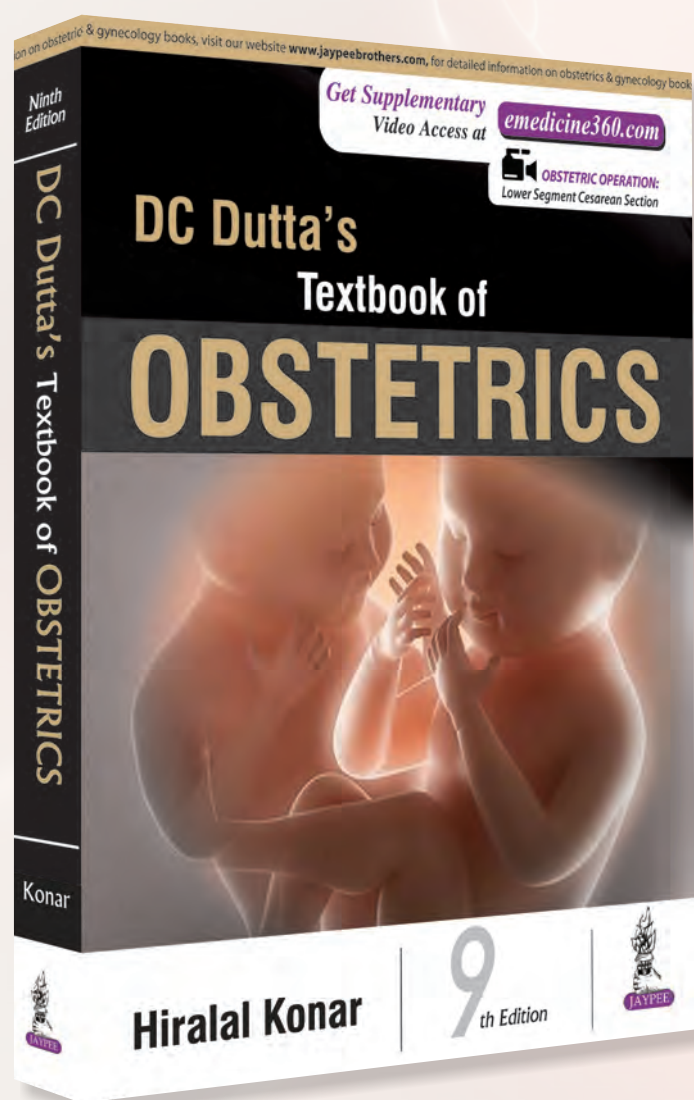


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**OBSTETRIC OPERATION:
LOWER SEGMENT CESAREAN SECTION**

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• Fully colored, profusely illustrated

• **700** LINE DRAWING, SKETCHES & PHOTOGRAPHS

• **EMINENT STALWARTS** HAVE CONTRIBUTED IN THE BOOK



The Health Sciences Publisher

SALIENT FEATURES

- The book provides cutting-edge information to enable the candidates to qualify the examinations in India; and their equivalents, internationally.
- Thoroughly revised and updated edition.
- Chapter 42 amounts to be a '**mini textbook-cum-color atlas**' in obstetrics which includes:
 - ▲ 55 high-quality photographs of instruments, specimens and sonograms.
 - ▲ MR images and drugs, are of immense value, specifically for the practical part of the examinations.
- List of **most frequently used abbreviations** have been provided for easy reference.
- Inclusion of **summary tables, algorithms, boxes, flowcharts and key points** in each chapter is an attraction for quick revision in examinations.
- Contemporaneous guidelines from different professional and academic organizations, such as RCOG, ACOG, WHO and many more.
- Includes management options based on experience, have been mentioned in the text to face difficult situations where no evidence exist.

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 42. Practical Obstetrics
- Index*



CHAPTER OUTLINE

- External Genitalia
 - ▶ Mons Veneris
 - ▶ Labia Majora
 - ▶ Labia Minora
 - ▶ Clitoris
 - ▶ Vestibule
 - ▶ Perineum
- Internal Genitalia
 - ▶ Vagina
 - ▶ Uterus
 - ▶ Fallopian Tube
 - ▶ Ovary
 - Muscles and Fascia in Relation to the Pelvic Organs
- ▶ Pelvic Floor
 - ▶ Perineum
 - ▶ Pelvic Fascia
 - Pelvic Cellular Tissue
 - Female Urethra
 - Urinary Bladder
 - Pelvic Ureter
 - Breasts

EVERY CHAPTER BEGINS WITH **CHAPTER OUTLINE** WHICH GIVES AN INSIGHT OF THE TOPICS TO BE COVERED IN THE CHAPTER

The reproductive organs in female are those which are concerned with copulation, fertilization, growth and development of the fetus and its subsequent exit to the outer world. The organs are broadly divided into:

- External genitalia
- Internal genitalia
- Accessory reproductive organs

EXTERNAL GENITALIA (Synonyms: Vulva, Pudendum)

The vulva or pudendum includes all the visible external genital organs in the perineum. Vulva consists of the

following: the mons pubis, labia majora, labia minora, hymen, clitoris, vestibule, urethra and Skene's glands, Bartholin's glands and vestibular bulbs (Fig. 1.1). It is therefore bounded anteriorly by mons pubis, posteriorly by the rectum, laterally by the genitocrural fold. The vulvar area is covered by keratinized stratified squamous epithelium.

MONS VENERIS (MONS PUBIS)

It is the pad of subcutaneous adipose connective tissue lying in front of the pubis and in the adult female is covered by hair. The hair pattern (escutcheon) of most women is triangular with the base directed upwards.

