



# GYNAECOLOGY

- ▶ **Introduction,**
  - ▶ Definitions and description of terms
  - ▶ Menstrual disorders, Infertility and sterility, Menopause
  - ▶ **BLEEDING IN EARLY PREGNANCY (4hrs)**
  - ▶ Ectopic pregnancy Abortion, Hydatidiformmole
  - ▶ Screening of clients for PAC forHIV
  - ▶ **MALFORMATIONS OF THE FEMALE GENITALTRACT**
- 

# Cont...

- ▶ Uterine Tubal , Vaginal malformation
  - ▶ Imperforated hymen, Retro version of the uterus
  - ▶ **TUMORS OF THE FEMALE GENITAL TRACT**  
(4hrs)
  - ▶ Uterine growths, Ovarian growth, Tumors of the Breast
  - ▶ Genito-urinary Complications, VVF and RVF,
  - ▶ Rectocele and Cystocele, Prolapse of the uterus, Incontinence of
  - ▶ the urine , Urinary tract infection
- 

# Chapter outlines

- Approach to the patient
- Gynecological assessment and diagnostic procedures
- The role of imaging techniques in gynecology
- Embryology of the urogenital system & congenital anomalies of the female genitalia
- Genetic disorders & sex chromosome abnormalities

# Objectives

After the end of this chapter, students are expected to:

- ▶ Describe the scope of gynecology
- ▶ Discuss history taking and physical examination of clients with gynecologic health care need
- ▶ Identify common embryologic development anomalies
- ▶ Describe genetic disorders & sex chromosome abnormalities



# Introduction to Gynecology

- Gyne-, gynec- means female
- It is concerned with diseases of the female genital tract, as well as endocrinology and reproductive physiology of the female.
- Routine gynecological care;
  - Prevents illness and discomfort
  - Allows for early detection
  - Detects STIs and other conditions before they cause serious damage
  - Prevents sterility
  - Promotes healthy pregnancy and childbirth

# Approach to the patient

- ▶ An effective relationship b/n health care provider & patient is based on the *knowledge* and *skill* of provider.
- ▶ These qualify the provider for:
  - ✓ Adequate communication between the individuals &
  - ✓ An appreciation of the ethical standards that govern the conduct of the participants in the relationship.
- ▶ The health care of women encompasses all aspects of medical sciences and therapeutics.
- ▶ The special medical needs and concerns of women vary with the patient's *age*, *reproductive status*, and *desire to reproduce*.

# Approach cont...

- ▶ In addition, the gynecologic or obstetric assessment must include an *evaluation of the patient's general health status* and should be placed in the context of the psychologic, social, cultural, and emotional status of the patient.
- ▶ Assessment of the patient is done by history taking & physical examination

# History

- ▶ The clinical database should include general information about the patient & her goals in seeking care.
- ▶ History includes identification history (IH), chief complaint (CC), history of present illness (HPI), past medical history (PMH), medication allergies, etc.
- ▶ The developmental history, menstrual history, sexual history, & obstetric history obviously assume central importance for the gynecologic or obstetric visit.

# Identification history;

- Age
- Marital status
- Sexual status
- Occupation
- Religious affiliation
- Contact address

# Chief complaint

- It is the main cardinal problem of the client which explained by her
- State the problem with duration
- What kind of problem are you having? How can I help you?  
E.g. –Vaginal bleeding/ discharge
  - Lower abdominal pain –chronic /acute
  - Inability to conceive
  - Dyspareunia – painful sex
  - Dysmennorrhea – pain during menses

# CC cont...

- Mass protruding out of vagina
- Ulcer on genital area
- Urinary incontinency
- Abdominal distention
- Hirsutism - abnormal hair growth on female
- Sexual assault
- Inguinal swelling
- Sexual dysfunction
- Psychosomatic complaint - no pathological finding seen but they have complaint

# History of Present Illness

- HPI - is an elaboration of CC
  - Start from their last sexual & reproductive performance
  - Gynecologic illness related to parity
  - Where? Anatomical location?
  - Date of onset?/duration? Intensity/worse?
  - Duration of the symptom?
  - Related problems?
  - Aggravating factors? Relieving factors?
  - Emotional change in patients life?



# History cont...

## ❑ Menstrual History

- LNMP
- Age of menarche, menopause
- Cycle length, duration, regularity, flow
- Associated symptoms: pain,
- Abnormal menstrual bleeding: intermenstrual, post-coital

## ▶ Normal Menses:

- Menarche 11-14 yrs, Menopause 45-55 yrs,
- Menstrual interval  $28 \pm 7$
- Volume – 10- 80ml/ av.50ml
- Duration  $5 \pm 3$  days ( av. 5 days) - non offensive odor
- Dark non clotting, associated with mild abdominal cramp

# History cont...

## ❑ Sexual History

- If the woman is sexual active, chxs of intercourse (Oral, anal, vaginal)
- Age when first sexually active
- Number of sexual partners
- Current relationship and partner's health
- Dyspareunia or bleeding with intercourse
- History of sexual assault or abuse

# History cont...

## ❑ Contraceptive History

- Present and past contraception modalities
- IUCD---- may cause PID
- Compliance
- Complications / failure/side-effects

## ❑ Gynecological Infections

- Sexually transmitted diseases (STDs),
- Pelvic inflammatory disease (PID)
- Vaginitis, vulvitis , lesions
- Include treatments, complications

# History cont...

- Gynecological procedures
  - ▶ Last pap smear
  - ▶ History of abnormal pap
  - ▶ Follow-up and treatments
  - ▶ Gynecological or abdominal surgery
  - ▶ Previous ectopic pregnancies

# Physical Examination

- P/E is the 2<sup>nd</sup> component of the client assessment
- P/E should also be directed toward evaluation of the total patient health
- The patient again should be encouraged to view the examination as a positive opportunity to gain information about her body
- Pt should be offered feedback regarding the general physical examination and any significant finding
- The examination should always include a discussion of any concerns expressed by the patient

# P /E Cont...

- ❑ **General appearance** - comfortable, orientation, conscious level ...
- ❑ Vital signs: PR, RR, BP, T<sup>o</sup>

The following examinations are essential in gynecologic physical examination.

- ❑ Breast examination
- ❑ Abdominal examination
- ❑ Pelvic examination

# P/E Cont...

- ❑ **Abdominal examination:** follow the same procedure as obstetric abdominal examination
- ❑ **Pelvic examination**
  - ▶ The pelvic examination is a procedure feared by many women, so it must be conducted in such a way as to allay her anxieties.
  - ▶ A patient's first pelvic examination may be especially disturbing, so it is important for the care giver to attempt to allay fear and to inspire confidence and cooperation.
  - ▶ Reassurance of the patient is helpful in securing patient relaxation and cooperation.

# P/E Cont...

- There are four steps:

1. The External Genital Exam
2. The Speculum Exam
3. The Bimanual Exam
4. The Rectovaginal Exam

## *Step 1. The External Genital Exam*

- The pubic hair should be inspected for:
  - ✓ Pattern (masculine or feminine),
  - ✓ The nits of pubic lice, for infected hair follicles, and for any other abnormalities.

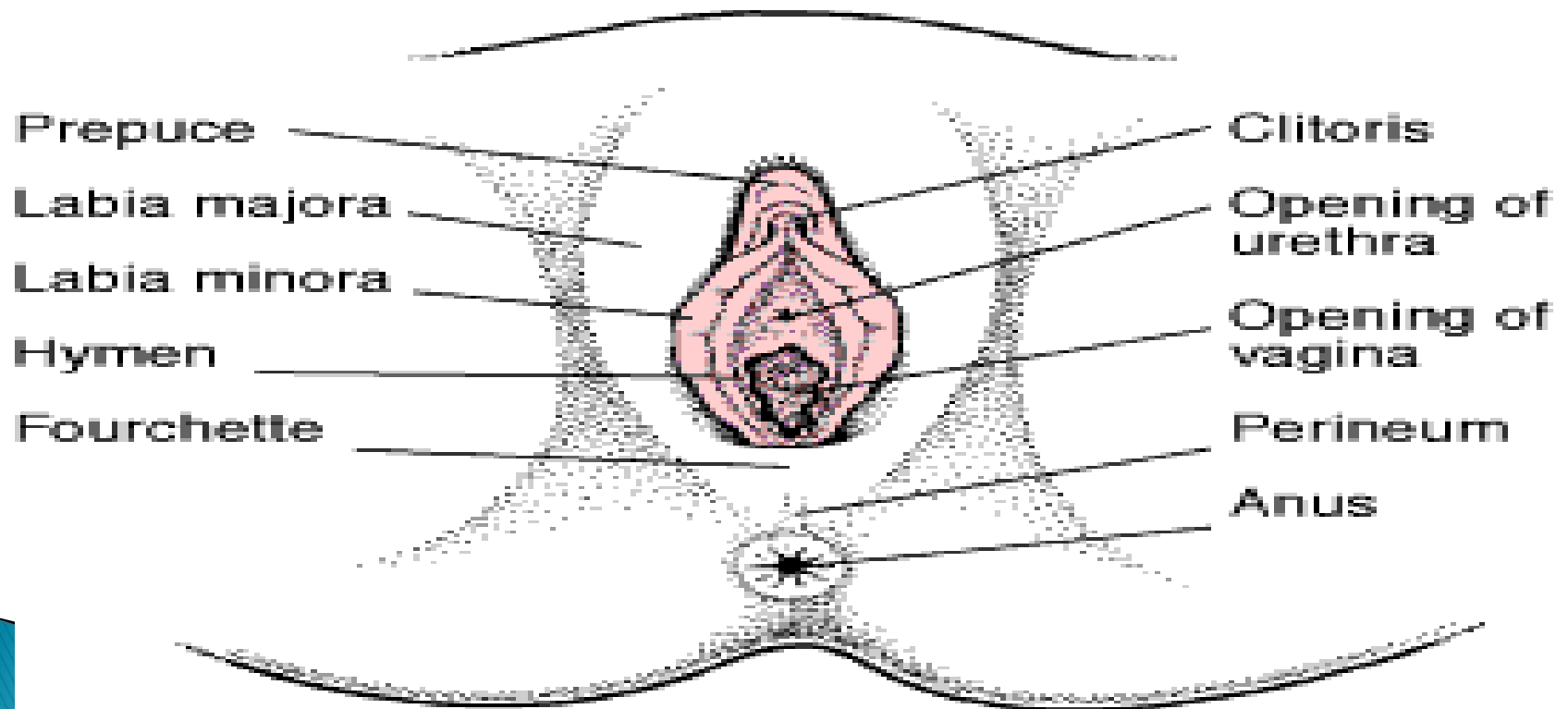


# P/E Cont...

- The skin of the vulva, mons pubis, and perineal area should be examined for evidence of dermatitis or discoloration.
- The major and minor labia usually are the same size on both sides, but a moderate difference in size is not abnormal.
- The perineal skin may be reddened as a result of vulvar or vaginal infection.
- Scars may indicate obstetric lacerations or surgery.
- The anus should be inspected at this time for the presence of hemorrhoids, fissures, irritation, or perianal infections

# P/E Cont...

- The clinician visually examines the soft folds of the vulva and the opening of the vagina to check for signs of irritation, discharge, cysts, genital warts, or other conditions.



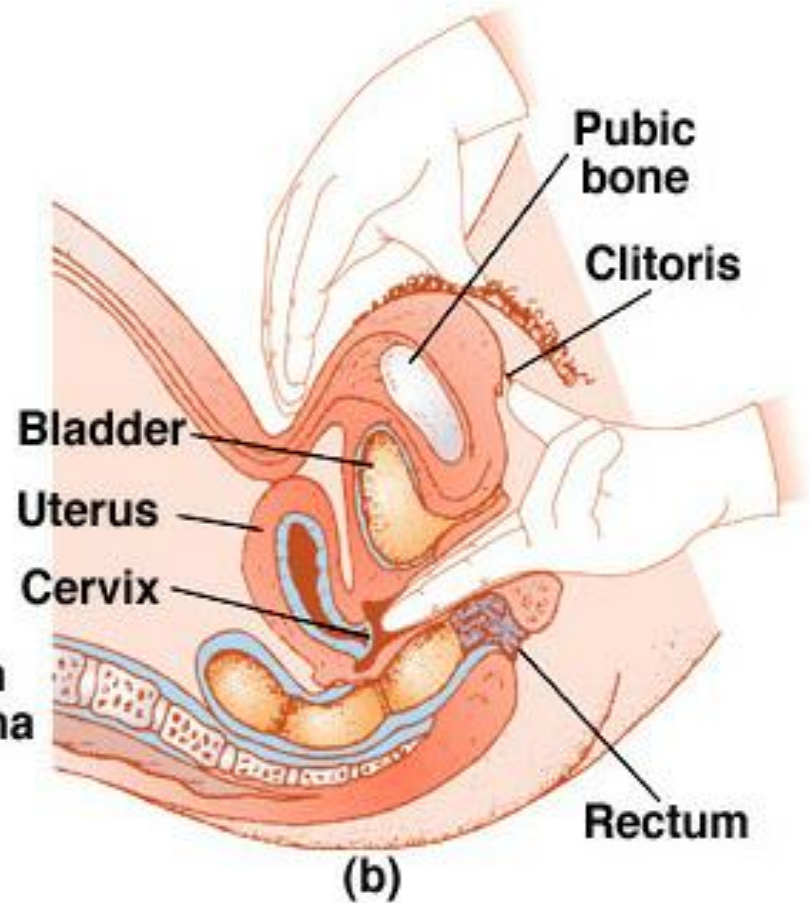
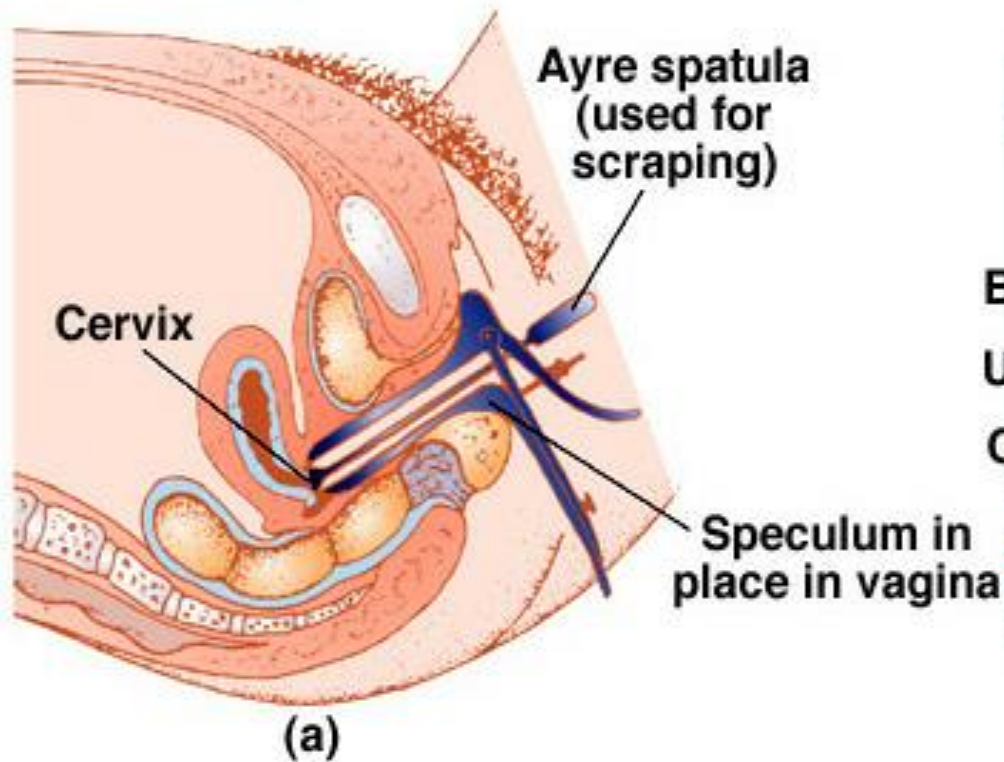
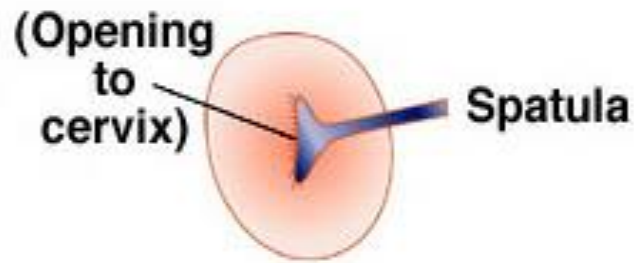
## ***Step 2. The Speculum Exam***

- The clinician inserts a metal or plastic speculum into the vagina.
- When opened, it separates the walls of the vagina, which normally are closed and touch each other, so that the cervix can be seen.
- Feels some degree of pressure or mild discomfort when the speculum is inserted and opened.
- Will likely feel more discomfort if tensed or if vagina or pelvic organs are infected.

## P/E Cont...

- ✧ The position of the cervix or uterus may affect the comfort as well.
- ✧ Talk with your client about any feeling of discomfort.
- ✧ Once the speculum is in place, check for any irritation, growth, or abnormal discharge from the cervix.
- ✧ Tests for gonorrhea, human papilloma virus, chlamydia, or other sexually transmitted infections may be taken by collecting cervical mucus on a cotton swab.
- ✧ These tests could be done according to the patients symptoms.

# Speculum and Bimanual Pelvic Exam

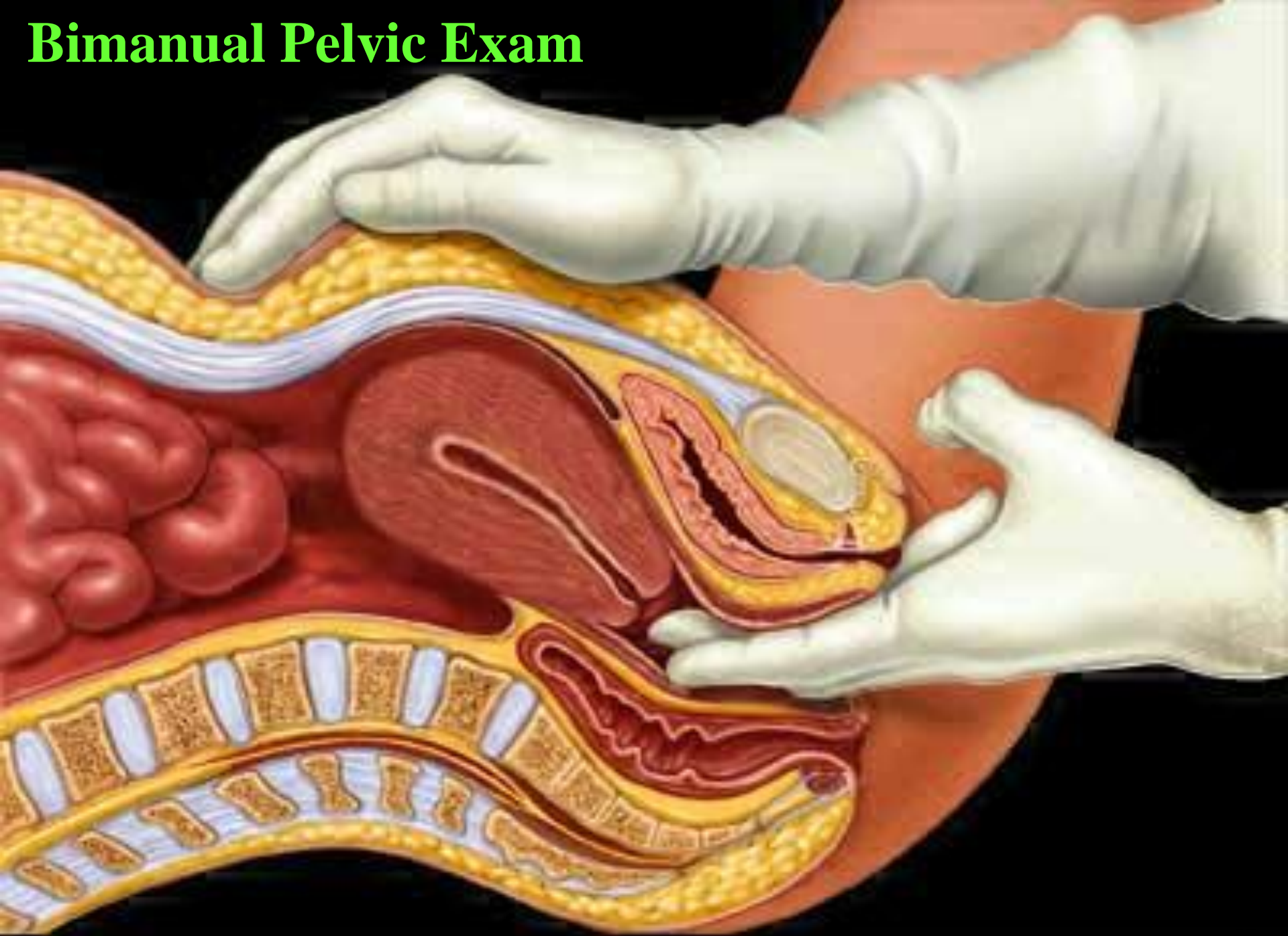


### *Step 3. The Bimanual Exam*

- ✧ Wearing an examination glove, the clinician inserts one or two lubricated fingers into the vagina.
- ✧ The other hand presses down on the lower abdomen.
- ✧ Then feel the internal organs of the pelvis between the two fingers in the vagina and the fingers on the abdomen.
- ✧ Examine the internal organs with both hands to check for
  - Size, shape, and position of the uterus
  - An enlarged uterus, which could indicate a pregnancy or fibroids
  - Tenderness or pain, which might indicate infection
  - Swelling of the fallopian tubes
  - Enlarged ovaries, cysts, or tumors



# Bimanual Pelvic Exam



## ***Step 4. Rectovaginal Exam***

- ✧ Check for possible tumors located behind the uterus, on the lower wall of the vagina, and in the rectum
- ✧ Feel for tenderness, masses, or irregularities.
- ✧ Insert one finger in the anus and another in the vagina for a more thorough examination of the tissue in between.
- ✧ When the examining finger has been inserted a short distance, the index finger can then be inserted into the vagina until the depth of the vagina is reached



# Gynecological diagnostic procedures

- In addition to routine gynecologic examination some other diagnostic procedures could be performed upon necessity.
- Mammography
  - Mammography has long been used as a screening test for breast cancer.
  - It involves taking an X-ray of the breast.
  - It is widely accepted that screening mammography leads to early detection of breast cancer

# Gyn. Dx procedures cont...

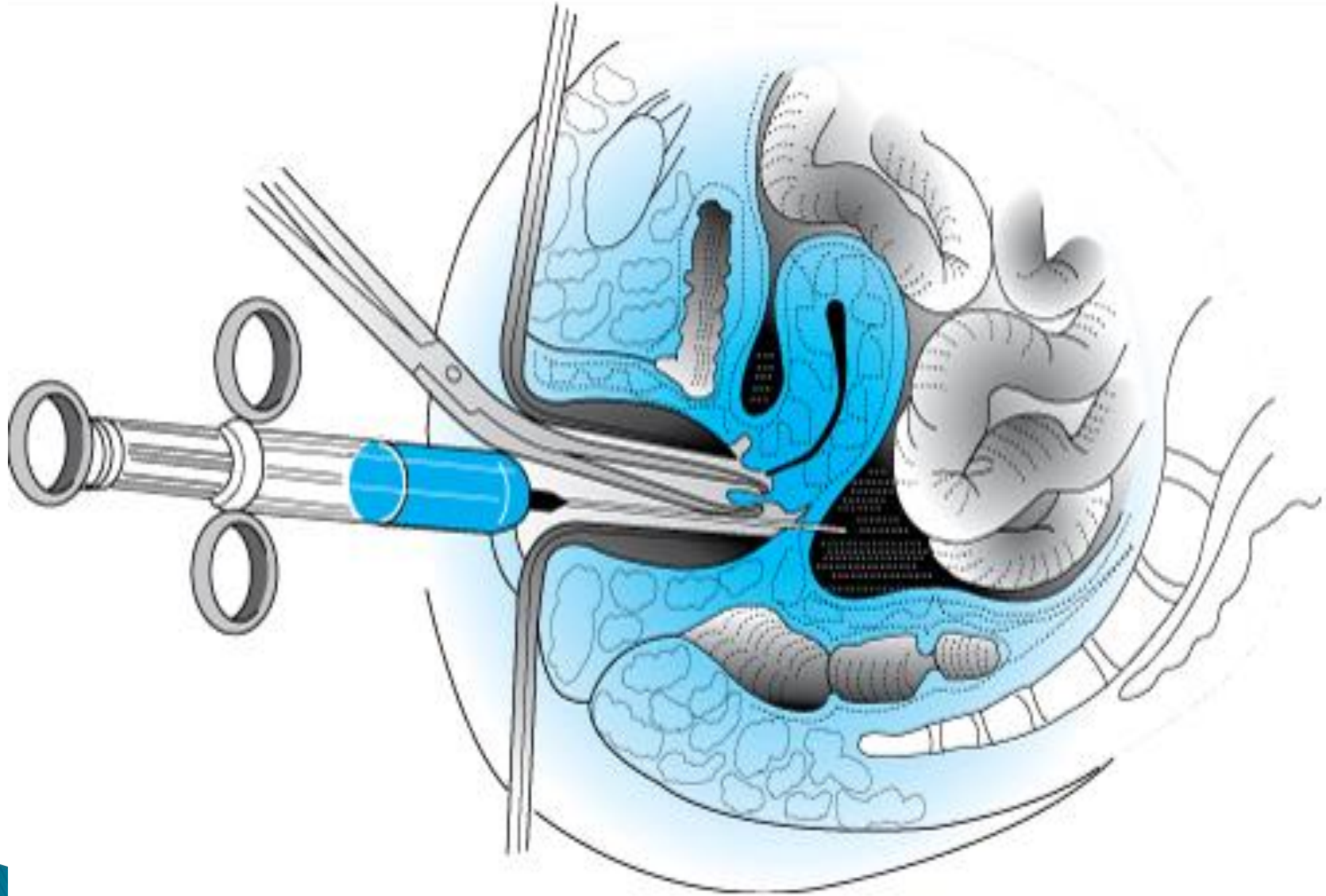
- **Pap smear test-** is an important part of the gynecologic examination.
- ✕ Usually a small spatula or tiny brush is used to gently collect cells from the cervix for a Pap test.
- ✕ The cells are tested for abnormalities — the presence of precancerous or cancerous cells.
- ✕ May have some staining or bleeding after the sample is taken.
- ✕ The Pap smear is a screening test only.
- ✕ The properly collected Pap smear can accurately lead to the diagnosis of carcinoma of the cervix in approximately 95% of cases.

# Cont...

- **Hysterosonography.** This diagnostic technique uses an ultrasound probe to obtain images of the uterine cavity.
- **Hysterosalpingography.** This technique uses a dye to highlight the uterine cavity and fallopian tubes on X-ray images.
- **Hysteroscopy.** Insertion of a small, lighted telescope called a hysteroscope through the cervix into the uterus.
- The tube releases a gas or liquid to expand uterus, allowing you to examine the walls of uterus and the openings of fallopian tubes.
- **Culdocentesis:** is the passage of a needle into the cul-de-sac-culdocentesis-in order to obtain fluid from the pouch of douglas.

# Culdocentesis ...

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# Cont...

