result, blood flow to the fetus is significantly reduced causing fetal hypoxia and acidosis. •Prolonged deceleration: <ul style="list-style-type: none"> - A deceleration that lasts more than 3 minutes: - If it lasts between 2-3 minutes it is classified as non-reassuring. - If it lasts longer than 3 minutes it is immediately classified as abnormal. 	

THE CARDIOTOCOGRAPH (CTG)

OBSTETRICS

		<ul style="list-style-type: none"> •Sinusoidal pattern: <ul style="list-style-type: none"> - A smooth, regular, wave-like pattern. - Frequency of around 2-5 cycles a minute. - Stable baseline rate around 120-160bpm. - No beat to beat variability. - It indicates severe fetal hypoxia OR severe fetal anemia OR fetal/maternal hemorrhage. 	
<p>○ Overall impression</p>		<p>Once you have assessed all aspects of the CTG you need to determine your overall impression, can be described as:</p> <ul style="list-style-type: none"> •Reactive CTG: All parameters are normal (present acceleration, absent deceleration) . •Reassuring CTG: No accelerations (still normal). •Suspicious CTG: There is 1 abnormal parameter (abnormal baseline, abnormal variability or presence of decelerations) . •Pathologic CTG: There are two or more abnormal parameters. 	

HIGH RISK PREGNANCIES

Some reasons a pregnancy may be considered **high risk**:

Maternal medical illness	Obstetric complications	Others
<ul style="list-style-type: none">•Gestational diabetes.•Hypertension.•Asthma.	<ul style="list-style-type: none">•Multiple gestation.•Post-date gestation.•Previous cesarean section.•IUGR.•PROM.•Congenital malformations.•Oxytocin induction/ augmentation of labour.•Preeclampsia.	<ul style="list-style-type: none">•Absence of prenatal care.•Smoking.•Drug abuse.



ABNORMAL FETAL HEART RATE

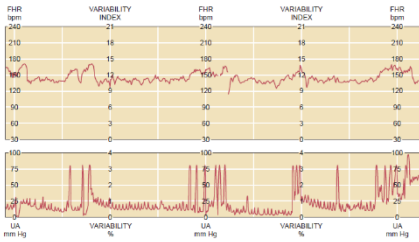
OBSTETRICS

Fetal tachycardia	Fetal bradycardia
baseline heart rate greater than 160 bpm	baseline heart rate of less than 100 bpm
<ul style="list-style-type: none">•Fetal hypoxia.•Chorioamnionitis.•Hyperthyroidism.•Fetal or maternal anemia.•Fetal tachyarrhythmia.	<ul style="list-style-type: none">•Prolonged cord compression.•Cord prolapse.•Epidural and spinal anesthesia.•Maternal seizures.•Rapid fetal descent.

NONSTRESS TEST (NST)

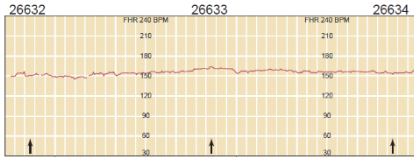
This test assesses the frequency of fetal movements using an external fetal heart rate (FHR) monitoring device to detect the presence or absence of accelerations. These are abrupt increases in FHR above the baseline lasting <2 min and are unrelated to contractions. The criteria vary by gestational age:

- <32 weeks, the increase should be ≥ 10 beats/min lasting ≥ 10 s.
- >32 weeks, the increase should be ≥ 15 beats/min lasting ≥ 15 s.



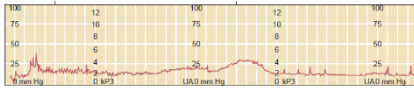
Reactive nonstress test

Note the fetal heart rate (FHR) accelerations with most fetal movements, denoted by spikes above 75 mm Hg in the lower panel. bpm; Beats per minute.



Nonreactive nonstress test

Note the lack of beat-to-beat variability and the lack of accelerations of the fetal heart rate (FHR) with fetal movements (arrows). bpm; Beats per minute.