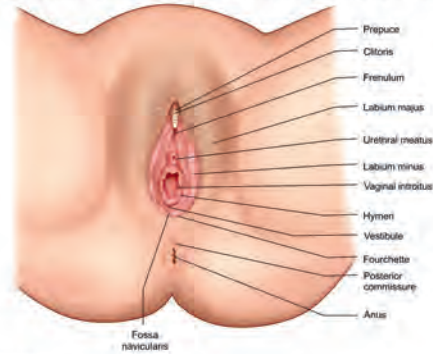


Fig. 1.1: The virginal vulva

KEY POINTS AT THE END OF EACH CHAPTER PROVIDE DEFINITION OF KEY TERMS FOR EASY RETENTION

KEY POINTS

- ▶ Labor involves a series of changes in the genital organs associated with regular painful uterine contractions with effacement and dilatation of the cervix. **Delivery** is not synonymous with labor as it can take place without labor. Normal labor should fulfill some defined criteria (see p. 108).
- ▶ **Onset of labor** is difficult to understand (see p. 108). Role of estrogen, progesterone, prostaglandins, oxytocin, and the fetus have been explained (see p. 108).
- ▶ **Active phase of labor** begins when the cervix is 4 cm dilated. Management of latent phase (observation) and active phase of labor are different.
- ▶ **Labor events** are conventionally divided into two phases (latent phase and active phase) and three stages (see p. 110).
- ▶ **Main events in the first stage of labor** are: (a) **dilatation** and (b) **effacement** of the cervix (see p. 114). **Second stage** events are: (a) **descent** and (b) **delivery** of the fetus. **Second stage** is characterized by two phases: (a) **propulsive** and (b) **expulsive** (bear down) to deliver the fetus (see p. 115). **Third stage events** are **separation of placenta and expulsion of placenta** (see p. 115).
- ▶ **Lower uterine segment** is formed mainly during the first stage of labor. Clinical importance of lower uterine segment is very much (see p. 114).
- ▶ **Mechanism of normal labor** involves a series of movements on the head in the process of adaptation during its passage through the pelvis (see p. 117).
- ▶ **The principal movements are:** Engagement → Descent with increasing flexion of the head → Internal rotation → Crowning → Delivery of the head by extension → Restitution → External rotation → Delivery of the shoulders (anterior first followed by the posterior) → Delivery of the trunk by lateral flexion. **Descent and increasing flexion of the head are the continued process throughout the course of labor** (see p. 118).

Contd...

Contd...

The stage is clinically manifested by progressive uterine contraction, dilatation and 'effacement' of the cervix and ultimate rupture of the membranes. **Maternal and fetal conditions** remain unaffected during active contractions. **Management** consists of (1) Noninterference with normal respiratory, (2) Women to give encouragement, emotional support and adequate pain relief during the entire course of labor, (3) To monitor carefully the progress of labor, maternal condition and fetal behavior as to detect any deviation from the normal, (4) Partograph is maintained (see p. 102).

SECOND STAGE OF LABOR

The second stage of labor starts from full dilatation of the cervix and ends with expulsion of the fetus. Its average duration is 2 hours in primiparous and 30 minutes in multiparous. The stage concerns with the descent and delivery of the fetus through the birth canal. This stage is clinically manifested by increased frequency and intensity of uterine contractions with appearance of bearing-down efforts which result in expulsion of the fetus. The mother may show features of exhaustion. The principles in management are: (1) To assist in the normal expulsion of the fetus slowly and steadily, (2) To prevent perineal injuries. During **conduction of delivery**, head is delivered slowly in between contractions. Flexion is maintained so that smaller diameter of the head overcomes the perineum. Slow, timely performed episiotomy (selective), prevents perineal laceration. Shoulders are delivered slowly with axis contraction. **Immediate care of the newborn** includes clearing of the air passage and eyes, clamping and ligating of the umbilical cord and Apgar scoring.

THIRD STAGE OF LABOR

The third stage begins after the expulsion of the fetus and ends with expulsion of the placenta and membranes. Its average duration is 15 minutes. The stage concerns with placental separation and its expulsion. The separation is achieved by marked retraction in the uterine surface area of the placental site following delivery due to retraction. The placenta being inverted, shows off its attachment through the deep spongy decidua layer. There are **two ways of separation**—central (Schultz) and marginal (Matthew Duncan). The bleeding is controlled by effective symmetrical contraction and retraction (Dewing ligament) and by diathermy. The **expulsion may occur** through 'bearing down' efforts or more commonly with assistance. The management is either by employing manual separation or by active management (WMO) in cases where oxytocin (10 units IV slowly) or IM/rectal morphine 0.2 mg IV is administered within 1 minute following the delivery of the baby.

Tablet misoprostol 600 µg can be given orally or rectally in cases with home delivery. It can be given by a community health worker. Placenta is delivered by OCT soon following delivery of the baby. Effective massage may be given to make it hard. The placenta and the membranes should be examined following their expulsion.

FOURTH STAGE OF LABOR

It is the stage of observation for at least 1 hour after the delivery of the baby, placenta and the membranes to ensure that both the mother and the baby are well.

POINTS

- ▶ Labor involves a series of changes in the genital organs associated with regular painful uterine contractions with effacement and dilatation of the cervix. **Delivery** is not synonymous with labor as it can take place without labor. Normal labor should fulfill some defined criteria (see p. 108).
- ▶ **Onset of labor** is difficult to understand (see p. 108). Role of estrogen, progesterone, prostaglandins, oxytocin, and the fetus have been explained (see p. 108).
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SUMMARY

CHAPTERS CONTAIN
SUMMARY BOXES
 WHERE-EVER NECESSARY
 FOR EASY
RECAPITULATION

FIRST STAGE OF LABOR

First stage of labor starts from the onset of true labor pain and **ends with** full dilatation of the cervix. Its **average duration** is about 12 hours in primigravidae and 6 hours in multiparae. **First stage consists of latent phase** (up to 4 cm of cervical dilatation) and **active phase** (up to 10 cm). The stage is chiefly concerned with dilatation and effacement of the cervix.

