

- Implantation:

- When the ovum has been fertilized, it is known as the zygote, it continues its passage through the fallopian tube and reaches the uterus (3-4) days later. In the same time cell division into (2) cells, then (4) then (8) and (16) so on.
- The zygote is implanted into the upper part of the uterus.
- The endometrium after implantation is called decidua [4]

Normal Pregnancy:

Pregnancy (gestation) is the maternal condition of having a developing fetus in the body. The human conceptus from fertilization through the eighth week of pregnancy is termed an embryo from the eighth week until delivery it is fetus. For obstetric purposes, the duration of pregnancy is based on gestational age, the estimated age of the fetus is calculated from the first day of last (normal) menstrual period assuming a (28) day cycle, gestational age is expressed in completed weeks. [5]

This is in contrast to development age (fetal age) which is the age of the offspring calculated from the time of implantation. The term gravid means pregnant and gravidity is the total number of pregnancies (normal or abnormal). Parity is the state of having given birth to an infant or weighing (500) g or more, live or dead. [3]

In the absence of known weight, an estimated duration of gestation of (20) completed weeks or more (calculated from the first day of the LMP) may be used. A fetus is considered viable when it has reached a gestational age of (23-24) weeks and a weight of (500-600)g or more. However, only very rarely will a fetus of (20-23) weeks weighing (500) g or less survive, even with optimal care. With regard to parity, a multiple birth is a single person's experience. [2]

2.2 Definition

- Prenatal care (PNC) is the care provided to pregnant women to prevent complications and decrease the incidence of perinatal and maternal morbidity/mortality.
- Comprehensive health supervision of a pregnant women before delivery.
- It is planned examination, observation and guidance given to pregnant women from conception till the time of labor.[1]

2.3 Clinical manifestations:

- Symptoms:

- A menorrhea:

Cessation of menses is caused by increasing estrogen and progesterone levels produced by the corpus uterus . thus amen Omaha is a fairly reliable sign of conception in woman with regular menstrual cycles . in women with irregular cycles , amenorrhea is not are liable sing .[3]

Delayed menses may also be caused by other factors such as emotional tension , chronic disease , opioid and dopaminergic medications , endocrine disorders and certain genitourinary tumors. Caused by bleeding at the implantation site may occur from the time of implantation (about "6" day after fertilization) until ("29-35" days after the LMP in many women) some women have unexplained cyclic bleeding throughout pregnancy. [2]

- Nausea and vomiting:

This common symptom occurs in approximately (50%) of pregnancies and is most marked at (2-12) weeks gestation . it is usually most severe in the morning but can occur at any time be precipitated by cooking odors and pungent smells . Extreme nausea and vomiting maybe a sign of multiple gestation or molar pregnancy. protracted vomiting associated with dehydration and ketonuria (hyperemesis gravid arum) may require hospitalization and relief of symptoms with antiemetic therapy .[3]

- Breasts:

- Mastodynia or breast tenderness may range from tingling to frank pain caused by hormonal responses of mammary ducts and alveolar system. circulatory increases result in breast engorgement and venous prominence.

Similar tenderness may occur just before menses.

- Enlargement of circumlacteal sebaceous glands of the areola enlargement of these glands occurs at (6-8) weeks gestation and is a result of hormonal stimulation.[1]
- Colostrums secretion: Colostrums secretion begins after (16) weeks gestation.
- Secondary breasts : may become prominent both in size and in coloration these occur along the nipple line . hypertrophy of auxiliary breast tissue often causes a symptomatic lump in the axilla.[4]

- Quacking:

The first perception of fetal movement occurs at (18-20) weeks in prime gravid and at (14-16) weeks in multigravida . intestinal peristalsis may be mistaken for fetal movement, therefore, perceived fetal movement alone is not reliable symptom of pregnancy although it may be useful in determining the duration of pregnancy .[2]

Signs:

- **Increased basal body temperature:** persistent elevation of basal body temperatures over (3) weeks period usually indicates pregnancy if temperatures have been carefully charted .

- Skin :

- Chloasma:

Chloasma or the mask of pregnancy is darkening of the skin over the forehead bridge of the nose or cheek bones and is most marked in those with

dark complexions . it usually occurs after (16) weeks gestation and intensified by exposure to sunlight .

– **Linea nigra :**

Linea nigra is darkening of the upper and lower midline of the abdomen from the umbilicus to the pubis (dark of the linea alba) the basis of these changes is stimulation of the melanophores by an increase in melanocyte. stimulation hormone .

– **Stretch marks :**

Stretch marks or striae of the breast and abdomen are caused by separation of the underlying collagen tissue and appear as irregular scars this is probably an Androgenic cortices erode response these marks generally appear later in pregnancy when the skin is under greater tension.[4]

– **Spider Telangiectases:**

Are common skin lesions that result from high levels of circulating estrogen . these vascular satellite marks blanch . when compressed .