## ➤ Colposcopy

- It is used to screen for cancer of the cervix and investigation of child sexual abuse
- Diagnostic use
  - ✓ Provides a magnified view of the surface structures of the vulva, vagina and cervix
  - ✓ Special green filters allow better visualization of vessels
  - ✓ Application of 1% acetic acid wash dehydrates cells and reveals white areas of increased nuclear density (abnormal) or areas with epithelial changes
  - ✓ Biopsy of visible lesions or those revealed with the acetic acid wash allows early identification of dysplasia and neoplasia

# Cont...

- ❑ Blood work
  - CBC - evaluation of abnormal uterine bleeding, preoperative investigation
  - HCG - investigation of possible pregnancy or ectopic pregnancy
    - work-up for gestational trophoblastic neoplasia (GTN)
    - monitored after the medical management of ectopic and in GTN to assess for cure and recurrences
  - LH, FSH
    - Amenorrhea, menstrual irregularities, menopause, infertility

# **The role of imaging techniques in GYN**

- ❑ Ultrasound (U/S)- it records high-frequency sound waves as they are reflected from anatomic structures.
- Simple & painless procedure that has the added advantage of freedom from any radiation hazard
- It is especially helpful in patients in whom an adequate pelvic examination may be difficult, such as in children, virginal women, and uncooperative patients.



# Cont...

- Imaging modality of choice for pelvic structures
  - ✓ Trans-vaginal U/S provides enhanced details of structures located near the apex of the vagina (i.e. intrauterine and adnexal structures)
- Used to
  - ✓ Rule in or out ectopic pregnancy, intrauterine pregnancy, type of abortion
  - ✓ Assess uterine, adnexal, ovarian masses (i.e. solid or cystic)
  - ✓ Determine uterine thickness
  - ✓ Monitor follicles during assisted reproduction



**A: Longitudinal view.  
section**



**B: Transverse**



**C: Longitudinal view  
Longitudinal**

**D:**

# Cont...

## ❑ Hysterosalpingography

- X-ray after contrast is introduced through the cervix into the uterus
- Contrast flows through the tubes and into the peritoneal cavity if tubes are patent
- Used for evaluation of size, shape, configuration of uterus, tubal patency or obstruction

## ❑ Sonohysterography

- Saline infusion into endometrial cavity under U/S visualization expands endometrium, allowing visualization of uterus and fallopian tubes

# Cont...

- Useful for investigation of:
  - ✓ AUB
  - ✓ Uncertain endometrial findings on Vx U/S
  - ✓ Infertility, Amenorrhea, Allergies to iodine dyes
  - ✓ Abnormal x-ray, hysterosalpingogram
  - ✓ Congenital/acquired uterine abnormalities (i.e. uterus didelphys, uni/bicornate, arcuate uterus)
- Easily done, minimal cost, extremely well-tolerated, sensitive and specific
- ▶ Frequently avoids need for hysteroscopy

# Cont...

## ❑ Angiography

- It is the use of radiographic contrast medium to visualize the blood vascular system.
- It is also used to delineate continued bleeding from pelvic vessels postoperatively, to visualize bleeding from infiltration by cancer in cancer patients, or to embolize the uterine arteries in order to decrease acute bleeding and/or reduce the size of uterine myomas.
- These vessels can be embolized with synthetic fabrics to stop the bleeding or indicate therapy that can prevent the need for a major abdominal operation in a highly compromised patient.

# Cont...

- ❑ **Computed tomography (CT) scan:** is a diagnostic imaging technique that provides high-resolution 2-dimensional images.
- ✓ In gynecology, the CT scan is most useful in diagnosing retroperitoneal lymphadenopathy associated with malignancies.
- ✓ It has also been used to determine the depth of myometrial invasion in endometrial carcinoma as well as extrauterine spread.
- ✓ It is an accurate tool for locating pelvic abscesses that cannot be located by ultrasonography.





CT scan of the pelvis showing a large fibroid uterus with 3 calcified fibroids in the body of the uterus.

# Cont...

## ❑ **Magnetic Resonance Imaging (MRI)**

- It is a diagnostic imaging technique that creates a high-resolution, cross-sectional image of the body like a CT scan.
- Its main use in gynecology appears to be staging and follow-up of pelvic cancers.
- MRI in obstetrics is limited to its use as an accessory prenatal diagnosis of fetal anomalies.
- It allows for multiple image cuts that can help interpret complex anomalies.
- Other potential uses of MRI include evaluation of placental blood flow and accurate performance of pelvimetry.

# Embryology of the Urogenital system

- The female urinary and genital tracts are closely related, both anatomically & embryologically.
- Both are derived largely from primitive mesoderm and endoderm.
- About 10% of infants are born with some abnormality of the genitourinary system,
- Anomalies in one system are often mirrored by anomalies in another system

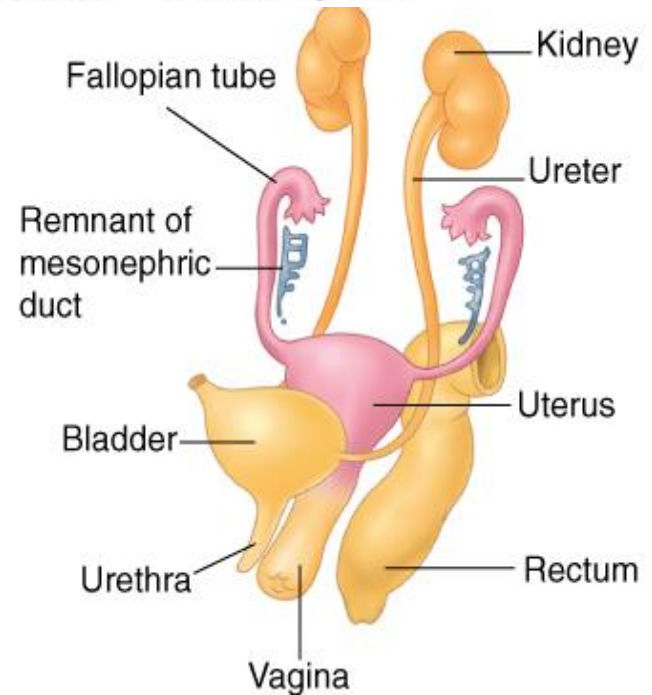
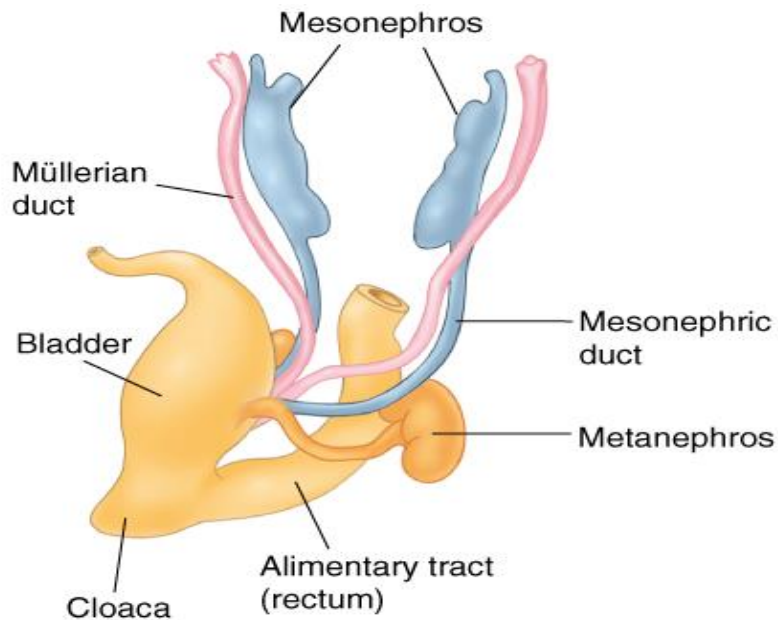
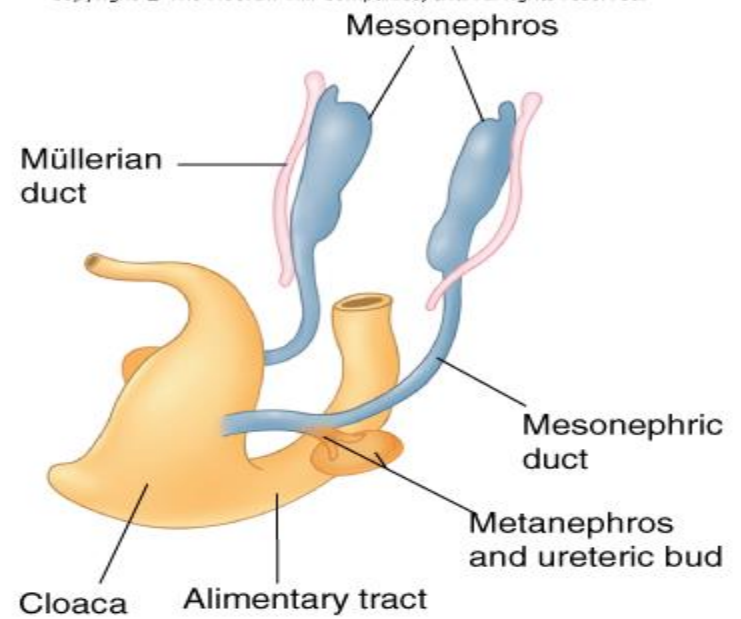
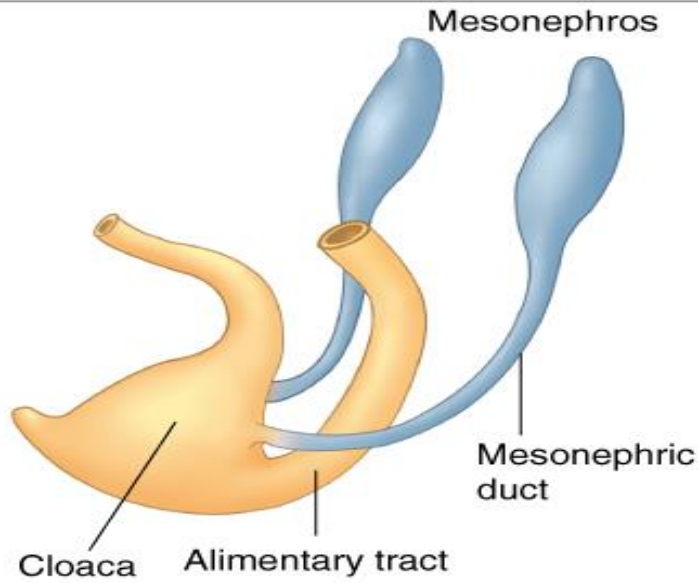


# Embryology of Urinary System

- ▶ The kidneys, renal collecting system, and ureters are derived from the longitudinal mass of mesoderm (known as the **nephrogenic cord**)
- ▶ Nephrogenic cord further develops caudally into 3 structures including:
- ▶ **Pronephros** or “first kidney,” is rudimentary and nonfunctional
- ▶ Pronephros is succeeded by the “middle kidney,” or **mesonephros**, which is believed to function briefly before regressing.
- ▶ Mesonephros contains mesonephric (wolffian) duct and it serves for:

# Cont...

1. It grows caudally in the developing embryo to open, for the first time, an excretory channel into the primitive cloacae and the “outside world.”
2. It serves as the starting point for development of the **metanephros**, which becomes the definitive kidney.
3. It ultimately differentiates into the sexual duct system in the male
4. There is evidence that the mesonephric duct may have an inductive role in development of the paramesonephric or müllerian duct



# Cont...

## ❑ Bladder and Urethra

- The bladder and urethra form from the most superior portion of the urogenital sinus
- The remaining inferior urogenital sinus is known as the phallic or definitive urogenital sinus

# Developmental anomalies

- ▶ The most frequent congenital defects and abnormalities of the genitourinary tract are
  - hydronephrosis
  - undescended testicles (cryptorchidism)
  - hypospadias
  - epispadias
  - malformation of the kidneys

# Absence of one kidney

- ▶ Congenital aplasia
- ▶ Failure to develop one kidney
- ▶ Can be found during ultrasound examination, CT scanning and **Pyelogram** (X-ray of kidneys)
- ▶ Ureter absent
- ▶ No ureteric orifice found during **cystoscopy**
- ▶ **CT urography** to obtain high-quality images of the kidneys, ureters and bladder,

# Absent left kidney



# Renal Ectopia

- ▶ Kidney does not ascend
- ▶ Usually near the pelvic brim ; usually left
- ▶ If it is not symptomatic the only problem is that during the abdominal operations the pelvic kidney should not be **mistaken** for any abnormal **tumor** and be injured



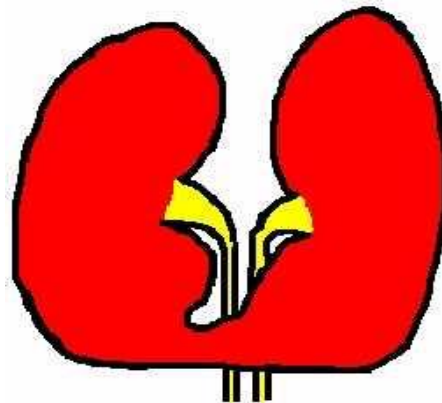
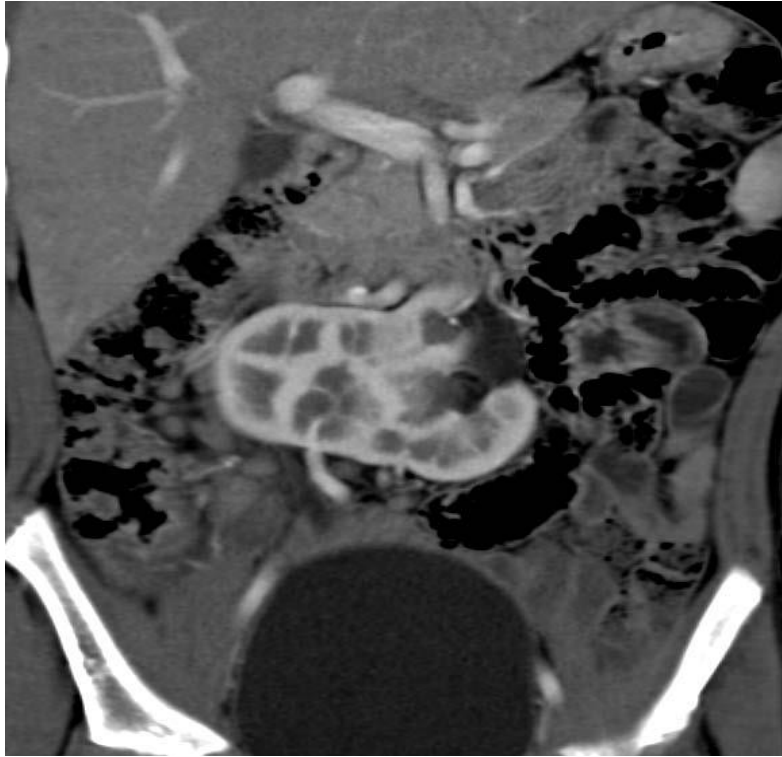
# Renal ectopia – pelvic kidney



# Horseshoe Kidney

- ▶ Situated usually in front of fourth lumbar vertebra
- ▶ Fused lower poles common
- ▶ Ureters angulated
- ▶ Infection
- ▶ Nephrolithiasis
- ▶ Fixed mass below umbilicus

# Horseshoe Kidney



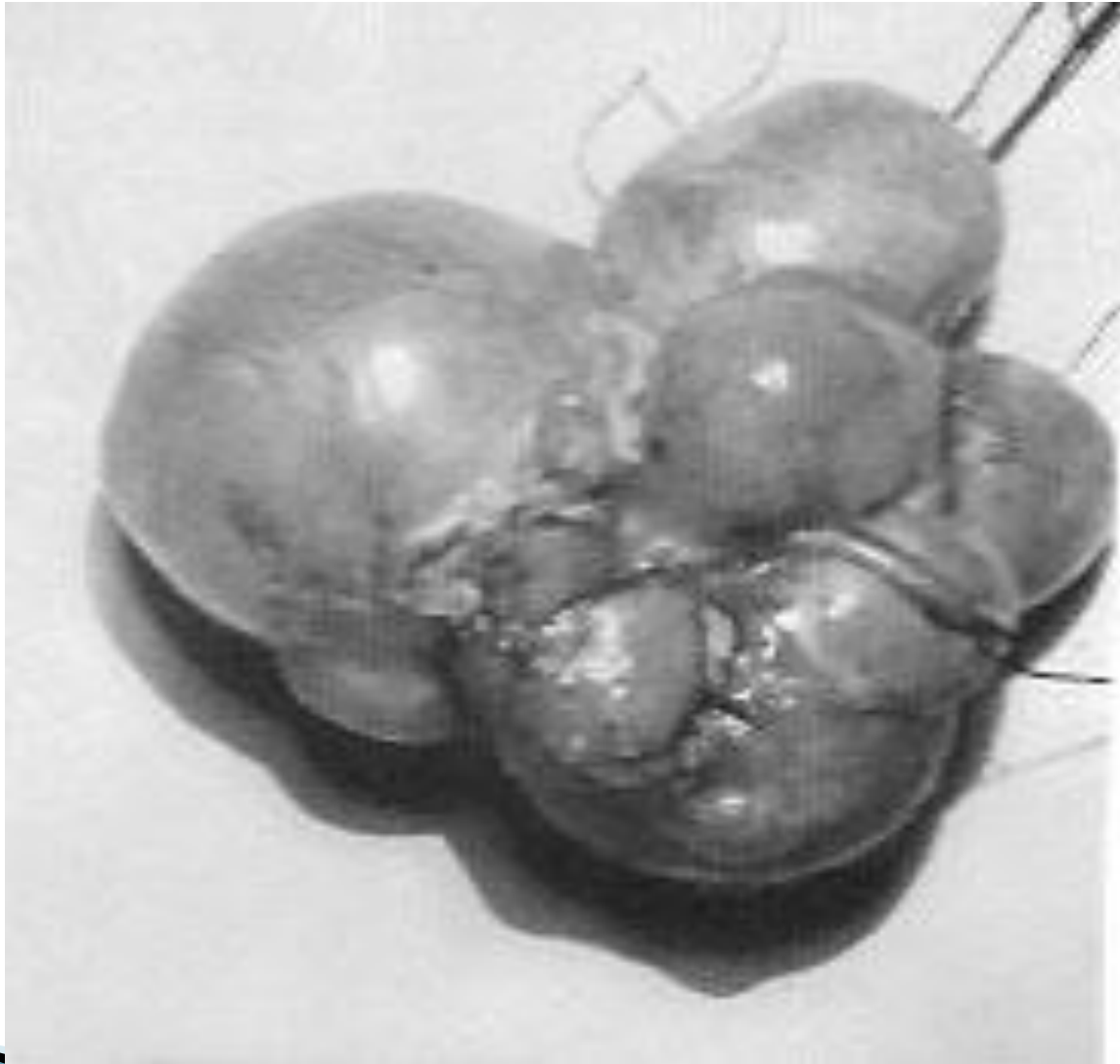
# Unilateral Fusion

- ▶ Both kidneys are in one loin
- ▶ Usually fused
- ▶ Ureters of the lower kidney crosses the midline to enter the bladder on the contralateral side.
- ▶ Both renal pelves may lie one above each other medial to the renal parenchyma (unilateral long kidney - or the pelvis of the crossed kidney faces laterally (unilateral S-shaped kidney)

# **Congenital cystic kidneys – polycystic kidneys**

- ▶ Hereditary
- ▶ Autosomal dominant trait
- ▶ Not usually detectable until the second or third decades of life and never manifests before the age of 30
- ▶ Irregular upper quadrant mass
- ▶ Loin pain
- ▶ Haematuria
- ▶ Infection
- ▶ Hypertension
- ▶ Uraemia
- ▶ CT image: multiple cysts in both kidneys

# Polycystic kidney

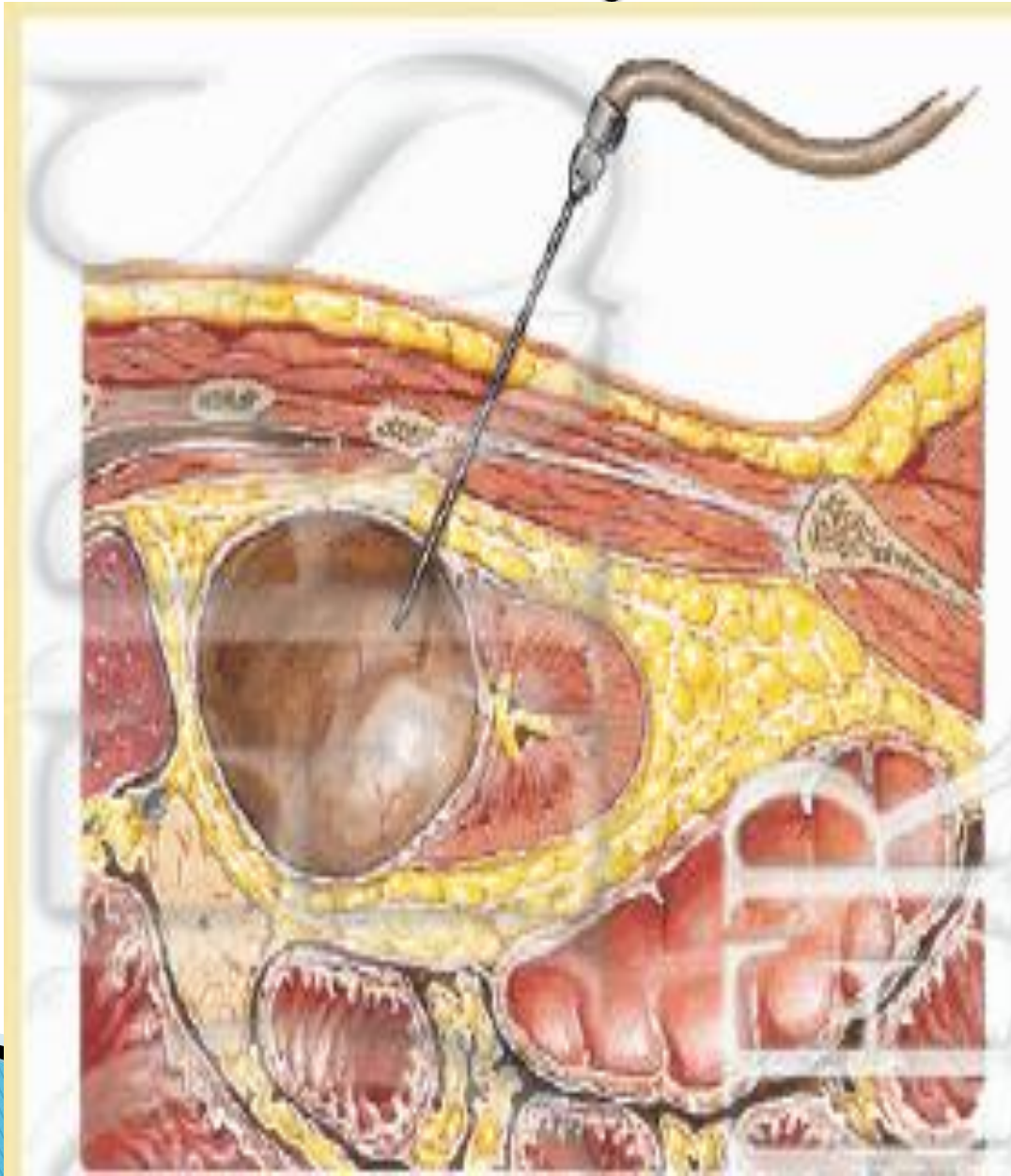


# Simple Renal Cyst

- ▶ Common
- ▶ Multiple
- ▶ Diagnosed on ultrasound
- ▶ Rarely require treatment
- ▶ Treat only if causing obstruction



# Renal Cyst





# **Congenital abnormalities of the renal pelvis and ureter**

## Duplication of a renal pelvis

- ▶ Common
- ▶ Usually unilateral

# Duplication of a ureter

- ▶ The ureters usually join before they reach the bladder
- ▶ Less commonly the ureters open independently into the bladder

# Duplication of the ureter



# Congenital defects of the bladder

## Ectopia vesicae – exstrophy of the bladder

- ▶ Easily recognised at birth
- ▶ Umbilicus absent, protruding due to the intra-abdominal pressure
- ▶ In addition epispadias
- ▶ Mons and clitoris bifid
- ▶ In the neonate the bladder should be covered to prevent trauma to the delicate mucosa

# **Congenital abnormalities of the urethra and penis**

- ▶ Meatal stenosis
- ▶ Congenital stricture
- ▶ Congenital valves
- ▶ Hypospadias
- ▶ Epispadias

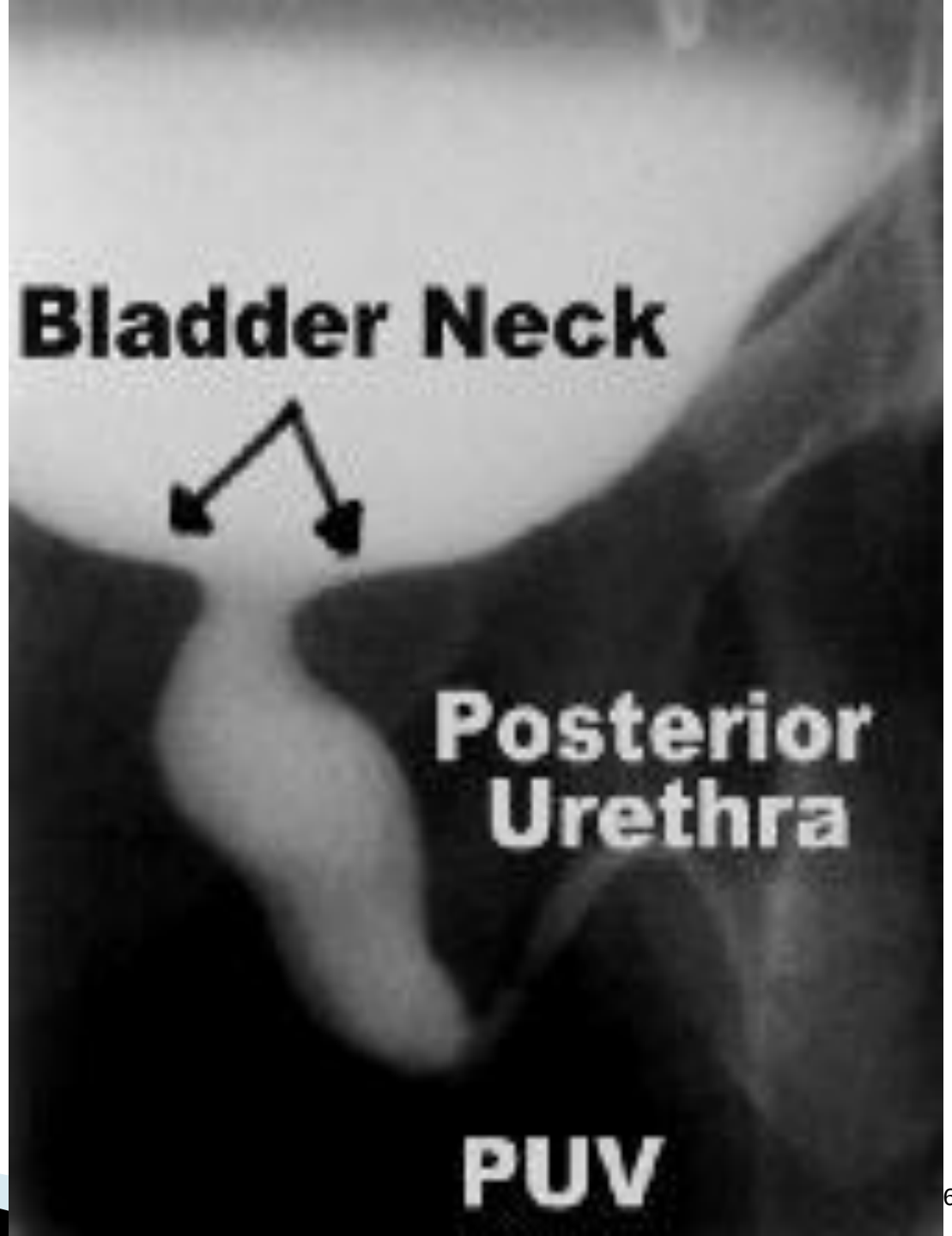
# Meatal stenosis

- ▶ Congenital stenosis of the external urethral meatus – normally the narrowest part of the male urethra
- ▶ Associated with phimosis – at times pin hole meatus
- ▶ Back pressure effects
- ▶ Spraying, dribbling