The stage is clinically manifested by progressive uterine contraction, dilatation and 'effacement' of the cervix and ultimate rupture of the membranes. **Maternal and fetal conditions** remain unaffected except during uterine contraction. **Management consists of:** (1) Noninterference with watchful expectancy, (2) Women is given **encouragement, emotional support and adequate pain relief** during the entire course of labor, (3) To monitor carefully the progress of labor, maternal condition and fetal behavior so as to detect any deviation from the normal. (4) **Partograph is maintained** (see p. 492).

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The second stage of labor starts from full dilatation of the cervix and **ends with** expulsion of the fetus. Its **average duration** is 2 hours in primigravidae and 30 minutes in multiparae. **The stage concerns** with the descent and delivery of the fetus through the birth canal. **This stage is clinically manifested** by increased frequency and intensity of uterine contractions with appearance of 'bearing-down' efforts which result in expulsion of the fetus. The mother may show features of exhaustion. **The principles in management are:** (1) To assist in the natural expulsion of the fetus slowly and steadily. (2) To prevent perineal injuries. **During conduction of delivery**, head is delivered slowly in between contractions. Flexion is maintained so that smaller diameter of the head stretches the perineum. Thus, timely performed episiotomy (selective), prevents perineal laceration. Shoulders are delivered slowly with next contraction. **Immediate care of the newborn** includes clearing of the air passage and eyes, clamping and ligaturing of the umbilical cord and Apgar scoring.

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Tablet misoprostal 600 µg can be given orally or rectally in cases with home delivery. It can be given by a community health worker. Placenta is delivered by CCT soon following delivery of the baby. **Uterine massage** may be given to make it hard. The placenta and the membranes should be examined following their expulsion.

FOURTH STAGE OF LABOR

It is the stage of observation for at least 1 hour after the delivery of the baby, placenta and the membranes to ensure that both the mother and the baby are well.

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(iii) Respiratory rate >24/min, or (iv) PaCO₂ <32 mm Hg, or (v) WBC >12000/µl or leukopenia: <4000/µl or more than 10% immature forms.

CHANGES IN ENDOTOXIC SHOCK

Endotoxic shock usually follows infection with Gram-negative organisms (70-80%). The most common organism involved is *Escherichia coli* (50%). Other organisms occasionally responsible for endotoxic shock are: *Pseudomonas aeruginosa*, *Klebsiella*, *Proteus*, *Bacteroides* and *Aerobacter aerogenes*. Gram-positive organisms (*Staphylococcus*, *Streptococcus*, *anaerobes* (*Bacteroides fragilis*), *Clostridium* group are less common (20%).

Pathophysiology of endotoxic shock has been discussed before (Flowchart 29.2). Bacterial endotoxin causes selective vasospasm at the postcapillary end. Blood is pooled in the capillary bed. There is inhibition of myocardial function and cellular damage through complex biochemical changes (vide supra).

The patient in early septic shock feels warm due to vasodilatation. This is called **warm shock**. In the late phase, the patient feels cold due to vasoconstriction (sympathetic efferents). This is called **cold shock or late shock**. Patient's skin becomes cold, clammy and ashen grey.

The various biochemical and pathological changes observed in endotoxic shock are: (i) Diffuse intravascular coagulation, (ii) Increased capillary permeability, (iii) Metabolic acidosis, (iv) Release of superoxide (O₂) and hydroxyl (OH) radicals, (v) Failure of sodium pump operation, (vi) Water and electrolyte imbalance, (vii) Excessive and uncontrolled systemic inflammatory response (SIRS) can lead to organ changes. Organ changes depend on the degree of hypoperfusion and extent of the underlying pathology (a) **Kidney** (acute and massive cortical necrosis leading to oliguria, anuria and azotemia. Persistent hypotension leads to acute tubular necrosis and ultimately renal failure.) (b) **Liver**: Hepatosplenic necrosis and degeneration ultimately leading to hepatic failure. (c) **GI tract**: Hypoxic mucosal injury increases systemic sepsis by translocation of intraluminal microbes. Congestion, hemorrhage and ulceration are responsible for hematemesis. (d) **Lungs**: Congestion or anoxia leads to tachypnea or dyspnea, progressive hypoxemia and reduced pulmonary compliance. ARDS results from increased capillary permeability and thickening of the alveolar capillary membranes. Arterial PaO₂ is low (<65 mm Hg). Mechanical ventilation is needed. (e) **Coagulationopathy (DIC)**: It is due to diffuse endothelial injury, microvascular thrombosis and thrombocytopenia. (f) **Adrenal insufficiency** is due to critical illness-related corticosteroid insufficiency (CRIC). CRIC causes hypotension which is refractory to fluid replacement. Vasopressor therapy is needed. (g) **Heart**: Cardiac output decreases depending on the degree of hypotension, hypoperfusion and vasoconstriction. Myocardial ischemia, cardiac dysfunction, dysrhythmias, cardiac failure, left ventricular end diastolic pressure (LVEDP) > pulmonary edema & tissue hypoxia. (h) **Ultimately, multiple organ failure develops**. Endotoxins have got special affinity for kidneys and lungs for reasons which are not very clear.

CLASSIFICATION OF SHOCK

Based on our understanding of the basic pathophysiology of shock and its clinical correlates, shock may be classified as follows (Box 39.4):

CLINICAL FEATURES OF SHOCK: Clinical features of shock depend on the basic etiological factors and, consequently, the sequence of pathological changes.