Palmar erythema is often an associated sign . both of these signs are also seen in patients with liver failure .

2.4 Positive manifestations (Pregnant Test):

– **Fetal heart tones (FHTS):**

It is possible to detect FHT by hand held Doppler as early as (10) weeks gestation. The normal fetal heart rate is (120-160) beats per minute . it may be detected by fetoscope by (18-20) week gestation , although this device is nearly used at present.[2]

– **Ultrasound examination of fetus :**

Sonography is one of the most useful technical aids in diagnosing and monitoring pregnancy , cardiac activity is discernible at (5-6) weeks limb buds at (7-8) weeks and finger and limb movement at (9-10) weeks at the end of the embryonic period (10 week by LMP) the embryo has a human appearance. fetal wellbeing can be monitored by ultrasound as the pregnancy progresses.[2]

Pregnancy Tests :

Early pregnancy tests measure changes in levels of HCG. There is less cross reaction with luteinizing human follicle stimulating hormone and thyrotropin :

- Urine pregnancy test .
- Home pregnancy test .
- Serum pregnancy test .

2.5 Physical and psychological changes during pregnancy

- Musculo – skeletal system :

- Increased mobility of pelvic joints due to softening of the joints and ligaments caused by progesterone and relax .
- Progressive lordosis to compensate for anterior position of the enlarged uterus. [3]

- Endocrine system:

- Pituitary gland:

- Anterior pituitary enlarges due to increase in prolactin secreting cells (lactotrophs) .
- Prolactin level increases up to (150)mg/ml at term .

- Thyroid gland :

- Is diffuse slight enlargement of the gland .
- Gland activity increases.

- Parathyroid gland :

- Increase in size and activity to regulate the increased calcium metabolism.

- Adrenal glands :

- Hypertrophy particularly the cortex resulting increased mineral corticoids and glucocorticoids.

- Metabolic changes :

- **Weight gain :** is (10-12) kg .

Six kg of the ever 11 kg weight again is composed of maternal tissues and 5 kg of fetus . placenta and amniotic fluid .

– **Protein metabolism :**

Is tendency to nitrogen retention for fetal and maternal tissues formation .

– **Carbohydrate:**

Pregnancy is potentially diabetogenic , alimentary glucosuria many occur in early pregnancy .[3]

– **Fat :**

Is increase in plasma lipids with tendency to acidosis .

– **Mineral :**

Is increased demand for iron , calcium , phosphate and magnesium .

– **The Genital System :**

- The arteries: enlarged due to increased vascularity and oedema .
- Fallopian tubes : musculature hypertrophies and the epithelium becomes flattened .
- Uterus :
 - Size increases from (7.5 x 5 x 2.5 cm) normal (35 x 25 x 20 cm)
 - Weight : Size increases from (50 gm) normal (1000gm) .
 - Capacity : Size increases from (4ml) normal (4000 ml) .
 - Shape : becomes globular by the (8th) weeks.
 - Position: with ascent from the pelvis .
 - The cervix : becomes hypertrophied soft and bluish in colour .
 - The vagina : soft warm moist with increased secretion and violet in color .
 - The vulva : soft , violet in color.[4]

Maternal physiology during pregnancy :

Pregnancy involves a number changes in anatomy , physiology and biochemistry a basic knowledge of these adaptations is critical for understanding normal laboratory measurements knowing the drugs likely to require and

recognizing women who are predisposed to medical complications during pregnancy .

– **Cardiovascular system :**

Over all the heart size increases by about (12%) which results from both an increase in myocardial mass and intra cardiac volume .

– **Blood volume :**

Expansion begins early in the first trimester increases rapidly in the second trimester and plateaus at about the (30th) week.

– **Cardiac output :-**

Increases approximately (40%) during pregnancy result from the hormonal changes of pregnancy .

– **Blood pressure :**

Systolic and diastolic pressure increase to pre pregnancy levels about (36) weeks

Pulmonary system :-

Lung volume and capacities : several lung volumes and capacities are attended by pregnancy related to relaxation of the musculature of conducting air ways .

– **Respiration :**

Little effect on respiratory rate results from total oxygen consumption in muscle tissues .

– **Renal system :**

During pregnancy the length of the kidneys increases by (1-1.5)cm .[1]

– **Respiratory system :-**

Dyspnea may occur due to : increased sensitivity of the respiratory center to CO₂ possibly due to high progesterone level .