# Congenital valves of the posterior urethra

- ▶ Folds of urothelium
- ▶ Causes obstruction in boys
- ▶ Usually within prostatic urethra
- ▶ Catheter will pass easily

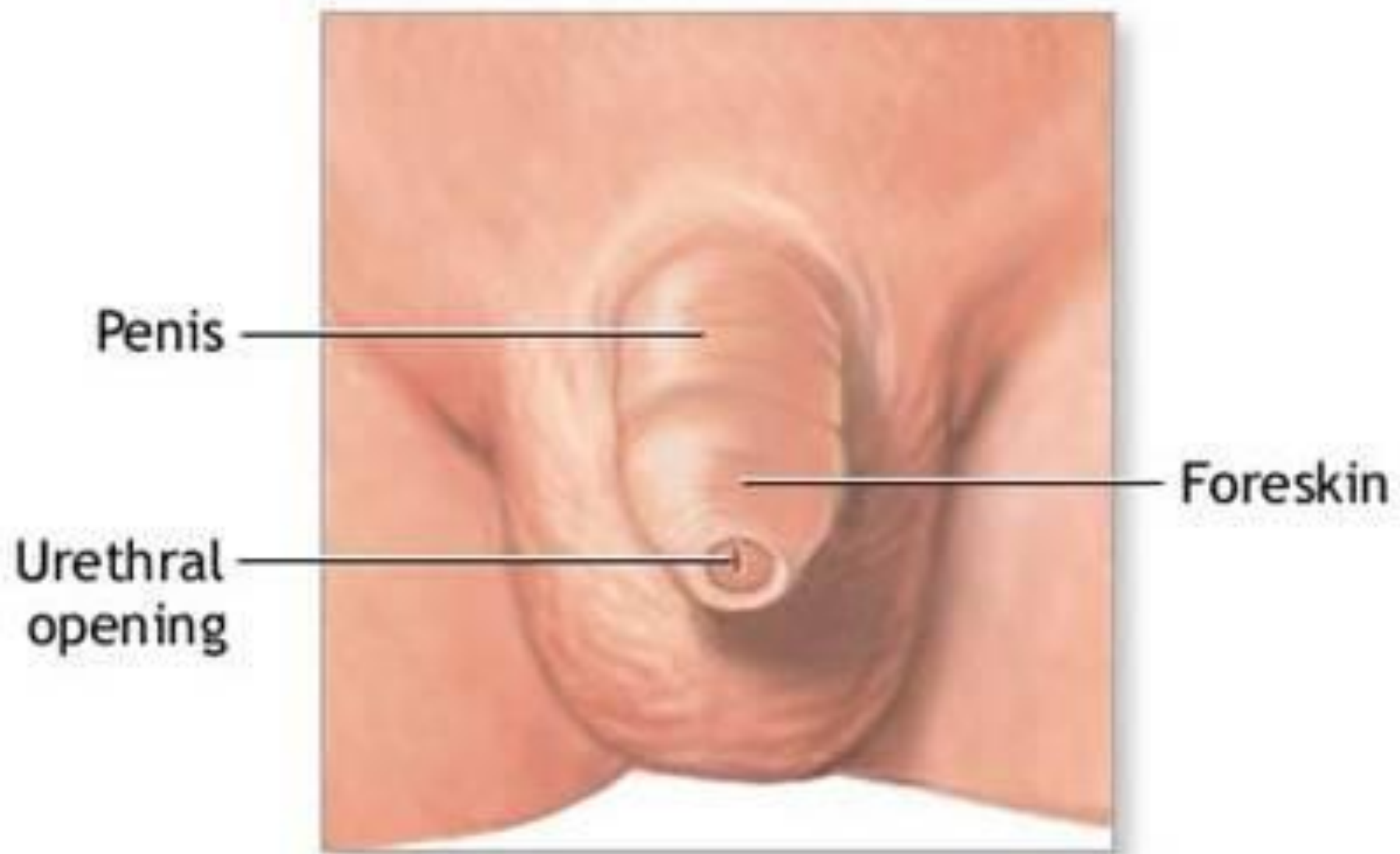
# Micturating cystourethrogram



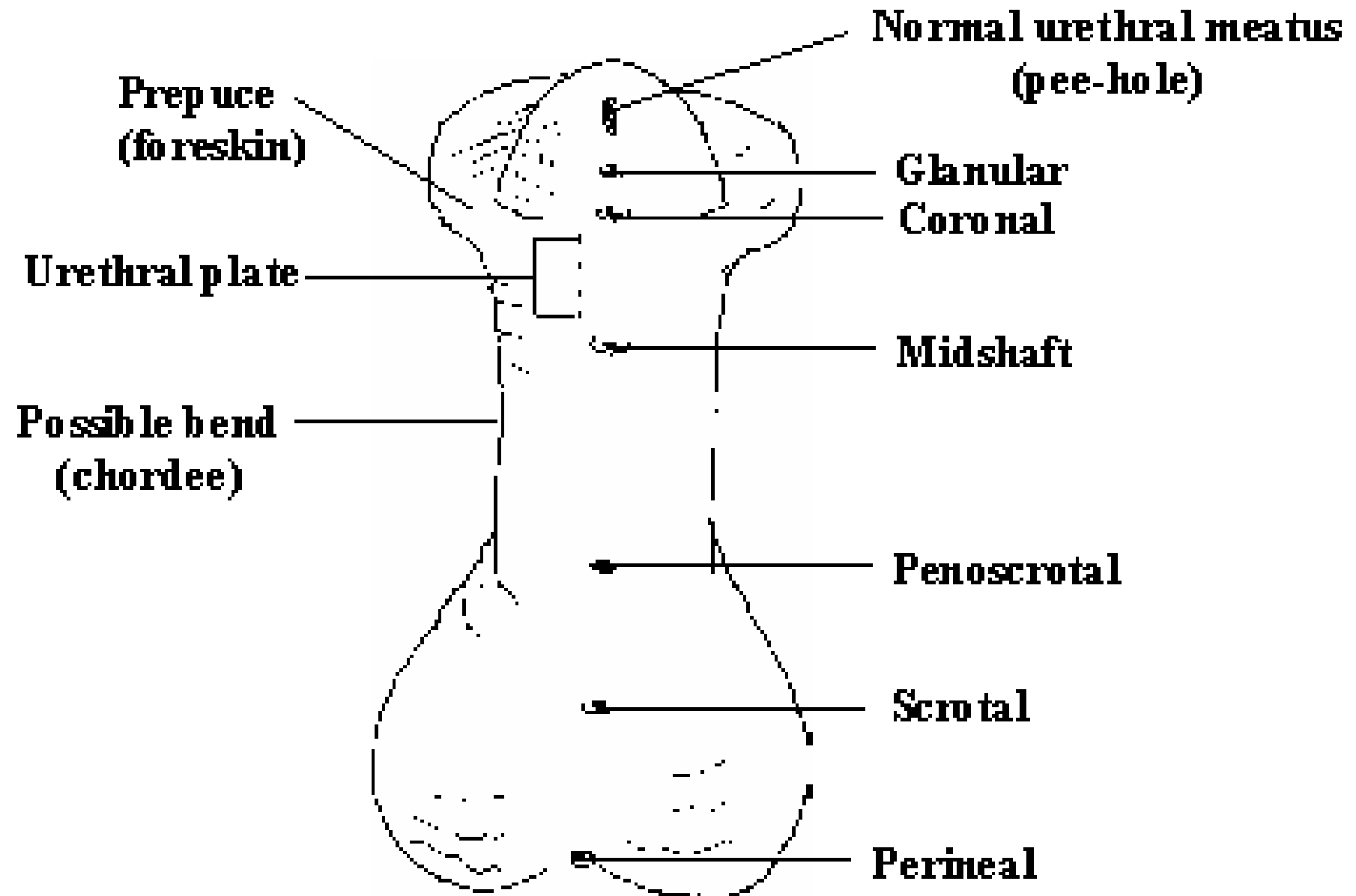


# Hypospadias

- ▶ Most common urethral abnormality and it can be:
- ▶ Glanular hypospadias
- ▶ Coronal hypospadias
- ▶ Penile and penoscrotal hypospadias
- ▶ Perineal hypospadias



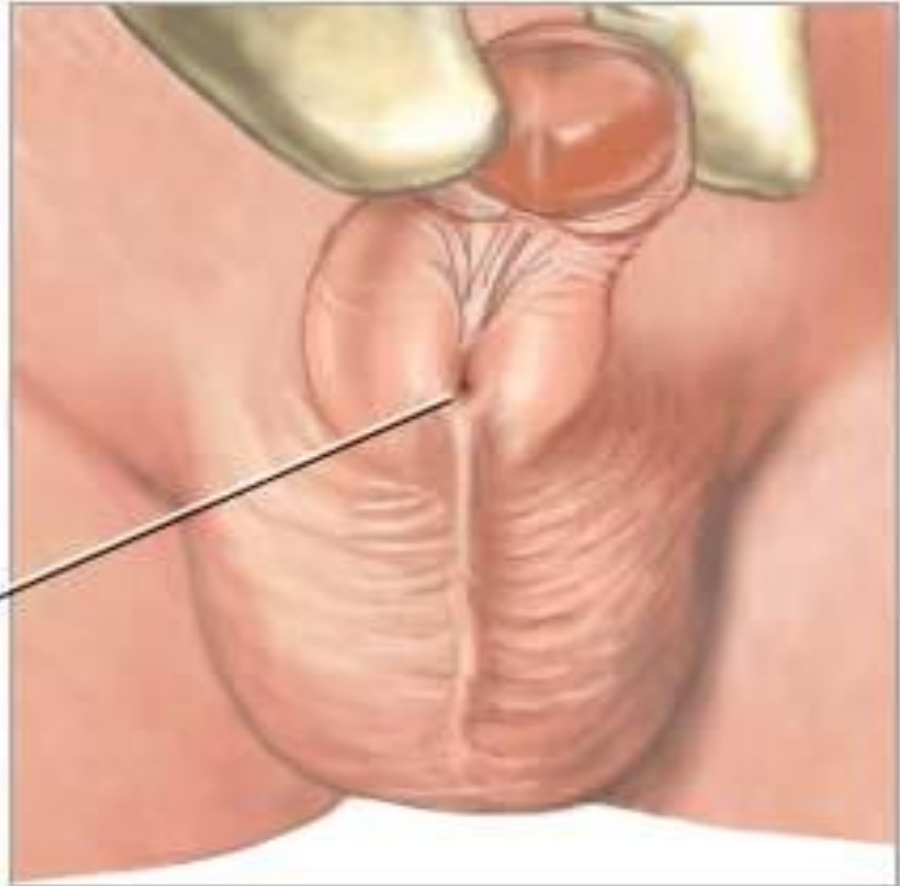
# Hypospadias types



# Hypospadias



Urethral  
opening

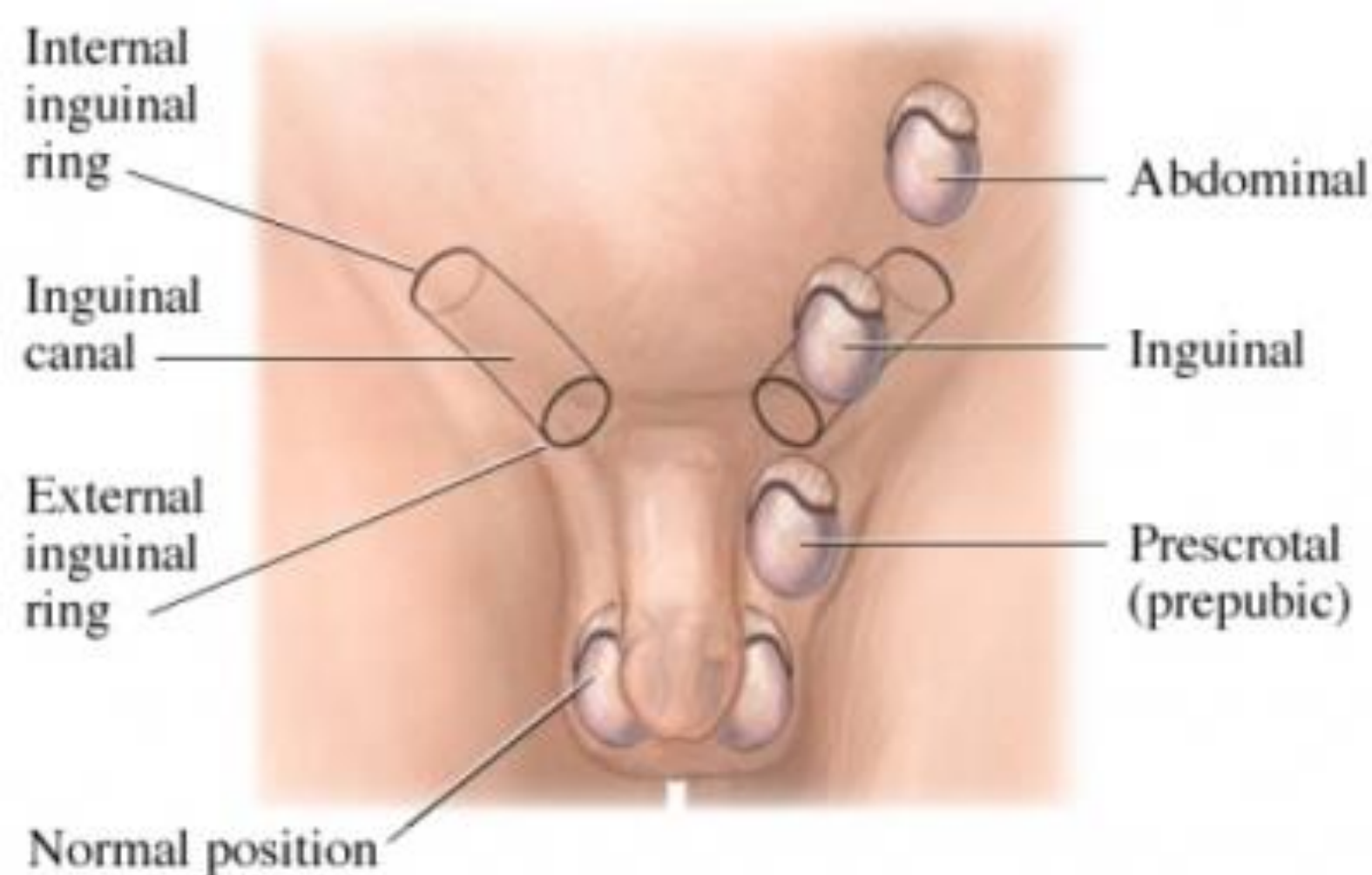


# Abnormalities of the testes and scrotum

## Incompletely Descended Testis

- ▶ Testis is not present in the scrotum
- ▶ In about 4 % of all newborns
- ▶ 50% descend during the first month of life
- ▶ The genitals of all newborns must be examined
- ▶ May be associated with inguinal hernia
- ▶ Should be corrected well before puberty
- ▶ Otherwise atrophies

# Various Positions of the incompletely descended testis



# Retractile Testis

- ▶ Sometimes the testis intermittently disappears upwards
- ▶ This phenomenon is called 'retractile testis'.
- ▶ wait for the boy to grow
- ▶ careful follow-up
- ▶ if the testis prefers to stay higher or if the testis is under tension when brought down, surgical correction is recommended.

# Phimosis

- ▶ At birth foreskin adherent to the surface of the glans penis
- ▶ Separate spontaneously with time
- ▶ Can wait for 4 years to separate
- ▶ Gentle retraction at bath permitted
- ▶ Forcible retractions injure



# Phimosis





**Table 5.6. Development of Genital and Urinary Tracts by Embryologic Age**

<i><b>Weeks of Gestation</b></i>	<i><b>Genital Development</b></i>	<i><b>Urinary Development</b></i>
4-6	Urorectal septum	Pronephros
	Formation of cloacal folds, genital tubercle	Mesonephros/mesonephric duct
	Ureteric buds, metanephros	
	Genital ridges	Exstrophy of mesonephric ducts and ureters into bladder wall
6-7	End of indifferent phase of genital development	Major, minor calyces form
	Development of primitive sex cords	Kidneys begin to ascend
	Formation of paramesonephric ducts	
	Labioscrotal swellings	
8-11	Distal paramesonephric ducts begin to fuse	Kidney becomes functional
	Formation of sinuvaginal bulbs	
12	Development of clitoris and vaginal vestibule	
20	Canalization of vaginal plate	
32	Renal collecting duct system complete	

# Genetic disorders & sex chromosome Abnormalities

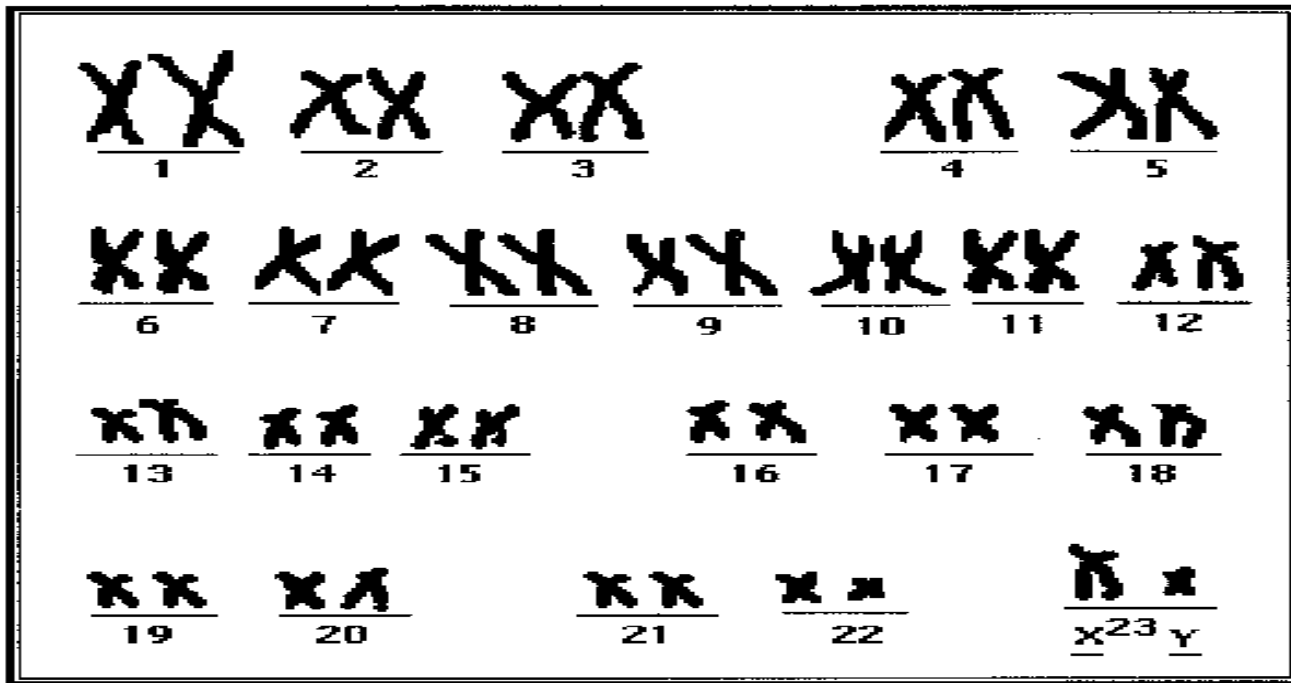
- ▶ Chromosomes are rod shaped structures
- ▶ Each germ cell contains 23 chromosomes.
- ▶ The chromosomes contain the DNA and genes.
- ▶ Genes are the individual instructions that tell our bodies how to develop and function
- They govern our physical and medical characteristics, such as hair color, blood type and susceptibility to disease.

## cont...

- ▶ Each chromosome has a p and q arm; p is the shorter arm and q is the longer arm connected by **centromere**.
- ▶ The typical number of chromosomes in a human cell is 46 - two pairs of 22 + XX/XY

# Karyotype

A photograph of a cell's chromosomes arranged in pairs according to size



- The 23<sup>rd</sup> pair are the sex chromosomes:
  - XX in females
  - XY in males



## Genotype

- ▶ The genetic makeup of a given individual

## Recessive Gene

- ▶ The gene pair that determines a trait in an individual only if the other member of that pair is also recessive

## Phenotype

- ▶ The traits that are expressed in the individual

## Dominant Gene

- ▶ One gene of a gene pair that will cause a particular trait to be expressed

■ **Alleles-** A pair of genes, found on corresponding chromosomes, that affect the same trait

# Inherited Disorders

## ▶ Sex-Linked Disorders

- Genetic Disorders
- Chromosomal Disorders

## ▶ Autosomal Disorders

- Genetic Disorders
- Chromosomal Disorders

## □ Sex-Linked Disorders

- Involve the sex chromosome # 23
- Occur via dominant-recessive patterns
- A recessive gene on the X chromosome is more likely to be expressed as the phenotype males because the Y chromosome has no allele that might contract the gene.



# Genetic Sex-Linked Disorders

## 1- Color Blindness

- Genetic X-linked recessive disorder occurs in 1 of 10 males

## 2- Hemophilia A and B

- Recessive disorders that affect 1 of 5,000 males.
- These interfere with normal blood clotting

# Chromosomal Sex-Linked Disorders

## 1- Fragile X Syndrome

- Occurs in about 1 of 1,200 males and 1 of 2,500 females.
- Results from a breakage of the tip of an X chromosome.
- Chromosome with an apparently almost detached part near the end of the long arm, that causes learning difficulties in boys and females

## 2- Klinefelter Syndrome (XXY, XXXY, XXXXY)

- Occurs in about 1 of 1,000 males. It is caused by an extra X chromosome

# Chromosomal Sex-linked Disorders

## 3- Super-female Syndrome (XXX, XXXX, XXXXX)

- Occurs in about 1 of 1,000 females.
- Women appear normal, but tend to score slightly below average in intelligence.

## 4- Super-male Syndrome (XYY, XYYY, XYYYY)

- Occurs in about 1 of 1,000 males.
- The men tend to be taller than average, with a greater incidence of acne and minor skeletal abnormalities.

# 5- Turner's Syndrome (XO)

- Occurs in about 3 of 10,000 females.
- One of the X chromosomes is either missing or inactive.
- Present with primary amenorrhoea for there are either no ovaries or non-functioning streaks of tissue with no oogenesis.
- The vagina and uterus are present
- Poor breast development
- Little or no axillary and pubic hair.
- Short stature    --Webbing of the neck.
- A wide carrying angle in the arms.
- Congenital malformation of the kidneys may be found.

# Patient with Turner's

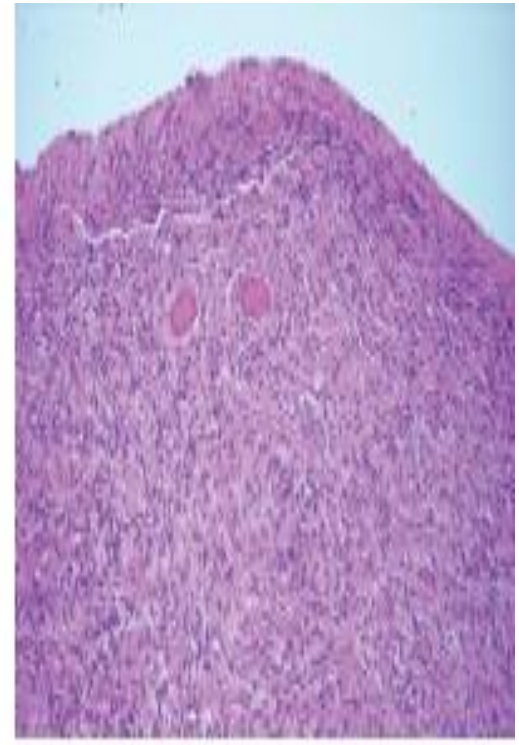




(a)



(b)



(c)

## Turner syndrome

**(a) Puffy feet. (b) redundant skin at back of neck. (c) Histology of gonads: ovarian cortical stroma devoid of germ cell elements.**

# Autosomal Disorders

- Disorders involving the other 22 pairs of chromosomes
- Can result from an extra chromosome or defective genes

## 1- Angelman's syndrome

- Occurs in about 1 of 10,000 to 15,000 people.
- It is determined by a set of **mutated genes on chromosome 15**

## 2- Cystic Fibrosis

- A recessive disorder that occurs in about 1 of 2,5000 people of white European ancestry.
- Related to a **mutated gene on chromosome 17**. Characterized by excessive secretion of the mucus in the body.



# Autosomal Disorders cont...

## 3- Huntington Disease

- A dominant disorder that occurs in about 1 of 10,000 people.
- A **dominant gene on chromosome 4** is responsible
- It causes degeneration of neurons producing dementia, and random jerking movements.

## 4- Phenylketonuria (PKU)

- A **recessive** disorder that occurs in about 1 of 10,000 people.
- A defective **gene on chromosome 12** is responsible



# Cont...

## 5- Prader Willi Syndrome

- A **recessive** disorder that occurs in 1 of 10,000 to 15,000 people.
- It is determined by a set of **mutated genes on chromosome 15**
- ▶ is characterized by obesity, hypotonic musculature, mental retardation, hypogonadism, short stature, and small hands and feet

# Autosomal Disorders cont...

## 6- Sickle-Cell Anemia

- Occurs in about 1 of 12 U.S. blacks.
- The defective **gene on chromosome 11** is responsible.