Box 39.4: Classification of Shock

- Hypovolemic shock**: Circulating blood volume is inadequate resulting from acute depletion. It may be (i) **hemorrhagic** or (ii) **nonhemorrhagic**.
 - Hemorrhagic shock**: Associated with postpartum or postabortal hemorrhage, ectopic pregnancy, placenta previa, abruptio placentae, rupture of the uterus and obstetric surgery.
 - Shock associated with disseminated intravascular coagulation, intrauterine dead fetus syndrome and amniotic fluid embolism (Table 39.1).
 - Nonhemorrhagic shock**:
 - Fluid loss shock: Associated with excessive vomiting, diarrhea, diuresis or too rapid removal of amniotic fluid.
 - Supine hypotensive syndrome: Due to compression of inferior vena cava by the pregnant uterus (see p. 49).
 - Septic shock (endotoxic shock)**: Hypotension (systolic BP <90 mm Hg) is due to sepsis resulting in derangements in cellular and organ system dysfunction. Hypotension persists in spite of adequate fluid resuscitation. Associated typically with septic abortion, chorioamnionitis, acute pyelonephritis, and rarely postpartum endometritis.
 - Cardiogenic shock**:
 - Myocardial infarction
 - Cardiac arrest (asystole or ventricular fibrillation)
 - Cardiac tamponade
- Characterized by** \dot{e} systolic pressure (<80 mm Hg), \dot{e} cardiac index (<1.8 L/min/m²) and \dot{e} left ventricular filling pressure (>18 mm Hg)

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BOXES provide information in crisp format about
 THE TOPIC OR PROCEDURE COVERED

BD ODON DEVICE

This edition INCORPORATES **BD (Becton Dickinson) Odon Device** which is an **INNOVATIVE INSTRUMENT FOR OPERATIVE VAGINAL DELIVERY INTRODUCED BY WHO, USED DURING PROLONGED SECOND STAGE LABOR**

The **BD (Becton Dickinson) Odon Device** is an innovative instrument for operative vaginal delivery. It is designed to prevent maternal, fetal and newborn complications while delivering a woman with complicated or prolonged second stage of labor.

The device could be reliably used in cases with occiput anterior (OA), occiput posterior (OP) or occiput transverse (OT) positions. When compared with forceps, it exerts less force on the fetal head and when compared to vacuum, it creates less negative pressure. As a result, the complications of forceps delivery (bruising, facial nerve injury, skull fracture, intracranial hemorrhage) and that of vacuum delivery (sub-galeal or retinal hemorrhage and cephalhematoma, scalp abrasion/avulsion) are less. It does not cause much perineal distension, compared to Kiwi ventouse. So perineal (sphincter) injury is not any higher compared to that of forceps and ventouse. It has been observed that BD Odon Device is likely to be as safe as forceps and ventouse.

The device and the method: The Odon device consists of an inflatable circular air cuff attached to a thin circumferential polyethylene sleeve. A semirigid plastic applicator is used to place the air cuff and the sleeve into the birth passage (Fig. 37.23). It is placed beyond the widest diameter of the fetal head. The cuff is inflated around the fetal head and the applicator is removed. The range of cuff inflation pressure generated by the BD Odon Device is 40 to 80 kPa which is less compared with forceps. The BD Odon device is sited around the fetal head within 15 mm of the level of C7 vertebra posteriorly. Anteriorly, it is placed between 37 mm and 46 mm above the chin. This is the same level as that of forceps application.

During application, four bony reference points on the fetal head are considered: (a) anteriorly: chin, (b) laterally: right angle of the mandible and left angle of the mandible, (c) posteriorly: C7 vertebra. The inflated

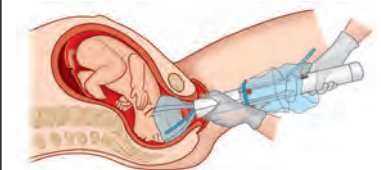


Fig. 37.23: Odon device used in the second stage of labor. The cuff is inflated around the fetal head. (Source: www.who.int/en/)



Highlights of CHAPTER 42: PRACTICAL OBSTETRICS 'A MINI TEXTBOOK CUM COLOR ATLAS' in OBSTETRICS

Obstetric Instruments

Chapter 42 • Practical Obstetrics 623

Fig. 42.34 GIANT VULSELLUM
It is used in destructive operation, especially in eversion to have a good grip of the fetal parts for giving traction.



Self-assessment: (i) Indications of use. (ii) What is meant by neglected shoulder presentation? (see p. 371). (iii) Mention the postoperative care following any destructive operation (p. 545).

Fig. 42.35 TROLLEY WITH INSTRUMENTS PREPARED FOR CESAREAN SECTION OPERATION
Instruments are (from left to right and top to bottom):

(1) Mops (large swabs)	(10) Obstetric Forceps (Wrigleys)	(18) Artery forceps (short variety)
(2) Electrodiathermy set	(11) Doyers retractor	(19) Dissecting forceps (toothed and non-toothed)
(3) Suction tube with cannula	(12) Kochers clamps	(20) Scissors (straight and curved variety)
(4) Baby suction canister	(13) Long artery forceps	(21) Knives (two)
(5) Towel clips	(14) Allis tissue forceps (long variety)	(22) Bowl with povidone-iodine lotion
(6) Kidney dish	(15) Green-Armytage forceps	(23) Sponge-holding forceps (two)
(7) Gauze pieces	(16) Littlewoods forceps	(24) Suture packs.
(8) Lanes tissue forceps	(17) Allis tissue forceps (short variety)	
(9) Needle holders		
(10) Empty bowl		



Processing of Instruments

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PROCESSING OF INSTRUMENTS

A. Disinfection: is done by any one of the methods. Instruments are (i) boiled in water for 20 minutes, (ii) 2% glutaraldehyde (GDA) solution for 20 minutes, or (iii) 0.5% chlorine solution for 20 minutes (0.5% of dilute solution made by adding 500 mg of 10% of bleaching powder in one litre of water).