AMNIOTIC FLUID INDEX

OBSTETRICS

The 4-quadrant amniotic fluid index test assesses in centimeters the deepest single vertical amniotic fluid pocket in each of the 4 quadrants of the uterus. The sum of the pockets is known as the amniotic fluid index, or AFI. Interpretation is as follows:

- **<5 cm—oligohydramnios.**

Associated with placental insufficiency, bilateral renal agenesis or posterior urethral valves (in males)

- **5–8 cm—borderline.**

- **9–25 cm—normal.**

- **>25 cm—polyhydramnios.**

Often idiopathic but maybe associated with fetal malformations (e.g. Esophageal/duodenal atresia, anencephaly; both result in inability to swallow amniotic fluid), maternal diabetes, fetal anemia or multiple gestations.

Knowing that each individual pocket of fluid should be 2 to 8 cm!

Fetal parameters that include all the followings:

- Fetal breathing movements (movements of the fetal chest) (FBMs).
- Fetal gross body movements.
- Fetal tone.
- CTG.
- Amniotic fluid volume.

A score of either 2 (normal) or 0 (suboptimal) is assigned to each of the variables, to give an individual fetus a total score of between 0 and 10:

- A score of **0, 2 or 4** is considered **abnormal**.
- A score of **8 or 10** **normal**.
- A score of **6** is **equivocal and requires repeat** within a reasonable timescale (hours) to exclude a period of fetal sleep as a cause.

BISHOP SCORING METHOD

OBSTETRICS

Numerical expression of how favorable the cervix is and the likelihood of a successful labour induction.

• **Bishop score is >8**

Favorable cervix is dilated, effaced, soft, and anterior to mid position, and associated with an easier, shorter induction process that is less likely to fail!

• **Bishop score is <5**

Unfavorable cervix is closed, not effaced, long, firm, and posterior, and point to a longer IOL that is more likely to fail and result in a caesarean section.





Parameter\Score	0	1	2	3
Position	Posterior	Central	Anterior	-
Consistency	Firm	Medium	Soft	-
Length of cervical canal (cm)	> 2	1 - 2	0.5 - 1	<0.5
Dilation	0 cm	1-2 cm	3-4 cm	>5 cm
Fetal station	-3	-2	-1, 0	+1, +2 (Below spines)

FETAL HEAD (ANATOMICAL CHARACTERISTICS)

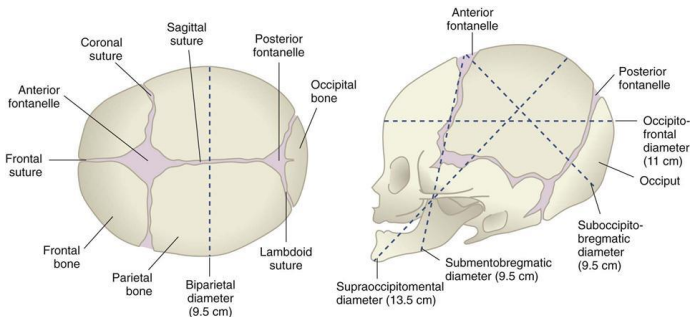
The head is the largest and least compressible part of the fetus. Thus, from an obstetric viewpoint, it is the most important part, whether the presentation is cephalic or breech.

Diameters:

Several diameters of the fetal skull are important. The anteroposterior diameter presenting into the maternal pelvis depends on the degree of flexion or extension of the head. It is important because the various diameters differ in length. The following measurements are considered average for a term fetus:

Anteroposterior diameter	Suboccipitobregmatic (9.5 cm)	The presenting diameter when the head is well flexed , as in an occipitotransverse or occipitoanterior position	It extends from the undersurface of the occipital bone at the junction with the neck to the center of the anterior fontanelle	
	Occipitofrontal (11 cm)	The presenting diameter when the head is deflexed , as in an occipitoposterior presentation	It extends from the external occipital protuberance to the glabella	
	Supraoccipitomenta (13.5 cm)	The presenting diameter in a brow presentation and the longest anteroposterior diameter of the head	It extends from the vertex to the chin	
	Submentobregmatic (9.5 cm)	The presenting diameter in face presentations	It extends from the junction of the neck and lower jaw to the center of the anterior fontanelle	
Transverse diameter	Biparietal (9.5 cm)	The largest transverse diameter	It extends between the parietal bones	-
	Bitemporal (8 cm)	The shortest transverse diameter	It extends between the temporal bones	-





•The average circumference of the term fetal head, measured in the occipitofrontal plane, is 34.5 cm.