## 7- Tay-sachs Disease

- A **recessive** disorder that occurs in about 1 of 5,000 people of European Ashkenazi Jewish ancestry.
- Defective **gene on chromosome 15** is responsible.
- Mental retardation, seizures, macrocephally

# Chromosomal Autosomal Disorders

## 8. Down Syndrome

- Occurs in about 1 in 1,000 live births.
- An **extra chromosome** is attached to the **21<sup>st</sup> pair**
- Characterized by:
  - ✓ Mild-to-moderate mental retardation
  - ✓ short femur, short humerus, hypoplasia of the middle phalanx of the fifth finger, sandal toe gap, widened iliac angle, increased nuchal fold

# Cont...

- Prominent epicanthal folds
- Brushfield spots, poor nasal bridge development, congenital heart disease, brachycephaly (short broad head) hypotonia, hypermobility of joints
- Risk increases with maternal age.
- Pregnancies of women over age 35 accounts for 20% of Down syndrome birth

# Clinical Features

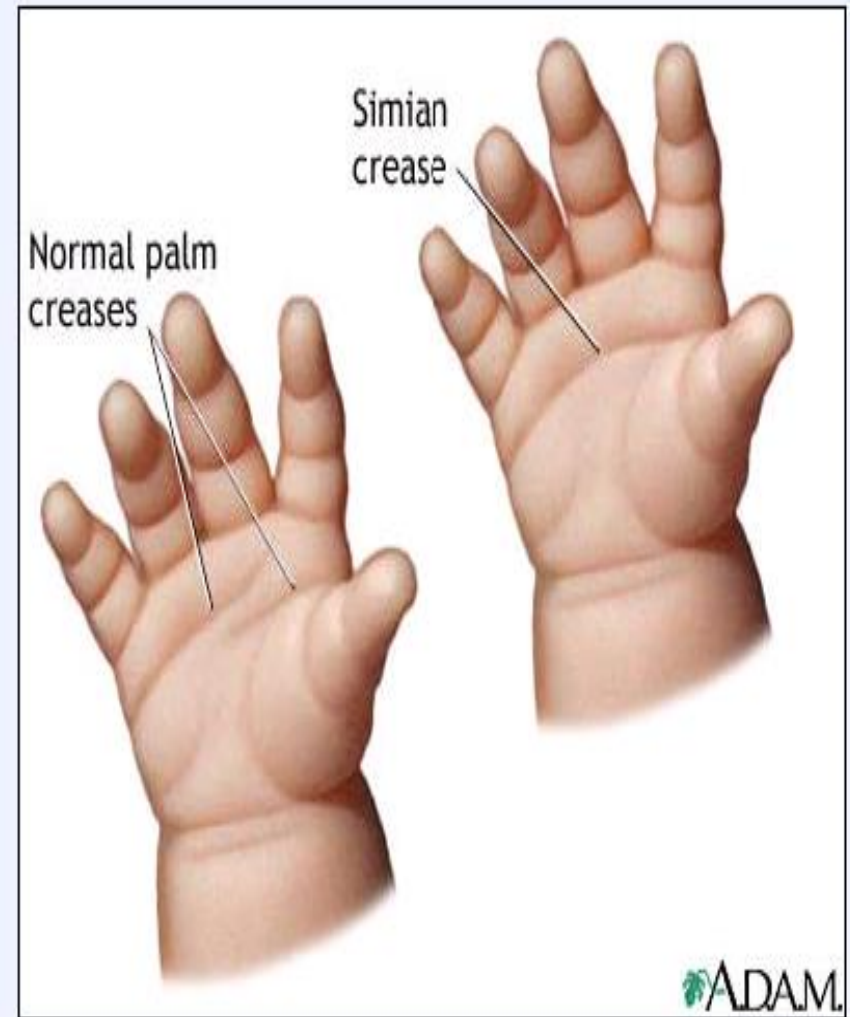
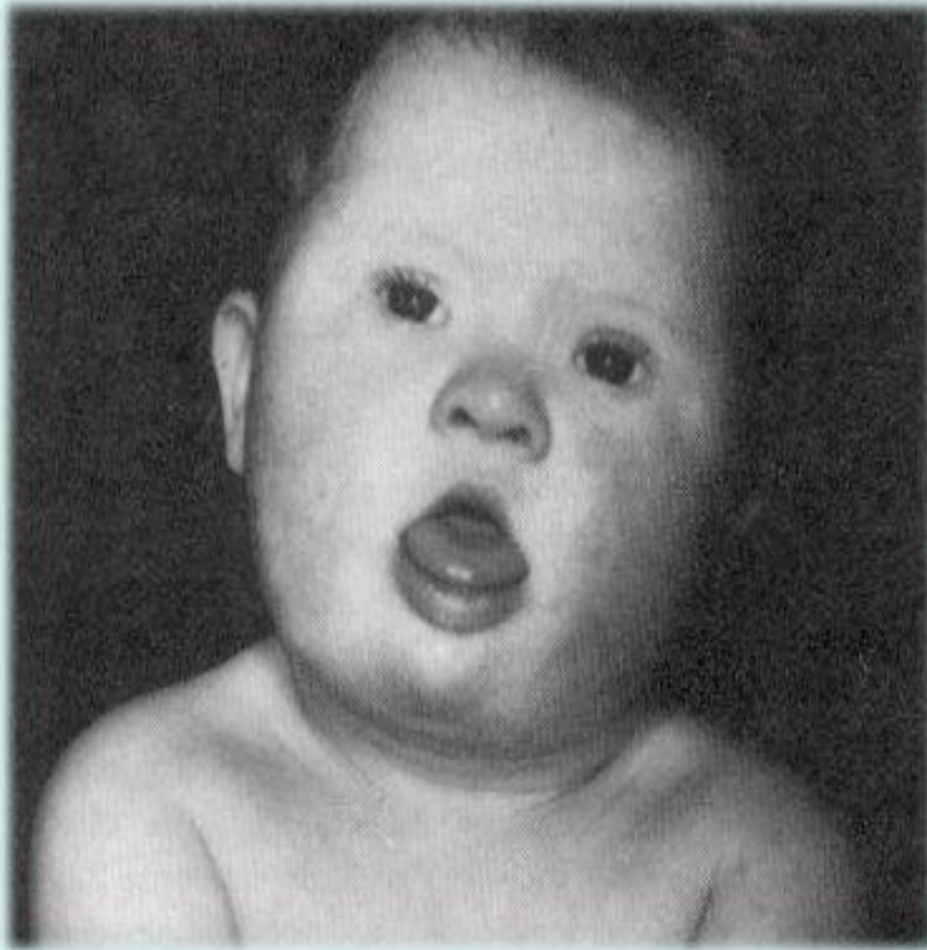
## ❑ Head and neck

- ▶ Brachycephaly
- ▶ Up-slanting palpebral fissures ( eye lid)
- ▶ Epicanthal folds- fold of skin of an eyelid near nose
- ▶ Brushfield spots- upper skin spots
- ▶ Flat nasal bridge
- ▶ Folded or dysplastic ears
- ▶ Open mouth
- ▶ Protruding tongue
- ▶ Short neck
- ▶ Excessive skin at the nape of neck- webbed neck

## ❑ Extremities

- ▶ Short broad hands
- ▶ Short fifth finger
- ▶ Incurved fifth finger
- ▶ Transverse palmer crease
- ▶ Space between first and second toe
- ▶ Hyper flexibility of joints

# Down's synd.



# Down...

## ❑ **Mental Retardation**

- ▶ Almost all DS babies have MR
- ▶ Mildly to moderately retarded
- ▶ Starts in the first year of life
- ▶ Average age of sitting(11 mon), and walking (26 mon) is twice the typical age
- ▶ First words at 18 months
- ▶ IQ declines through the first 10 years of age, reaching a plateau in adolescence that continues into adulthood

## ❑ **Reproduction**

- ▶ Women with DS are fertile and may become pregnant
- ▶ Nearly all males with DS are infertile due to impairment of spermatogenesis



# Cont...

## ❑ Trisomy 13

- Severe mental retardation, congenital heart disease (77%), polydactyly, cerebral malformations (especially aplasia of olfactory bulbs), eye defects, low-set ears, cleft lip and palate, low birth weight. Characteristic dermatoglyphic pattern.

## ❑ Monosomy 21–22:

- Moderate mental retardation, antimongoloid slant of eyes, flared nostrils, small mouth, low-set ears, spade hands.



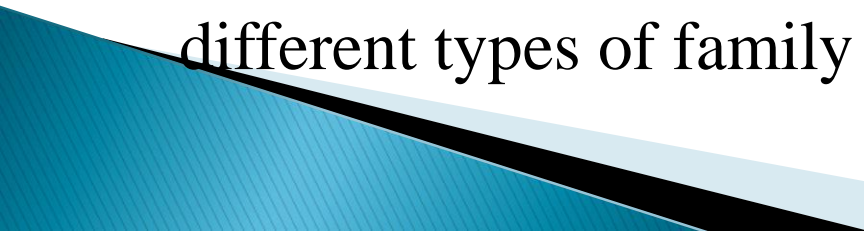
# **Family planning**

**By  
Tinsae kasa**


# **FAMILY PLANNING**

## **Learning objectives**

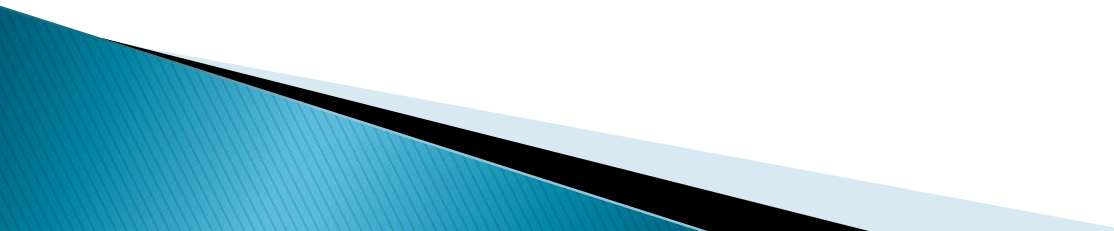
After completion of this module, student is expected to be able to:

1. Define family planning
  2. Understand the important rationale of family planning
  3. Counsel clients before providing family planning methods
  4. Perform appropriate client assessment before providing family planning methods
  5. Discuss advantages and disadvantages of F/P methods
  6. List the different types of family planning methods.
  7. List most common contraindications and complications of different types of family planning methods.
- 

# Introduction

- ▶ Family planning is the ability of an individual or couple to decide when to have children how many children they desire in a family and how to space their children.
  - ▶ It is a means of promoting the health of women and families.
  - ▶ Family planning is part of a strategy to reduce the high maternal, infant and child mortality and morbidity.
  - ▶ Family planning is also a critical component of RH programmes.
  - ▶ F/p helps women and their families preserve their health and fertility and also contributes to improving the overall quality of their lives.
- 

# Cont.....

- ▶ Family planning also contributes to improving children's health and ensuring that they have access to adequate food, clothing, housing, and educational opportunities.
  - ▶ family planning services not only improves the health and well being of women and children, but it also supports implementation of the national and international policies.
- 

# Classification of FP Methods

Methods of Contraception are divided into:-

## 1. Natural family planning method

### 1.1. Non Fertility awareness method

- a. LAM
- b. Abstinence
- c. Coitus Interruptus/withdrawal

### 1.2. Fertility awareness method

- a. The rhythm or calendar method
- b. The basal body temperature (BBT)
- c. The cervical mucus method (Billings ovulation ) and
- d. The sympto-thermal method (combination of BBT and Billings Method)

# Classification cont.....

## 2. Barrier methods

- 2.1. Male condom
- 2.2. Female Condom
- 2.3. Spermicides
- 2.4. Diaphragms
- 2.5. Cervical caps

## 3. Hormonal contraceptives

- 3.1. Oral contraceptives
- 3.2. Progestin only injectable
- 3.3. Contraceptive implants


## 4. IUCD

## 5. Permanent FP (vasectomy/Tubal ligation)

# **1. Traditional/Natural family planning**

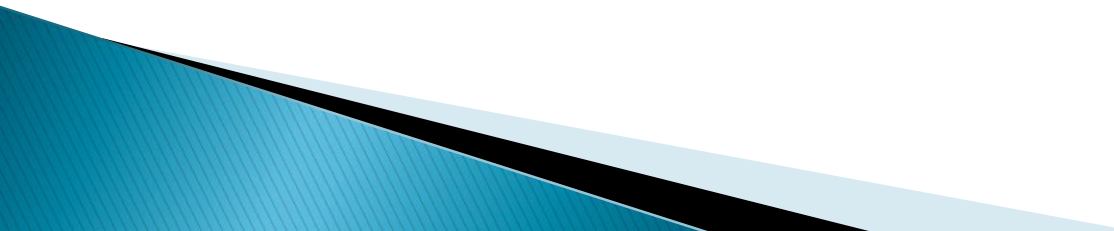
## **1.1. Non Fertility awareness method**

### **A. Lactational amenorrhea method (LAM)**

- ▶ Lactational amenorrhea is the use of breast-feeding as a contraceptive method.
  - ▶ It is based on the physiologic effect of suckling to suppress ovulation.
  - ▶ To use breast-feeding effectively as a contraceptive for 6 months after delivery requires that the mother feed the baby nothing but breast milk (exclusive breast feeding).
  - ▶ Kept her breastfeeding frequency high (about 10-12 times/day and at least once during the night, no more than 6 hours should pass between any two feeds).
- 

# Advantages

## ❖ Contraceptive

- Highly effective (1-2 pregnancies per 100 women during first 6months of use)
  - Effective immediately
  - Does not interfere with intercourse
  - No systemic side effects
  - No medical supervision necessary
  - No supplies required
  - No cost involved
- 



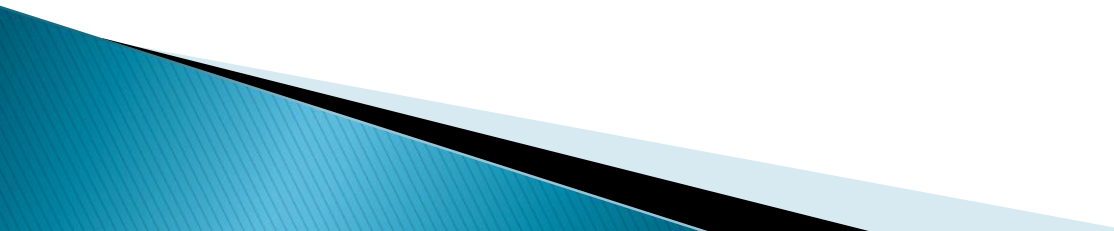
# Advantage

## ❖ Non contraceptive

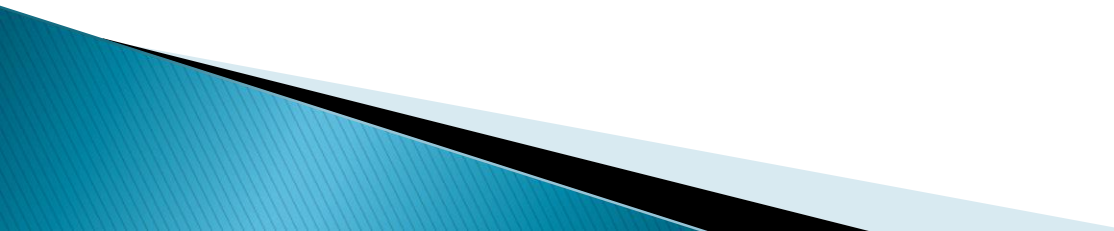
### ▶ For the Child

- Passive immunization (transfer of protective antibodies)
- Best source of nutrition
- Decreased exposure to contaminants in water, other milk or formulas, or on utensils

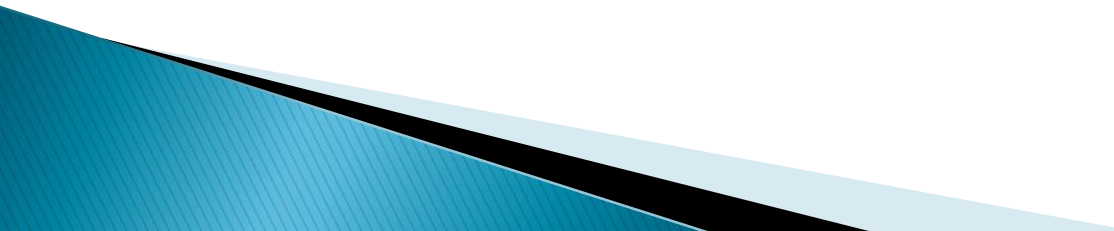
### ▶ For the mother

- Decreased postpartum bleeding
  - Accelerates involution
  - Increases bonding between mother and child
- 

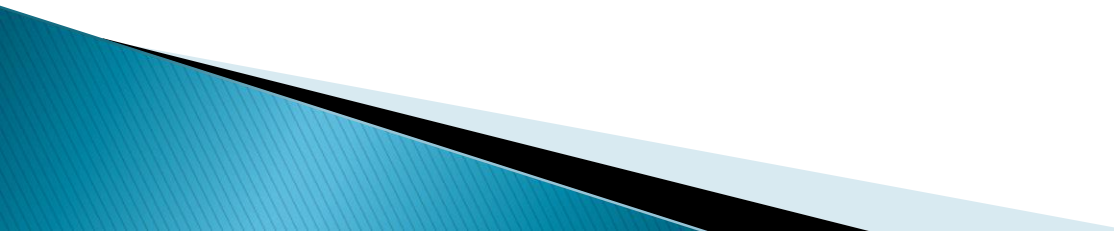
## ❖ **Disadvantages**

- ❑ User-dependent (requires following instructions regarding breastfeeding practices)
  - ❑ May be difficult to practice due to social circumstances
  - ❑ Highly effective only until menses return or up to 6 months
  - ❑ Does not protect against STDs (e.g., HBV, HIV/AIDS)
- 

## **B. Abstinence**

- ▶ Abstinence is a very effective and acceptable method of birth control.
  - ▶ While abstinence could be encouraged, the provider must deal non-judgmentally with a client who wishes to or already engages in premarital sex.
  - ▶ It is important that the patient knows the dangers of unprotected sex which include HIV/AIDS, unwanted pregnancy, unsafe abortion, pelvic infection and cultural isolation.
- 

### **c. Coitus Interruptus/withdrawal**

- ▶ Coitus interruptus is the withdrawal of the penis just before ejaculation occurs so that sperm does not go into the vagina.
  - ▶ It is not a reliable method because there is often pre-ejaculation leakage of sperm which can often lead to pregnancy.
  - ▶ Therefore, this is not a method that can be recommended.
- 

## 1.2. Fertility awareness method

- ▶ Fertility awareness methods (FAM) are methods which use the body's natural physiological changes and symptoms to identify the fertile and infertile phases of the menstrual cycle.
- ▶ The general mechanism of these methods involves avoiding intercourse during the phase of the menstrual cycle when conception is likely.
- ▶ There are 4 main types:
  - a. The rhythm or calendar method
  - b. The basal body temperature (BBT)
  - c. The cervical mucus method (Billings ovulation ) and
  - d. The sympto-thermal method (combination of BBT and Billings Method)

## a. **The Calendar Method**

To calculate the fertile period:

- ▶ Monitor the length of at least 6 menstrual cycles while abstaining or using another contraceptive method.
- ▶ Then calculate the fertile days period by the following method
- ▶ From the number of days in the longest cycle, subtract 11.
- ▶ From the number of days in the shortest cycle, subtract 18. Example: Longest cycle: 30 days minus 11 = 19  
Shortest cycle: 26 days minus 18 = 8
- ▶ The fertile period to be days 8 to 19 of your cycle
- ▶ Abstain from sexual intercourse during the fertile days.

## **b. The Basal Body Temperature (BBT) Method**

- ▶ The hormone progesterone which the ovaries secrete after ovulation induces a slight rise in body temperature which is maintained until menstruation .

### **Method**

- ▶ Take body temperature at about the same time each morning (before rising) and record the temperature
- ▶ The woman should abstain sexual intercourse from the beginning of the menstrual period until the evening of the third consecutive day that the temperature rises 0.5 - 1.0 degree centigrade above the "normal"(0.2-0.4)

## c. Cervical Mucus (Billings) Method

- ▶ The woman should abstain from sexual intercourse for at least one cycle so that she knows the "mucus days".
- ▶ During the dry days after the period, it is safe to have intercourse every other night (Alternate Dry Day Rule). This will keep the client from confusing semen with cervical mucus.
- ▶ The last day of clear, slippery and stretchy mucus is the most fertile time. After this peak day, intercourse should be avoided for the next 3 dry days and nights
- ▶ Beginning on the morning of the fourth dry day, it is safe to have intercourse until the menstrual period begins



#### **d. Sympto-thermal Method**

- ▶ This is a combination of checking a woman's temperature every day and checking her vaginal discharge.

## 2. Barrier Methods

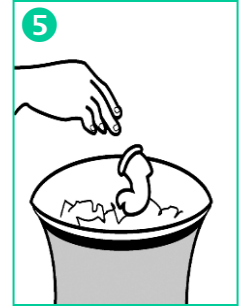
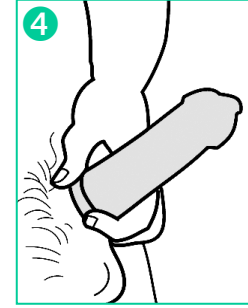
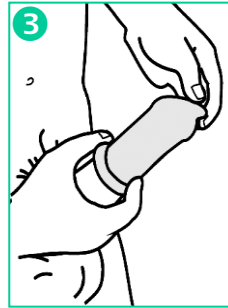
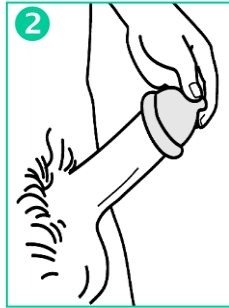
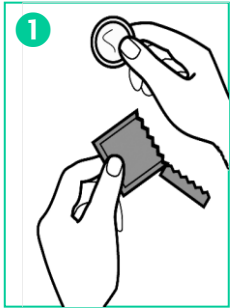
### 1. Male condoms

- A barrier method that reduces the chance for exchange of body fluids
- It is a thin rubber (latex) that is worn over an erect penis during intercourse.
- The benefits include that it is effective immediately, does not affect breastfeeding, can be used as backup to other methods and does not have method related health risks.
- This is the best family planning method that provides protection against GTIs and STDs.
- It is useful in couples in which either partner has more than one sexual partner.

# Male condom cont..

- Can be used alone or with other family planning methods
- Failure rate with routine use is 14% and 3% with consistent use.
- Requires continued motivation and use with each act of intercourse.
- Problems related to condom use include condom breakage, condom slippage, occasional allergy to latex and claim of dulling of sexual sensation.

# How to use a condom



1. Use a new condom for each sex act
2. Place condom on tip of penis with rolled rim facing away from body
3. Unroll condom all the way to base of penis
4. After ejaculation, hold rim of condom so it will not slip off, and withdraw penis from vagina while still erect
5. Throw away used condom properly.

# Do's and Don'ts of Condom Use

- ▶ DO use a condom each and every time.
- ▶ DO check the expiration date.
- ▶ DO check to make certain the wrapping is intact.
- ▶ DO use water-based or silicone-based lubricants, such as KY Jelly, Astroglide, or Eros.

# Do's and Don'ts (continued)

- ▶ DO NOT use a condom more than once.
- ▶ DO NOT use two condoms at the same time. The friction between the condoms may cause them to tear.
- ▶ DO NOT “flip” the condom. If the condom is placed upside down, a new condom must be used.
- ▶ DO NOT use oil-based lubricants (like petroleum jelly or baby oil). They can cause the condom to break.
- ▶ DO NOT use a condom if the individual condom packet is ripped or expired.

# Female condom

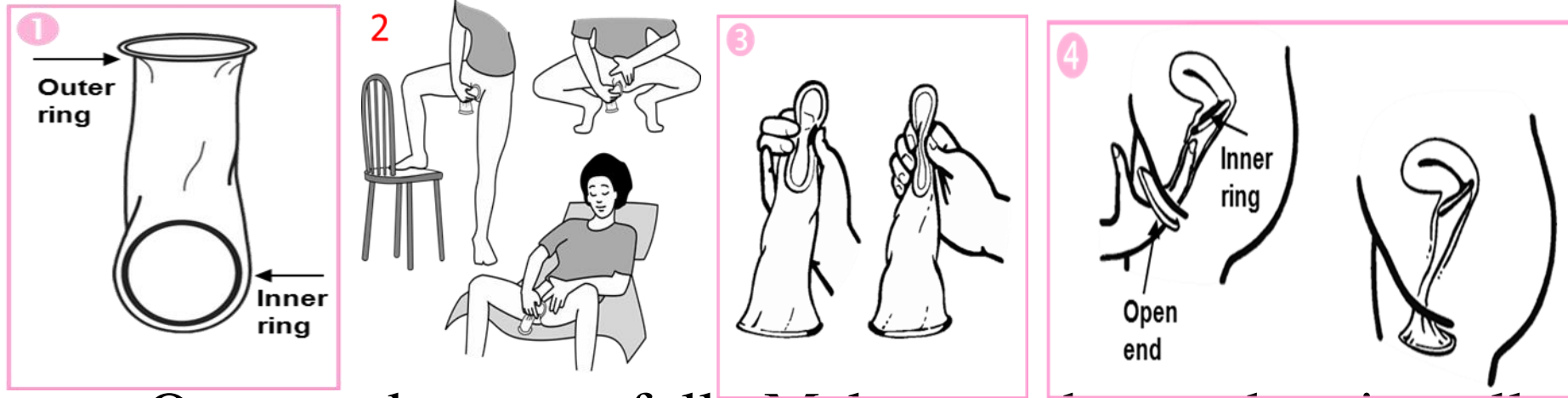
- ▶ It is a strong soft, transparent sheath with two flexible rings at both ends which lines the vagina to create a barrier against sperm and STDs.
- ▶ When condoms are used correctly every time, they are effective in preventing pregnancy.
- ▶ May be less effective than the male condom in preventing pregnancy, HIV and other STIs.
- ▶ Best if inserted before any sexual contact.
- ▶ May be more effective against pregnancy when combined with another method, but can't be used with the male condom.

# Female Condom cont..

- ▶ Also used as back-up for another method of family planning (for example, missed pills, late for injection).
- ▶ More expensive than the male condom and may not be as easily available.



# How to use a female condom



1. Open package carefully Make sure the condom is well-lubricated inside.
2. Choose a comfortable position – squat, raise one leg, sit or lie down
3. Squeeze the inner ring at the closed end

# How to use FC cont..

## 4. Insertion

- ▶ Gently insert the inner ring into the vagina
- ▶ Place the index finger inside condom, and push the inner ring up as far as it will go
- ▶ Make sure the outer ring is outside the vagina and the condom is not twisted
- ▶ Be sure that the penis enters inside the condom and stays in it during intercourse

## 5. Removal

- ▶ twist the outer ring and pull gently and throw away condom properly

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# Spermicides

- Vaginal spermicides are products that have an ingredient (Nonoxynol-9) that kills sperm.
- They are inserted into the vagina before sex to prevent pregnancy.
- Vaginal spermicides are available in jelly, foam and suppository.
- When sperm come in contact with vaginal spermicides they die – pregnancy is not as likely to occur,
- The effectiveness rate depends on consistent and correct use.
- Moderately effective (3-21%)

# Spermicides con..

- ▶ Foams, creams, and jellies may be used as lubricants with condoms.
- ▶ Females who cannot use a hormonal birth control method can use vaginal spermicides.
- ▶ It has Some protection against STDs, contrarily:-
- ▶ Vaginal Spermicides may cause vaginal irritation leading to tiny open areas in the vaginal lining.
- ▶ This can increase the risk of transmitting HIV and other sexually transmitted infections (STIs).

# How to Use Vaginal Spermicides?

- ▶ Check the expiry date.
- ▶ Read and follow the package directions.
- ▶ Insert the spermicide high into the vagina to cover the cervix.
- ▶ Use the correct amount of spermicide.
- ▶ Wait 10-15 minutes (the recommended time) between insertion and sex.
- ▶ Insert an application into the vagina before each time you have sex.
- ▶ Do not bath or douche for at least 6 hours after sex.

# Diaphragms

- ▶ The diaphragm is a shallow, dome-shaped cup with a flexible rim which is made of silicone.
- ▶ It is inserted into the vagina and covers the cervix.
- ▶ Diaphragms prevent pregnancy by keeping sperm from joining with an egg.
- ▶ In order to be as effective as possible, the diaphragm must be used with spermicide cream, gel, or jelly.
- ▶ You can make the diaphragm more effective:-
  - Make sure it covers your cervix before each time you have intercourse.
  - Make sure spermicide is used as recommended.

# Diaphragms cont..

- ▶ Diaphragm is more effective when you use it correctly.
- ▶ If women always use the diaphragm as directed, 6 out of 100 will become pregnant each year.

## Advantage:-

- ▶ It can be carried in your pocket or purse.
- ▶ It can be used during breastfeeding.
- ▶ It can be reusable.
- ▶ It has no effect on a woman's natural hormones.
- ▶ It is immediately effective and reversible.
- ▶ There is no interruption of sex play



Barrier method:  
The diaphragm fits  
over the cervical  
opening, preventing  
sperm from entering  
the uterus

ADAM

# Diaphragms cont..

## Disadvantage

- may be difficult for some women to insert
- may be pushed out of place by some penis sizes, heavy thrusting, and certain sexual positions
- must be in place every time a woman has vaginal intercourse
- may need to be refitted
- Expensive

## N.B

- Keep in mind that diaphragms do not protect you from sexually transmitted infections.