B. Cleaning: Instruments are disassembled and washed with all surfaces in running (profusely) water; the cannula should be flushed repeatedly.


C. Sterilisation: (i) by (i) autoclaving at 121°C (250°F) under pressure of 15 lbs/psi (104 kPa) for 30 minutes or (ii) immersing in 2% glutaraldehyde (GDA) solution for 10 hours.

Fig. 42.36 SHIP DOPPLER ULTRASOUND FETAL MONITOR—(A) DEVICE AND (B) IN USE
Self-assessment: (i) Explain what wave (R) could be detected with a Doppler? (p. 493). (ii) What are the other waves which could be seen when a CTE is abnormal? (see p. 392). (iii) What is meant by non-reassuring fetal status (NRS)? (p. 397). (iv) CTG (p. 368). (v) Ultrasound for cardiac monitor (p. 443). (vi) What are the advantages of EFM over the CTG? (see p. 398). (vii) What are the causes of fetal bradycardia? (p. 367). (viii) What are the characteristics of an abnormal CTG? (p. 392). (ix) What other tests could be done when a CTE is abnormal? (see p. 392). (x) What is meant by non-reassuring fetal status (NRS)? (p. 397). (xi) What are the advantages of EFM over the CTG? (see p. 398).



DRUGS

Fig. 42.37 OXYTOCIN, OXYTOXIN, METHERGINE, MIDPROSTOL (PGE₂), CARBOPROST (PGI₂), AND PROSTIN (PGE₁)
Self-assessment: (i) What are oxytocin? Ans. p. 464, 465. (ii) Indications of use (p. 464). (iii) Contraindications of use (p. 465, 466, 467, 468). (iv) How the different oxytocins differ in the action? Ans. p. 466, 467. (v) What are the merits and demerits of oxytocin and prostaglandins when used for medical induction of labour? Ans. p. 467.



Drugs

Imaging Studies

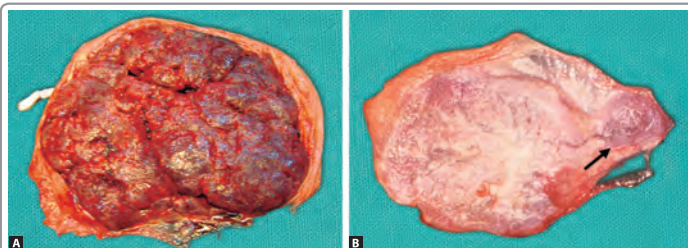
SPECIMENS

Figs 42.39A and B NORMAL PLACENTA AND PLACENTA SUCCENTURIATA

Photographs showing maternal surface of a normal placenta (Fig. 42.39A) and the fetal surface of a placenta succenturiata. Fig. 42.39B: Maternal surface looks rough and shaggy. It shows 1520 convex polygonal areas as lobes or cotyledons bounded by fissures. Membranes are seen at the margin. Fig. 42.39B shows the fetal surface of a placenta succenturiata. The fetal surface looks smooth and shiny as it is covered by amnion layer. The umbilical

cord is attached at/or near the center. There is one small lobe (size of a cotyledon) situated at a distance from the main placental margin. It has vascular communication (arrow mark). It is a placenta with a succenturiate lobe.

Self-assessment: (i) What are the surfaces of a normal placenta and how could they be identified? (see p. 26). (ii) What is the weight of a normal placenta? (iii) What is the normal attachment of a placenta? (see p. 26). (iv) Clinical significance of placenta succenturiata: Ans. p. 204. (v) What other abnormalities of placenta are commonly seen? Ans. p. 204.



Figs 42.39A and B: A. Normal placenta; B. Placenta succenturiata

Specimens

Fig. 42.49 ULTRASONOGRAM: PLACENTA PREVIA

It is an ultrasonogram showing placenta previa where the placenta is seen implanted over the anterior wall of the lower segment approaching the internal os.

Self-assessment:

- What are the common causes of antepartum hemorrhage? Ans. p. 228
- What are the types of placenta previa? Ans. p. 229
- How do you differentiate a case of placenta previa from abruptio placentae? Ans. p. 232
- What are the complications of placenta previa? Ans. p. 232
- How do you manage a case of placenta previa? Ans. p. 233, 236



Fig. 42.50: MRI PLATES: FETAL MRI EXAMINATION FOR ANOMALY (OMPHALOCHELE)

Coronal (T2) image of a fetus with herniation of liver covered with peritoneum, in the amniotic cavity is seen. Fetal brain, foot (L), placenta, attachments of the umbilical cord over the placenta and the herniated mass are seen (omphalocele). Genetic amniocentesis was done. FISH for aneuploidy screen (chromosomes 13, 18, 21, X and Y) probes, on amniotic fluid was normal.