MATERNAL PELVIS (ANATOMICAL CHARACTERISTICS)

OBSTETRICS

Based on the general bony architecture, the pelvis may be classified into four basic types:

<p>Gynecoid pelvis</p>	<ul style="list-style-type: none"> •The classic female type of pelvis and is found in approximately 50% of women •Cylindrical shape that is spacious throughout. •The fetal head generally rotates into the occipitoanterior position in this type of pelvis. 	<ul style="list-style-type: none"> •Round at the inlet, with the widest transverse diameter only slightly greater than the anteroposterior diameter. •Straight sidewalls. •Ischial spines of average prominence. •Large sacrospinous notch. •Well-curved sacrum. •Spacious subpubic arch with an angle of approximately 90 degrees. 	
<p>Android pelvis</p>	<ul style="list-style-type: none"> •The typical male type of pelvis. It is found in less than 30% of women. •Because the amount of space is restricted at all levels of this type; the fetal head is forced to be in the occipitoposterior position to conform to the narrow anterior pelvis. 	<ul style="list-style-type: none"> •Triangular inlet with a flat posterior segment and the widest transverse diameter closer to the sacrum than in the gynecoid type. •Convergent sidewalls with prominent spines. •Shallow sacral curve. •Long and narrow (small) sacrospinous notch. •Narrow subpubic arch. 	
<p>Platypelloid pelvis</p>	<ul style="list-style-type: none"> •A flattened gynecoid pelvis. It is found in only 3% of women. •The overall shape is that of a gentle curve throughout. •The fetal head has to engage in the transverse diameter. 	<ul style="list-style-type: none"> •A short anteroposterior and wide transverse diameter, creating an oval-shaped inlet. •Straight or divergent sidewalls. •Posterior inclination of a flat sacrum. •A wide bispinous diameter. •Long but small sacrospinous notch. •A wide subpubic arch. 	
<p>Anthropoid pelvis</p>	<ul style="list-style-type: none"> •Resembles that of the anthropoid ape. It is found in approximately 20% of women. •The fetal head can engage only in the anteroposterior diameter and usually does so in the occipitoposterior position because there is more space in the posterior pelvis. 	<ul style="list-style-type: none"> •A much larger anteroposterior than transverse diameter, creating a long, narrow oval at the inlet. •Sidewalls that do not converge. •Ischial spines that are not prominent but are close, because of the overall shape •Variable, but usually posterior, inclination of the sacrum. •Small sacrospinous notch. •Narrow, outwardly shaped subpubic arch. 	

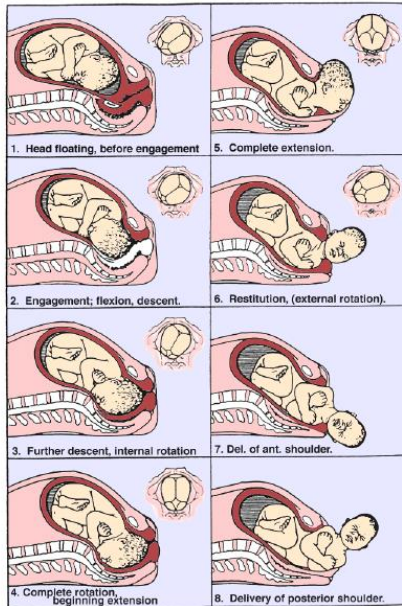
- Normal labor is a process that permits a series of extensive physiological changes in the mother to allow for the delivery of her fetus through the birth canal. It's defined as progressive cervical effacement and dilation resulting from regular uterine contractions that occur at least every 3 minutes and last 30 to 60 seconds each.

- There are four stages of labor:

- **The first stage** lasts from the onset of true labor to complete dilation of the cervix. It consists of two phases: latent phase; during which cervical effacement and early dilation (<6cm) occur, and an active phase; during which more rapid cervical dilation (6 – 10cm) occurs.
- **The second stage** spans from the complete dilation of the cervix to the birth of the baby.
- **The third stage** lasts from the birth of the baby to the delivery of the placenta.
- **The fourth stage** spans from the delivery of the placenta to the stabilization of the patient's condition, usually about one to two hours postpartum.