# Cervical caps

- ▶ A silicone cup inserted into the vagina over the cervix to prevent pregnancy.
- ▶ The cervical cap prevents pregnancy by keeping sperm from joining with an egg.
- ▶ In order to be as effective as possible, the cervical cap must be used with spermicide cream or jelly.



Barrier method:  
The cervical cap fits snugly over the cervix, preventing sperm from entering the uterus



# Cervical caps cont..

- ▶ It is more effective for women who have never given birth.
- ▶ For women who have never been pregnant or given birth vaginally, 14 out of 100 who use the cervical cap will become pregnant each year.
- ▶ For women who have given birth vaginally, 29 out of 100 who use the cervical cap will become pregnant each year.
- ▶ Make sure the cervix is covered before each act of intercourse.
- ▶ Make sure spermicide is used as recommended.

N.B: Cervical caps do not protect you from sexually transmitted infections

# 3. Hormonal contraceptives

- ▶ Hormonal contraceptives are methods which are systemic in nature and contain either a progestin combined with estrogen or progestin alone. These methods include
  1. Oral contraceptives
  2. Progestin only injectable
  3. Contraceptive implants

## 3.1. Oral contraceptives

- ▶ Oral contraceptives are pills that a woman takes by mouth to prevent pregnancy.
- ▶ They contain two female hormones, estrogen and progestin (COCs) or progestin only (POPs).

## **A. Combined Oral Contraceptives (COCs)**

### **COCs are available in packets of:**

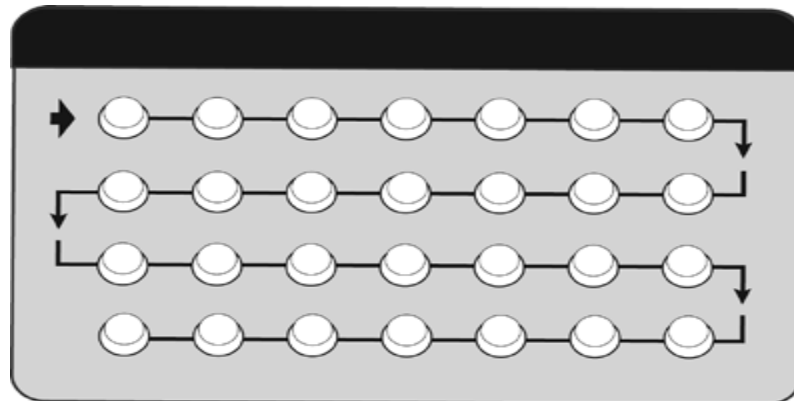
- a) 21 pills, where a pill is taken for 21 days and a break from pill-taking occurs for 7 days before starting a new packet, and
  - b) 28 pills, where a hormonal pill is taken every day for 21 days and the break occurs when seven placebo pills are taken as the last pills in each packet.
- ▶ These pills (28 pill cycle) are commonly used and preferred in our country.
  - ▶ Examples of available pills include Micrgynon.

# Mechanism of Action

- Suppress ovulation
- Thicken cervical mucus, preventing sperm penetration
- Make the endometrium less favorable for implantation
- Reduce sperm transport in upper genital tract.

## Effectiveness

- ❖ When COC pills are used correctly and consistently, their pregnancy prevention rate is greater than 99%.



# Advantages on Contraceptive

- ▶ Highly effective when taken correctly and consistently
- ▶ Effective immediately (after 24 hours)
- ▶ Pelvic examination not required prior to use
- ▶ Do not interfere with intercourse, Convenient and easy to use.
- ▶ Client can stop use any time they want to get pregnant
- ▶ Can be provided by trained non-medical staff

# Advantage of non contraceptive

- ❑ Decreased menstrual flow (lighter, shorter periods)
- ❑ May improve iron deficiency anemia
- ❑ Decreased menstrual cramps
- ❑ May lead to more regular menstrual cycles
- ❑ Protects against ovarian and endometrial cancer
- ❑ Decreases benign breast disease and ovarian cysts
- ❑ Prevents ectopic pregnancy

# Disadvantages

- ▶ User-dependent (require continued motivation & daily use)
- ▶ Some nausea, dizziness, mild breast tenderness or headaches as well as spotting or light bleeding.
- ▶ Effectiveness may be lowered when certain drugs like rifampin phenytoin, and barbiturates are also taken
- ▶ Forgetfulness increases failure
- ▶ Serious side effects (e.g., heart attack, stroke, blood clots in lung or brain, liver tumors), rare cases
- ▶ Does not protect against GTIs or other STDs



# Side Effects

Some users report the following :-

- ▶ Changes in bleeding patterns including (Irregularity, scanty, Infrequent ....)
- ▶ Headaches
- ▶ Dizziness
- ▶ Nausea
- ▶ Breast tenderness
- ▶ Weight change
- ▶ Mood changes
- ▶ Acne (can improve or worsen, but usually improves)

# Contra-indications

- ✓ Pregnancy (known or suspected)
- ✓ Breast-feeding and fewer than 6-8 weeks postpartum
- ✓ Unexplained vaginal bleeding (until evaluated)
- ✓ Active liver disease (viral hepatitis)
- ✓ Age over 35 and smoker
- ✓ History of heart disease, stroke or high BP ( $>180/110$ )
- ✓ History of blood clotting problems
- ✓ Diabetes  $> 20$  years
- ✓ Breast cancer
- ✓ Migraines and focal neurological symptoms.
- ✓ Taking drugs like rifampin ,phenytoin and barbiturates

# Pregnancy Checklist

NO		YES
	1 Did you have a baby less than 6 months ago, are you fully or nearly-fully breastfeeding, and had no monthly bleeding since then?	
	2 Have you abstained from sexual intercourse since your last monthly bleeding or delivery?	
	3 Have you had a baby in the last 4 weeks?	
	4 Did your last monthly bleeding start within the past 7 days (or within the past 12 days if the client is planning to use an IUD)?	
	5 Have you had a miscarriage or abortion in the last 7 days (or within the past 12 days if the client is planning to use an IUD)?	
	6 Have you been using a reliable contraceptive method consistently and correctly?	

If the client answered "no" to *all* questions, pregnancy cannot be ruled out. The client should wait for her next monthly bleeding or use a pregnancy test.

If the client answered "yes" to *at least one* of the questions, and she has no signs or symptoms of pregnancy, you can give her the method she has chosen.

# Managing missed pills

Case	Mgt.
<ul style="list-style-type: none"> <li>➤ Missed 1 or 2 pills?</li> <li>➤ Started new pack 1 or 2 days late?</li> </ul>	<ul style="list-style-type: none"> <li>✓ Take a hormonal pill as soon as possible.</li> <li>✓ Little or no risk of pregnancy</li> </ul>
<ul style="list-style-type: none"> <li>➤ Missed 3 or more pills in the first or second week?</li> <li>➤ Started new pack 3 or more days late</li> </ul>	<ul style="list-style-type: none"> <li>✓ Take a hormonal pill as soon as possible.</li> <li>✓ Use a backup method for the next 7 days.</li> <li>✓ Also, if she had sex in the past 5 days, can consider ECPs (see Emergency Contraceptive Pills,</li> </ul>

# Managing missed pills cont..

Case	Mgt.
➤ Missed 3 or more pills in the third week?	<ul style="list-style-type: none"><li>✓ Take a hormonal pill as soon as possible.</li><li>✓ Finish all hormonal pills in the pack. Throw away the 7 non hormonal pills in a 28-pill pack.</li><li>✓ Start a new pack the next day.</li><li>✓ Use a backup method for the next 7 days.</li><li>✓ Also, if she had sex in the past 5 days, can consider ECPs</li></ul>
➤ Missed any non hormonal(last 7 pills in 28-pill pack)	<ul style="list-style-type: none"><li>✓ Discard the missed non hormonal pill(s).</li><li>✓ Start the new pack as usual.</li></ul>

# Client Instructions

- ▶ Take 1 pill each day, preferably at the same time of day.
- ▶ If you vomit within 30 minutes, taking a pill,
- ▶ If you forget to take a pill, take it as soon as you remember
- ▶ If you miss 2 or more menstrual periods, you should come to the clinic to check to see if you are pregnant.
- ▶ For ordinary headaches she can take aspirin, ibuprofen paracetamol or other pain reliever.
- ▶ If nausea or dizziness take pills at bed time or with food.
- ▶ If persistent and severe problems are happen it is better to visit nearby health facility .

## B. Progestin Only Pills (POPs)

- ▶ As the name indicates the pill only contains progestin.
- ▶ These pills may be used during the breast-feeding period, as they do not reduce milk flow.
- ▶ The low hormone content makes correct intake important.
- ▶ The tablets must be taken at the same time each day without interruption unless contraceptive safety will be reduced.
- ▶ **Mechanism of action**
  - Thickens cervical mucus, preventing sperm penetration
  - Suppresses ovulation
  - Makes the endometrium less favorable for implantation
  - Reduces sperm transport in upper genital tract (fallopian tubes)

# Advantages

## ▶ Contraceptive

- ✓ Effective when taken at the same time every day  $\geq 95\%$
- ✓ Immediately effective (<24 hours)
- ✓ Pelvic examination not required prior to use
- ✓ Does not interfere with intercourse
- ✓ Does not affect breast-feeding
- ✓ Immediate return of fertility when stopped
- ✓ Convenient and easy-to-use
- ✓ Can be provided by trained nonmedical staff
- ✓ No estrogenic side effect



## **Non contraceptive**

- ▶ May decrease menstrual cramps
- ▶ May decrease menstrual bleeding & may improve Iron deficiency anemia
- ▶ Protects against endometrial cancer
- ▶ Decreases benign breast disease

## **Disadvantages**

- ▶ Cause changes in menstrual bleeding pattern (irregularity)
- ▶ Some weight gain or loss may occur
- ▶ User-dependent (require continues motivation and daily use)
- ▶ Must be taken at the same time every day
- ▶ Forgetfulness increases failure
- ▶ Effectiveness may be lowered in some drugs & don't protect GTIs.

## **Contra-indications**

- ▶ Pregnancy (known or suspected)
- ▶ Known or suspected cancer of the reproductive tract & breast
- ▶ Undiagnosed genital tract bleeding
- ▶ severe cirrhosis of the liver, a liver infection, or liver tumor?  
(Are her eyes or skin unusually yellow?[signs of jaundice])
- ▶ Taking drugs like rifampin ,phenytoin, and barbiturates

## **Client Instructions**

- ▶ The same as COCs but:
- ▶ If you take a pill more than 3 hours late, take it as soon as you remember, Use a backup method during sex for 48 hrs.
- ▶ If you miss 2 or more menstrual periods, check pregnancy but not stop taking the pills unless you know you are pregnant.

# Who Can Use Progestin-Only Pills

- ▶ Nearly all women can use POPs safely and effectively, including women who:-
  - Are breastfeeding (starting as soon as 6 weeks after childbirth)
  - Have or have not had children
  - Are of any age, including adolescents and women over 40 years old.
  - Smoke cigarettes, regardless of woman's age or number of cigarettes smoked
  - Have varicose veins

## 3.2. Injectable contraceptives

- ▶ Injectable contraceptives are a systemic progestin preparation administered by IM.
- ▶ The most popular is Depot medroxyprogesterone acetate (DMPA) or Depo Provera which given for 3 month.
- ▶ It is an aqueous solution of suspended micro crystals.
- ▶ Nor ethinodrone -enanthate(NET-EN) which is given in a dose of 200 mg IM every 2 months.
- ▶ It acts in the same way as DMPA and has the same side effect.

## **Mechanism of action**

- ▶ Thickens cervical mucus, preventing sperm penetration
- ▶ Make the endometrium less favorable for implantation
- ▶ Reduces sperm transport in upper genital tract
- ▶ Suppresses ovulation (release of eggs from ovaries)

## **Efficacy**

- ▶ When women have injections on time, less than 1 pregnancy per 100 women using progestin-only injectable over the first year (3 per 1,000 women).
- ▶ Effectiveness depends on getting injections regularly:
- ▶ Risk of pregnancy is greatest when a woman misses an injection.

# Advantages

## ▶ Contraceptive

- Highly effective (0.3-1 %)
- Rapidly effective (<24 hours)
- Intermediate-term method (2 or 3 months per injection)
- Pelvic examination not required prior to use
- Does not interfere with intercourse
- Does not affect breast-feeding
- No supplies needed by client
- Private, no one can tell that the woman is using it
- No estrogenic side effects
- No daily pill taking

## **Non contraceptive**

- ▶ The same as that of POPs and
- ▶ Decreases ectopic pregnancy
- ▶ Helps prevent Uterine fibroids
- ▶ May make seizures less frequent in women with epilepsy

## **Disadvantages**

- ▶ Changes in menstrual bleeding pattern are likely;
- ▶ Amenorrhea after first year of use is normal.
- ▶ User-dependent (must return for injection every 2 or 3 months)
- ▶ Delay in return of fertility (DMPA only)
- ▶ Do not protect against GTIs or other STDs
- ▶ May cause headaches, breast tenderness, moodiness, nausea, hair loss, less sexual drive or acne in some women

# Indication

Nearly all women can use progestin-only injectable safely and effectively, including women who:

- Have or have not had children
- Are of any age, including adolescents & women over 40 years old
- Have just had an abortion or miscarriage
- Smoke cigarettes, regardless of woman's age or number of cigarettes smoked
- Are breastfeeding (starting as soon as 6 weeks after childbirth).
- Are infected with HIV, whether or not on antiretroviral therapy.
- At least 1 year of birth spacing desired.



# Contraindication

- Pregnancy
- Undiagnosed DUB or unexplained vaginal bleeding
- Liver disease
- Breast cancer
- Severe cardiovascular disease(MI)
- Severe depression
- Rapid return of fertility desired(some did not recommend for a women having no children or less than 2 children even though its proved it does not cause infertility).

# Key Points for Providers and Clients

- ▶ Bleeding changes are common but not harmful.
- ▶ Typically, irregular bleeding for the first several months and then no monthly bleeding.
- ▶ Return for injections regularly. Coming back every 3 months (13 weeks) for DMPA or every 2 months for NET-EN is important
- ▶ Injection can be as much as 4 weeks early or late.
- ▶ Gradual weight gain is common.
- ▶ Return of fertility is often delayed.

# Developing and Implementing a Monitoring & Evaluation Plan

# Objectives of the Session

By the end of this session, participants should be able to:

- ▶ Describe the resources and capacity necessary for developing and implementing an M&E plan
- ▶ Understand the key steps in the process of developing & implementing an M&E plan
- ▶ Describe how M&E findings can be effectively disseminated and utilized
- ▶ Assess how an M&E plan is working

# Overview of the Session

- ▶ Standards for an M&E plan
- ▶ Resource & capacity for an M&E plan
- ▶ Steps in developing & implementing an M&E plan
- ▶ Disseminating and using M&E findings
- ▶ Assessing how well the M&E plan is working

# Standards for an M&E plan

# Standards for an M&E Plan

- ▶ **Utility** – serve practical information needs of intended users
- ▶ **Feasibility** – be realistic, prudent, diplomatic and frugal
- ▶ **Propriety** – conducted legally, ethically, and with regard to those involved in and affected by the evaluation
- ▶ **Accuracy** – reveal and convey technically accurate information

# Capacity and Resources for M&E



# Capacity and Resources for M&E

- ▶ Technical capacity for M&E
  - M&E unit
  - Strategically located individuals who are motivated, committed, competent and interested in M&E
- ▶ Scale of program funding and resources for M&E
  - 10 percent of resources devoted to M&E
  - Costs related to data collection systems & information dissemination
  - Costs may be higher during the first year
  - Other resources include indicator guides, manuals, communication tools

# Key steps in developing an M&E plan

# Key Steps in Developing & Implementing an M&E Plan

## STAKEHOLDER CONSULTATION & PARTICIPATION

- Define process for stakeholder involvement
- ▶ Translate problem statement, program goals and objectives into M&E frameworks
  - Establish scope of the M&E plan
- ▶ Develop M&E Framework
  - Determine elements to be monitored and evaluated
- ▶ Define indicators and identify data sources
- ▶ Determine M&E methods for data and information collection
  - Develop data collection plan
  - Determine M&E responsibilities
- ▶ Set targets
- ▶ Define reporting system, utilization and dissemination of results
- ▶ Plan for mid-course adjustments

# Stakeholder Consultation

- ▶ Advocate for the need for M&E
- ▶ Understand program goals and objectives
- ▶ Identify user needs and perspectives
- ▶ Learn about existing data collection systems & their quality
- ▶ Understand indicators that are being collected and used (or not used)
- ▶ Determine capacity for collecting and using data

# Stakeholder Participation

- ▶ Developing M&E framework
  - ▶ Selecting indicators
  - ▶ Setting targets
  - ▶ Reviewing results
- 
- ▶ Requires building consensus & commitment and maintaining effective relationships with intended users

# Exercise: Describe a Process to Involve Stakeholders

- ▶ Who are the stakeholders?
- ▶ When will they be involved?
- ▶ How will they be involved?
- ▶ What challenges might arise?
- ▶ How will you address those challenges?

# Translating Program Goals and Objectives → M&E Frameworks

- Translate problem statement, program goal and objectives into frameworks that can be objectively measured
  - What do we want to know at the end of the program?
  - What do we expect to change by the end of the program?
- M&E framework outlines the scope of the M&E plan
  - Links program activities to expected outputs, outcomes, and population-level impacts
  - Informs types of information to be collected/used by different levels of the health system
  - Identifies what needs to be measured to guide indicator selection

# Elements to be Monitored & Evaluated

## ▶ Monitoring:

- Resources (inputs)
- Quality of service
- Service statistics
- Service coverage
- Client/patient outcomes (behavior change/morbidity)

## ▶ Impact evaluation:

- Attributing the change in outcomes to the program



# Developing M&E Framework

- ▶ Review program documents with stated goals and objectives
- ▶ Ensure that key factors that may influence program implementation and success are identified
- ▶ Achieve consensus among stakeholders

# Defining Indicators & Identifying Data Sources

Indicators must be:

- ▶ SMART
- ▶ Linked to M&E framework
- ▶ Useful for program decision-making
- ▶ Consistent with international standards & other reporting requirements (as appropriate)
- ▶ Realistic to collect (feasible)

Data sources:

- ▶ Existing vs. new

# Determining M&E Methodology

- ▶ Assess information systems capabilities to address strategic information needs
- ▶ Determine methods by which data will be collected, analyzed and reported
  - E.g., RHIS, surveys, sentinel surveillance systems, project information systems/records, new data collection
- ▶ Determine whether any special studies will be conducted and what design will be used
  - E.g., Qualitative, quantitative or combination of both

# Assigning M&E Responsibilities: Implementing the M&E Plan

## Monitoring data

- Who will collect data?
- Who will analyze data?
- Who will report data?

## Special studies

- Who will oversee data collection?
- Who will conduct analysis and reporting?
- Is anyone else planning a similar evaluation?

# Role of the M&E Unit

- ▶ Consensus building among all stakeholders
- ▶ Coordination
  - between various program components
  - between other stakeholders (avoid duplication of data collection)
- ▶ Data manipulation
- ▶ Reporting
- ▶ Information dissemination and review

# Data Collection Plan/Matrix

- ▶ Indicators
- ▶ Who responsible
- ▶ Timing
- ▶ Data quality notes

# Class Activity: Data Collection Plan

DEVELOP A DATA COLLECTION MATRIX FOR YOUR PROGRAM.  
CONSIDER THE FOLLOWING ISSUES:

- ▶ Who will be responsible for data collection and its supervision?
- ▶ Who will be responsible for ensuring data quality at each stage?
- ▶ How will data quality be checked at every stage?
- ▶ How often will the data be collected, compiled, sent, and analyzed?
- ▶ What indicators will be derived from each data source?
- ▶ How will the data be sent (raw, summary)?
- ▶ What tools/forms will be used, if any?
- ▶ What resources (staff, office supplies, computers, transportation) will be needed at each stage?
- ▶ Who will analyze the data? How often will analysis occur?
- ▶ How often will the results be compiled into reports?
- ▶ To whom and how often will the results be disseminated?

# Setting Targets

- ▶ Focus on what the program should achieve
- ▶ Orient stakeholders to the task to be accomplished
- ▶ Motivate individuals
- ▶ Monitor whether anticipated progress is being made



# Factors to Consider When Setting Targets

- ▶ What can realistically be achieved given the resources and the program context?
  - Baseline levels
  - Past trends
  - Needs and gaps in services
  - capacity and logistics

# Approaches to Setting Targets

- ▶ Establish final target then plan progress in between
- ▶ Establish annual/intermediate targets
- ▶ Assess progress in attaining targets and readjust, if necessary

# Useful Information for Setting Targets

- ▶ Past trends
- ▶ Expert opinions
- ▶ Research findings
- ▶ What has been accomplished elsewhere
- ▶ Client expectations

# Developing a Data Dissemination & Utilization Plan

- ▶ Define users of M&E findings
- ▶ Define feedback mechanism to meet user needs
  - Strategically timed user meetings/workshops
  - Annual report and review meeting
  - Database to manage data and facilitate access and use (e.g., PIMS, DSS)

# Planning for Mid–Course Adjustments

- ▶ Program changes can affect the M&E plan performance monitoring and impact evaluation
- ▶ Internal M&E capacity facilitates adjustments
- ▶ Flexibility and regular review of program results necessary

# How Well is the M&E Plan Working?

- ▶ Are M&E activities progressing as planned?
- ▶ Are the evaluation questions being answered sufficiently?
- ▶ Have other evaluation questions been raised and should they be incorporated into the plan?
- ▶ Are there any methodological or evaluation design issues that need to be addressed?
- ▶ Are there any outside factors (political, environment) that are affecting the plan?
- ▶ Are appropriate staff and funding still available to implement the M&E plan?
- ▶ Are M&E finding being disseminated and used by stakeholders for decision making and program improvement?

Remember that an M&E plan is a living document and needs to be adjusted when a program is modified

# Developing & Implementing an M&E Plan: Logic Model

## Inputs

- Human resources
- Understanding of the program
- Authority and mandate
- Stakeholders

## Processes

- Advocate
- Assess strategic information needs
- Assess information systems capabilities
- Achieve consensus and commitment
- Develop mechanism for M&E plan review
- Prepare document for final approval

## Output

- M&E Plan Document

## Outcomes

### Short-term

- M&E System for obtaining Strategic Information decision making

### Long-term

- Evidence-based decisions for improving programs

### Impacts

Improved health status



# Summary: The Basics

- ▶ Start early
- ▶ Involve stakeholders at all stages in the process
- ▶ Assess strategic information needs for intended users
- ▶ Assess current capacity and use what is already available
- ▶ Avoid duplication of data collection and reporting
- ▶ Do not collect information that will not be used
- ▶ Review progress/results regularly and make adjustments to M&E plan, if necessary

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# Amenorrhea

- ▶ Definition:

1. Primary: : –no menstruation by 14  
–absence of normal growth  
–absence of development of secondary sex

Primary –no menses by the age of 16  
–normal growth  
–normal secondary sex characteristics

2. Secondary:–absence of menses for a period of three monthly cycles  
–for at least 6 months in a woman menstruating previously

# Classification & Aetiology

1. Physiological  
premenarchal  
pregnancy  
lactation  
perimenopausal  
postmenopausal

# Cont..

## 2.Pathological:

Primary:

gonadal dysgenesis/agenesis

genital tract abnormalities

intersex

GRH deficiency

## Secondary:

- A deficiency of or disturbed regulation of gonadotrophins
  - i.Functional: stress, weight loss, chronic diseases, idiopathic
  - ii.Pituitary causes
    - ▶ Hyperprolactinaemia
    - ▶ Tumours

- ▶ Ovarian causes–PCO, functioning ovarian tumour, destruction of ovary by irradiation, chemotherapy and/immunotherapy; premature menopause, the resistant ovary syndrome, oophorectomy
- ▶ Uterine causes: Asherman's syndrome, endometrial ablation, hysterectomy, cervical stenosis
- ▶ Adrenal tumour or hyperplasia
- ▶ Drugs–danazol, gestrinone

# Aetiology of Galactorrhoea

- 1 Physiological Hyperprolactinaemia
  - stress
  - excessive exercise
  - chest trauma
  - Herpes zooster



# Cont..

## Pathological hyperprolactinaemia

- hypothalamic pathology
- pituitary prolactinomas
- hyperplasia of the lactotroph cells of the pituitary
- acromegaly
- renal failure
- primary hypothyroidism
- Cushing's disease
- liver cirrhosis

### 3. Drugs

- ▶ Phenothiazines
- ▶ Reserpine
- ▶ Methyldopa
- ▶ Tricyclic antidepressants
- ▶ Oestrogen
- ▶ Certain tranquilizers
- ▶ Narcotic analgesics
- ▶ General anaesthesia

# Amenorrhoea–galactorrhoea Syndrome

- ▶ Frequently caused by micro–adenomas of the pituitary–Forbes–Albright syndrome
  - i. The Chiari Frommel syndrome following pregnancy
  - ii. The Ahumada Del Castillo syndrome in the absence of pregnancy

# The assessment

## History

A good history can reveal the etiologic diagnosis in up to 85% of cases of amenorrhea.