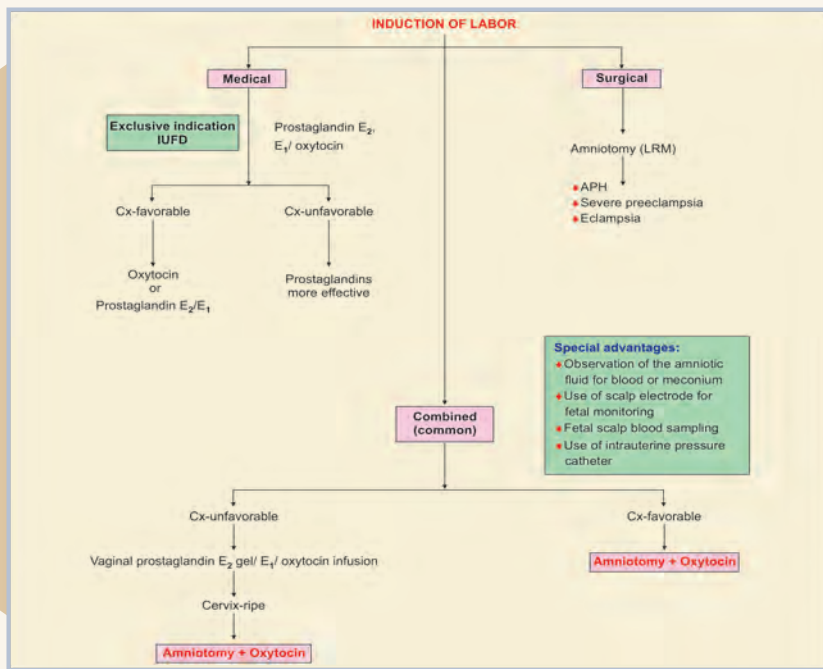
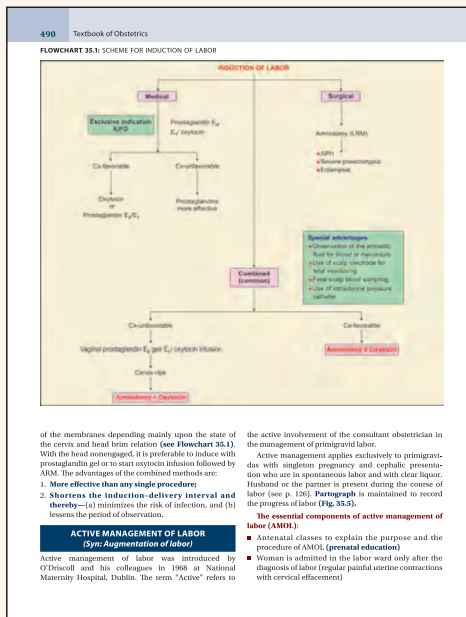
Levels L: Liver; P: Placenta; UC: Umbilical cord

Q. How fetal evaluation with MRI is helpful?
Ans: Thorough fetal anatomic survey could be done using fast acquisition MR protocols. This new technology can significantly reduce motion artifact. Volume acquisition, 3D processing and real time MRI for moving organs are the other special benefits.

Q. What is the place of MRI compared to sonography?
Ans: MRI is an adjunct to sonography. MRI is useful in evaluation of complex fetal abnormalities of all the organs. Images of MR are superior to USG, as it is not affected by maternal obesity, oligohydramnios or due to bony interfaces. Limitations of MRI are: (a) not portable and, (b) it is time-consuming (ACOR-2010).



FLOWCHART 2.1: SCHEME FOR INDUCTION OF LABOR



Abbreviations

- AC : Abdominal Circumference
- ACHOIS : Australian Carbohydrate Intolerance in Pregnancy Study
- ACA : Anti-cardiolipin Antibodies
- ACOG : American College of Obstetricians and Gynecologists
- ACOR : American College of Radiology
- ADA : American Diabetes Association
- AED : Antiepileptic Drug
- AFI : Amniotic Fluid Index
- AFP : Alpha-fetoprotein
- AFV : Amniotic Fluid Volume
- AGA : Average for Gestational Age
- AGS : Anti-gas Gangrene Serum
- ALT : Alanine Aminotransferase
- AMTSL : Active Management of Third Stage of Labor
- ANF : Atrial Natriuretic Factor
- APH : Antepartum Hemorrhage
- aPLs : Anti-phospholipid Antibodies
- APTT : Activated Partial Thromboplastin Time
- ARDS : Acute Respiratory Distress Syndrome
- AREDV : Absent or Reversed End-diastolic Velocity
- ARM : Artificial Rupture of Membranes
- ART : Assisted Reproductive Technology
- ASD : Atrial Septal Defect
- AST : Aspartate Aminotransferase
- ATP : Adenosine Triphosphate
- ATS : Anti-tetanus Serum
- AUA : Abnormal Uterine Action
- β₂GP-1 : β₂ Glycoprotein-1
- BMI : Body Mass Index
- BPD : Biparietal Diameter
- BPP : Biophysical Profile
- CBG : Corticosteroid-binding Globulin
- CCF : Congestive Cardiac Failure
- CDC : Centers for Disease Control
- cff-DNA : Cell-free fetal DNA
- CIN : Cervical Intraepithelial Neoplasia