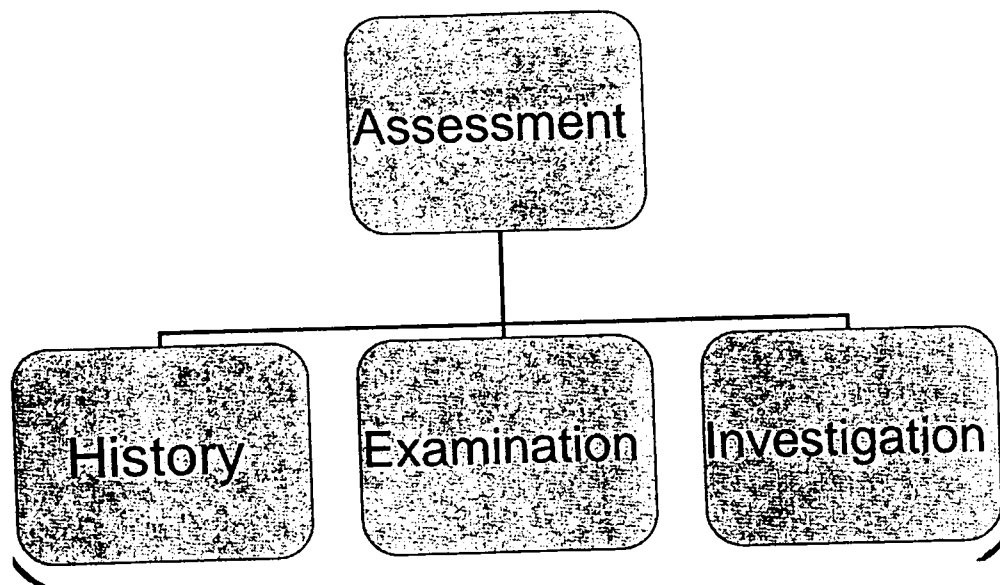
Elevation of the diaphragm by the pregnant uterus . [2]

– **Gastro intestinal tract :-**

– **Gingivitis :** increased vascularity and tendency for bleeding as well as hypertrophy of the inter dental papilla .

- Ptyalism : excessive salivation .
- Nausea and vomiting : nausea a margining sickness occur in early months.
- Appetite changes : dis liked same food and order .
- Indigestion and flatulence : due to :
decreased gastric mot motility.
- Heart burn : due to:
reflux of acidic gastric contents to esophagus .
- Constipation : due to :
 - Reduced motility of large intestine .
 - Sedentary life during pregnancy .
- Hemorrhoids : due to :
 - Mechanical pressure on the pelvic veins .
 - Laxity of the veins walls by progesterone . [2]
- **Urinary system :**
 - Kidney : renal blood flow and glomerular filtration rate increases by (50%) .
 - Ureters : dilation of ureters and renal pelvis due .
 - Relaxation of the ureters by the effect of progesterone .
 - Pressure against the pelvic brim by the uterus .
 - Bladder :
 - Frequency of maturation due to :
 - Pressure on the bladder by the enlarged uterus .
 - Congestion of the bladder mucosa .
 - Urinary stress incontinence .[1]

2.6 Assessment of Antenatal care:



Past medical history :

The past medical and current medical , surgical and psychiatric history of a woman may play a major part in the success or failure or continuation of the pregnancy . certain connection the pathology or treatment may adversely affects the fetus in a number of ways , the pregnancy and medical condition medication taken by the mother may have potential traction effects on the fetus (e.g. anticonvulsive drugs for the treatment of epilepsy) the woman must have coordinated and collaborated care with the mid wife . specialist medical physicians and the obstetrician. [2]

Past obstetric and gynecological history :

The age varies at either end of the reproductive ages have been linked with increased risk of pregnancy complicating such as hypertension. risk of chromosomal disorders (Down Syndrome) previous obstetric complication such as need for cesarean section to mother mode of delivery , the mother has a history of recurrent miscarriages and preterm labor and other associated problems . [2]

- Family history and social :

Are also determinates in how the pregnancy may be affected. Reece group may raise risk for sickle cell or thalassemia that may affect the baby .

Poor socioeconomic status of the mother may be a predisposing factor for a poorer obstetric outcome to poor dietary and nutritional health more modern day.[3]

- Physical examination :

Assessment to respiratory and cardiovascular system and a full abdominal, pelvic and breast examination , coupled with the collection of the cervical smear sample was strongly criticized as associated with possible spontaneous miscarriages after event NICE have recommended minimal intervention for low risk mother and that high risk mother , should have individualized specialist need care examination and assessment to mother and fetus . [2]

- Fatal anomalies :

Structural anomalies women frequency . should be offered ultra sound scan between (18 and 20) weeks gestation to detect any possible fatal defect.

- Screening for down , syndrome .

- Infection :

A symptomatic bactericidal – routine urinalysis of midstream urine – and early identification and treatment of symptoms bactericidal may prevent labor.

- Chlamydia trachomatis there is age-related movement to screen for this disease as it is asymptomatic in many individuals and can cause infertility in the women and optimal never damage to the fetus and mother .

- Hepatitis B virus should be routinely screened for as early postnatal interventions can reduce to risk for fetus transmission .

- HIV and immunodeficiency virus screening as only pregnancy as antenatal