CHARACTERISTICS OF NORMAL LABOR		
Characteristics	Primipara	Multipara
Duration of first stage	6-18 hr	2-10 hr
Rate of cervical dilation during active phase	1 cm/hr	1.2 cm/hr
Duration of second stage	30 min to 3 hr	5-30 min
Duration of third stage	0-30 min	0-30 min

- Steps of a normal vaginal delivery:



THE PARTOGRAM

Uterine contractions:

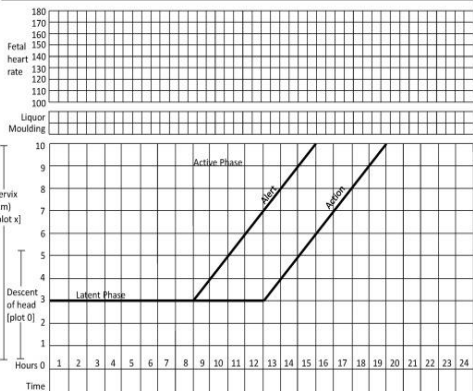
- Recorded every ½ hour.
- Each square represents 1 contraction felt in 10 minutes.
- Assess the frequency and duration:
 - Frequency: highlight the numbers of square.
 - Duration: shade the highlighted squares.
 - * 20 sec – Mild: draw dots.
 - * 20-40 sec – Moderate: draw dashes.
 - * 45 sec - Strong: color the whole box.

Oxytocin, drugs and IV fluid that were given

Maternal condition

- **Vitals:**
 - BP: every 15 min.
 - Pulse: every 30 min.
 - Temperature: every 15 min.
- **Urine analysis by dipstick:**
Positive or null: protein, acetone (indicates dehydration).
- **Urine volume.**

Name _____ Gravida _____ Para. _____ Hospital no. _____
 Date of admission _____ Time of admission _____ Ruptured membranes _____ hours _____



Contraction 5	
4	
per 3	
10 mins 2	
1	

Oxytocin U/L	
Drops/min	
Drugs Given	
And	
IV fluids	

Pulse	
180	
170	
160	
150	
140	
130	
120	
110	
100	
90	
80	
70	
60	
Temp °C	
Urine	
protein	
acetone	
volume	

APGAR SCORE

OBSTETRICS

A tool for assessing the **overall status of the newborn** soon after birth (1 minute) and after a 5-minute period of observation. A normal Apgar score is 7 or greater at 1 minute and 9 or 10 at 5 minutes.

Sign	Score		
	0	1	2
Heart rate	Absent	<100 beats/min	>100 beats/min
Respiratory effort	Absent	Slow, weak cry	Good, strong cry
Muscle tone	Limp	Some flexion of extremities	Active motion
Reflex irritability (response to stimulation of sole of the foot)	None	Grimace	Strong cry
Color	Pale, blue	Body, pink; extremities, blue	Completely pink

CESAREAN SECTION

- A caesarean section is a **surgical procedure** in which incisions are made through a woman's abdomen (laparotomy) and uterus (hysterotomy) to deliver one or more babies.
- Caesarean section should be recommended only when the benefits outweigh the risks.
- An informed written consent is required.
- Lower uterine segment caesarean section under **regional anesthesia** is optimal.
- Common maternal complications include hemorrhage, infection and pain.
- Common neonatal complications include **respiratory morbidity**.
- **Indications:**

Type	Indication
Maternal/ Fetal	Cephalopelvic disproportion Failed induction of labour
Maternal	Maternal request Maternal diseases Active genital herpes Previous uterine surgery Classical caesarean section Full-thickness myomectomy Previous uterine rupture Obstruction to the birth canal Fibroids Ovarian tumors
Fetal	Non reassuring fetal testing Bradycardia Absence of FHR variability Cord prolapse Fetal malpresentations Breech, transverse lie, brow Multiple gestations Nonvertex first twin Fetal anomalies Hydrocephalus
Placental	Placenta previa Vasa previa Placental abruption (if there is a maternal risk)

ANALGESICS IN LABOUR

OBSTETRICS

They are used for relieving pain from uterine contractions and cervical dilation. **Types:**

• **Intravenous Agents:**

Narcotics and sedatives, which are frequently given in the active phase of labour.

• **Epidural anaesthesia:**

Indications	Contraindication	Complications
<ul style="list-style-type: none">• Prolonged labour/oxytocin augmentation.• Maternal hypertensive disorders.• Multiple pregnancy.• Selected maternal medical conditions.• A high risk of operative intervention.	<ul style="list-style-type: none">• Coagulation disorders (e.g. low platelet count).• Local or systemic sepsis.• Hypovolemia.• Logistical: insufficient numbers of trained staff (anesthetic and midwifery).	<ul style="list-style-type: none">• Spinal headache.• Bladder dysfunction.• Hypotension.• Short-term respiratory depression of the baby.