# History

Galactorrhea

hot flashes, breast atrophy and **decreased** libido

Certain medications

A large amount of weight loss or **gain**  
**Anorexia nervosa**

Cushing's disease and hypothyroidism

**Sheehan's syndrome.**

Asherman's syndrome

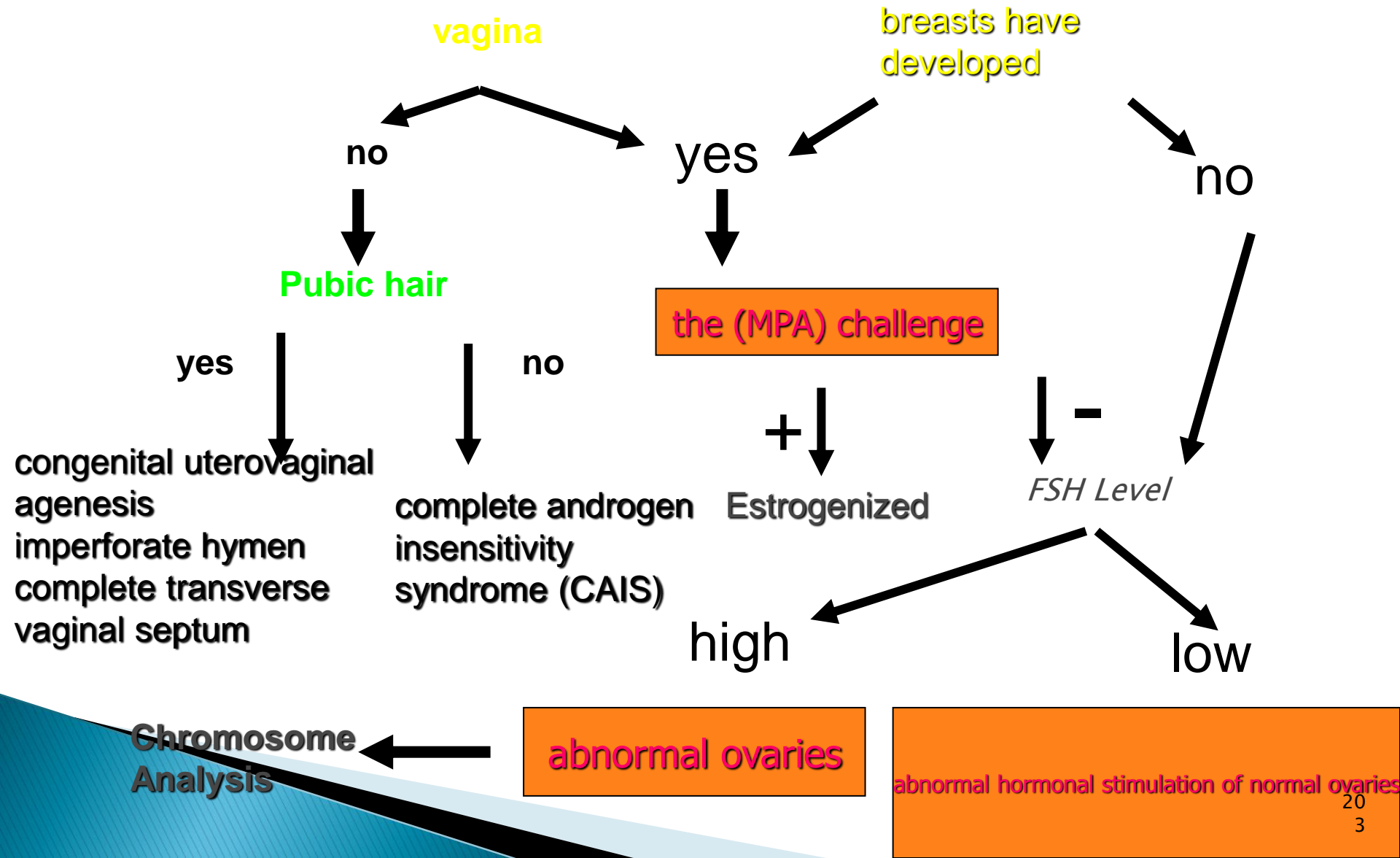
Amenorrhea following cervical **conization**

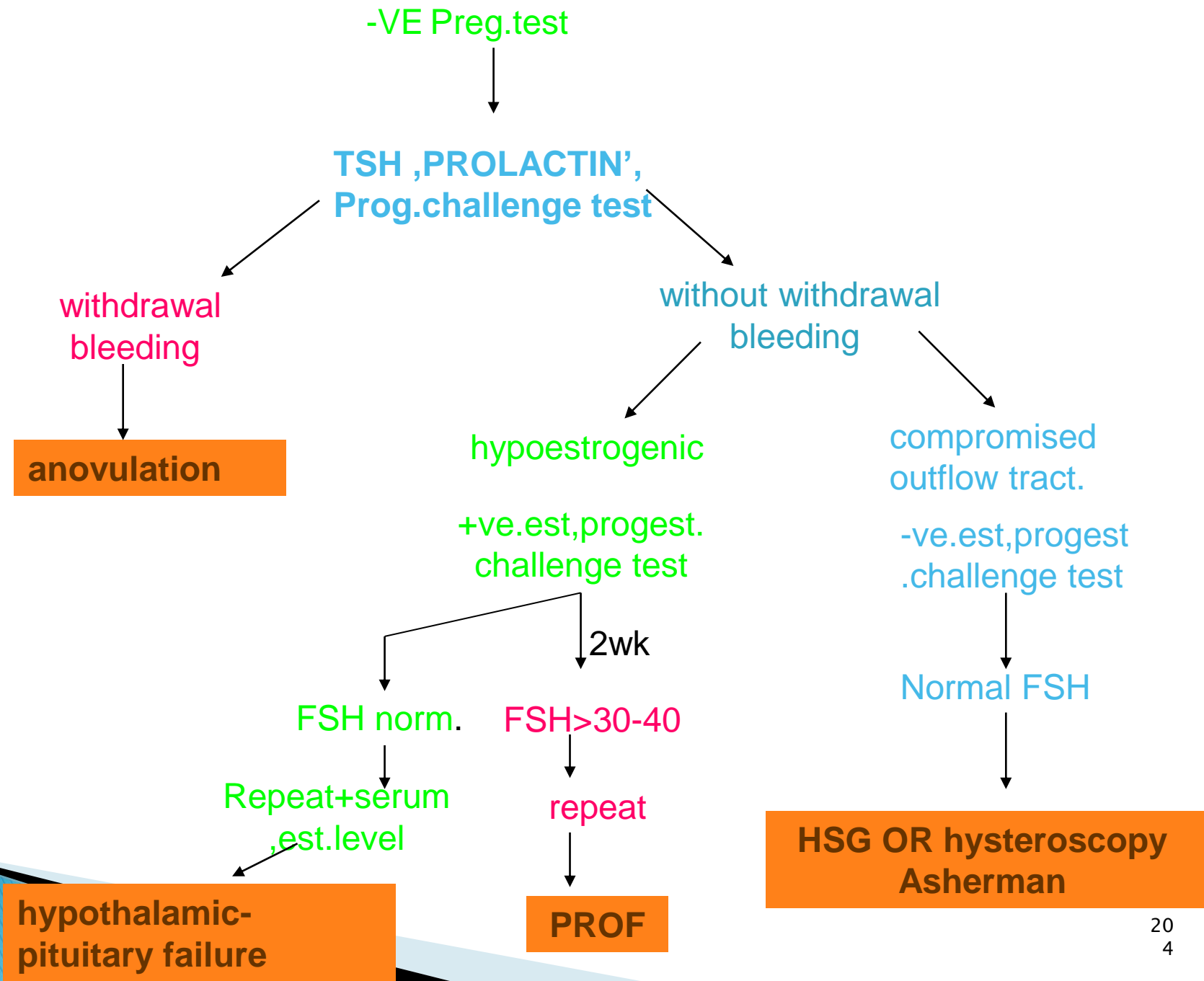
Following discontinuation of oral contraception

# *Physical examination*

- ▶ Signs of androgen excess
- ▶ The breast exam may reveal galactorrhea
- ▶ Estrogen deficiency may be suggested on pelvic exam by a smooth vagina that lacks the normal rugae (wrinkles) and a dry endocervix with no mucous

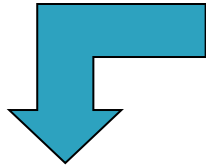
# Primary amenorrhea







# Ovarian failure (premature menopause)

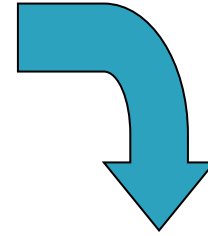


**chromosomal anomalies**



**If the woman is under 30, a karyotype should be performed to rule out any mosaicism involving a Y chromosome.**

**If a Y chromosome is found the gonads should be surgically excised.**



**autoimmune disease**



**it is prudent to screen for thyroid, parathyroid, and adrenal dysfunction**

**Laboratory evidence of autoimmune phenomenon is much more prevalent than clinically significant disease**

# Investigation

- ▶ detailed history
- ▶ pertinent general/ gyn. examination
- ▶ special tests
  - barr bodies
  - karyo typing
- ▶ hormonal Assay (PRL, TFT, GRH)
- ▶ serum electrolytes
- ▶ progestagen withdrawal test
- ▶ HSG, hysteroscopy, US
- ▶ pregnancy test
- ▶ endometrial and gonadal biopsy
- ▶ pituitary fossa imaging
- ▶ IVP

# Management of Specific Causes

i. Pituitary tumours causing hyperprolactinaemia  
Treat with:

- ▶ Bromocriptine ( a dopamine agonist)
- ▶ Metergoline ( dopaminergic & antiserotonergic activities)
- ▶ Surgical removal

ii. Menstruating women with galactorrhoea  
Treat with: Cyclic progestogen

iii. Sheehan's syndrome

Specialized treatment!

#### iv. Faulty end-organ or blocked outflow tract

- ▶ Cryptomenorrhoea  
Surgical excision under general anaesthesia
- ▶ Mayer Rokitansky–Kuster Hauser Syndrome  
Vaginoplasty

- v. The testicular feminization syndrome  
(Androgen insensitivity)
  - ▶ Surgical removal of the testes
  - ▶ HRT
  - ▶ Vaginoplasty
  - ▶ DO NOT TELL THEM THEY ARE WOMEN
  - ▶ NEVER GET PREGNANT

## vi. The Asherman syndrome

- ▶ Hysteroscopic lysis of the adhesions
- ▶ Foley catheter or IUCD
- ▶ Antibiotics
- ▶ High dose oestrogen



vii. Ovarian failure ( Hypergonadotropic am.)

- ▶ Turner's syndrome – ERT
- ▶ Swyer's syndrome – Gonadectomy
- ▶ Gonadal agenesis –specialized Rx
- ▶ Resistant Ovary syndrome ( Savage)– ERT
- ▶ Premature menopause–ERT, ART
- ▶ Iatrogenic ovarian failure–explain

## viii. Hypothalamic causes of amenorrhoea

- ▶ Stress, loss of weight, exercise, pseudocyesis
- ▶ Postpill amenorrhoea
- ▶ Kallmann's syndrome–HRT
- ▶ Injuries & tumours of the hypothalamus–specialized Rx
- ▶ Systemic diseases (haechromatosis, Fanconi's syndrome)

ix. Genital tract infections – ( Tb,  
Schistosomiasis)

x. Painless amenorrhoea – painless missed  
abortion

# autoimmune related dysfunction

- ▶ The most common association is with thyroid disease, but the parathyroids and adrenals can also be affected.
- ▶ Several studies have shown laboratory evidence of immune problems in about 15–40% of women with premature ovarian failure.
- ▶ In general, ovarian biopsy is not indicated in patients with premature ovarian failure since no clinically useful information will be obtained.

# Hypothalamic–pituitary failure

- ▶ Patients who do not bleed after the progestin challenge but do after estrogen/progestin and have normal or low FSH and LH levels

# Hypothalamic–pituitary failure

**Some medications (e.g. phenothiazines) as well as extremes of weight loss, stress or exercise can cause this type of secondary amenorrhea.**

**A pituitary or hypothalamic tumor would be a rare finding in these patients who were all screened with prolactin levels at the beginning of the diagnostic evaluation.**

**However, if there is no cause apparent from the history, it would be prudent to obtain a baseline CT (or MRI) evaluation of the sellar region to rule out a space occupying lesion.**

# Hypothalamic–pituitary failure

Patients with normal prolactin levels and normal imaging studies have hypothalamic amenorrhea of uncertain etiology.

If the amenorrhea and lack of withdrawal bleeding persists, prolactin levels should be measured annually since a small microadenoma could be present that is escaping laboratory and radiographic detection.

# Hypothalamic–pituitary failure

In this condition, as well as in the other hypothalamic amenorrhea situations, the patients can be significantly hypoestrogenic (a low estrogen situation similar to menopause). If the state is persistent, hormone replacement therapy should be considered for protection against osteoporosis., counsel the patient that hormonal replacement therapy is indicated



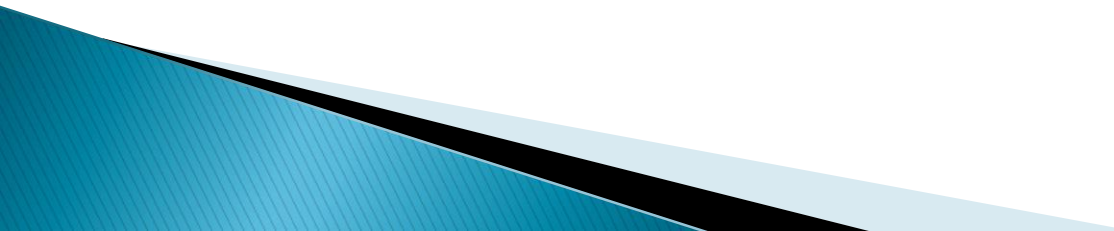


## ► Infertility

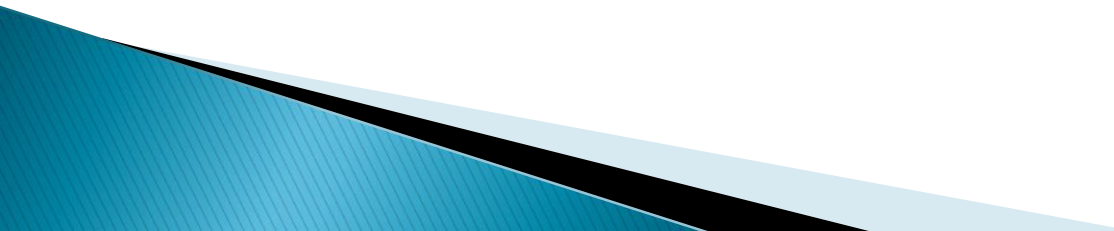
# DEFINITION

- ▶ Infertility is defined as the inability to conceive despite regular unprotected intercourse over a specific period of time, usually 1–2 years.
- ▶ The period of time varies dependant on the circumstances for each couple e.g. Age of woman, previous abdominal surgery, cancer treatment.

# infertility

- I) Definition:– failure to conceive after one year of regular unprotected normal sexual intercourse.
  - II) classification:– primary vs secondary
    - ▶ Primary infertility:– in which no pregnancy occurred irrespective of site or duration of pregnancy.
    - ▶ Secondary infertility:–prior history of pregnancy not necessarily alive birth has occurred.
- 

# Fecundability vs fecundity

- ▶ Fecundability :\_ is probability of achieving pregnancy with single cycle
  - ▶ Fecundity:- is probability of achieving of alive birth with single cycle.
  - ▶ Fecundability of normal couple has been estimated at 20–25% on the basis of this estimated approximately 80–90% couple should conceive after 12 months of unprotected sexual intercourse.
- 

# CHANGES IN PREVELENCE

- ▶ Infertility and subfertility is likely to increase
- ▶ Increased incidence of sexually transmitted diseases
- ▶ Women are delaying childbearing
- ▶ In 1977 the proportion of births to women over 30 was 23%
- ▶ In 2007 the proportion was 48%

# INCIDENCE

- Couples who are concerned about their fertility should be informed that about 84% of couples in the general population will conceive within one year,

if they do not use contraception and have regular sexual intercourse.

- Of those who do not conceive in the first year, about half will do so in the second year (cumulative 92% rate)

# HISTORY– From the woman

- ▶ **The woman's age** (fertility decreases with age).
- ▶ **Children** born to the woman, and previous pregnancies and miscarriages (with the same or a different partner). It is important to consider a new partner's fertility history.
- ▶ **Length of time** trying to conceive.
- ▶ **Frequency of sexual intercourse** (including any difficulties with intercourse), as the chances of conception improve with regular sexual intercourse.
- ▶ **Length of time since stopping contraception** and type of contraception. Check that there are no problems that may explain the

# History– from the woman

- ▶ **History and symptoms that may indicate ovulatory problems:**
  - **Menstrual cycle details**, including length of cycle and menorrhagia. Oligomenorrhoea or amenorrhoea may indicate lack of or infrequent ovulation. Ask about symptoms and signs of ovulation (e.g. ovulatory discomfort, dysmenorrhoea).
  - **Galactorrhoea or hirsutism.**
  - **Systemic disease**, including thyroid dysfunction, diabetes, and inflammatory bowel disease.
  - **Excessive exercise, weight loss, or psychological distress.**



# History-cont

- ▶ History and symptoms that may indicate tubal, uterine, or cervical factors:
- ▶ **Symptoms of pelvic inflammatory disease or endometriosis, such as dyspareunia and dysmenorrhoea.**
- ▶ **History of sexually transmitted diseases or pelvic inflammatory disease.**
- ▶ **Cervical smear history (including any investigations or treatment for an abnormal smear) and previous pelvic surgery, such as appendicitis, ovarian cyst.**
- ▶ **Intermenstrual or postcoital bleeding.**

# History from the man

- ▶ Past medical history– severe illnesses, mumps after puberty
- ▶ Past history of STIs
- ▶ Previous surgery e.g. Orchidopexy
- ▶ Any previous children
- ▶ Drug history–prescribed and recreational

# Examination

- ▶ Weight
- ▶ Pelvic examination
- ▶ Note any features of PCOS
- ▶ Man
- ▶ Weight
- ▶ Scrotum–testis, varicococles, penis
- ▶ Observe secondary sexual characteristics

# Management–general advice

- ▶ Involve both partners in all aspects of management. Discussion of wishes, plans, beliefs, and motives is important.
- ▶ Offer information about normal patterns of conception. For many couples, this will provide reassurance that they have a good chance of conception and may be all that they need.

- ▶ In general, do not advise investigations for infertility until the couple has been unable to conceive after 1 year of unprotected intercourse.
- ▶ Advise regular sexual intercourse (two or three times weekly) throughout the woman's cycle; this should ensure that intercourse falls within the fertile period. Do not recommend the use of temperature charts or luteinizing hormone detection methods

# Management–weight

- ▶ Advise women to aim for a body mass index (BMI) of 19–25 kg/m<sup>2</sup>:
  - In particular, encourage weight loss in women with a BMI greater than 29 kg/m<sup>2</sup>, as weight loss is likely to increase their chance of ovulation and therefore conception.
  - Advise women with a BMI less than 19 kg/m<sup>2</sup> and either amenorrhoea or irregular menstruation that gaining weight is likely to increase their chance of conception.
- ▶ Inform women that participating in a group programme involving exercise and dietary advice increases the chances of pregnancy.

# General Advice

- ▶ Inform couples that stress in either partner can affect their relationship and is likely to reduce libido and frequency of intercourse, which can contribute to fertility problems.
- ▶ Provide up-to-date information. Information on infertility is often available locally.

# Management–smoking

- ▶ Advise women who smoke that smoking is likely to reduce their fertility.
- ▶ Advise women that passive smoking is likely to reduce their chances of conceiving.
- ▶ Advise men that smoking is associated with reduced semen quality and that stopping smoking will improve their general health.
- ▶ Offer women and men referral to a smoking cessation programme.



# Management–Alcohol

- ▶ Inform women that evidence is inconsistent on the effect of alcohol on fertility, but alcohol poses a definite risk to the fetus, and the Department of Health now recommends consumption of no alcohol at all whilst trying to conceive. Women who choose to drink should consume no more than 1–2 units of alcohol once or twice weekly and should not get intoxicated, to minimize risk to the baby.

# Cont..

- ▶ Inform men that alcohol consumption within the Department of Health's recommendations of 3–4 units daily is unlikely to affect their fertility. Excessive alcohol consumption can be detrimental to semen quality.

# Management–others

- ▶ Inform women and men that there is no consistent evidence of an association between consumption of caffeinated beverages and fertility problems.
- ▶ Inform men that although an elevated scrotal temperature is associated with reduced semen quality, it is uncertain whether wearing loose–fitting underwear improves semen quality.

# Cont..

- ▶ Advise people trying to conceive that the effectiveness of complementary therapies has not been properly evaluated, and these therapies are not recommended.
- ▶ Advise women and men that the use of illicit drugs may affect fertility. Offer users of illicit drugs referral to a specialist drugs and alcohol service.

# Infertility –Investigations

- ▶ Start investigations in couples who have not conceived after 1 year of regular unprotected sexual intercourse (i.e. semen analysis or assessment of ovulation, or both).
- ▶ Offer investigations earlier than 1 year to couples who have been identified as less likely to conceive.
- ▶ Early investigations may be prompted by the same factors that may prompt an early referral.

# Investigations in a Women

- ▶ Measure mid-luteal phase progesterone in all women to confirm ovulation.
- ▶ The sample should be taken 7 days before the expected period (day 21 in a 28-day cycle).
- ▶ The following additional tests may be needed:
- ▶ In women with prolonged irregular menstrual cycles, depending on the timing of menstrual periods, serum progesterone may need to be measured later (e.g. on day 28 of a 28-day cycle) to confirm ovulation.

# Cont..

- ▶ In women with irregular menstrual cycles, measure serum gonadotrophins (follicle-stimulating hormone and luteinizing hormone).
- ▶ In women with symptoms of thyroid disease, perform thyroid function tests.
- ▶ In women with an ovulatory disorder, galactorrhoea, or a suspected pituitary tumour, measure prolactin.
- ▶ Screen for chlamydia.

# Investigations in a Man

- ▶ Arrange for semen analysis.
  - If the result of the first semen sample is normal, there is no need to do a repeat confirmatory test.
  - If the result of the first semen sample is abnormal, order a repeat test:
    - Testing should ideally be repeated 3 months after the initial test, to allow time for the cycle of spermatozoa to be completed.



## Cont..

- It may be appropriate to test earlier (e.g. if the man is very anxious regarding the test result and prefers to have the test done earlier). In these circumstances, or if there is a gross spermatozoa deficiency (azoospermia or severe oligospermia), perform the repeat test within 2–4 weeks.
- If the repeat test result is normal, the semen should be regarded as normal and no further testing is required.
- Men who have two abnormal semen examination results should be referred for further assessment.
- Screen for chlamydia.

# Infertility –Referral

- ▶ Referral criteria for people presenting with infertility may vary among health authorities.
- ▶ If the woman is younger than 35 years: in general, consider referral if history, examination, and investigations are normal in both partners and the couple has not conceived after 18 months.
- ▶ **Provide earlier referral for women 35 years of age or older or if an abnormality in the history, examination, or investigations suggests that earlier secondary care involvement is required.**

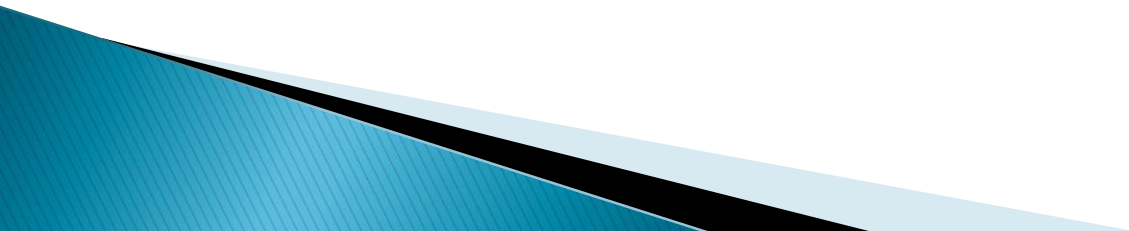
# TREATMENTS AVAILABLE

- ▶ Ovulatory problems – clomiphene
  - ▶ Tubal problems –
    - Sperm abnormality –  
ICSI (intracytoplasmic sperm injection)
- ▶ Intra-uterine insemination for mild male factor problems, unexplained infertility or mild endometriosis

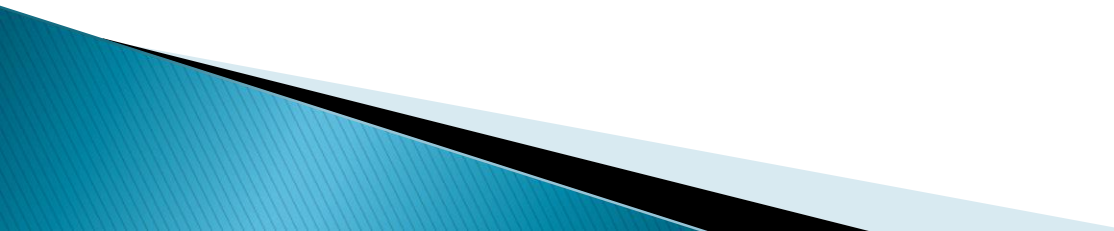
# PSYCHOLOGICAL EFFECTS OF FERTILITY PROBLEMS

- Stress within the relationship
- Offer details of fertility support groups
- People who experience fertility problems should be offered counselling because the investigations and treatment of fertility problems, can cause psychological stress
- Counselling may be required before, during and after investigation and treatment

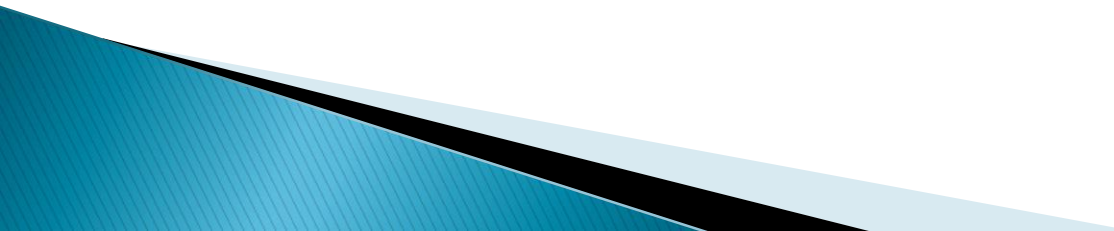
# Infertility,,2012



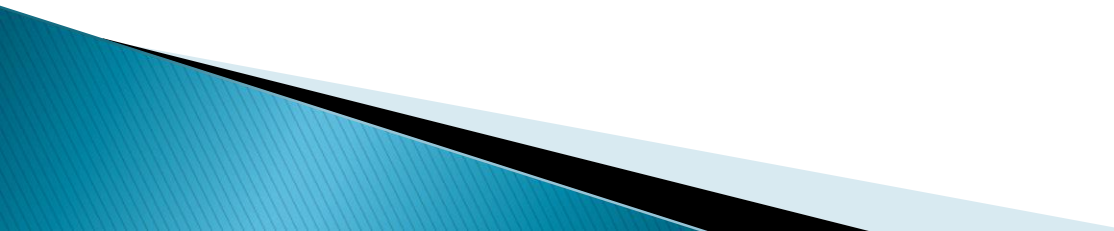
# infertility

- I) Definition:– failure to conceive after one year of regular unprotected normal sexual intercourse.
- II) classification:– primary vs secondary
- ▶ Primary infertility:– in which no pregnancy occurred irrespective of site or duration of pregnancy.
  - ▶ Secondary infertility:–prior history of pregnancy not necessarily alive birth has occurred.
- 

# Fecundability vs fecundity

- ▶ Fecundability :\_ is probability of achieving pregnancy with single pregnancy.
  - ▶ Fecundity:- is probability of achieving of alive birth with single cycle.
  - ▶ Fecundability of normal couple has been estimated at 20–25% on the basis of this estimated approximately 80–90% couple should conceive after 12 months of unprotected sexual intercourse.
- 

# Prevalence & epidemiology

- ▶ 10–15% couple affected by infertility, in developing countries even higher( high rate of STD, post-abortion sepsis, post-partum sepsis and tuberculosis).
  - ▶ Despite availability of ARTs the prevalence remain the same,( only 43% seek medical care, 24% specialized care, fewer than 2% seek ARTs).
  - ▶ 1 / 3 women in USA, report 12 months unprotected intercourse without pregnancy
- 



# Contii..

- ▶ Although prevalence infertility remains the same % of the women with primary infertility is increase from time to time.
- ▶ 1:6 in 1965 G.C, to 1: 2 in 1988 G.C.

## v) Factors affecting infertility

1) age : association with decline of infertility is strong. Peak age for female (25 yrs) for male ( 35 yrs)

\* 30 % of infertility couple, age female partner(35–44yrs).

# Conti...

- ▶ Pregnancy rate after insemination also decline with age ( 74%) in women younger than 30 yrs, 60 % in women in 30–35 yrs and 54% in women older than 35 yrs.

## 2) oocyte depletion:–

- ▶ Age related decline in oocyte competence attributable to infertility.
- ▶ Age of oocyte matter as compared to age of endometrial.

# Contii...

## 3) spontaneous abortion:–

- ▶ Decline in fecundity in older reproductive age group, increase risk of spontaneous abortion.
- ▶ Increased loss rate coupled with reduced chance of conception rate significantly reduce fecundity in women older than 40 years.