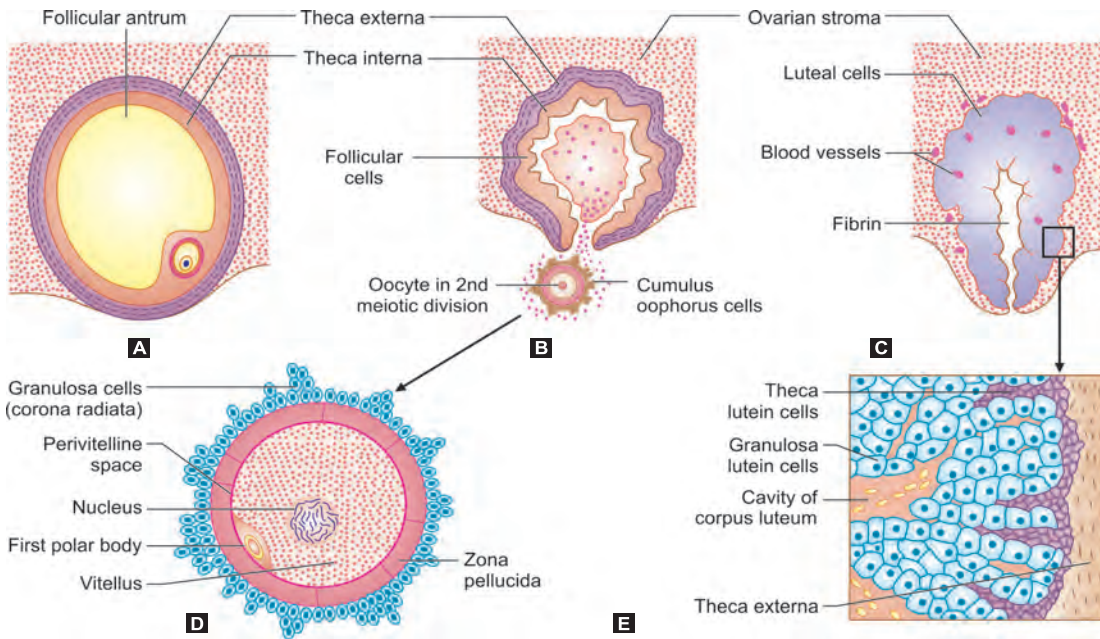
- CIRCI : Critical Illness-related Corticosteroid Insufficiency
- CMQCC : California Maternal Quality Care Collaboration
- CMV : Cytomegalovirus
- CO : Cardiac Output
- COCs : Combined Oral Contraceptives
- COX : Cyclo-oxygenase
- CP : Cerebral Palsy
- CPAP : Continuous Positive Airway Pressure
- CPD : Cephalopelvic Disproportion
- CPK : Creatinine Phosphokinase
- CPR : Cerebroplacental Ratio
- CPT : Complete Perineal Tear
- CRH : Corticotropin-releasing Hormone
- CRL : Crown-rump Length
- CRP : C-reactive Protein
- CRS : Congenital Rubella Syndrome
- CS : Cesarean Section
- CSE : Combined Spinal Epidural
- CST : Contraction Stress Test
- CT : Computed Tomography
- CTG : Cardiotocography
- CTPA : Computed Tomographic Pulmonary Angiography
- CUS : Cranial Ultrasonography
- CVP : Central Venous Pressure
- CVS : Chorionic Villus Sampling
- CVS : Congenital Verticella Syndrome
- CXR : Chest X-ray
- D&E : Dilatation and Evacuation
- D/D : Diamniotic-Dichorionic
- D/M : Diamniotic-Monochorionic
- DBP : Diastolic Blood Pressure
- DFMC : Daily Fetal Movement Counting
- DFMCR : Daily Fetal Movement Counting Rate
- DIC : Disseminated Intra-vascular Coagulopathy
- DIPSI : Diabetes in Pregnancy Societies of India
- DMPA : Depot Medroxyprogesterone Acetate
- DTA : Deep Transverse Arrest

FREQUENTLY USED ABBREVIATIONS HAVE BEEN PROVIDED FOR EASY REFERENCE

Abbreviations

- AC : Abdominal Circumference
- ACHOIS : Australian Carbohydrate Intolerance in Pregnancy Study
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Figs 2.1A to E: Schematic diagram showing: **A.** Mature Graafian follicle on the verge of ovulation; **B.** Ovulation with discharge of secondary oocyte surrounded by cumulus oophorus; **C.** Formation of corpus luteum; **D.** Secondary oocyte after first maturation division with formation of first polar body; **E.** Microscopic structure of corpus luteum

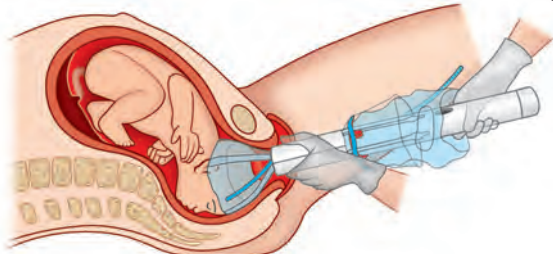


Fig. 37.23: Odon device used in the second stage of labor. The cuff is inflated around the fetal head. (Source: www.who.int/en/)

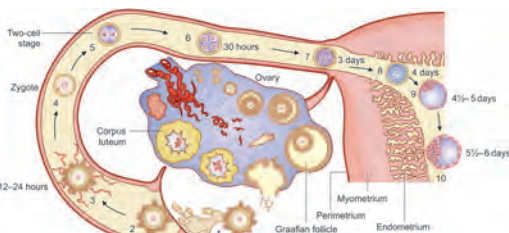


Fig. 2.6: Diagrammatic representation of the events of ovulation, fertilization and implantation: (1) Secondary oocyte extruded at ovulation (day 14 from LMP), (2) Secondary oocyte in tube, (3) Fertilization with extrusion of second polar body (days 14-16), (4) Formation of zygote, (5) Two-cell stage, (6) Four-cell stage, (7) Early morula (day 17), (8) Late morula (day 18), (9) Early blastocyst stage with disappearance of zona pellucida (days 19-20), and (10) Early phase of implantation (days 20-21)