• **Spinal anaesthesia:**

- A spinal block is considered more effective with a faster onset.

- May be used as anaesthesia for caesarean sections, trial of instrumental deliveries (in theatre), manual removal of retained placenta and the repair of difficult perineal and vaginal tears.

- Spinals are **not used for routine** analgesia in labour.

• **Combined spinal–epidural (CSE) analgesia** has gained in popularity:

This technique has the advantage of producing a rapid onset of pain relief and the provision of prolonged analgesia. Because the initiating spinal dose is relatively low, this is a viable option for pain relief in labour.

• **General anaesthesia.**

HORMONAL REPLACEMENT THERAPY

- Used for relief or prevention of menopausal symptoms (e.g., hot flashes, vaginal atrophy), osteoporosis (\uparrow estrogen, \downarrow osteoclast activity).
- Unopposed estrogen replacement therapy \uparrow risk of endometrial cancer, progesterone/progestin is added.

Absolute contraindications	Relative contraindications	Side-effects associated with estrogen	Side-effects associated with progestogen
<ul style="list-style-type: none">•Suspected pregnancy.•Breast cancer.•Endometrial cancer.•Active liver disease.•Uncontrolled hypertension.	<ul style="list-style-type: none">•Uninvestigated abnormal bleeding.•Large uterine fibroids;•History of benign breast disease.•Chronic stable liver disease;•Migraine with aura.	<ul style="list-style-type: none">•Breast tenderness or swelling.•Nausea.•Leg cramps.•Headaches.	<ul style="list-style-type: none">•Fluid retention.•Breast tenderness.•Headaches.•Mood swings.•Depression.•Acne.

TERATOGENIC DRUGS

MANAGEMENT

- Most susceptible in 3rd- 8th weeks (embryonic period-organogenesis) of pregnancy.
- Before week 3: "all-or-none" effects.
- After week 8, growth and function are affected.

Teratogens	Effects on fetus	Notes
ACE inhibitors (Atenolol)	Renal failure, oligohydramnios, hypocalvaria	Switch the mother to lebatolol
Warfarin	Bone deformities, fetal hemorrhage, abortion, ophthalmologic abnormalities	Switch the mother to low-molecular heparin (does not cross placenta)
Isotretinoin	Multiple severe birth defects	Contraception mandatory for any women of childbearing age
Antiepileptic drugs (sodium valproate, carbamazepine, phenytoin)	Neural tube defects, cardiac defects, cleft palate, skeletal abnormalities	High-dose folate supplementation recommended
Trimethoprim	Neural tube defects	<ul style="list-style-type: none">• It's for treating UTI's• Penicillin and Cephalosporin are the safest antibiotics that could be used in pregnancy

MEDICATIONS FREQUENTLY USED DURING

MANAGEMENT

Some medications are commonly used in pregnancy to reduce the risk of fetal malformations and to treat the symptoms of pregnancy. Some examples include:

- **Folic acid (400µg):**

Recommended daily for the first trimester of pregnancy to reduce the risk of neural tube defects in the developing fetus and daily before conception for woman who is trying to become pregnant.

- **Oral iron**

Frequently used in pregnancy to treat anemia.

- **Antiemetics**

Frequently used in pregnancy to manage nausea and vomiting (e.g. hyperemesis gravidarum).

- **Antacids**

Frequently used to manage gastroesophageal reflux symptoms during pregnancy.

- **Aspirin**



MANAGEMENT OF APH

MANAGEMENT

Antepartum hemorrhage is a serious complication of pregnancy occurring within the third trimester. It is associated with significant maternal and fetal morbidity and mortality. Common causes of antepartum hemorrhage are bloody show associated with labor, placenta previa, and placental abruption.

PLACENTAL ABRUPTION:

•General approach:

- Hemodynamic control:
 - Monitor vital signs, maintain airways, volume resuscitation, type and crossmatch blood.
- Correct coagulopathy if necessary.
- RhD prophylaxis in RhD negative mothers.