## 4) duration infertility: inversely proportional to success of treatment.

## 5) male factor: peak is at 35 yrs, sharply decline after 45 yrs but men fathered children in their 80s.

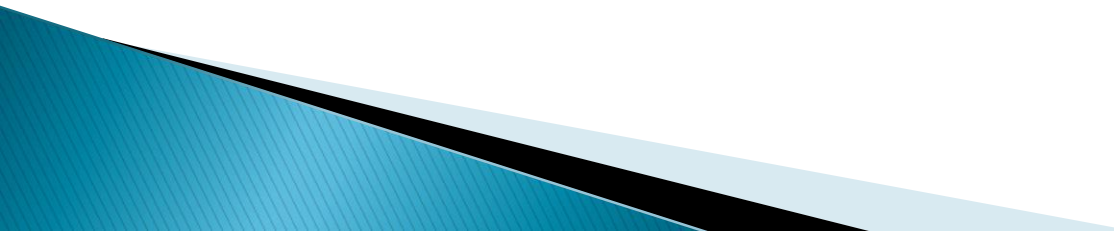
# Contii...

- ▶ Chromosomal trisomy also appears to be related to paternal age.(autosomal disorders achondroplasia. Schizophrenia).

IV) Global relative prevalence of etiology of infertility.

- |                            |           |
|----------------------------|-----------|
| a) male factor only        | ( 25–40%) |
| b) female only             | ( 40–55%) |
| c) Both                    | (10%)     |
| d) unexplained infertility | (10%)     |

# Contii...

- ▶ Criteria for investigation: couples of reproductive age group fails to conceive after one year normal sexual practice with out contraception.
  - ▶ Initial visit must include both unless it is affecting privacy of couple.
  - ▶ The physician should obtain complete medical, surgical ,gynecological history from the women.
  - ▶ The initial interview provides the opportunities to assess the emotional impact on couple.
- 

# Etiologic factor of male infertility

## A) pretesticular

- i) endocrine :hypogonadotropic/hypogonadism
- ii) coital disorder:
  - ▶ Erectile dysfunction:psychosexual,endocrine,vascular,nureal
  - ▶ Ejaculatory failure:– psychosexual, post surgery,nureal or drug related.

## B)post testicular:

- i) obstructive
  - ▶ epididymal, congenital, infective
  - ▶ Vasal ( congenital cystic fibrosis, acquired vasectomy)

# contii

ii) Epididymal hostility: (asthenozoospermia).

iii) Accessory gland infection

iv) Immunologic : idiopathic, post vasectomy

## **C) Testicular:-**

i) genetic:- klinefelter's syndrome (47 xxy), y- chromosome deletion, immotile cilia syndrome.

ii) congenital :- cryptorchidism. (failure to descend the testis into scrotum)

iii) infective ( orchitis).

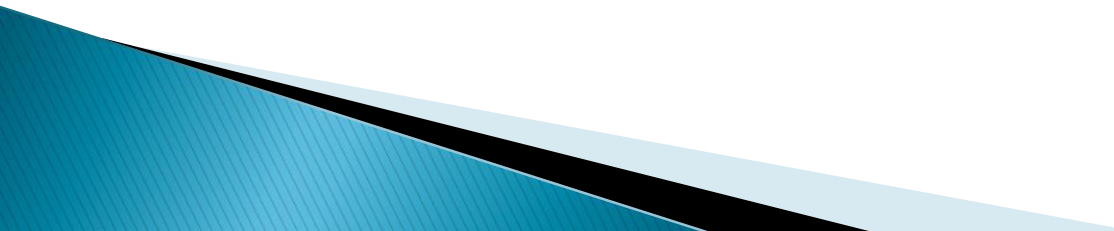
iv) anti-spermatogenic agents:-  
heat, chemotherapy, radiation drugs

v) vascular ( torsion or varicocele)

vi) Immunological

vii) Idiopathic

## VII) Male factors ( 25–40%)

- A) semen abnormalities: probably represent most common cause of male infertility.
  - B) varicocele:– abnormal dilation of veins of spermatic cord ( left side is common), associated rise in temperature or a reflux of toxic metabolites from left adrenal or renal veins
  - C) congenital anomalies:– hypospadia, epispadia, cryptorchidism, congenital absence of vas deferens, ejaculatory duct or retrograde ejaculation.
- 



# Contii...

## D)Endocrinopathies:–

- ▶ Hypoprolactinemia ( impotence and infertility).
- ▶ Kallamans syndrome (hypogonadism: low FSH,LH,low testesrone level ).
- ▶ Men with high FSH,LH,low testesrone have primary gonadal failure( karyotyping indicated to diagnose klinfilters syndrome, 47 XXY).

## E) Environmental toxin drug exposure

- ▶ geographical difference in semen results do exists but global trend toward decreasing do not exist .
- ▶ Caffeine, smoking& alcohol ass with poor semen quality.

# Contii...

- ▶ Heavy marijuana, cocaine use decrease sperm concentration.
- ▶ Drugs (anabolic steroids, chemotherapeutic agents, smoking, chat, heavy coffee consumption diminishes sperm quality.

VIII) assessment of male factor:

a) history:

- ▶ previous fertility/duration of infertility
- ▶ previous tests and treatment
- ▶ Medical ( STD, mumps, scrotal swelling illnesses)

# Contii...

- ▶ Surgical history (hysterectomy, injuries to testis or orchidectomy—removal of 1 or 2 testis).
- ▶ Occupational hazards (exposure to radiation, chemicals extreme thermal change).
- ▶ Sexual history (onset of puberty, coitus, ejaculation, libido or impotence).

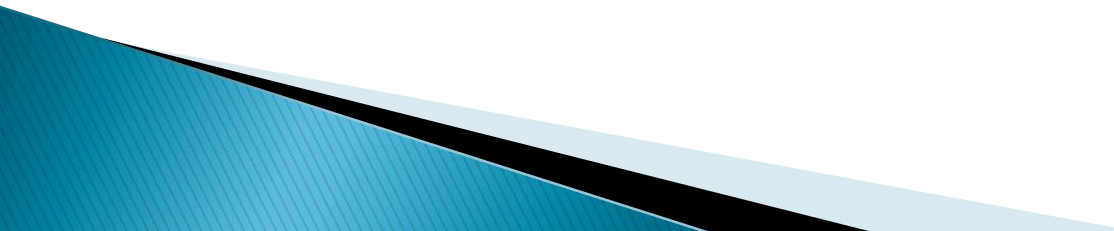
2) physical examination:

A) general examination

- \* status of general health
- \* degree of androgyny

# Contii...

## B) reproductive system:

- ▶ Position & opening of urethra
  - ▶ Testicular size and volume (10cc, 3.6–5.5)
  - ▶ Testis/epdidymis consistency.
  - ▶ Presences of vas–deferens, size and consistency prostate.
  - ▶ Careful examination for varicocele in upright position, vavsalva maneuver.
- 

# contii...

## 3) investigation

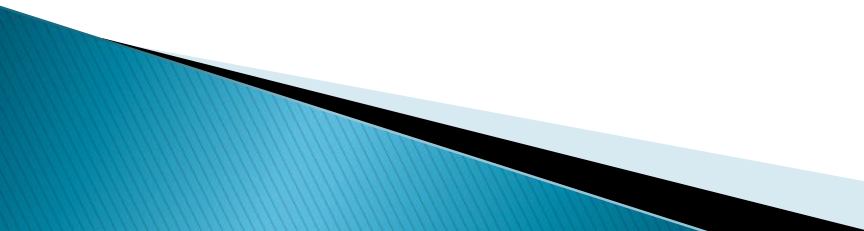
### A) basic:–

- ▶ Hematology ( Hb, Wbc count with differential, ESR)
- ▶ Urine analysis.
- ▶ FBS, VDRL

### B) Specific:–

- i) Semen analysis (2–3 days abstinence)

# Normal parameters

- ▶ Volume:- ( >2ml)
  - ▶ Count :- > 50 million
  - ▶ Concentration:- > 20 million
  - ▶ Motility :- > 50 %
  - ▶ Morphology :- > 50 %
  - ▶ Fructose :- 140–280mg/100ml
  - ▶ Antibodies tests:- < 20 % sperm binding to head
  - ▶ Inflammatory cell :- < 1million/ml
  - ▶ PH :- 7.2– 7.8
- 

# Contii...

ii) specific tests base on HX/ P/E

- ▶ Sperm mucosa penetration test.
- ▶ Sperm anti-bodies tests
- ▶ Karyotyping ( 47-xy)
- ▶ Endocrine disorder  
(FSH,LH,testosterone, prolactin, TFT)
- ▶ Imaging studies ( x-ray sella turcica), CT-scan
- ▶ Vasography, scrotal u/s, Doppler's studies.
- ▶ Testicular biopsy.

# IX ) female factors( 40–55%)

1)Ovulation factor ( 30–40%) document ovulation.

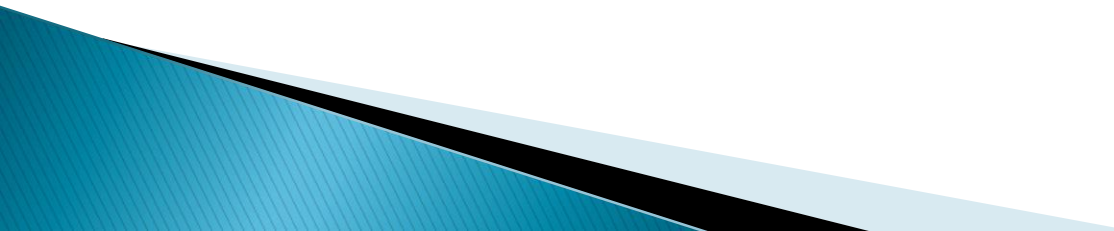
- ▶ Premenstrual mol mina.
- ▶ BBT ( increase  $> 0.5$  degree F), recorded every morning ( oral, rectal, axillary) biphasic pattern less sensitive b/s other causes of fever & monophasic ovulatory cycle.
- ▶ Cervical mucus studies ( ferning & stretchability), spinnbarkeit test
- ▶ vaginal cytology (presence of envelope cell or large squamous cell as compared cornified cell indicates progesterone stimulation.



# Contii...

- ▶ Progesterone level (  $>3\text{ng/dl}$ ) confirms ovulation.
- ▶ LH– surge:– difficult to detect, pulsatile nature, increment by  $>2/3$  from base line.
- ▶ ovulation after 36 hrs LH surge, 12 hours from peaks LH.
- ▶ Endometrial biopsy/dating:–
  - \*late secretory phase(21–24 th day), Tb–endometritis or short luteal phase defect.

# Contii...

- ▶ Ultrasound :- follow follicular size, diameter of 16–18 mm confirm maturation.
  - 2) tubal /peritoneal factor( 30–40 %)
  - ▶ Tubal damage secondary to infection, surgeries or endometriosis.
  - ▶ Relationship with episode of infection is 12%,23% and 54%( one, two three episodes of infection).
  - ▶ 50% of tubal damage has no identifiable risk (attributed to sub-clinical Chlamydia infection)
- 

# Method of investigation

- i) HSG:–( 6<sup>th</sup>– 11<sup>th</sup>) day of menses to reduce risk infection & radiation.
  - ▶ Infection must be ruled out, in high risk patients prophylaxis with doxycycline indicated .
  - ▶ Give anatomic details of tube & uterus.
- ii)Laparoscopy:– golden standard for the diagnosis of tubo–peritoneal diseases.
  - ▶ Although HSG suggest adhesion it has to be confirmed by laparoscopy.
  - ▶ sensitivity and specificity of HSG is 76% &83% respectively
  - ▶ It enhance to do dye test to see patency of tube.

# Contii....

## iii) Falloposcopy:–

- ▶ Direct visualization of internal architecture of the tube.
- ▶ Facilitate diagnosis and RX of tubal pathology.

## 3) cervical factor :–(<5%)

- ▶ Secondary to infection, hormones or surgeries.
- ▶ Post coital test / sperm penetration test
- ▶ NL esrogneized mucosa show stretchblity & ferning pattern

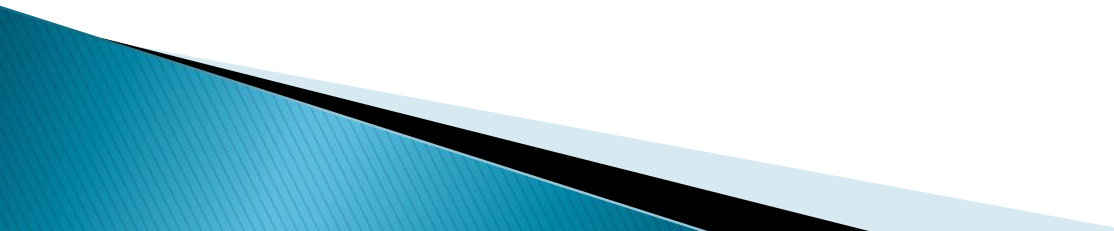
# Contii..

- ▶ 20 motile sperm/high power field used as cut of for normal test.
- ▶ Reproducibility of test is not adequate b/s results can be affected by infection, hormone & surgical intervention.
- ▶ Abnormal test must be used as screening for anti sperm antibodies test.

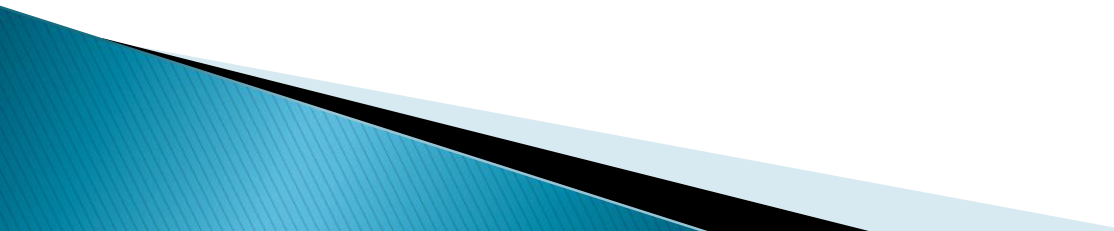
4) uterine factor :-( < 15%)

- ▶ Uterine factor are most associated with pregnancy loss rather than infertility.
- ▶ anatomic & endometrial pathologies are responsible for infertility.

# Contii...

- ▶ Uterine anomalies, fibroids or ashermans syndrome.
  - ▶ Method of DX are HSG, hysteroscopy, TV-ultrasound and endometrial BX.
  - ▶ 5) immunological factors:–
  - ▶ Exposure to billions sperm do not induce antibodies production.
  - ▶ Vaginal epithelium trauma, damage to blood–testis barrier, torsion or revision of vasectomy key steps for formation anti–sperm anti bodies.
- 

# Contii...

- ▶ Anti-sperm antibodies may interfere fertilization, disruption of sperm transport, obstruct gamete interaction or sperm phagocytosis .
- 6) infection factors:– R/n between subclinical infection and infertility received attention but no substantial evidence to show treatment of infection improve fecundability.
- \*\* chlaymida trachoamtis & mycoplasma spp.
- 

# Contii...

7) unexplained infertility ( 10 %) reasonable approach

- ▶ SFA, ovulation documented, HSG doubtful results repeated.
- ▶ If results NL laparoscopy should be performed.
- ▶ Endocrine tests ( TSH, FSH, LH prolactin).
- ▶ Cervical factors must be assessed by PCT. Chlamydial culture & DNA probing.
- ▶ Evaluation of sperm function with hamster egg test & endometrial maturation.



# X) Treatment option

1) male factor:-

a) normal semen analysis two specimens three wks apart, no treatment.

b) general / empirical treatment for oligospermia astenspermia

i) adequate rest

ii) abstinence from alcohol, smoking, drugs or chewing chat.

iii) Avoid hot bath, tight under wear

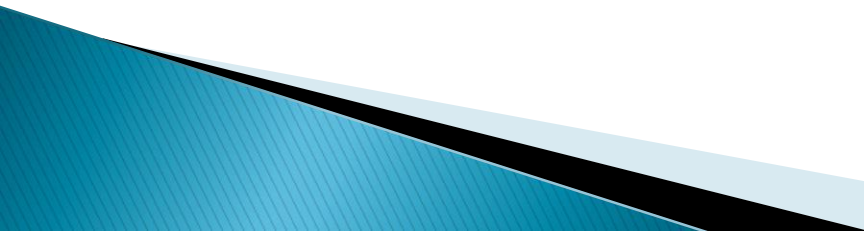
iv) correct obesity, infection & immunological factors.

c) Azoospermia ( no sperm in the ejaculate), found in 5% of all couple investigated )

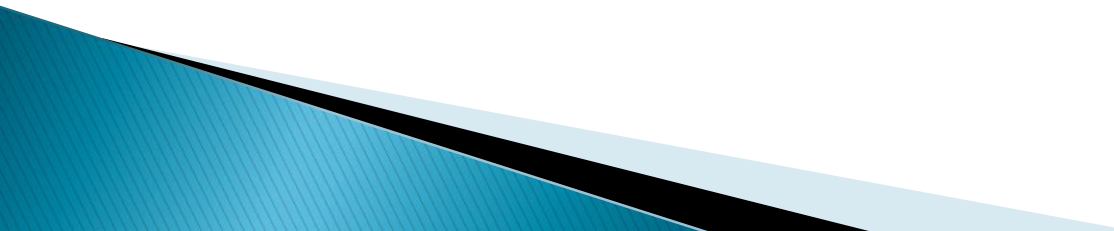
# contii

- I) pre-testicular azoospermia( congenital , aquaired, idiopathic hypogonadotrophic hypogonadism).
  - ▶ Hormonal treatment with GnH indicated.
  - ▶ HMG( 150iu/im/3x/wk) + HCG 1000–1250iu/3x/wk.( pregnancy rate is 88%).
- II) teststicular-azoospermia ( men with hypergonadotrophic hypognadism)
  - ▶ Genetic(kelinfiler, y-chromosome deletion) .
  - ▶ acquired( radiation, chemo, mumps orchitis).
  - ▶ karyotyping must be identified to find (47, xxy)
  - ▶ Hormonal therapy is contraindicated.

# Contii..

- ▶ III) post-testicular azoospermia : no sperm appears in ejaculate.
  - ▶ Congenital( absence of vas deferens or ejaculatory duct) .
  - ▶ Acquired ( obstruction of duct, ductal dysfunctional or retrograde ejaculation).
  - ▶ Although low PH and low fructose may be signal DX confirmed by vasography.
  - ▶ Prior vasectomy is most common cause can reversed with success of 86% (P-rate of 52%)
- 

# Contii...

- ▶ Epididymal obstruction can be dxed by normal spermatogenesis in testicular biopsy, treated by vasoepidymostomy.)patency rate of 70% p-rate of 44%).
  - ▶ Two approaches are AID or epididymal semen aspiration proximal to obstruction for ART.
  - ▶ All anatomical disorders surgical intervention done by urologist.
- 

# Conti...

D) Idiopathic abnormal SFA:

i) empirical treatment

a) clomifene citrate 50mg/po/day (3–6mths).

b) testosterone:– 25–50mg/po/qidx 70 days.  
250mg/im/ q 2wks for 2  
mths.

▶ Thyroxin :– 0.2mg /po/day till good result

c) Bromocriptine :– 1.25mg/po/day then  
increase to 20mg/po/day till good result.

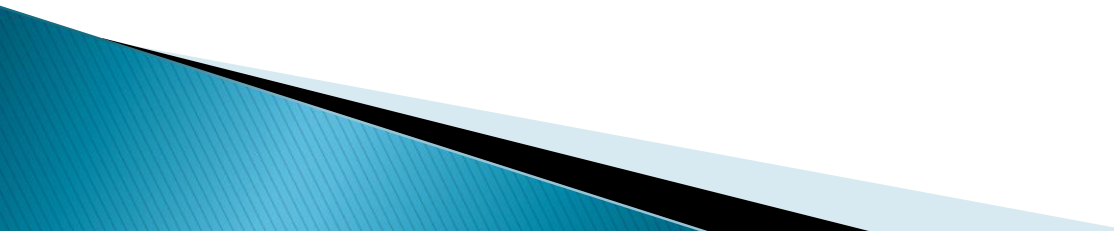
d) AID, AIH, ART, ICSI considered as option  
requires caution to practice.

## 2) Female factors

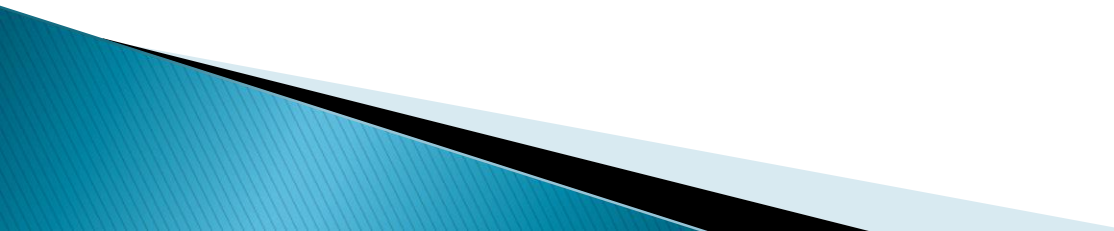
A) anovulatory cycle : ovulation induction.

- ▶ i) clomid ( first line of treatment)
- ▶ Stage 1:– 1<sup>st</sup> month      50mg/po/day/x 5 days.
- ▶ Stage 2 :– 2<sup>nd</sup> month      100mg/po/day/x5days.
- ▶ Stage 3 :– 3<sup>rd</sup> month      150mg/po/day/ x5days.
- ▶ Stage 4 :– 4<sup>th</sup> month      200mg/po/day/x 5days.
- ▶ Stage 5:– 6–8 month      no– treatment.
- ▶ Stage 6 :– 9 month      CC 100mg/po+ HCG  
5000IU /IM 7 days after.
- ▶ stage 7 :– 10 month      CC 150mg/po + HCG  
5000iu /im 7 days after.
- ▶ All CC started on fifth day of each cycle.

# Contii...

- ▶ Gonadotrpins :-induction of ovulation is treatment of choice for women whom cc failed with ovulatory dysfunction secondary to hypogonadotropic hypogonadism.
  - ▶ Therapy with HMG is most successful , with cumulative pregnancy test rate of 92%.
  - ▶ Adverse effects are ovarian hyper stimulation syndrome & multiple gestation.
  - ▶ Multiple regimen proposed, typical regimen is as follow:-
- 

# Contii...

- 1) patient begin 2,3,or 4 days after the onset of menses or induced menses.
  - 2) 1–2 ampoule of HMG per day
  - 3) maintain until cycle day 6 or 7
  - 4) once ovarian response is obtained( follicular diameter 16–18mm, estradiol 150–250pg/ml)
  - 5) when appropriate follicular size, estradiol has been attained HCG (5000–10,000 iu)/im ovulation occur after 36 hours.
- 



# Contii...

ii) Bromocriptine :-

- ▶ 1.25mg/po /day 1 st week test, 2.5mg xfor one month if there is no response increase dose to 20 mg till pregnancy occurs.

iii) thyroxin :- 0.2 mg/day till response if evidence hypothyroidism is positive.

iv) Dexamethasone 0.5–0.75mg /day for 6–8 months or methyl prednisolone 4 mg /day 6–8 months.

# Contii...

v)combination RX:-

- a) clomid as 1 plus progynon 20mg or 10mg /im day on the 14<sup>th</sup> day.
- b) clomid as 1 plus Dexamethasone 0.5–0.75mg/day 2–3months or methyl–predinsolone 4mg/day for 2–3momths.
- c) clomid as 1 plus bromocreptine as mentioned above.

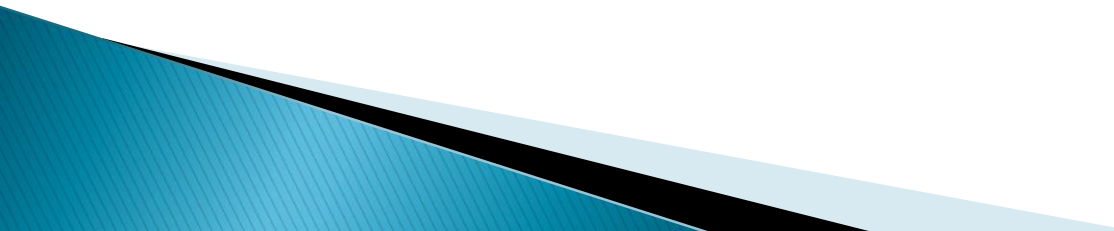
# Contii...

B) abnormal post-coital tests

- ▶ Treat infection with antibiotic, anti-tbc drugs.

C) tubal factors : IVF offers best chance conception in patient with significant severe diseases.

- ▶ Chance conception depends on degree of tubal pathologies, procedure vs conception rate as follow:–

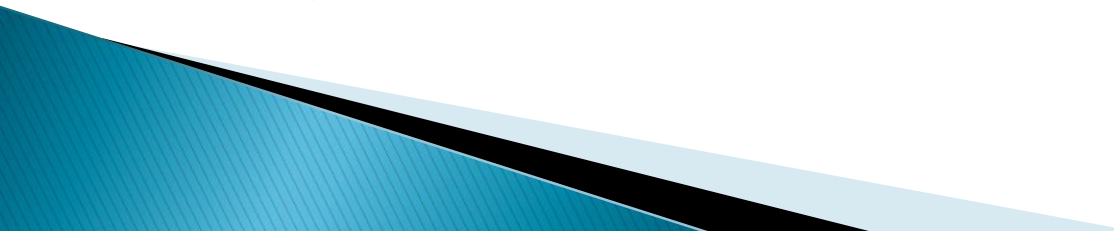
- ▶ Lysis of adhesion ( 50 %)
  - ▶ mild distal obstruction (80 %)
  - ▶ moderate distal obstruction ( 30%)
  - ▶ Severe distal obstruction (15%)
  - ▶ proximal tubal obstruction ( 30%)
- 

# Contii...

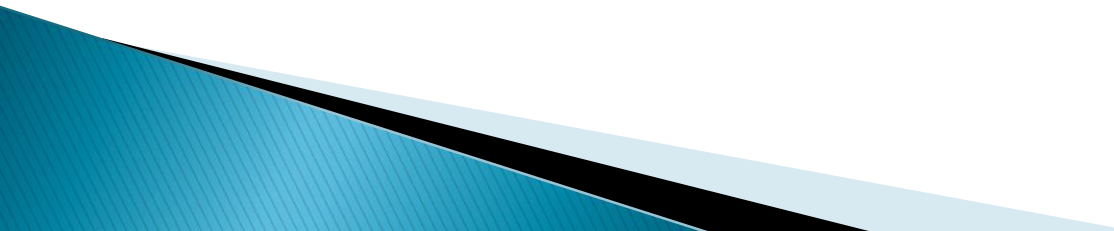
## D) uterine factors:-

- ▶ Hysteroscopy lysis of adhesion.
- ▶ Removal of endometrial polyp & fibroid.
- ▶ Constructive surgeries for uterine anomaly.
- ▶ IVF ( offer best chance conception, less invasive).
- ▶ CDC report ( 134/260 IVF , 38, 910 live births)

## E)immunological factors:-

- ▶ Condom therapy(6-9 months)
  - ▶ immunosuppression.
  - ▶ suppression of spermatogenesis
  - ▶ AID, AIH
- 

# Contii..

- ▶ F) unexplained infertility:–
  - ▶ Clomid (3–6months) and timed intercourse.
  - ▶ Injectable( HMG+ HCG) timed intercourse.
  - ▶ Clomid plus IUI.
  - ▶ Injectable ( HMG+ HCG) plus IUI.
  - ▶ IVF & other ART ( ZIFT,GIFT, TET, ICSI)
  - ▶ Donor oocyte programme
  - ▶ Surrogating( renting womb)
  - ▶ Adoption
- 

▶ Thank you!!!