FLOWCHART 3.1: THE SOURCE AND CIRCULATION OF AMNIOTIC FLUID

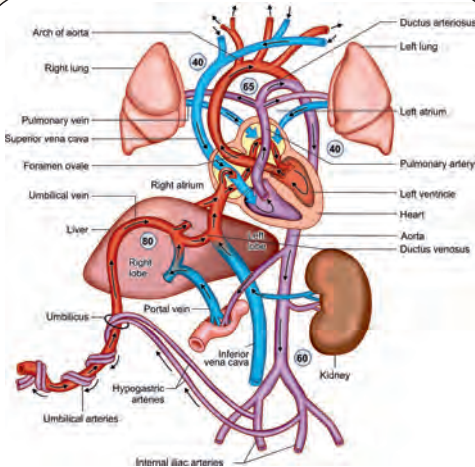
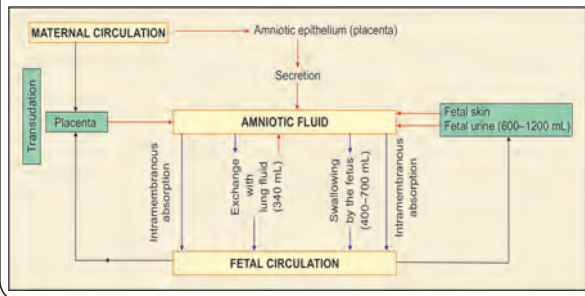


Fig. 4.1: Fetal circulation. Note: Numbers inside the circle indicate the percentage saturation of O₂

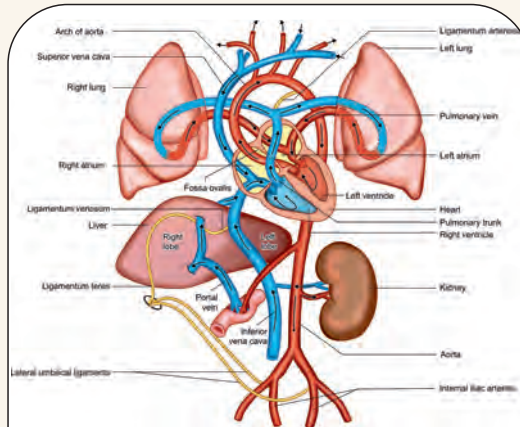


Fig. 4.2: Change in the fetal circulation after birth



INTERNATIONAL REVIEWS

It was a pleasure to meet you last month during your trip to Dublin to observe the MRCPI in Obstetrics and Gynecology. I hope that the visit was enjoyable and that you gained an insight into the OSCE and Clinical Examinations.

I was particularly grateful for your gift of your two textbooks on obstetrics & Gynecology. These are indeed formidable works and beautifully illustrated to complement the written text. I presume that they are aimed at undergraduates/early postgraduate students and as such seen eminently suitable. They go into more detail as regards abnormalities than our students at that stage would require but are probably very suitable for Indian readers.

You asked me for criticisms of the contents but I can reassure that they are comprehensive texts and I would not presume to amend them. I wish you well with the sale of the textbooks and of course hope to see you in the future.

Yours' Sincerely

Dr. Colm O'Herlihy, Professor of Obstetrics and Gynaecology, UCD School of Medicine & Medical Science, National Maternity Hospital, Dublin

This is a comprehensive textbook of obstetrics which includes Perinatology and Contraception. The text is aimed at students, trainees, practising doctors and midwives. It has a comprehensive beginning with basic sciences in Obstetrics, progressing to cover the entire gamut of Obstetrics with a welcome chapter on practical Obstetrics. This chapter outlines the various instruments used in the practice of Obstetrics and the photos and naming are to be commended. The text is superbly illustrated with diagrams, graphs, radiological images, sketches and photographs. It is targeted to students, doctors in training, practicing doctors and midwives.

I feel that as a primary textbook, it is perhaps too comprehensive for students (certainly students in Ireland) and midwives. As a text for doctors in training, it serves as a more advanced text to the standard student textbooks and as a very good summary reviews of obstetric practice. It is therefore of value as a reference text in the on call setting and as a very good summary review for the Membership exam in Obstetrics for the Royal College of Physicians of Ireland (MRCPI).

As a Postgraduate textbook, the lack of references limits its appeal. It is a pleasure to read and the illustrations and photographs are superb. The interactive DVD-ROM is great. Overall, this is a welcome addition to textbooks in Obstetrics and is to be recommended for the top students and for Doctors in training.

Dr. Michael P O'Connell, MB BCH BAO, MSc, MD, FRCPI, FRCOG, DCH, Consultant Obstetrician & Gynecologist, Coombe Women's and Infant's University, Hospital, Dublin

Every chapter of this text is easy to navigate and read with its standardized headings, subheadings, tables, boxes, flowcharts and key points. This is an excellent textbook, superbly written. It should be in each and every library and in the possession of all the medical students, midwives and practicing clinicians.

Sir Sabaratnam Arulkumaran, DSc PhD FRCOG FRCS, Professor Emeritus, St. George's University, London; Past President-FIGO, RCOG, BMA

NATIONAL REVIEWS

Always reminds me of my respected teacher Prof. DC Dutta and this book is an image of his mode of teaching. Further, it has been updated from time to time to uplift the knowledge of students.

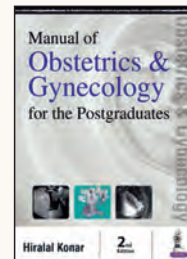
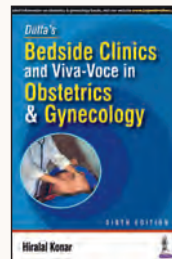
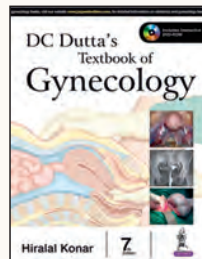
Dr. Partha Mukhopadhyay

Professor & Head
Gyne & Obs Medical College & Hospital, Kolkata

The presentation of Dutta's Obstetrics is simple, readable and easy to understand. The book has always been up-to-date with the progress of science. Guidelines of different international bodies are highlighted. It is an excellent educational resource to all the medical students, practicing obstetricians and the midwives.

The Journal of Obstetrics and Gynecology of India. August 2016; 66(4):303-4.

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