•Specific approach according to the severity:

- Normal fetal findings and a hemodynamically stable mother:

*Observation, bed rest, regular control

*Up to the 34th week of pregnancy:

- =Fetal lung maturity induction with corticosteroids (e.g., betamethasone).
- =If necessary, tocolysis (e.g., nifedipine, β_2 -adrenergic agonist), but it's controversial.
- =Aim for a normal delivery.

*34th to 36th week

=Active uterine contractions present: vaginal delivery.

=No contractions + no signs of fetal distress + bleeding has stopped: expectant management and observation.

*All pregnancies are delivered if acute abruption occurs after 36th weeks.

- In acute symptoms and a live fetus:

*Emergency cesarean delivery independent of gestational age unless vaginal delivery is impending

- In acute symptoms and intrauterine fetal death:

*Induction of vaginal delivery through pharmacologic uterine contraction inducers and opening of the amniotic sac.

*An emergency cesarean delivery must be performed if there is a maternal risk due to severe bleeding or slow progression of the birthing process, even in cases of intrauterine fetal death.

PLACENTA PREVIA:

Approach

•Gestational age < 37 weeks:

- No active bleeding AND no evidence of fetal distress: **expectant management.**

- Severe, active bleeding OR evidence of fetal distress: **stabilization and emergency caesarian delivery.**

•Gestational age > 37 weeks: immediate delivery.

Expectant management:

•Hospitalization and observation for 48 hours.

•If gestational age is < 34 weeks: fetal lung maturity induction with corticosteroids (e.g., betamethasone).

•If gestational age is between 34 and 37 weeks and delivery is likely within 7 days: fetal lung maturity induction with corticosteroids.

•If mild uterine contractions are present: tocolysis with magnesium sulfate may be administered (especially if the fetus is extremely premature).

Management of hemorrhage:

•Prepare blood for transfusion for possible massive hemorrhage.

•Bilateral uterine artery ligation, internal iliac artery ligation; packing with gauze or tamponade.

•If severe, perform emergency cesarean hysterectomy.

Route of delivery:

•Lower segment cesarean delivery is almost always preferred; ideally scheduled at 36–37 weeks gestation.

•Induction of labor and/or vaginal delivery may be performed in the operating room if the mother is hemodynamically stable, fetal cardiac status is reassuring, and the placenta lies > 2 cm away from the internal os on ultrasonography.

MANAGEMENT OF PPH

MANAGEMENT

DEFINITION:

Blood loss ≥ 500 mL in NVD or ≥ 1000 mL in CS or blood loss presenting with signs or symptoms of hypovolemia within 24 hours of delivery;

Primary PPH: (most common) blood loss within 24 hours postpartum.

Secondary PPH: blood loss from 24 hours to 12 weeks postpartum.

MANAGEMENT:

• **General measures:** to control blood loss and ensure perfusion of vital organs

- Monitoring of vital signs and urine output.
- Oxygenation.
- Two large-bore IV access (≥ 16 gauge) and ice pack.
- Fluid therapy (with intravenous crystalloid solutions).
- Blood transfusions (whole blood or red blood cell concentrates) and/or platelet transfusions, if necessary.

• **Surgical procedures:** in cases of uncontrolled bleeding

- Ligation of uterine or internal iliac arteries, or uterine artery embolization.
 - *Decreases bleeding by reducing myometrial perfusion.
 - *Fertility remains intact because of collateral blood supply by the ovarian arteries.
- Uterine suturing (e.g., B-Lynch suture).
- Hysterectomy: generally as a last resort, except in placenta accrete spectrum.

COMMON DRUGS

MANAGEMENT

Drug	Clinical use	Adverse effect
Leuprolide	Uterine fibroids, endometriosis, precocious puberty, infertility.	↓ libido, nausea, vomiting
Mifepristone with misoprostol	Termination of pregnancy	-
Nifedipine (Ca ²⁺ channel blocker)	↓ contraction frequency in preterm labour	-
Indomethacin (NSAID)		
Terbutaline (B2 agonist)		
Danazol	Endometriosis	Weight gain, edema, acne, hirsutism
Ketoconazole	Used in PCOS to reduce androgenic symptoms	Gynecomastia and amenorrhea
Spirolactone		
Tamoxifen	Treat and prevent recurrence of ER/PR + breast cancer.	↑ risk of thromboembolic events (especially with smoking) and endometrial cancer
Clomiphene	Stimulates ovulation	Hot flashes, ovarian enlargement, multiple simultaneous pregnancies, visual disturbances.

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