# Menopause: physiological changes

# Cont...

## Definitions

- ▶ The menopause is the final act of
- ▶ menstruation. The climacteric is the
- ▶ phase in the ageing process when a
- ▶ woman passes from the reproductive to
- ▶ the non-reproductive stage. Thus the
- ▶ menopause is a single event and the
- ▶ climacteric is a period of time during
- ▶ which a woman may experience a
- ▶ considerable number of symptoms and
- ▶ signs (Table 1



# Cont..

- ▶ The menopause may be physiological
- ▶ or artificial, induced by radiation,
- ▶ surgery (e.g. oophorectomy), or
- ▶ hormonal therapy (e.g. gonadotrophin
- ▶ releasing hormone analogues). This
- ▶ chapter deals with the physiological
- ▶ menopause, although the changes are
- ▶ common to both.

# Cont..

- ▶ Spontaneous cessation of menses before the age of 40 years is termed premature ovarian failure.
- ▶ pituitary, leading to very high levels of
- ▶ gonadotrophins, luteinizing hormone
- ▶ (LH) and follicle stimulating hormone
- ▶ (FSH) (

# Cont..

- ▶ **Hormonal changes**
- ▶ Changes occur in four different
- ▶ hormonal groups after the menopause:
- ▶ androgens; oestrogens; progesterone;
- ▶ gonadotrophins.

# Cont..

- ▶ There is a 50% reduction in circulating androstenedione. Adrenal androgens fall by 60–80% with age.
- ▶ The fall in testosterone is minimal.
- ▶ There is 14% conversion from androstenedione,

the majority is produced by hilar and luteinized stromal cells within the ovary that do respond to the increased gonadotrophin outpouring.

The relative increase in testosterone compared to the other

- ▶ androgens may be manifest in a receding hairline, hoarse voice and the facial hair
- ▶ sometimes seen in elderly ladies

- ▶ **Pathogenesis**
- ▶ There are 7 million oogonia in the fetal
- ▶ ovary at 20 weeks' gestation.
- ▶ After the seventh month of gestation no new
- ▶ oocytes are formed.

# Cont..

- ▶ At the time of birth, the number has already dropped to 2 million and by puberty there are only 30 000 oocytes.
- ▶ Continued reduction follows. These large numbers are lost mainly due to the process of atresia, although some are lost through ovulation.

- ▶ At the menopause the sensitivity of
- ▶ oocytes to respond to gonadotrophin
- ▶ stimulation disappears. Estradiol levels
- ▶ are therefore low, removing negative



- ▶ feedback to the hypothalamus and pituitary, leading to very high levels of
- ▶ gonadotrophins, luteinizing hormone
- ▶ (LH) and follicle stimulating hormone
- ▶ (FSH)

- ▶ **Hormonal changes**
- ▶ Changes occur in four different
- ▶ hormonal groups after the menopause:
- ▶ androgens; oestrogens; progesterone;
- ▶ gonadotrophins.
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- ▶ androstenedione. Adrenal androgens fall
- ▶ by 60–80% with age.

- ▶ The fall in testosterone is minimal.
- ▶ There is 14% conversion from
- ▶ androstenedione, but the majority is
- ▶ produced by hilar and luteinized
- ▶ stromal cells within the ovary that do
- ▶ respond to the increased gonadotrophin
- ▶ outpouring. The relative increase in
- ▶ testosterone compared to the other

- ▶ androgens may be manifest in a receding
- ▶ hairline, hoarse voice and the facial hair
- ▶ sometimes seen in elderly ladies.
- ▶ Estrone is the oestrogen of the
- ▶ menopause, mainly produced by the
- ▶ adrenals – although peripheral
- ▶ conversion from androstenedione
- ▶ doubles. Some estrone and testosterone
- ▶ peripherally convert to estradiol,

- ▶ accounting for the small percentage of
- ▶ estradiol still available. Cessation of
- ▶ ovulation heralds a 70% reduction in
- ▶ progesterone as there is no further
- ▶ corpus luteal production. Adrenal
- ▶ production continues. Pituitary LH and
- ▶ FSH levels rise considerably as estradiol
- ▶ levels fall, but are still released in a
- ▶ pulsatile fashion.

# Signs and symptoms

## Reproductive tract

- ▶ Although abrupt cessation of menses can occur, it is more usual to have oligomenorrhoea with increasing cycle irregularity. Polymenorrhagia with
- ▶ heavier and more frequent menses is
- ▶ uncommon and warrants endometrial
- ▶ assessment

# Cont..

- ▶ The vaginal and
- ▶ cervical skin become thinner, drier and
- ▶ more fragile. The vaginal cytology
- ▶ confirms surface cells that are less
- ▶ mature and less keratinized. This results
- ▶ in vaginal soreness and dryness with
- ▶ superficial dyspareunia, postcoital
- ▶ bleeding and intercurrent infections.

■ ■

- ▶ The uterus also undergoes changes.
- ▶ The normal endometrium becomes thin
- ▶ and inactive (see p. 138). The
- ▶ myometrium shrinks. The ovaries also
- ▶ atrophy. Easily palpable ovaries are
- ▶ suspicious and warrant further
- ▶ investigation. Ligaments and connective
- ▶ tissue lose tone and elasticity which
- ▶ predisposes to uterovaginal prolapse.



# Urinary tract

- ▶ As the bladder and vagina both share the same embryological derivation from the urogenital sinus, the urethra and
- ▶ trigone are predisposed to similar atrophic changes. This can give rise to symptoms of frequency and urgency, often mistaken for cystitis

# External changes

- ▶ Breast tissue regresses in size and tends to sag. There is generalized thinning and loss of elasticity in the skin leading to wrinkling. The hair changes in pattern with sparser axillary and pubic hair and
- ▶ increased, coarse terminal hair.

# Psychological and emotional changes

- ▶ Psychiatrists report a premenopausal peak
- ▶ incidence of affective disorders relating to
- ▶ negative feelings regarding the onset of
- ▶ ageing and loss of fertility, especially in
- ▶ western cultures.

# Cont..

- ▶ Gynaecologists ascribe the increased incidence of tearfulness and depression to falling levels of estradiol and progesterone.
- ▶ Oestrogen receptors have been identified in the limbic system of the brain.
- ▶ The situation is complex –life crises can occur in this age group and genuine endogenous depression may also be present

# Vasomotor symptoms

- ▶ Flushes normally start on the face and
- ▶ spread downwards across the neck and
- ▶ chest. They may last a few seconds or
- ▶ 10 minutes and can occur from once to 20 times a day.

# Cont..

- ▶ Night sweats may lead to chronic sleep depletion. Seventy percent of women exhibit vasomotor symptoms for 1 year, 30% for 5 years and 10% for 10 years. There appears to be a temporal relationship between flushes and pulsatile release of LH.

# Osteoporosis

- ▶ Osteoporosis represents reduction in bone mass and microarchitectural
- ▶ disruption leading to enhanced bone fragility and
- ▶ increased fracture risk. The World Health Organization
- ▶ (WHO) definitions are as follows:
  - ▶ • osteopenia (1–2.5 SDs below adult reference peak bone mass)
  - ▶ osteoporosis ( $> 2.5$  SDs below adult reference peak bone

# Cont..

- ▶ The bone remodelling process involves four processes
- ▶ Formation takes longer than resorption – the two are linked,
- ▶ or coupled. At the menopause the remodelling cycle becomes
- ▶ imbalanced, or uncoupled.



# Cont..

- ▶ The osteoclasts produce larger
- ▶ cavities which the osteoblasts do not completely fill with
- ▶ osteoid, resulting in a net decrease of bone mass. Oestrogen
- ▶ has an anti-resorptive effect.
- ▶ In women, peak bone mass is achieved in the early 30s. It is
- ▶ influenced by diet (including calcium intake), exercise, genetics
- ▶ and environment.

# Cont..

- ▶ Subsequently bone mass is lost gradually
- ▶ until the menopause, when falling oestrogen levels accelerate the process.
- ▶ When bone density falls below a critical level (the fracture threshold) the risk of fracture is increased. There is a 50% loss of trabecular bone and a 5% loss of cortical bone

# Cont..

- ▶ The commonest fracture sites are vertebral body,
- ▶ upper femur, distal forearm, humerus, ribs. The incidence of these fractures varies with age . One in four women in the 60s suffer vertebral crush fractures, causing pain,
- ▶ shortened stature and spinal curvature – the classical dowager's hump'

- ▶ women until women reach the menopause – subsequently
- ▶ catching up rapidly. Comparing age-matched groups of
- ▶ premenopausal and postmenopausal women, the incidence of IHD is found to rise with increasing age, but is consistently less in the premenopausal groups at all ages. This would suggest that oestrogen has a protective effect

# Cont..

- ▶ Total cholesterol is made up of low density lipoprotein (LDL)
- ▶ and high density lipoprotein (HDL) fractions. The former is
- ▶ easily deposited on damaged endothelium and predisposes to
- ▶ atherogenic change. At the menopause, total cholesterol, LDLcholesterol
- ▶ .

# Cont..

- ▶ triglyceride levels rise. HDL-cholesterol and in
- ▶ particular the HDL 2 subfraction falls. Oestrogen reverses these
- ▶ trends and appears also to act at the cellular level
- ▶ **Cardiovascular changes**
- ▶ Ischaemic heart disease (IHD) represents the biggest cause of death in women. Men suffer from IHD more commonly than

# Menopause: physiological changes

- ▶ **The bone remodelling process.**
- ▶ • Loss of oestrogen production has a profound effect on several
- ▶ systems.
- ▶ Periods usually become lighter and less frequent.
- ▶ Estrone replaces estradiol as the chief oestrogen produced.
- ▶ Testosterone is relatively the most important androgen.

# Cont..

- ▶ Symptoms may be severe and prolonged.
- ▶ Bone loss is accelerated at the menopause, predisposing to fractures.
- ▶ • The lipid profile alters to become more atherogenic.
- ▶ Oestrogen possesses anti-resorptive properties in bone and reverses



# Hormone replacement therapy

- ▶ HRT combines natural oestrogen with progestogens, synthetic derivatives of progesterone –nortestosterone
- ▶ derivatives are androgenic and produce more side effects (bloating, mood swings and mastalgia).

# Cont...

- ▶ C21–progesterone derivatives are more progesterone–receptor specific and produce
- ▶ fewer side effects. Micronized progesterone is available in
- ▶ Europe and America.

# Cont..

- ▶ There are several oestrogens available.
- ▶ Progestogen is administered either cyclically for 12 to 14 days a month [a sequential combined therapy, SCT), or continuously (a continuous combined therapy, CCT) .

# Cont..

- ▶ The former will promote a monthly withdrawal bleed. The continuous(constant) combined preparations are reserved for women who have been amenorrhoeic for 12 months and do not wish to bleed.
- ▶ One preparation offers the chance of 3-monthly withdrawal bleeds (seasonal bleeds

# Cont..

- ▶ Unopposed oestrogen may only be prescribed to
- ▶ hysterectomized women, as oestrogen induces endometrial hyperplasia and long-term use may promote endometrial cancer.

# Cont..

- ▶ The incidence of cystic hyperplasia varies between 7 and 20%. Even after cessation of unopposed oestrogens, the increased risk of endometrial cancer persists for up to 14 years.
- ▶ The added progestogen effects protection by secretory transformation.

# Components of hormone replacement therapy and related preparations

## Oestrogens

- ▶ Conjugated equine oestrogens (CEEs)
- ▶ 17 beta estradiol (plant extract oestrogens)
- ▶ Estradiol valerate (plant extract oestrogens) Estrone

# cont..

- ▶ **Progestogens**
- ▶ Progesterone (the natural hormone)
- ▶ Progesterone analogues, C21 derivatives
  - ▶ – didrogestosterone
  - ▶ – medroxyprogesterone acetate



# Cont..

- ▶ 19–nortestosterone derivatives
- ▶ – norethisterone/norethisterone acetate
- ▶ – levonorgestrel
- ▶ **Gonadomimetics**
- ▶ Tibolone (containing oestrogenic, progestogenic and androgenic components)

# Cont..

- ▶ **Selective oestrogen receptor modulators**
- ▶ **(SERMs)**
- ▶ Raloxifene (modified oestrogen molecule stimulating bone receptors, but not
- ▶ endometrial and breast receptors; also reduces cholesterol levels)
- ▶ **Phyto-oestrogens**
- ▶ Natural dietary fibre oestrogens, obtained from a health food shop

# Approach to treatment

- ▶ Many women show great interest in HRT, but some express
  - ▶ reservations. Main concerns focus on side effects, weight gain,
  - ▶ risk of cancer and withdrawal bleeds.
- A structured approach to
- ▶ treatment includes information, counselling and HRT.

# Cont..

- ▶ Every woman should be fully counselled as to the risks and benefits of treatment and should be included in the
- ▶ decision-making process. Information should include what routes of administration and types of HRT are available, how long therapy should continue (for adequate bone protection a minimum of 5 years' therapy is advised), and what side

# Cont..

- ▶ Bleeding usually lessens over four to six successive cycles to a light, regular 3– to 5–day loss. Minor
- ▶ transient side effects may occur and the patient should be encouraged to persevere.
- ▶ Changing brands every 1–2 months promotes problems.

## **Bleeding in Early Pregnancy**

# **Bleeding in Early Pregnancy**

# Session Objectives

- ▶ To describe best practices for diagnosis of vaginal bleeding in early pregnancy
- ▶ To describe best practices for management of vaginal bleeding during early pregnancy
- ▶ To describe post abortion care elements
- ▶ To list post-abortion family planning options

# Case Study

- ▶ Have everyone read Case Study 1 and discuss in group.





# Definition

Vaginal bleeding that occurs during  
first 28 weeks of pregnancy

# Bleeding in Early Pregnancy: General Management

- ▶ Rapid evaluation of woman's general condition including vital signs (pulse, blood pressure, respiration, temperature)
- ▶ If shock suspected, immediately begin treatment.
- ▶ If woman is in shock, consider ruptured ectopic pregnancy.
- ▶ Start an IV infusion and infuse IV fluids.

# What may cause bleeding . . .

## . . . in early pregnancy?



# Bleeding in Early Pregnancy: Diagnosis of Abortion

- ▶ Threatened abortion
- ▶ Complete abortion
- ▶ Inevitable abortion
- ▶ Incomplete abortion
- ▶ Ectopic pregnancy
- ▶ Molar pregnancy

# Bleeding in Early Pregnancy: Management of Threatened Abortion

- ▶ Medical treatment usually not necessary.
- ▶ Advise woman to avoid strenuous activity and sexual intercourse; bed rest not necessary.
- ▶ If bleeding stops, follow up in antenatal clinic. Reassess if bleeding recurs.
- ▶ If bleeding persists, assess for fetal viability (pregnancy test/ultrasound) or ectopic pregnancy (ultrasound). Persistent bleeding, esp. in the presence of uterus larger than expected may indicate twins or molar pregnancy.

Do not give medications such as hormones (e.g. estrogens or progestins) or broncholytic agents (e.g. salbutamol or indomethacin) as they will not prevent miscarriage.

# Bleeding in Early Pregnancy: Management of Inevitable Abortion

- ▶ If pregnancy is less than 12 weeks, plan for evacuation of uterine contents. If evacuation not immediately possible:
  - Give ergometrine 0.2 mg IM (repeated after 15 min. if necessary) OR misoprostol 400 mcg by mouth (repeated once after 4 hours if necessary);
  - Arrange for evacuation as soon as possible.
- ▶ Ensure follow-up after treatment.

# Inevitable abortion (cont'd)

- ▶ If pregnancy is greater than 12 weeks:
  - Await spontaneous expulsion of products of conception and then evacuate uterus to remove any remaining products of conception
  - If necessary, infuse oxytocin 40 units in 1 L IV fluids at 40 drops/min to help expulsion of products of conception

# Management of Incomplete Abortion: Less than 12 Weeks

- ▶ If bleeding light to moderate, use fingers or ring (or sponge) forceps to remove products of conception protruding through cervix.
  - ▶ If bleeding heavy, evacuate uterus:
    - Manual vacuum aspiration (MVA) is preferred method. Sharp curettage should only be done if MVA not available
    - If evacuation not immediately possible, give ergometrine 0.2 mg IM (repeated after 15 min. if necessary) OR misoprostol 400 mcg orally (repeated once after 4 hours if necessary).
- Ensure followup of the woman after treatment.



# Management of Incomplete Abortion: Greater than 12 Weeks

- ▶ Infuse oxytocin 40 units in 1 L IV fluids at 40 drops/min. until expulsion of POC occurs
- ▶ Evacuate any remaining products of conception from uterus by evacuation and curettage
- ▶ If necessary, give misoprostol 200 mcg vaginally every 4 hours until expulsion, but do not administer more than 800 mcg.
- ▶ Ensure followup of the woman after treatment.

# Bleeding in Early Pregnancy: Management of Complete Abortion

- ▶ Evacuation of the uterus usually not necessary
- ▶ Observe for heavy bleeding
- ▶ Ensure followup of woman after treatment

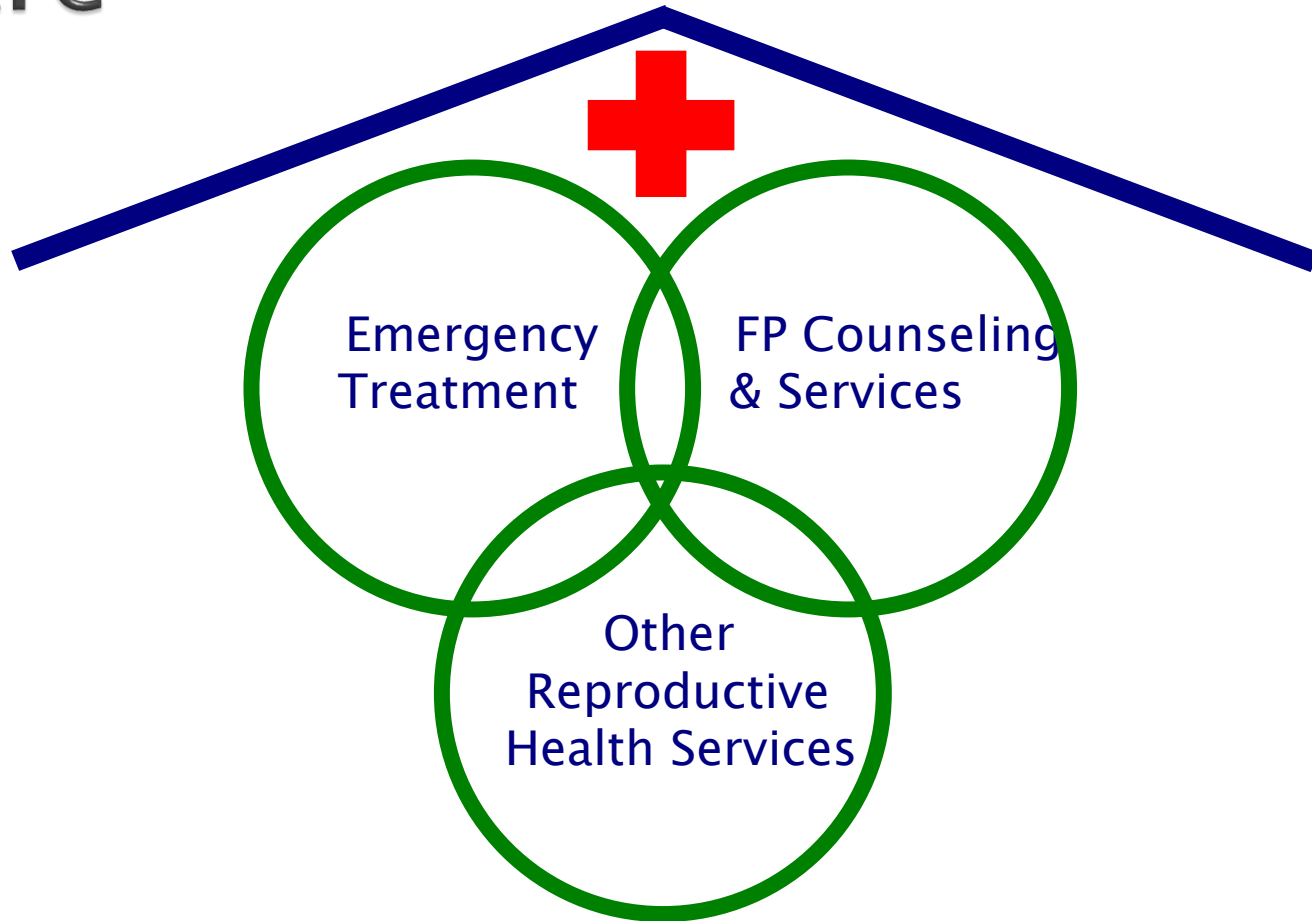
# Bleeding in Early Pregnancy: Followup after Abortion

- ▶ Tell woman that spontaneous abortion is common.
- ▶ Reassure woman that chances for subsequent successful pregnancy are good unless there has been sepsis or unless cause of abortion is identified that may have an adverse effect on future pregnancies (rare).

# Follow-up after spontaneous abortion

- ▶ Encourage her to delay next pregnancy until completely recovered.
- ▶ Provide counseling for women who have had unsafe abortion. If pregnancy not desired, certain FP methods can be started immediately (within 7 days) if:
  - There are no severe complications requiring further treatment
  - Woman receives adequate counseling and help in selecting most appropriate FP method.

# Elements of Postabortion Care



# Postabortion Care: Emergency Treatment

- ▶ Initial screening (triage) for emergency conditions
- ▶ Talking to the client regarding her condition
- ▶ Medical assessment
- ▶ Stabilization (IVs, antibiotics) prior to manual vacuum aspiration (MVA)
- ▶ Uterine evacuation by MVA
- ▶ Referral or transfer for extensive treatment (e.g., major surgery)

# Rationale for Using Manual Vacuum Aspiration (MVA)

MVA is the preferred treatment of incomplete abortion because:

- ▶ Risk of post-evacuation complications is reduced
- ▶ Less expensive, reusable equipment is used
- ▶ Emergency postabortion care can be provided at remote sites (small clinics) not just in urban centers

# Need for Postabortion Family Planning Services

- ▶ Unsafe abortion is a prime indicator of unmet need for FP
- ▶ Failure to provide FP is a major contributor to the problem of unsafe abortion
- ▶ Emergency treatment is not linked to FP counseling or services



# Importance of Starting Post abortion Family Planning Immediately

Increased risk of repeat pregnancy because:

- ▶ Ovulation may occur by day 11 postabortion
- ▶ 75% of women will have ovulated within 6 weeks postabortion

Post abortion  
Care

Lähteenmäki 1993;  
Lähteenmäki et al 1980.

# Which Family Planning Methods to Use Postabortion

All modern methods are acceptable provided that:

- ▶ Thorough counseling is given to ensure voluntarism and choice
- ▶ Clients are screened for precautions

Post abortion  
Care

# Providing Postabortion Contraception

Method	When to Start	Remarks
Hormonal	Immediate	Can be started even if there is infection or anemia
Condom		
IUD Less than 12 weeks	Immediate or delayed	If there is infection, delay until it clears. If hemoglobin is less than 7 g/dL, delay until it improves. Give an interim method.
More than 12 weeks	4–6 weeks after abortion	Similar to postpartum
Tubal Ligation	Immediate Delayed	Clean procedure If infection or hemoglobin is less than 7 g/dL

# Linkages to Other Reproductive Health Services

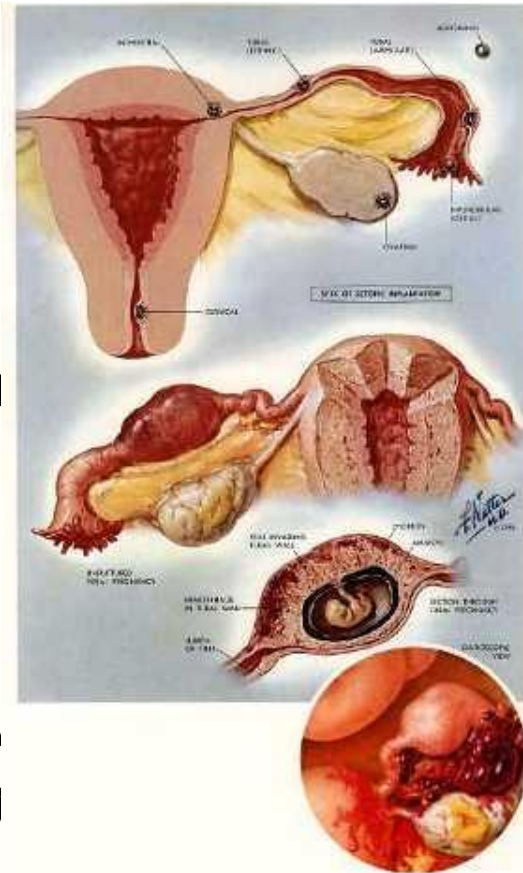
- ▶ Linkages are essential and logical if the reproductive health of women is to improve
- ▶ Lack of linkages contributes to women's continued poor health status

# Examples of Other Reproductive Health Services

- ▶ Treatment of sexually transmitted infections
- ▶ Cervical cancer screening for women over age 30–35
- ▶ Infertility services
- ▶ Pre–pregnancy advice (e.g., nutrition, immunization, management of existing medical conditions)

# ECTOPIC PREGNANCY

- ▶ Pregnancy which is outside the uterine cavity
- ▶ Can be in the tube, ovary, abdomen or other locations
- ▶ Treated surgically by removal of the pregnancy or tube
- ▶ If ruptures can lead to hemorrhage and death
- ▶ ***All suspected cases of ectopic pregnancy should be referred urgently to a hospital, after/initiating resuscitation.***



# Ectopic Pregnancy: Clinical Diagnosis

- ▶ Symptoms:
  - Pain: 90–100% of patients
  - Amenorrhea/abnormal menses: 75–95%
  - Irregular bleeding: 50–80%
  - Pregnancy symptoms: 10–25%

Weckstein 1987.

# Ectopic pregnancy: Clinical Diagnosis (cont'd)

- ▶ Signs:
  - Afebrile
  - Abdominal tenderness: 80–95%
  - Rebound tenderness: 45%
  - Palpable mass: 50% (often opposite side)
  - Normal sized uterus: 71%
- ▶ Use combination testing to increase sensitivity and specificity



# Bleeding in Early Pregnancy: Signs & Symptoms of Unruptured Ectopic Pregnancy

- ▶ Symptoms of early pregnancy
  - Irregular spotting or bleeding
  - Nausea
  - Swelling of breasts
  - Bluish discoloration of vagina and cervix
  - Softening of cervix
  - Slight uterine enlargement
  - Increased urinary frequency
- ▶ Abdominal and pelvic pain

# Bleeding in Early Pregnancy:

## Signs and Symptoms of Ruptured Ectopic Pregnancy

- ▶ Collapse and weakness
- ▶ Fast, weak pulse ( $\geq 110$ /minute)
- ▶ Hypotension
- ▶ Hypovolemia
- ▶ Acute abdominal and pelvic pain
- ▶ Abdominal distension
- ▶ Rebound tenderness
- ▶ Pallor

# Bleeding in Early Pregnancy: Differential Diagnosis for Ectopic Pregnancy

- ▶ Threatened abortion
- ▶ Acute or chronic PID
- ▶ Ovarian cysts  
(torsion or rupture)
- ▶ Acute appendicitis



**Remember: A ruptured ectopic pregnancy  
could be life-threatening!**

# Molar Pregnancy

- ▶ Molar pregnancy is characterized by an abnormal proliferation of chorionic villi.
- ▶ The diagnosis is certain if vesicles were passed.
- ▶ If diagnosis of molar pregnancy is suspected refer immediately to a hospital after emergency management.

# Summary

- ▶ Vaginal bleeding in early pregnancy could be caused by:
  - Threatened abortion
  - Incomplete abortion
  - Complete abortion
  - Ectopic pregnancy
  - Molar pregnancy
- ▶ Diagnosis can often be made clinically, saving time and expense

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